



SSN Removal From Medicare Card

Cost Analysis Summary

Centers for Medicare & Medicaid Services

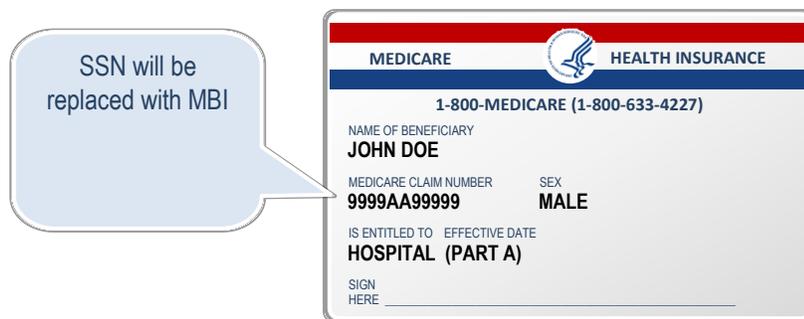
May 10, 2013

Executive Summary

On August 1, 2012, the House Ways and Means Committee tasked the Centers for Medicare & Medicaid Service (CMS) with reassessing the cost of removing the Social Security Number (SSN) from the Medicare card, utilizing Government Accountability Office (GAO) estimating guidelines. CMS was asked to evaluate implementation options that would cause the least impact on health care providers and beneficiaries while lowering the risk of identity theft. The purpose of this analysis is to respond to that tasking by providing assessments in the areas of costs, impacts, and risks for CMS, SSA, the States, and the RRB to comply with SSN Removal legislation.

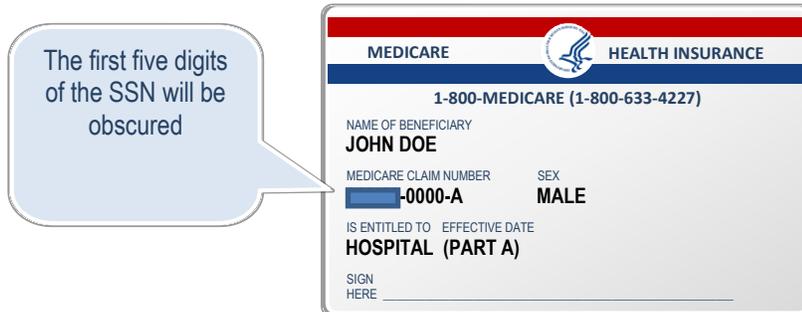
The SSN currently appears on the Medicare card as part of the Health Insurance Claim Number (HICN). The HICN is comprised of the SSN of the wage earner on whom Medicare eligibility was based, and a Beneficiary Identification Code (BIC) that identifies the relationship of the beneficiary to the wage earner (e.g., spouse). CMS estimated costs for two options:

Option 1: Medicare Beneficiary Identifier (MBI) option: This option creates a new Medicare number - Medicare Beneficiary Identifier - that would not be derived from the HICN in any way, and would replace the HICN on the Medicare card.



*Figure ES-1. Medicare Beneficiary Identifier (MBI) Option
Sample Medicare Card*

Option 2: Obscured Health Insurance Claim Number (HICN) option: This option obscures the first five digits of the HICN. The last four digits of the SSN will appear with the BIC on the Medicare card. This obscured HICN does not uniquely identify the individual and therefore requires additional verification processes.



*Figure ES-2. Obscured Health Insurance Claim Number (HICN)
Option Sample Medicare Card*

CMS developed a structured process for collecting, validating, analyzing, storing, and reporting data resulting from the analysis of the two options. CMS collected and analyzed the data following the Government Accountability Office’s (GAO) cost estimation guidance. Data was analyzed for 49 States, the District of Columbia, SSA, the Railroad Board (RRB), 113 CMS systems and associated sub-systems and 62 CMS business processes. CMS validated the data submitted and estimated the costs for each option. These costs range from \$255M to \$317M depending upon the option selected. Costs would be incurred over a two-year period. Table ES-1 shows the total estimated costs for each option.

Table ES-1. Estimated Costs for SSN Removal from Medicare Card

Option	Costs (FY14\$)
1. Medicare Beneficiary Identifier (MBI)	\$ 316,762,171
2. Obscured Health Insurance Claim Number (HICN)	\$ 254,978,936

The report details the methodology, assumptions and cost estimates. Implementation of either option to remove or obscure the SSN from the Medicare card should reduce the risk of identity theft.

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1. OVERVIEW

On August 1, 2012, the House Ways and Means Committee tasked the Centers for Medicare & Medicaid Service (CMS) with reassessing the cost of removing the Social Security Number (SSN) from the Medicare card, utilizing Government Accountability Office (GAO) estimating guidelines. CMS was asked to evaluate implementation options that would reduce the risk of identity theft while causing the least impact on health care providers and beneficiaries. The purpose of this analysis is to respond to that request.

The SSN currently appears on the Medicare card as part of the Health Insurance Claim Number (HICN). The HICN is comprised of the SSN of the wage earner on whom Medicare eligibility was based, and a Beneficiary Identification Code (BIC) that identifies the relationship of the beneficiary to the wage earner (e.g., spouse).

CMS developed two options for evaluation:

- **Option 1: Medicare Beneficiary Identifier (MBI):** This option creates a new Medicare number -- Medicare Beneficiary Identifier -- that would not be derived from the HICN in any way, and would replace the HICN on the Medicare card.
- **Option 2: Obscured Health Insurance Claim Number (HICN):** This option obscures the first five digits of the HICN. The last four digits of the SSN will appear with the BIC on the Medicare card. This obscured HICN does not uniquely identify the individual and therefore requires additional verification processes.

CMS requested data from internal business process and system owners to completely assess and document the cost impact of these options. Social Security Administration (SSA) and Railroad Retirement Board (RRB) systems and processes would also be affected by this change because Medicare's eligibility is tied to the earnings reported to those agencies. State Medicaid programs would also be affected because of coordination requirements for beneficiaries who may be eligible for both Medicare and Medicaid programs. We obtained cost estimates from SSA, RRB, and State Medicaid agencies to separately quantify these impacts. We also reached out to external private industry stakeholders such as providers, private health plans and clearinghouses to obtain qualitative feedback on the potential impact on their operations. These qualitative findings are discussed in Section 4 and Appendix 6. [The approach to cost estimating that we have adopted is yielding revised estimates than we had previously supplied.](#)

1.1 COST ESTIMATION METHODOLOGY

1.1.1 Baseline Cost Estimating Process

CMS formed the SSN Removal Working Group to guide the project. This group determined that the analysis would use data collected from various stakeholders (e.g., owners of CMS systems and business processes, State Medicaid programs) as the basis to estimate costs. To ensure data consistency, technical and business assumptions were developed and provided to the CMS staff points of contact (POC) responsible for all data related activities.

The workgroup developed a common set of assumptions for the options that all estimators would use in order to ensure consistency. Based on those assumptions, we developed workbooks (and training) that

allowed CMS system and business owners to provide cost data and other information in an accurate, consistent manner.

Two different types of workbooks were created for capturing cost estimates. The first workbook focused on capturing estimated IT systems costs, which collected labor hours across the systems life cycle phases as well as hardware, software and operations and maintenance costs to yield a total direct cost. The second workbook focused on collecting estimates for business processes that will have major costs associated with the change, such as mailing of the new Medicare cards, help desk support, customer service, outreach, communications, and training. The workbooks also had an area to capture opportunities to leverage other activities or system changes, which could potentially reduce costs.

For the baseline cost analysis, CMS requested systems owners to submit estimates of system modification costs to CMS, which formed the basis of the overall baseline cost estimate. CMS requested owners to estimate effort by lifecycle phase. The methodology required that the system owner estimate, for each phase, the pessimistic, most likely, and optimistic effort hours by labor category and costs for hardware, software, and incremental annual maintenance to complete their system modifications.

CMS reviewed Government projects and identified appropriate labor categories needed to complete work required for each lifecycle phase. In addition, CMS researched Government schedules and contracts to identify representative labor rates for each labor category. CMS then combined the labor rates for each labor category into a single rate. However, since lifecycle phases may require different skill sets, CMS further refined labor rates by lifecycle phase. That is, the labor category rate is not constant for each phase.

CMS also created separate cost estimate workbooks for State Medicaid programs. The State workbooks were developed to reflect unique State systems environments and labor related costs for implementation of each SSN removal option.

SSA and RRB were asked to utilize their own existing methodologies and labor rates to estimate their costs in order to obtain the most accurate estimates. These organizations conduct most of their functions using in-house staff, while CMS utilizes contractors to a greater extent, especially with respect to information technology activities. However, the workgroup ensured that common assumptions (e.g., number of affected beneficiaries, timeline) were adhered to in all cases.

CMS conducted training workshops for all interested parties to review the process to complete the workbooks and answer user questions. CMS prepared and sent a daily Question and Answer (Q&A) fact sheet to all POCs in response to user questions. The process required a CMS POC to review and submit the data to a centralized data coordinator. State cost estimators were contacted by CMS via several conference calls and follow-up emails. The same centralized data coordinator captured all of the State workbooks for analysis.

CMS developed a structured process for collecting, editing, analyzing, storing, and reporting data resulting from the analysis of the two options. A data coordinator reviewed the workbooks for completeness and consistency, and sent queries to the POCs if there were inconsistencies. Once a workbook was submitted, reviewed for compliance, and marked as complete, the data was extracted to a controlled database where it was reviewed for consistency by the team of cost analysts and incorporated into the cost estimates. State workbooks were checked and uploaded to the cost database in the same manner. Data was analyzed for Medicaid programs in 49 States and the District of Columbia, SSA, RRB, and 113 CMS systems and 62 CMS business processes.

Multiple organizations and entities provided cost data for this study. Cost estimates from SSA were provided in FY12 dollars. Cost estimates from RRB, the States, and the District of Columbia were

provided in FY13 dollars, while the costs for CMS were developed using FY14 dollars. Costs must be brought into the same basis before they can be meaningfully aggregated. As almost all of the affected costs are in labor, cost estimates from SSA were adjusted to FY14 basis using an IHS Global Insights escalation factor specific to the information technology labor force of 1.05475, reflecting inflation from FY12 to FY14. Estimated costs from RRB, the States, and the District of Columbia were adjusted to FY14 basis using an IHS Global Insights escalation factor specific to the information technology labor force of 1.03042, reflecting inflation from FY13 to FY14. By applying these factors to cost estimates from SSA, RRB, the States, and the District of Columbia, all reporting organizations' estimates utilize the same constant dollar FY14 basis.

1.1.2 Independent Cost Estimating Process

The GAO guidelines recommend that organizations complete independent cost estimates for major system or IT projects. Therefore, CMS used an additional approach—based on qualitative data gathered from system owners—to generate the independent cost estimates for CMS systems. The independent cost estimate approach relied upon the IT Cost Estimation Tool (ITCET) to estimate system modification costs. ITCET is a CMS-developed tool that assists business owners, cost estimators, and others in developing cost estimates for new IT systems and system modifications. The ITCET is based on a detailed CMS Enterprise Architecture work breakdown structure encompassing the full IT lifecycle. The ITCET uses a historical database comprising effort data and labor rates from prior CMS projects of varying sizes and complexity. However, to use this generic tool, cost analysts need to review and revise preset tool parameters to better reflect the character of their individual projects.

By design, the independent cost estimates only include system modification costs; it does not estimate hardware, software, incremental operations and maintenance costs, or business costs.

Using the same workbooks that captured the direct costs, CMS requested that system owners describe their system modifications using qualitative factors, which included, for example, the anticipated level of change (i.e., minor, moderate, major modifications, or new system) and an additional twelve factors associated with the size and technical complexity of their underlying system. CMS provided definitions and guidance for these factors to assist system owners to more consistently gauge the impact on system changes. CMS input the system owner-provided data into the ITCET to generate the independent cost estimates.

The cost analysts then applied expert judgment considering qualitative factors provided by system owners, such as risk factors and deployment timeframe, to refine the tool parameters for the independent estimates. Due to the high concentration of costs among larger systems, the cost analyst team focused their analysis on the Top 20 Option 1 systems and the Top 20 Option 2 systems. The results of the independent cost estimating process are discussed in Section 5.

1.1.3 Sensitivity, Risk, and Uncertainty Analyses

CMS carried out sensitivity, risk and uncertainty analysis for this project. Sensitivity analysis is performed to isolate and identify cost drivers, or major factors driving the cost estimates. Uncertainty analysis is performed to quantify the overall level of confidence around the point cost estimate. Risk analysis assesses factors or project areas that may jeopardize overall success. All three are discussed here.

Sensitivity Analysis of Baseline Cost

Cost analysts performed a sensitivity analysis of the CMS systems, States, RRB, and SSA data. The analysts created two factors - a Labor Rate factor and an Effort factor - for data sensitivity evaluation. The analysts incorporated the factors into the CMS systems, States, RRB, and SSA estimating models so that the Labor Rate factor directly multiplied every labor rate when used in a calculation and the Effort factor multiplied every effort data element when used in a calculation.

The sensitivity analysis approach was to vary each of the factors independently from the baseline value and record the resulting cost and effort estimates. The analysis used the baseline value of one, plus a variation of plus 10 percent (factor value of 1.1) and minus 10 percent (factor value of .9).

Risk Analysis of Baseline Cost

Practitioners define risk analysis in a variety of ways. However, these various definitions share a common theme: risk analysis is a technique to identify and assess factors that may jeopardize the success of a project or of achieving a goal. Ideally, analysts use the technique to identify methods to mitigate risk and reduce the probability of these factors occurring.

CMS concluded that system owners are the most reasonable source for risks involving their systems. The CMS baseline cost methodology required system owners to fill out a risk analysis survey and submit the results. CMS provided a list of potential risk types for owners to select. System owners rated the “chances of a risk occurring” and the “impact if the risk occurred,” each on a scale of 1 to 10. The product of these two factors was the risk score. CMS summarized and analyzed the owner-submitted risk factors, “chances of risk of occurring,” the “impact if risk occurred,” and risk scores.

The risk analysis included multiple assessments: identification of highest risk systems; the risk types occurring most frequently and their related impact; and a probability distribution of risk scores.

Uncertainty Analysis

Cost analysts developed Monte Carlo simulations to accomplish the Uncertainty Analysis and estimate a range of results and a 90 percent confidence interval for output results.

CMS requested that system owners estimate the effort by lifecycle phase. The methodology required, for each lifecycle phase, that the system owner estimate the pessimistic, most likely, and optimistic effort hours, by labor category, to complete the required system modifications. System owners also identified the Government staff hours associated with the project.

CMS concluded that in overall terms, the costs for hardware, software, and incremental annual maintenance would be relatively insignificant compared to labor costs. Therefore, the appropriate focus would be on labor costs. CMS did not require owners to provide labor rates; instead, CMS developed these rates and applied them to the hours provided by the system owners. This provides consistency when estimating costs, as estimated hours for modifications, not labor rates, are the differentiators across efforts.

1.1.4 GAO Methodology Followed

CMS followed the 12-step process defined in the “GAO’s Cost Estimating and Assessment Guide, Best Practices for Developing and Managing Capital Program Costs,” March 2009, to estimate costs.

Table 1. GAO Methodology Steps

<i>Step</i>	<i>GAO Methodology</i>
1	Define estimate’s purpose
2	Develop estimating plan
3	Define program characteristics
4	Determine estimating structure
5	Identify ground rules and assumptions
6	Obtain data
7	Develop point estimate and compare it to an independent cost estimate
8	Conduct sensitivity analysis
9	Conduct risk and uncertainty analysis
10	Document the estimate
11	Present estimate to management for approval
12	Update the estimate to reflect actual costs and changes

Appendix 1 compares the CMS methodology to the GAO guide.

1.2 COMMON ASSUMPTIONS

The following common assumptions were used by all POCs participating in the cost estimate exercise (including the SSA and RRB) for both options.

- A two-phase transition:
 - 18 months for card design, software development, implementation, testing, process changes, communications and training, beginning October, 2013
 - 6 months for new card distribution and external partner transition
- The six-month transition period is assumed to end October 2015
- 55 million Medicare beneficiaries will be impacted by the change (the estimated number of beneficiaries in 2015)
- Ten percent of the mailed cards will be undeliverable, and will be returned to CMS. CMS will be able to correct some, but not all addresses. As a result, three to five percent (with a mid-range of four percent) of the mailed cards (the portion that are still undeliverable) will be forwarded to SSA for address resolution.
- The new Medicare cards will be paper cards, as they are now
- Beneficiaries will be instructed to destroy their old HICN-based Medicare cards
- Health data quality researchers with existing data use agreements will continue to use the HICN to minimize impact to longitudinal studies. (Note: Future policy changes may affect how researchers access the HICN.)
- 480,000 RRB beneficiaries will be impacted by the change. RRB is responsible for the production and mailing costs of its member Medicare beneficiary cards.

- Labor rates include fringe benefits and overhead

1.3 ROLES AND FUNCTIONS REGARDING MEDICARE IDENTIFIERS

1.3.1 CMS

CMS is responsible for managing the Medicare program. As such, CMS communicates with beneficiaries, providers, payers, researchers, States and other Federal agencies that have a need to know about Medicare data. CMS also mails Medicare cards, and receives and attempts to resolve undeliverable card addresses before passing the undeliverable mail to SSA. CMS IT systems support every aspect of business functions, and the HICN is currently used as the beneficiary identifier throughout these systems and business processes.

1.3.2 States

States use the Medicare identification number primarily in cases where the beneficiary is a dual-eligible (eligible for both Medicare and Medicaid). For purposes of this cost estimation exercise, CMS assumed that States would continue to receive the HICN for Option 1, with the exception of the coordination of benefits process, and would follow the look-up procedures defined for providers for Option 2. For the coordination of benefits process, the States would be treated the same as any other secondary payer, and the MBI would be used on those transactions.

One concern for the States is that the SSN is used for many types of benefit eligibility determination, such as food and nutrition programs. Changing from the HICN to an MBI may cause some difficulty in identity matching across programs. States could and would continue using the SSN for their other benefits programs. State stakeholders expressed concerns about the response time for the cross reference and identity matching services from CMS. Slow response could significantly affect productivity.

1.3.3 Social Security Administration

The SSA is responsible for validating the eligibility of beneficiaries for Medicare coverage. Once this is done, the SSA creates a file that includes the SSN and the Beneficiary Identification Code (BIC) and provides it to CMS (along with other beneficiary data). CMS combines the SSN and the BIC to form the HICN. CMS updates the Medicare enrollment database and the beneficiary receives a new Medicare card. SSA also informs CMS of changes in beneficiary status (such as divorce or beneficiary death). When CMS cannot resolve an undeliverable address, SSA attempts to locate the beneficiary through its Processing Centers.

1.3.4 Railroad Retirement Board

The Railroad Retirement Board administers Medicare benefits for railroad workers, retirees and their survivors. The RRB determines beneficiary eligibility for Medicare, generates the RRB Medicare identifier number, and distributes Medicare cards and eligibility information to its beneficiaries. The RRB number embeds the SSN in a fashion that is similar to the HICN, so the RRB number would need to be changed under either Option 1 or Option 2. (Note that some beneficiaries still possess original 6-digit RRB numbers that do not embed the SSN. These cards will also be replaced as part of this initiative, to

keep the RRB numbers consistent and to safeguard the RRB identifiers themselves.) CMS manages Medicare benefits payments for RRB beneficiaries in the same manner that it manages benefits for other Medicare beneficiaries. RRB routinely sends CMS an electronic list of changes to beneficiary status. If Option 1 were selected, the RRB would need a new interface with CMS to obtain the MBI.

2. OPTION 1: MEDICARE BENEFICIARY IDENTIFIER

2.1 OPTION 1: MBI DESCRIPTION

This option replaces the Health Information Claim Number (HICN) on the Medicare card with a new number, called the Medicare Beneficiary Identifier (MBI). The MBI would be used by external partners, such as providers, private health plans, when communicating with the beneficiary and when communicating with CMS. CMS would use the MBI exclusively when communicating with the beneficiary and other external partners, including health plans. The external partners would no longer need to store or manage the HICN. CMS interfaces with SSA, RRB and State Medicaid programs (except for coordination of benefits) would remain HICN-based. This exception is due to the fact that CMS coordinates benefits (i.e., sends “crossover claims” to secondary payers) with both private health plans and State Medicaid programs using a HIPAA-specified electronic format. Thus, for this purpose it makes sense to continue to use the same process, while in other cases we would consider the States to be governmental entities.

Since the MBI would be used to submit claims and other communications to CMS, providers would no longer need to store the HICN in their files. In cases where either CMS or a beneficiary determines that an MBI has been compromised, procedures would be in place to terminate the compromised number and assign a new one.

2.2 KEY ASSUMPTIONS

Federal data exchange partners, such as the Social Security Administration (SSA) and the Railroad Retirement Board (RRB) would still see the HICN and could receive the MBI if needed. CMS systems could use the HICN or the MBI, or both, depending on the functions they perform. A key technical consideration is the implementation of the crosswalk reference service. The crosswalk reference service is an enterprise-wide IT service, which performs the vital function of data translation between the HICN and the MBI and vice versa. The crosswalk service is a shared IT service that is available to all CMS system owners and business partners. Additionally:

- SSA will continue to generate the SSN and BIC which CMS currently uses as the HICN
- CMS will generate the MBI
 - CMS will generate MBIs for Medicare beneficiaries during the implementation of the option, and these will be loaded to the cross-walk reference service
 - CMS will generate MBIs for all future beneficiaries, and store them along with the HICN, in the cross-walk reference service
 - The MBI will replace the HICN
- The MBI format will be 11 characters in length
- The MBI will use alphanumeric characters, but the format will be visibly different from the HICN. This will ease human and machine interpretation between the MBI and the HICN.
- There will be only one current MBI per beneficiary
- External partners will use the MBI to communicate with CMS and its beneficiaries
- CMS will create a cross-walk reference service to translate HICN to MBI and vice-versa
- The RRB will create a new interface to the CMS system to obtain the MBI
- Some data exchanges with Federal Agencies, such as SSA, will still require the HICN

- Data exchanges with State Medicaid agencies will use the HICN, with the exception of coordination of benefits transactions, which will use the MBI
- To reduce system changes, the HICN can still be used internally within CMS systems processing where feasible
- During the six-month transition phase, CMS systems must be able to process transactions using either the HICN or the MBI

2.3 CMS COST ESTIMATES

Business process modifications will cost approximately \$107.3M. Respondents provided these elements and associated costs approximately as follows:

- \$55.7M – New Card Issuance and Processing
- \$40.9M - Customer Service and Support
- \$5.3M – Outreach, Communications and Training
- \$5.4M – Program Management Organization

System modifications will cost approximately \$64.4M, for a total Option 1 cost to CMS of \$171.7M.

2.3.1 CMS Costs – Card Issuance

CMS assumes that the Medicare card will not be redesigned. CMS will contract for printing the cards and an accompanying explanatory letter for approximately \$6.75M, or \$0.12 per beneficiary. Mailing would take place over a period of no more than one month, to reduce the level of calls and inquiries. The cards must be mailed via first class mail, as they contain personally identifiable information. The cost of postage will be \$26.4M. Based on experience, we estimate a 10 percent undeliverable rate. Undeliverable cards would be returned to CMS, and it will be necessary to significantly augment the contract staff that currently processes undeliverable mail to handle this large one-time increase over normal volume. If the staff cannot correct the address using standard procedures, they must forward it to SSA for resolution, because the SSA address is considered the official mailing address. This casework is handled by SSA’s Processing Centers (PCs) and those costs are included in the SSA cost estimate.

2.3.2 CMS Costs – Customer Service and Support

Customer service and support provides responses to questions from a variety of stakeholders due to changes in process resulting from the SSN removal. We anticipate that beneficiary calls to 1-800-MEDICARE will increase by 6 percent (3.3 million additional calls per year) during the transition period due to beneficiary questions about the re-issued cards. This increase is consistent with historical increases in volume resulting from the annual mailing of the MEDICARE AND YOU handbook and other communications to beneficiaries. Calls from providers to MAC customer service representatives due to problems transitioning to the MBI and IVR volumes would also increase. Inquiries from private health plans and State Medicaid agencies that receive coordination of benefits claim files from CMS will also increase as those entities encounter problems matching MBIs to their legacy files that use the HICN for that purpose today.

2.3.3 CMS Costs – Outreach, Communications, and Training

Outreach and communications represents the expenses needed to create and deliver messages and materials, including those for beneficiaries, providers, private health plans, clearinghouses, and other stakeholders, such as researchers who use CMS data and need to be aware of the change to the new identifier. Outreach will be delivered through webinars, conferences, or communiqués that explain the changes. Basic messaging for beneficiaries, providers, and other stakeholders will be developed centrally, but each CMS business owner will be responsible for updating and delivering the training to their community of interest.

Outreach and communications will be needed to inform Medicare beneficiaries (either directly or through partners) that they will be receiving a new Medicare card, explain the reason, and instruct them on when and how the new card should be used. A variety of mechanisms will be used to convey these messages, including leveraging our current website and email mechanisms, inserting messages in the Medicare handbook, and other existing mechanisms.

CMS will use a combination of paid media and no-cost activities that leverage current efforts. Digital advertising is the only paid media CMS would utilize for this campaign, as beneficiaries receiving the new cards would receive explanatory information along with the card, and would be reached via other existing mechanisms. Digital advertising can be targeted at those who are actively searching for more information based on specific search terms.

CMS will also conduct a number of no-cost outreach and education activities. CMS will provide outreach and education to beneficiaries and stakeholders at key national conferences. Through the conference exhibit program, staff will provide one-on-one contact and disseminate pertinent publications, materials, and other key messages. This effort will reach tens of thousands of beneficiaries and those who educate and make decisions on their behalf.

CMS will also develop three short, informational MEDICARE AND YOU videos. Videos will be posted on YouTube and other applicable websites, and can also be used at national conferences.

The products listed below either already exist and could be edited to include messages or could be developed by CMS staff at no additional cost:

- Message in MEDICARE AND YOU handbook
- Message in Medicare Summary Notice
- Caregiver newsletter article
- Message in existing fraud materials
- Medicare.gov message and blog
- Drop-in articles

Materials would be translated into other languages as appropriate for beneficiaries with limited English proficiency.

Medicare providers will need to be informed of the change as well, and instructed on how to use the MBI to submit claims and other transactions. As the end of the six-month transition period approaches, additional messages will inform providers that as of a certain date, CMS will reject claims that do not contain the MBI. Again, we will leverage existing mechanisms, including provider electronic mailing lists, the Medicare Learning Network, training webinars, website materials, partnering with provider organizations, and provider open door forums, but some specific outreach programs will be needed.

Outreach to commercial insurance plans and State Medicaid programs that receive crossover claims files from CMS for purposes of benefits coordination will explain the new processes and timetable, and, as with providers, remind the plans of the end of the transition period and implementation of MBI.

2.3.4 CMS Costs – Program Management Organization

The largest new process cost for the SSN Removal project is the establishment of the Program Management Organization (PMO) to implement the process changes.

The PMO function will play a pivotal role in planning and coordinating the implementation of the project. The scope of the PMO covers the full lifecycle project management functions required to implement all CMS system modifications including the implementation of State system modifications, CMS business processes, and coordinate efforts with the RRB and the SSA.

For both options, the PMO will have a 32-month project lifecycle (which includes ramp-up and ramp-down times of four months each). Option 1 will attain a maximum staffing level in FY15 with 7.5 contractor FTEs, and a total cost of \$5.4 million for the project duration.

2.3.5 CMS Costs — System Modifications

CMS identified 71 existing systems that would require modification effort and associated investment in hardware, software and incremental operations and maintenance. The remaining systems were not impacted, either because they do not store or use beneficiary data, and therefore do not store the HICN today, or because they do not communicate with partners outside CMS and therefore would not need to translate the MBI to the HICN or vice versa.

Systems that would be impacted are those that would receive the MBI from external parties and systems that must create outputs to external parties using the MBI. Some examples of the former would include receipt of electronic and paper claims, eligibility queries, appeals and correspondence. Some examples of the latter would include outbound electronic data interchange (EDI) files, including remittance advices and coordination of benefits files, correspondence generation, including requests for medical documentation and dissemination of Medicare Summary Notices, data entry screens, web portals, and IVR software. These are functions that many CMS systems utilize.

CMS plans to develop a new enterprise crosswalk service that internal systems could execute to translate a MBI, HICN, or RRB number to retrieve a beneficiary. In addition, it will provide instructions to the systems on how to use the software as a shared service. This precludes the need for every system to create and maintain its own software for the crosswalk, and where feasible the systems can access the crosswalk tables, rather than creating their own crosswalk table. It is anticipated that additional infrastructure will be required to support both the storage of the crosswalk table and processing required for the new crosswalk service, which is expected to handle 1.5 billion transactions per month. System maintainers were instructed to assume use of this service whenever possible.

Review of the system solutions shows that many systems will be able to use a crosswalk service to translate from the HICN to the MBI and vice versa whenever the data is needed. Others will have to capture the HICN and the MBI in their databases and make them available in persistent storage. Display screens, correspondence templates and reports will have to be modified to display the MBI instead of the HICN. An MBI generation function is needed to create the MBIs and store them in the database.

Data exchange interface changes are also needed to communicate the MBI to SSA and the RRB. No internal CMS uses of the HICN would change and file interfaces with Federal agencies would continue to use the full HICN, when needed.

For Option 1, System Modifications will cost approximately \$64.4M. These modifications include investments in hardware, software and incremental operations and maintenance. Twenty systems account for 86 percent of the total IT spending. More detail can be found in Appendix 2.

2.4 STATE COST ESTIMATES

Forty–nine States and the District of Columbia provided data for their Medicaid programs using a standard template developed to reflect unique State systems environments and labor related costs for implementation of each SSN removal option. Affected processes included eligibility determination, Medicare buy-in, and Medicare crossover claims processing. State costs total \$46.3M. We assume these costs are reimbursable at 90 percent Federal Financial Participation (FFP) (that is, a 90/10 percent Federal/State split). The 90 percent FFP rate is available for costs directly attributable to the Medicaid program for the design, development, installation and enhancement of mechanized claims processing and information retrieval systems.. Thus, the Federal share would be \$41.7M.

Table 2. State Estimated Effort and Costs by Life Cycle Phase (Constant FY14\$)

Life Cycle Phase	Option 1		Option 2	
	Effort (Hours)	Cost (FY14\$)	Effort (Hours)	Cost (FY14\$)
Project Management	37,054	\$ 5,079,618	8,384	\$ 1,078,846
Initiation and Planning	33,069	\$ 4,466,755	9,083	\$ 1,190,450
Requirements Analysis and Design	80,172	\$ 10,526,439	19,017	\$ 2,369,894
Development and Implementation	198,406	\$ 26,218,186	40,465	\$ 5,056,403
TOTALS	348,701	\$ 46,291,998	76,949	\$ 9,695,593

More detail can be found in Appendix 3.

2.5 RRB COST ESTIMATES

RRB provided estimates for both administrative costs and system costs. Their estimate covered the following implementation activities:

- Business costs (card mailing, inquiries, outreach, etc.) (\$994K)
- IT systems costs (\$839K)

Total costs for the RRB are estimated at \$1.8M. More detail can be found in Appendix 4.

2.6 SSA COST ESTIMATES

SSA's administrative estimates were presented in dollars and Work Years (WYs), which may be full-time equivalents, overtime, or a combination of the two. All costs were developed on FY 12 experience, but have been adjusted to FY14 dollars and, except for Outreach costs, are reported here rounded to the nearest million dollars. Outreach costs are reported rounded to the nearest hundred thousand dollars. SSA estimates cover the following implementation activities:

- Responding to a 5 percent increase in beneficiary inquiries (\$53M and 265 WYs)
- Processing related to undeliverable cards (\$25 to \$42M and 265 to 445 WYs)
- Processing requests for replacement cards due to non-receipt (\$3M and 25 WYs)
- Outreach (\$200K and 2 WYs)
- Systems changes to modify existing query processes and screens, etc. (\$7M and 20 WYs)

SSA estimated low, medium, and high rates of undeliverable mail to be 3, 4 and 5 percent, respectively. SSA's total estimate for implementation ranges from \$89M to \$106M and from 577 WYs to 757 WYs). The mid-point estimate of \$97M was used for the total cost estimate in this report. SSA also estimated ongoing annual costs of \$5M and 30 WYs, which were excluded from total costs.¹ Note: Due to rounding, the sum of SSA's detailed costs may differ from SSA's summary costs.

More detail can be found at Appendix 5.

¹SSA's ongoing costs are assumed to begin in FY16 and are not included in the estimated program costs for this effort, which spans FY14 to FY15. See Appendix 5 for details.

2.7 TOTAL COST ESTIMATE

The table summarizes the total costs to implement the MBI option.

Table 3. Option 1 - MBI Cost Summary

Entity/Organization	Option 1 Costs (FY14\$)
CMS System Modifications	\$ 64,352,166
CMS Business Processes	\$ 107,284,622
CMS Direct Costs: Systems and Business Processes	\$ 171,636,788
States' System Modifications: Federal Share (90 % FFP)	\$ 41,662,798
CMS Total: Systems, Business Processes & Medicaid FFP	\$ 213,299,586
States' System Modifications: State Share (10% of total States' costs)	\$ 4,629,200
Railroad Retirement Board (RRB)	\$ 1,833,385
Social Security Administration (SSA)	\$ 97,000,000
Total: All Entity/Organization Costs	\$ 316,762,171

3. OPTION 2: OBSCURED HEALTH INSURANCE CLAIM NUMBER

3.1 OPTION 2 (OBSCURED HICN): DESCRIPTION

Option 2 would display only the last four characters of the SSN portion of the HICN and the BIC on the Medicare card. When a beneficiary presents his or her Medicare card to receive services, the provider would query CMS using the visible HICN characters and additional beneficiary data (such as date of birth and address). This would be used to match the beneficiary to his or her full HICN. (This is needed because the combination of name and obscured HICN alone cannot reliably identify the beneficiary in all cases.) CMS would return the full HICN to the provider, and this would be used for all claims submissions and other communications with CMS after that point. Thus, while the full HICN would not be displayed on the Medicare card, providers would have to continue to store it in order to submit claims for services. The obscured HICN would be used by CMS and by external partners when communicating with the beneficiary.

3.2 KEY ASSUMPTIONS

The following assumptions apply only to Option 2:

- Only the last four characters of the SSN and the BIC would appear on the Medicare card
- Beneficiaries who receive a Medicare enrollment package would receive their full HICN as part of their package but all subsequent communications (notices, correspondence and computer screen displays) would use the obscured HICNs
- CMS internal processing and interactions with external partners would continue to use the full HICN
- When beneficiaries present a Medicare card with an obscured HICN to a provider or Medicare Advantage or Part D plan for the first time, the provider or health plan would query a CMS system to obtain the full HICN and use it for all future transactions with CMS.

3.3 CMS COST ESTIMATES

These modifications include investment in hardware, software and incremental operations and maintenance. Business process modifications for Option 2 will cost approximately \$119.7M.

Respondents provided these elements and associated costs as follows:

- \$58.2M – New Card Issuance and Processing
- \$52.8M – Customer Service and Support
- \$4.7M – Outreach, Communications and Training
- \$4.1M – Program Management Organization (PMO)

System modifications will cost approximately \$26.2M, for a total Option 2 cost to CMS of approximately \$146M.

3.3.1 CMS Costs – Card Issuance

Option 2 costs are similar to Option 1 because the number of cards, postage costs, and undeliverable rates remain constant. However, they are slightly higher because of the need—relative to processing undeliverable mail—to determine the correct beneficiary in the case of multiple beneficiaries with the same last 4 digits of the SSN.

3.3.2 CMS Costs – Customer Service and Support

Option 2 costs are higher than those for Option 1 because every business process where a beneficiary identifier is retrieved will need to collect additional data elements in addition to the partial HICN to match the beneficiary data to the correct identifier. That is, the beneficiary may have the same last four digits of their SSN as other beneficiaries. In that case, additional data elements are used to disambiguate the identifier. The additional data elements include the beneficiary name, date of birth, gender, State, and obscured HICN. For instance, 1-800-MEDICARE bases their Option 2 query length on “historical 1-800-Medicare average handle time plus a little over half a minute to account for the full identification number not being on the Medicare card,” whereas their Option 1 query length is based simply on historical average handle times. Similarly, the Medicare Plan Finder business owner States, “the HICN is collected and verified at the start of [their] application process. With masked HICN, [they] anticipate changes to this business process being required and are doubling the duration of the query time as a result”.

3.3.3 CMS Costs – Outreach, Communications and Training

Costs for outreach and communications are lower in Option 2 because post-HICN translation processes remain the same. In some cases, the outreach necessary under Option 2 would be entirely absorbed through existing communication campaigns. The primary costs for Option 2 will be to create materials to explain to all stakeholders how to convert the partial HICN to the full HICN during the initial beneficiary contact.

Training costs are lower in Option 2 than in Option 1 for the following reasons:

- fewer business and system changes
- training and training material updates will be limited to instruction on how to obtain a full HICN
- No crosswalk training is required for CMS staff.

3.3.4 CMS Costs – Program Management Organization (PMO)

The PMO required for Option 2 is less expensive than that of Option 1 because it will require fewer staff, due mainly to the less complex technical requirements for system modifications. Six FTEs is the maximum staffing level for Option 2 and the total PMO cost is \$4.1M for the duration of the project.

3.3.5 CMS Costs – System Modifications

Systems costs are significantly lower than Option 1, because fewer systems would be affected (41 systems as opposed to 72 affected by Option 1). This is because incoming transactions from external sources such as providers would still contain the HICN, and outbound transactions would be able to create the obscured HICN from the whole HICN by simply blanking out the appropriate digits. However, systems that respond to queries using the obscured HICN to send back the full HICN will need additional capabilities to match multiple data elements, since the obscured HICN alone would not provide a reliable match. The top 20 systems account for 95 percent of the total systems cost.

More detail is available in Appendix 2.

3.4 STATE COST ESTIMATES

Forty-nine States plus the District of Columbia provided system workbook data. Total estimated costs are approximately \$9.7M for Option 2. Both the number of processes and the extent of the impact were considerably lower than for Option 1, and 21 States reported that they would expend no costs implementing Option 2. This is because data exchange with the States will continue to utilize the HICN; therefore, many States' systems would not be impacted.

More detail is available in Appendix 3.

3.5 RRB COST ESTIMATES

Total costs for the RRB are estimated at \$1.4M. RRB's estimate for Option 2 was lower than that for Option 1 because fewer IT systems were impacted.

More detail is available in Appendix 4.

3.6 SSA COST ESTIMATES

SSA's estimated costs for Option 2 are the same as for Option 1, with one exception. SSA assumes that their cost to handle undeliverable mail would increase slightly per unit because of the need to query for the HICN. This brings the SSA costs to a mid-point estimate of \$98M (in FY14 dollars and rounded to nearest million) for Option 2, with the estimate ranging from a low of \$90M to a high of \$107M. Ongoing costs are also higher than Option 1 due to a larger projected number of queries from beneficiaries.² Note: Due to rounding, the sum of SSA's detailed costs may differ from SSA's summary costs.

More detail is available in Appendix 5.

² As with Option 1, ongoing costs are assumed to begin in FY16 and are not included in the estimated program costs for this effort, which spans FY14 to FY15. See Appendix 5 for details.

3.7 TOTAL COST ESTIMATE

The table below provides a summary of the total costs to implement the Obscured HICN option.

Table 4. Option 2 - Obscured HICN Cost Summary

Entity/Organization	Option 2 Costs (FY14\$)
CMS System Modifications	\$ 26,201,064
CMS Business Processes	\$ 119,689,325
CMS Direct Costs: Systems and Business Processes	\$ 145,890,389
States' System Modifications: Federal Share (90% FFP)	\$ 8,726,033
CMS Total: Systems, Business Processes & Medicaid FFP	\$ 154,616,422
States' System Modifications: State Share (10% of total States' costs)	\$ 969,559
Railroad Retirement Board (RRB)	\$ 1,392,955
Social Security Administration (SSA)	\$ 98,000,000
Total: All Entity/Organization Costs	\$ 254,978,936

4. OTHER CONSIDERATIONS

GAO recommended that CMS talk with plans and providers to assess the impact of removing the SSN from the Medicare card, and to obtain information about how some plans have already implemented initiatives to remove the SSN from their own membership cards. CMS obtained input from providers and clearinghouses via a voluntary electronic survey, and from commercial plans via conference call. CMS also talked with the Department of Defense (DoD) and Department of Veterans' Affairs (VA) regarding their effort to remove the SSN from their membership cards. Both DoD and VA replaced the SSN using a new identifier not based on the SSN in any way, which is consistent with Option 1 described in this paper. Moreover, their IT solutions were similar to Option 1 in that they used a crosswalk to link the new identifier to the legacy identifier rather than replace the legacy identifier in all IT systems.

4.1 IMPACT ON PROVIDERS AND CLEARINGHOUSES

CMS solicited comments from all providers and clearinghouses who subscribe to our electronic mailing lists to assess and capture the impact of both SSN removal options on providers and clearinghouses. CMS received comments from 1,440 providers and 42 clearinghouses. The comments indicate both options would require making changes to internal computer systems and workflow. The majority of these stakeholders thought that Option 2 would be more costly to implement than Option 1. They believed this because they thought that Option 2 would be more disruptive due to the additional steps needed to identify beneficiaries. Additional concerns include the overall cost to implement this change including letters and calls to the Medicare beneficiaries, the ability to obtain the full HICN in real time mode, and the confusion to the beneficiary when they receive the new number. More data is available in Appendix 6.

We note that both options could result in temporary increases in claims denials if providers do not convert during the transition period. In addition, Option 1 could result in an increased burden on providers in cases where beneficiaries present for treatment with their old card, and the provider must query to ascertain the MBI.

4.2 IMPACT ON COMMERCIAL INSURANCE PLANS

CMS held a joint conference call with management of Aetna, Blue Cross and Blue Shield, and United Health Care to obtain their insight on both SSN removal options. From a processing perspective, these Plans would like to tie their existing records containing the HICN to the new identifier. To do so, they will need the HICN as a cross-reference when they are notified of the new identifier for an existing beneficiary enrolled in their Plan. For Option 2, they were concerned about not being able to always confirm a beneficiary's identity if they did not have enough personal data for that beneficiary. One of the participants was concerned that there would be changes to implement the removal of the SSN from the Medicare card and then a subsequent initiative to implement a national patient identifier. She suggested doing the work only once—skipping the removal effort we are pursuing now and moving forward with the national patient identifier. More data is available in Appendix 6.

4.3 IMPACT ON FRAUD PREVENTION

Replacing the HICN on the Medicare card with the MBI accomplishes the primary goal of reducing the risk of identity theft from a lost or stolen card that contains the beneficiary's SSN. Replacing the HICN with the MBI as the beneficiary identifier also reduces the need for providers to maintain beneficiaries' HICN or SSN in their records—a potential data source for identity theft—although records predating the

transition to the MBI may still contain the HICN and providers may continue to collect patient's SSN for other purposes, as they do currently.

Replacing the HICN with the MBI would allow CMS to terminate and replace an MBI after the identifier has been implicated in medical identity theft and fraudulent Medicare billing. This ability to “turn off” an MBI will provide Medicare beneficiaries who are victims of medical identity theft with the assurance that their claims history will not reflect future fraudulent billing under this terminated MBI. Should fraudulent billing using an MBI be identified, the ability to “turn off” that MBI will prevent its future fraudulent use.

Obscuring the first five digits of the SSN contained in the HICN on the Medicare card accomplishes the primary goal of reducing the risk of identity theft from a lost or stolen card that contains the beneficiary's SSN. However, providers would still bill Medicare with the full HICN and would need to maintain the HICN in their records—a potential data source for identity theft. As the HICN would continue to be based on the SSN, this option would not enable CMS to turn off and replace a beneficiary identifier once it was implicated in medical identity theft and fraudulent billing of Medicare. Moreover, to the extent that financial institutions and other entities use the last four digits of the SSN as a security question, even this truncated version of the SSN could be used for financial identity theft.

4.4 OPPORTUNITIES TO LEVERAGE OTHER ACTIVITIES

Several business points of contact indicated that they could leverage existing communications, outreach, or training programs to prepare beneficiaries, CMS staff, providers, plans, and other stakeholders for the proposed changes to the Medicare cards. In most cases, they indicated that they could leverage some, but not all, of the preparation cost.

5. INDEPENDENT COST ESTIMATE AND RELATED ANALYSES

5.1 INDEPENDENT COST ESTIMATE

An Independent Cost Estimate (ICE) was completed for the SSN Removal cost estimation effort, using a tool specifically designed to estimate the size and complexity of IT projects for CMS. Business process costs and costs from outside stakeholders were reviewed for quality of the information as provided (e.g., inclusion of relevant tasks, clarity of assumptions).

For the ICE, labor hours were used as the basis of comparison because the labor hours were the primary cost inputs received from CMS.³ Therefore, the appropriate ICE point of analysis was labor hours. Since CMS systems have varied functions and are managed and operated by different CMS organizations, components, and contractors, one ICE for the combined set of CMS systems would not be valid.

In conducting the ICE, the cost analysts evaluated the top 20 CMS system estimates for Option 1 and Option 2, which represent 86% and 95% of total CMS system costs, respectively. CMS system costs for Option 1 and Option 2 were ranked to focus attention on the highest cost drivers and potential schedule risks. For each CMS system, the ICE effort for that system was compared to the most likely effort submitted by the CMS system owner.

The findings of the ICE analysis reveal that 95% of the estimates (19 out of 20) fell well within the range of reasonableness for system modification estimates. The difference between the most likely effort and the ICE was less than two FTEs for the Top 20 systems for both Option 1 and Option 2. The ICE identified one system as an outlier in both options, with the ICE analysis suggesting higher complexity and cost than the baseline estimate.

5.2 SENSITIVITY ANALYSIS OF BASELINE COST

Effort (hours) is the most significant cost driver and labor rate is the next most significant. Since the core CMS SSN Removal cost analysis team developed the labor rates, it is appropriate to focus the sensitivity analysis on the impacts of these values. For the sensitivity analysis, CMS investigated the impact of a simple plus or minus percent range on the labor rate.

The sensitivity analysis results for CMS, the States, and SSA show that the effects of varying these factors are linear and proportional to the variation, so that a 10% difference in either factor yields a 10% difference in cost. The results also show that either factor can cause a cost variation of approximately \$19M.

³ CMS developed a uniform labor rate table, by job category, for cost calculations shown in this document.

5.3 RISK ANALYSIS

CMS carried out a risk analysis based on qualitative assessment from system owners on the likelihood and impact of risks. A risk score was calculated by multiplying the likelihood (ranging from 1 to 10) by the impact (also ranging from 1 to 10), for an overall score of 1 to 100 for each identified risk. In the risk analysis for both Option 1 and Option 2, CMS system owners identified “Crosswalk services returns an identifier for the wrong beneficiary,” “Crosswalk service slows down performance and process flow to unacceptable levels” and “Schedule” as the top three risks by total risk score. For Option 2, “crosswalks” represent the lookup process required to initially match an obscured HICN to the correct beneficiary. The highest risk CMS systems for Option 1 by total risk score were identified as:

- Medicare Advantage and Part D Enrollment System (MARx)
- Medicare Beneficiary Database (MBD)
- Next Generation Desktop for the Medicare Beneficiary Portal (NGD/MBP)
- National Data Warehouse (NDW)
- Interactive Voice Response (IVR) for 1-800-Medicare
- Physician Quality Reporting System (PQRS)
- Quality Improvement Evaluation System (QIES) Assessment Collection, and
- Chronic Condition Warehouse (CCW)

For Option 2, the highest risk systems by total risk score were True Out-of-Pocket Expenditures (TrOOP), MARx, MBD, and the QIES Assessment Collection.

To mitigate the technical risks of either option, CMS will convene all necessary stakeholders to develop the high-level architecture and technical design specifications for the required solution. The establishment of the Program Management Office (PMO) function will ensure technical requirements are not developed in isolation, but on an integrated basis. Schedule risk will be managed through the coordinated planning of all business functions, partners (SSA and RRB), CMS and State system modifications. Systems testing will play a heightened role (especially integration testing and stress testing) in minimizing performance risk and identification errors.

5.4 UNCERTAINTY ANALYSIS OF BASELINE COST

CMS conducted an uncertainty analysis using Monte Carlo simulation to generate an estimate of the likely range of results within a 90 percent confidence interval. CMS reviewed the estimates provided for each option by system owners, the States, RRB and SSA and compared these against external Federal government IT project labor rates and levels of effort by lifecycle phase to benchmark the uncertainty. The overall level of uncertainty at the 90 percent confidence level using these assumptions was small: for CMS Systems, State and RRB costs the variation was less than \$1M, for SSA the variation was approximately \$10M. Thus the total variation, assuming independence of uncertainty, is less than plus or minus \$13M. This does not guarantee that costs will actually fall within this cost range, but does show that, given the assumptions and estimates provided, the likeliest range of costs is fairly narrow.

6. SUMMARY

In analyzing the options, it is clear that Option 2 is less costly, especially with respect to system changes. However, many of the costs incurred, such as card issuance, are similar for both options, and customer service costs increase due to the added complexity of providing an exact match to queries. In terms of reducing opportunities for identity theft, Option 1 provides considerable additional safeguards, because the MBI will preclude the need for providers to store the HICN, and compromised MBIs can be turned off.

Pursuing either option would require substantial resources and adequate time for planning, system development, outreach and testing to assure a smooth transition with no impact on beneficiary access to care.

Table 5. Cost Estimate Summary Comparison

Entity/Organization	Option 1 Costs (FY14\$)	Option 2 Costs(FY14\$)
CMS System Modifications	\$ 64,352,166	\$ 26,201,064
CMS Business Processes	\$ 107,284,622	\$ 119,689,325
CMS Direct Costs: Systems and Business Processes	\$ 171,636,788	\$ 145,890,389
States' System Modifications: Federal Share (90% FFP)	\$ 41,662,798	\$ 8,726,033
CMS Total: Systems, Business Processes & Medicaid FFP	\$ 213,299,586	\$ 154,616,422
States' System Modifications: State Share (10% of total States' costs)	\$ 4,629,200	\$ 969,559
Railroad Retirement Board (RRB)	\$ 1,833,385	\$ 1,392,955
Social Security Administration (SSA)	\$ 97,000,000	\$ 98,000,000
Total: All Entity/Organization Costs	\$ 316,762,171	\$ 254,978,936

Table 6. High Level CMS Business Cost

Key CMS Business Processes	Option 1 Costs (FY14\$)	Option 2 Costs (FY14\$)
Customer Service and Support	\$ 40,913,641	\$ 52,757,676
Outreach, Communications and Training	\$ 5,272,474	\$ 4,653,758
New Card Issuance and Processing	\$ 55,726,820	\$ 58,207,320
Program Management Organization (PMO)	\$ 5,371,687	\$ 4,070,571
Total: CMS Business Processes Costs	\$ 107,284,622	\$ 119,689,325

Table 7. High Level CMS System Costs

CMS Systems	Option 1 Costs (FY14\$)	Option 2 Costs (FY14\$)
Labor	\$ 57,744,178	\$ 24,553,915
Hardware	\$ 3,186,503	\$ 181,503
Software	\$ 737,440	\$ 482,440
Operations & Maintenance	\$ 2,684,045	\$ 983,206
Total: CMS Systems Costs	\$ 64,352,166	\$ 26,201,064

6.1 ACTIVITY TIME PHASING, INFLATION FACTORS AND COSTS

Time Phasing of Activities

The analyses approximated the time phasing of SSN Removal activities over the scheduled 18-month implementation and the following six-month transition period, when CMS mails the new beneficiary cards in March 2015.

The schedule requires that organizations must complete all technical modifications to systems by April 1, 2015, which is when beneficiaries begin using the new cards. Meanwhile, a number of business processes including resending and handling of beneficiary questions would logically take place only after the March mailings. The analysis used these approximate milestones to create a rough schedule for all activities. Figure 1 shows an overall schedule and time phasing by major stakeholder and cost category.

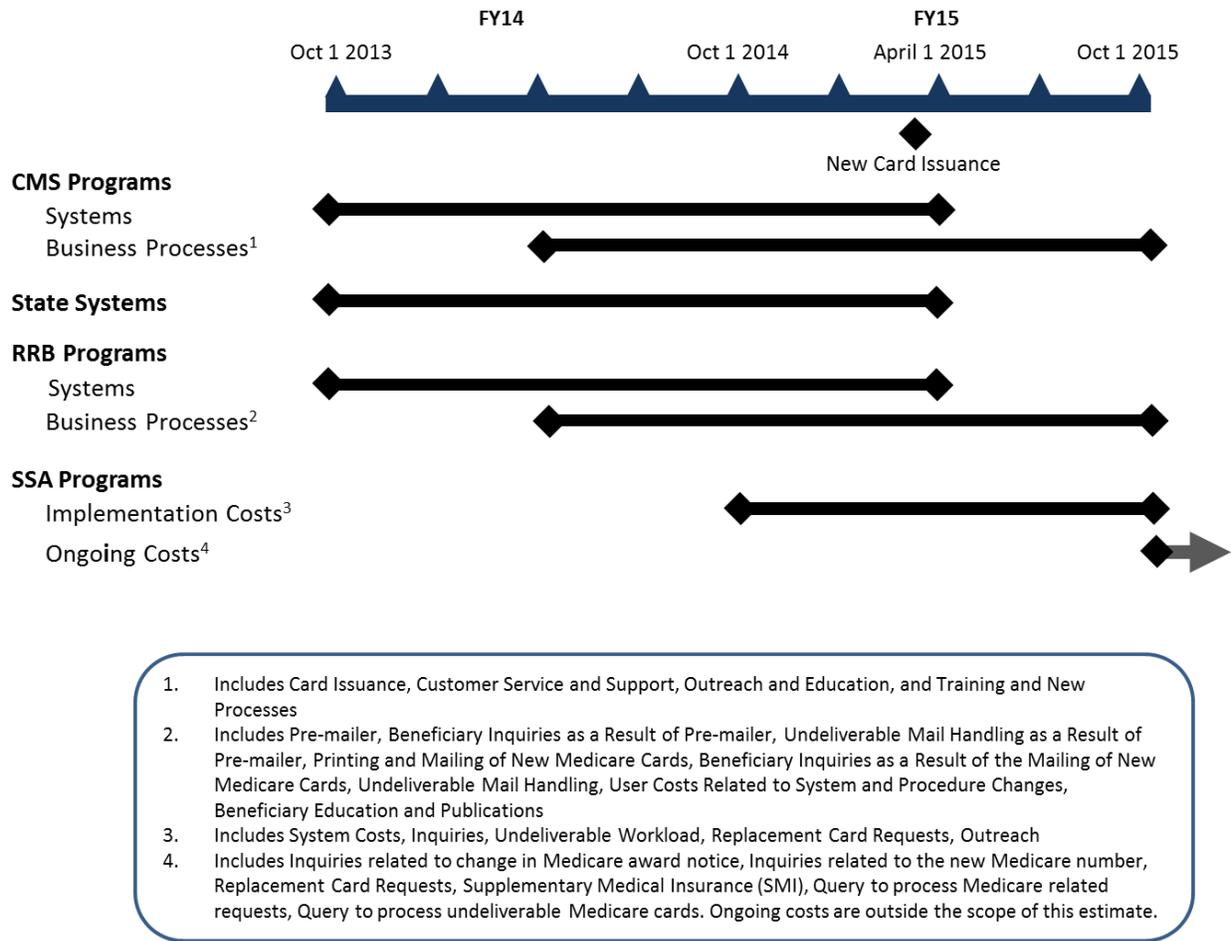


Figure 1. Project Schedule for Time Phasing of Activities

The analysis assumed effort was evenly distributed within each phase, thus two thirds of State, RRB Systems, and CMS Systems activities are allocated to FY14, and one third to FY15. Conversely, the schedule allocates one-third of CMS Business Processes effort and RRB Business Processes effort to FY14 and two-thirds to FY15. The schedule allocates all SSA Implementation effort to FY15 and all SSA Ongoing efforts to FY16 and beyond, per direction from SSA.

Provided Cost Data

Multiple organizations and entities provided cost data for this study. However, the provided costs were not all in the same year dollars. SSA provided costs in FY12 dollars. The States, the District of Columbia, and the RRB provided costs in FY13 dollars. CMS provided costs in FY14 dollars. For consistent cost presentation, the study inflated the FY12 dollar costs for SSA, and

the FY13 dollar costs for the States, the District of Columbia, and RRB to FY14 dollar costs using the factors shown in Table 8.⁴

Table 8. Escalation Factors

From Initial Cost Basis	To Then Year Cost Basis	Escalation Factor
FY12	FY13	1.02362
FY13	FY14	1.03042
FY14	FY15	1.03221

Allocating Costs to the Scheduled Activities

In order to calculate “then-year dollars” for the program, several steps were applied. First, base year FY14 costs and activities were allocated, using the schedule in Figure 1 to the appropriate Fiscal Year using constant fiscal year dollars. Note that this schedule assumes that all project activities take place in either FY14 or FY15. For activities allocated to FY15, the base year costs were then adjusted to a FY15, then-year, inflation-adjusted basis, using the appropriate inflation factor as shown in Table 8. The result is a set of time-phased costs according to the scheduled activities.

Table 9 shows the results of allocating costs by major cost component to the appropriate Fiscal Year, and applying the appropriate escalation factor to each year. Seven cost components are shown: CMS Systems, CMS Business Costs, States, RRB Systems, RRB Business Costs, and midpoint estimates for SSA Implementation. The result as displayed in Table 9 shows the estimated budget impact, in then-year dollars, by fiscal year, for the proposed project.

⁴ CMS OAGM provided these factors, and IHS Global Insight (2011) was the source for these wage inflation projections for professional and technical workers. Although the projections are somewhat higher than forward GDP deflator projections used in the President’s Budget, they reflect market scarcity and demand for skilled technical staff in relevant specialty fields.

Table 9. Program Costs Time-Phased in Then-Year Dollars

Entity/Organization	Option 1		Option 2	
	FY14 (FY14\$)	FY15 (FY15\$)	FY14 (FY14\$)	FY15 (FY15\$)
CMS System Modifications	\$42,901,444	\$22,141,650	\$17,467,376	\$9,015,000
CMS Business Processes	\$35,761,541	\$73,826,840	\$39,896,442	\$82,363,012
CMS Direct Costs: Systems and Business Processes	\$78,662,985	\$95,968,490	\$57,363,818	\$91,378,012
States' System Modifications: Federal Share (90 % FFP)	\$27,775,199	\$14,334,919	\$5,817,356	\$3,002,366
CMS Total: Systems, Business Processes & Medicaid FFP	\$106,438,183	\$110,303,408	\$63,181,173	\$94,380,378
States' System Modifications: State Share (10% of total States' costs)	\$3,086,133	\$1,592,769	\$646,373	\$333,596
RRB Systems Cost	\$559,377	\$288,697	\$265,757	\$137,158
RRB Business Costs	\$331,440	\$684,231	\$331,440	\$684,231
RRB Total: Systems and Business Costs	\$890,817	\$972,928	\$597,196	\$821,389
SSA Implementation Costs	\$ 0	\$100,330,812	\$ 0	\$101,466,243
TOTAL	\$110,415,133	\$213,199,917	\$64,424,742	\$197,001,607

APPENDIX 1 - GAO COST ESTIMATING AND ASSESSMENT GUIDANCE

Table 10. The Twelve Steps of a High-Quality Cost Estimating Process

<u>Step</u>	<u>Description</u>	<u>GAO Guidance on Cost Estimation</u>	<u>CMS Cost Estimation Process</u>
1	Define estimate's purpose	<ul style="list-style-type: none"> Determine estimate's purpose, required level of detail, and overall scope; Determine who will receive the estimate. 	<ul style="list-style-type: none"> CMS followed GAO guidance and Congressional direction and defined the purpose, level of detail and scope for the cost estimate. CMS identified the primary government participants to be points of contact for the cost estimation project. Participating agencies and Congress will receive the estimates.
2	Develop estimating plan	<ul style="list-style-type: none"> Determine the cost estimating team and develop its master schedule; Determine who will do the independent cost estimate; Outline the cost estimating approach; Develop the estimate timeline. 	<ul style="list-style-type: none"> CMS determined that the agencies, system owners and participants would perform the baseline estimates for their respective systems. CMS established the CMS SSN Removal Workgroup, whose purpose was to oversee the cost estimation approach, interface with stakeholders and primary participants to define and clarify assumptions and alternatives, and develop the master schedule. CMS engaged a contractor to outline the estimating approach and processes: Coordinate/develop the baseline cost estimates, design the data collection instruments, create a database for owner cost/effort data, collect/validate data, manage data and queries, data processing, training, roll up and summarize effort/costs, perform cost sensitivity and uncertainty analyses. CMS engaged a contractor to use a CMS in-house estimating tool to perform the independent cost estimate.

<u>Step</u>	<u>Description</u>	<u>GAO Guidance on Cost Estimation</u>	<u>CMS Cost Estimation Process</u>
3	Define program characteristics	<ul style="list-style-type: none"> • In a technical baseline description document, identify the program’s purpose and its system and performance characteristics and all system configurations; • Any technology implications; • Its program acquisition schedule and acquisition strategy; • Its relationship to other existing systems, including predecessor or similar legacy systems; • Support (manpower, training, etc.) and security needs and risk items; • System quantities for development, test, and production; • Deployment and maintenance plans. 	<ul style="list-style-type: none"> • CMS created a high-level architecture to define the technical baseline for both options. • System owners assessed and documented any technical impacts, issues and implications. • The workgroup specified a two-year implementation schedule beginning FY 2014. CMS specified one year of O&M. • System owners described relationships and interfaces to other systems and • System owners provided effort and cost estimates (labor categories and hours, hardware and software) for developing and modifying systems consistent with the CMS IT lifecycle approach. • System owners provided O&M estimates. • System owners provided a risk matrix and risk analysis. • Business process owners provided LOE and cost estimates (customer service and support, outreach and communications, training, new card issuance/processing, and other new processes). When appropriate, some system owners also identified business process impacts and provided data to support estimate calculations for those costs.

<u>Step</u>	<u>Description</u>	<u>GAO Guidance on Cost Estimation</u>	<u>CMS Cost Estimation Process</u>
4	Determine estimating structure	<ul style="list-style-type: none"> • Define a work breakdown structure (WBS) and describe each element in a WBS dictionary (a major automated information system may have only a cost element structure); • Choose the best estimating method for each WBS element; • Identify potential cross-checks for likely cost and schedule drivers; • Develop a cost estimating checklist. 	<ul style="list-style-type: none"> • CMS specified a bottom up estimating approach. • CMS created a WBS for system and business process owners to follow and defined each WBS element, including associated labor categories for contractor support. • CMS determined that system and business owners should choose the best method to estimate their WBS elements. • CMS designed electronic workbooks, instructions for system and business cost owners to input their data, provided instructions and guidance for deriving cost estimates. • The workbook data included information for identifying potential cost, schedule, and risk drivers. • The workbooks automatically cross-checked data and edited for completeness. • CMS developed a cost-estimating matrix to identify all cost elements across organizations (e.g., CMS, SSA, RRB, and States).

<u>Step</u>	<u>Description</u>	<u>GAO Guidance on Cost Estimation</u>	<u>CMS Cost Estimation Process</u>
5	Identify ground rules and assumptions	<ul style="list-style-type: none"> • Clearly define what the estimate includes and excludes; • Identify global and program-specific assumptions, such as the estimate’s base year, including time-phasing and life cycle; • Identify program schedule information by phase and program acquisition strategy; • Identify any schedule or budget constraints, inflation assumptions, and travel costs; • Specify equipment the government is to furnish as well as the use of existing facilities or new modification or development; • Identify prime contractor and major subcontractors; • Determine technology refresh cycles, technology assumptions, and new technology to be developed; • Define commonality with legacy systems and assumed heritage savings; • Describe effects of new ways of doing business. 	<ul style="list-style-type: none"> • The workgroup defined the scope of system and business processes for this project. This established the boundaries, roles, and responsibilities of different organizations. • CMS identified 113 systems and sub-systems and 62 business processes as being potentially impacted by SSN removal. The CMS list of FISMA approved systems was used as the benchmark list of systems for consideration. Additional systems were identified as being impacted and their cost estimates were collected as the project progressed. • The working group documented ground rules and assumptions. The working group responded to system and business owners questions in a series of briefings and Q&A sessions to ensure consistent system and business owners’ responses across the cost estimation process. • CMS provided system and business owners training in the use of the workbooks in October 2012. CMS electronically distributed the cumulative Q&A’s daily to all identified system and business owners during the data collection phase. • CMS identified system and business process contractors to provide input to cost estimates, where necessary, but all contractor estimates were reviewed and submitted by the cognizant CMS POC. • CMS assumed that technical solutions would involve modifying existing system infrastructure. CMS asked system owners to suggest how future technology refreshments or modernization efforts would benefit their solutions. • System and business owners described the impact of the different options.

<u>Step</u>	<u>Description</u>	<u>GAO Guidance on Cost Estimation</u>	<u>CMS Cost Estimation Process</u>
6	Obtain data	<ul style="list-style-type: none"> • Create a data collection plan with emphasis on collecting current and relevant technical, programmatic, cost, and risk data; • Investigate possible data sources; • Collect data and normalize them for cost accounting, inflation, learning, and quantity adjustments; • Analyze the data for cost drivers, trends, and outliers and compare results against rules of thumb and standard factors derived from historical data; • Interview data sources and document all pertinent information, including an assessment of data reliability and accuracy; • Store data for future estimates 	<ul style="list-style-type: none"> • Over 150 business process and system owners within CMS were identified and provided with the cost estimation workbooks. • The 50 States and the District of Columbia, the RRB, SSA, and external private industry stakeholders were provided with data collection instructions, appropriate to their mission. • A data analyst reviewed all submitted workbooks for compliance and data consistency. A data extraction program checked for errors and omissions. • The analysis adjusted CMS system modifications costs to inflation-adjusted dollars. • Data were analyzed at the system and aggregate levels to identify cost drivers and outliers. • Selected system and business owners were contacted to clarify and submit a revised estimate if necessary. • CMS implemented an SQL server database as the data repository for the project. • CMS implemented a SharePoint repository to manage the versions of the workbooks, snapshots of the database and queries daily and report templates.

<u>Step</u>	<u>Description</u>	<u>GAO Guidance on Cost Estimation</u>	<u>CMS Cost Estimation Process</u>
7	Develop point estimate and compare it to an independent cost estimate	<ul style="list-style-type: none"> • Develop the cost model, estimating each WBS element, using the best methodology from the data collected, and including all estimating assumptions; • Express costs in constant year dollars; • Time-phase the results by spreading costs in the years they are expected to occur, based on the program schedule; • Sum the WBS elements to develop the overall point estimate; • Validate the estimate by looking for errors like double counting and omitted costs; • Compare estimate against the independent cost estimate and examine where and why there are differences; • Perform cross-checks on cost drivers to see if results are similar; • Update the model as more data become available or as changes occur and compare results against previous estimates. 	<ul style="list-style-type: none"> • Separate cost methodologies were developed for business process impacts and for system changes. • Data and cost information were summarized by WBS, system, business process, and organization. • Data were validated for reporting errors and inconsistencies. System costs were compared against each other for consistency of assumptions, schedules, overall results and identification of outliers and data anomalies. • An independent cost estimate was performed on system estimates using a CMS structured cost estimating tool and process. • Analysis used constant dollars and later inflated costs to then-year dollars.
8	Conduct sensitivity analysis	<ul style="list-style-type: none"> • Test the sensitivity of cost elements to changes in estimating input values and key assumptions; • Identify effects on the overall estimate of changing the program schedule or quantities; • Determine which assumptions are key cost drivers and which cost elements are affected most by changes. 	<ul style="list-style-type: none"> • CMS conducted a sensitivity analysis , focusing on system effort data and CMS labor rates.

<u>Step</u>	<u>Description</u>	<u>GAO Guidance on Cost Estimation</u>	<u>CMS Cost Estimation Process</u>
9	Conduct risk and uncertainty analysis	<ul style="list-style-type: none"> • Determine and discuss with technical experts the level of cost, schedule, and technical risk associated with each WBS element; • Analyze each risk for its severity and probability; • Develop minimum, most likely, and maximum ranges for each risk element; • Determine type of risk distributions and reason for their use; • Ensure that risks are correlated; • Use an acceptable statistical analysis method (e.g., Monte Carlo simulation) to develop a confidence interval around the point estimate; • Identify the confidence level of the point estimate; • Identify the amount of contingency funding and add this to the point estimate to determine the risk-adjusted cost estimate; • Recommend that the project or program office develop a risk management plan to track and mitigate risk. 	<ul style="list-style-type: none"> • Stakeholders provided cost and technical risks; provided high, low and most likely level of effort estimates. • System and business process owners provided risk scores based on severity and probability. • CMS developed risk distributions and used Monte Carlo simulation to estimate confidence intervals around the point estimate for the systems cost. • CMS will use the cost probability distributions developed from the Monte Carlo simulations to determine the amount of contingency funds required for systems. Contingency fund level is to be determined.

<u>Step</u>	<u>Description</u>	<u>GAO Guidance on Cost Estimation</u>	<u>CMS Cost Estimation Process</u>
10	Document the estimate	<ul style="list-style-type: none"> • Document all steps used to develop the estimate so that a cost analyst unfamiliar with the program can recreate it quickly and produce the same result; • Document the purpose of the estimate, the team that prepared it, and who approved the estimate and on what date; • Describe the program, its schedule, and the technical baseline used to create the estimate; • Present the program’s time-phased life-cycle cost; • Discuss all ground rules and assumptions; • Include auditable and traceable data sources for each cost element and document for all data sources how the data were normalized; • Describe in detail the estimating methodology and rationale used to derive each WBS element’s cost (prefer more detail over less); • Describe the results of the risk, uncertainty, and sensitivity analyses and whether any contingency funds were identified; • Document how the estimate compares to the funding profile; • Track how this estimate compares to any previous estimates. 	<ul style="list-style-type: none"> • This document, “SSN Removal from Medicare Card Cost Analysis Summary” serves as this documentation. • CMS developed this final report based on GAO guidance and discussions.

<u>Step</u>	<u>Description</u>	<u>GAO Guidance on Cost Estimation</u>	<u>CMS Cost Estimation Process</u>
11	Present estimate to management for approval	<ul style="list-style-type: none"> • Develop a briefing that presents the documented life-cycle cost estimate; • Include an explanation of the technical and programmatic baseline and any uncertainties; • Compare the estimate to an independent cost estimate (ICE) and explain any differences; • Compare the estimate (life-cycle cost estimate (LCCE)) or independent cost estimate to the budget with enough detail to easily defend it by showing how it is accurate, complete, and high in quality; • Focus in a logical manner on the largest cost elements and cost drivers; • Make the content clear and complete so that those who are unfamiliar with it can easily comprehend the competence that underlies the estimate results; • Make backup slides available for more probing questions; • Act on and document feedback from management; • Request acceptance of the estimate. 	<ul style="list-style-type: none"> • This report has been reviewed and approved by CMS leadership.

<u>Step</u>	<u>Description</u>	<u>GAO Guidance on Cost Estimation</u>	<u>CMS Cost Estimation Process</u>
12	Update the estimate to reflect actual costs and changes	<ul style="list-style-type: none"> • Update the estimate to reflect changes in technical or program assumptions or keep it current as the program passes through new phases or milestones; • Replace estimates with EVM EAC and independent estimate at completion (EAC) from the integrated EVM system; • Report progress on meeting cost and schedule estimates; • Perform a post mortem and document lessons learned for elements whose actual costs or schedules differ from the estimate; • Document all changes to the program and how they affect the cost estimate. 	Not applicable. This step will be followed after project is initiated.

APPENDIX 2 - TOP 20 CMS IT SYSTEMS COSTS

These tables list the systems reporting the highest cost impacts for Option 1, Option 2, or both. Some systems reported a zero cost impact from one or both options. These systems are still included on the list in order to indicate that the system POC was contacted and did assess the potential costs. The system and subsystem names shown were provided by the CMS POCs.

Workbooks were submitted for 113 systems. A number of systems reporting individually were actually sub-systems of larger systems. This resulted in twenty sub-systems being rolled-up into four major systems. The four major systems – COBR, EDB/DBS/TPS, MARx/PWS, and MBD - are noted in the table below. After the roll-up, the number of systems is 97. The sub-system names are provided in the System Name column in the table below. The original Estimate IDs (EstIDs) assigned to the sub-system workbooks are also shown to facilitate tracking submitted information.

Table 11. Top 20 Systems Using Roll-Ups: Option 1 Costs Ranked

CMS System Acronym	CMS System Name	CMS Sub-System Name	System Cost Option 1 (FY14\$)	System Cost Option 2 (FY14\$)	EstID	Rank By Option 1 Costs
Medicare Administrative Contractors (MAC) operations	Extrapolated data to estimate systems updates for all MAC and DME MAC Jurisdictions		\$6,124,239	\$3,181,544	10126	1
Crosswalk Service			\$5,570,890	\$0	10177	2
Medicare Beneficiary Database (MBD) Roll-up	Total Costs of System Roll-Up: MBD (Maintainer and Tester)		\$4,590,594	\$1,315,085	MBD Roll-up	3
CCW	Chronic Condition Data Warehouse		\$4,296,648	\$0	10152	4
RAS/RAPS	Risk Adjustment System-RAPS		\$4,011,189	\$0	10137	5

CMS System Acronym	CMS System Name	CMS Sub-System Name	System Cost Option 1 (FY14\$)	System Cost Option 2 (FY14\$)	EstID	Rank By Option 1 Costs
Limited Income newly Eligible Transition Program (LI-NET)	IVR, CCP2, CICMS, FELIX, EDW, CI2, ET, TSGI2, MSME, Communicator	Humana IT	\$3,844,579	\$1,370,309	10068	6
(COBR) Roll-up	Coordination of Benefits (COBR) Systems Roll-Up		\$3,617,466	\$2,469,990	COBR Roll-up	7
NGD MBP	Next Generation Desktop-Medicare Beneficiary Portal		\$2,955,922	\$781,232	10144	8
PQRS	Physician Quality Reporting System	N/A	\$2,856,242	\$2,110,936	10103	9
Internet Services	Internet Services	Medicare.gov	\$2,539,704	\$3,722,092	10146	10
QIES	Quality Improvement and Evaluation System	Assessment Collection	\$2,352,616	\$1,739,669	10049	11
Encounter Data Processing System			\$2,344,550	\$0	10063	12
ESRD MDAS	ESRD Measures Development and Analytics System		\$2,268,909	\$2,475,693	10150	13

CMS System Acronym	CMS System Name	CMS Sub-System Name	System Cost Option 1 (FY14\$)	System Cost Option 2 (FY14\$)	EstID	Rank By Option 1 Costs
TrOOP	True Out of Pocket (Part D) Expenditures		\$1,487,322	\$1,403,253	10054	14
Enrollment Data Base (EDB) Roll-up	Total Costs of System Roll-Up: EDB/DBS/TP S		\$1,409,374	\$716,239	EDB Roll-up	15
VMS	ViPS Medicare Shared System (DME)		\$1,377,492	\$111,202	10052	16
LI-NET	Limited Income Newly Eligible Transition Program	Argus	\$1,114,866	\$552,843	10067	17
Medicare Advantage & Part D Enrollment System (MARx) Roll-up	Total Costs of System Roll-Up: MARx/PWS		\$1,108,646	\$550,090	MARx/PWS Roll-up	18
CROWN	Consolidated Renal Operations in a Web-Enabled Environment		\$848,829	\$505,038	10104	19
FISS	Pinnacle Fiscal Intermediary Shared System		\$764,988	\$72,519	10017	20
CMS System Costs for 20 Most Costly Systems: Relative to Option 1			\$ 55,485,064			
Total Systems Costs: Option 1			\$ 64,352,166			
Costs of Top 20 Systems as Percentage of Total CMS Systems Costs: Option 1			86%			

Table 12. Top 20 Systems Using Roll-Ups: Option 2 Costs Ranked

CMS System Acronym	CMS System Name	CMS Sub-System Name	System Cost Option 1 (FY14\$)	System Cost Option 2 (FY14\$)	EstID	Rank By Option 2 Costs
Internet Services	Internet Services	Medicare.gov	\$2,539,704	\$3,722,092	10146	1
Medicare Administrative Contractor (MAC) operations	Extrapolated data to estimate systems updates for all MAC and DME MAC Jurisdictions		\$6,124,239	\$3,181,544	10126	2
ESRD MDAS	ESRD Measures Development and Analytics System		\$2,268,909	\$2,475,693	10150	3
COBR Roll-up	Coordination of Benefits (COB) Systems Roll-Up		\$3,617,466	\$2,469,990	COBR Roll-up	4
PQRS	Physician Quality Reporting System	N/A	\$2,856,242	\$2,110,936	10103	5
QIES	Quality Improvement and Evaluation System	Assessment Collection	\$2,352,616	\$1,739,669	10049	6
TrOOP	True Out of Pocket Expenditures		\$1,487,322	\$1,403,253	10054	7
Limited Income Newly Eligible Transition Program (LI-NET)	IVR, CCP2, CICMS, FELIX, EDW, CI2, ET, TSGI2, MSME, Communicator	Humana IT	\$3,844,579	\$1,370,309	10068	8

CMS System Acronym	CMS System Name	CMS Sub-System Name	System Cost Option 1 (FY14\$)	System Cost Option 2 (FY14\$)	EstID	Rank By Option 2 Costs
Medicare Beneficiary Database (MBD) Roll-up	Total Costs of System Roll-Up: MBD (Maintainer and Tester)		\$4,590,594	\$1,315,085	MBD Roll-up	9
NGD MBP	Next Generation Desktop-Medicare Beneficiary Portal		\$2,955,922	\$781,232	10144	10
Enrollment Database (EDB) Roll-up	Total Costs of System Roll-Up: EDB/DBS/TPS		\$1,409,374	\$716,239	EDB Roll-up	11
LI-NET	Limited Income Newly Eligible Transition Program	Argus	\$1,114,866	\$552,843	10067	12
Medicare Advantage and Part D Enrollment Systems (MARx) Roll-up	Total Costs of System Roll-Up: MARx/PWS		\$1,108,646	\$550,090	MARx/PWS Roll-up	13
CROWN	Consolidated Renal Operations in a Web-Enabled Environment		\$848,829	\$505,038	10104	14
HPMS	Health Plan Management System	Complaint Tracking Module (CTM)	\$379,159	\$455,220	10098	15
One PI	One Program Integrity		\$332,298	\$332,298	10004	16

CMS System Acronym	CMS System Name	CMS Sub-System Name	System Cost Option 1 (FY14\$)	System Cost Option 2 (FY14\$)	EstID	Rank By Option 2 Costs
REMAS	Recovery Management and Accounting System	ReMAS Web, Batch	\$296,528	\$316,601	10069	17
HETS	HIPAA Eligibility Transaction System		\$388,436	\$299,053	10024	18
NFPP	National Fraud Prevention Program		\$756,601	\$289,084	10141	19
MAS	Medicare Appeals System		\$349,887	\$237,750	10173	20
CMS System Costs for 20 Most Costly Systems: Relative to Option 2				\$ 24,824,019		
Total Systems Costs: Option 2				\$ 26,201,064		
Costs of Top 20 Systems as Percentage of Total CMS Systems Costs: Option 2				95%		

APPENDIX 3 - STATES' SYSTEM MODIFICATION COSTS

The estimated Option 1 and Option 2 costs for the reporting State Medicaid Agencies (States) and the District of Columbia are shown below. States estimated cost impact of SSN Removal to their State Medicaid programs. Costs reflect the impact on a variety of functions including: Database Expansion; Access HICN to MBI Translator Service; Eligibility Determination; Medicare Buy-In; Medicare Cross-Over Claims / COBA; Pharmacy POS; Part D MMA Process; "Duals" Project; Nursing Home MDS Process; MSIS or T-MSIS. States estimated these costs over four life cycle phases: Project Management; Initiation and Planning; Requirements Analysis and Design; and Development and Implementation.

CMS' Office of Information Services verified each State's assumption regarding the coordination of benefits (COB) claims process. Data exchanges between the States and CMS can continue to use the HICN. However, that is NOT the case for the Coordination of Benefits process. That means the monthly or bi-weekly files of recipient eligibility data sent to CMS by the States will need to include the MBI rather than the HICN for Option 1. The crossover claims sent to the States from the COB contractor on behalf of CMS will contain the MBI rather than the HICN for Option 1. For Option 2, both of these processes will remain HICN-based as they are today.

Table 13. State System Modification Costs

#	State (data provided by the States)	Option 1 Costs (FY14\$)	Option 2 Costs (FY14\$)
1	Alabama	\$905,368	\$79,631
2	Alaska	\$559,415	\$491,701
3	Arizona	\$412,168	\$412,168
4	Arkansas	\$1,607,455	\$463,689
5	California	\$1,669,280	\$1,669,280
6	Colorado	\$116,850	\$0
7	Connecticut	\$216,156	\$27,461
8	Delaware	\$1,267,417	\$556,427
9	District of Columbia	\$906,708	\$47,853
10	Florida	\$700,686	\$144,259
11	Georgia	\$166,773	\$0
12	Hawaii	\$0	\$0
13	Idaho	\$453,385	\$0
14	Illinois	\$356,190	\$145,444
15	Indiana	\$741,902	\$370,951
16	Iowa	\$383,316	\$383,316
17	Kansas	\$195,780	\$0
18	Kentucky	\$316,854	\$92,738
19	Louisiana	\$231,845	\$0
20	Maine *		
21	Maryland	\$327,674	\$0
22	Massachusetts	\$1,131,401	\$61,825

#	State (data provided by the States)	Option 1 Costs (FY14\$)	Option 2 Costs (FY14\$)
23	Michigan	\$7,357,199	\$0
24	Minnesota	\$865,553	\$0
25	Mississippi	\$1,421,980	\$865,553
26	Missouri	\$843,862	\$519,806
27	Montana	\$1,830,438	\$896,465
28	Nebraska	\$257,002	\$15,765
29	Nevada	\$100,827	\$100,827
30	New Hampshire	\$1,232,356	\$224,673
31	New Jersey	\$63,886	\$0
32	New Mexico	\$273,984	\$0
33	New York	\$393,765	\$0
34	North Carolina	\$503,103	\$0
35	North Dakota	\$50,954	\$0
36	Ohio	\$1,174,679	\$27,821
37	Oklahoma	\$469,872	\$0
38	Oregon	\$397,244	\$0
39	Pennsylvania	\$6,058,870	\$865,553
40	Rhode Island	\$0	\$0
41	South Carolina	\$741,902	\$57,961
42	South Dakota	\$121,667	\$88,616
43	Tennessee	\$783,222	\$0
44	Texas	\$3,409,969	\$262,757
45	Utah	\$391,560	\$41,217
46	Vermont	\$1,452,892	\$340,039
47	Virginia	\$896,465	\$0
48	Washington	\$1,669,280	\$370,951
49	West Virginia	\$694,289	\$0
50	Wisconsin	\$0	\$0
51	Wyoming	\$168,556	\$70,847
Grand Total: States Costs		\$46,291,998	\$9,695,593
* Maine did not report data			

Detailed State Cost Estimates

Forty-nine States and the District of Columbia provided estimated costs for this effort. States provided estimated level of effort (labor hours) across four program lifecycle phases: Project Management, Initiation and Planning, Requirements Analysis and Design, and Development and Implementation. States also divided labor hours into eleven (or more) areas of functional impact: Data Base Expansion, Access HICN to MBI Translator Service, Eligibility Determination, Medicare Buy-In, Medicare Cross-Over Claims / COBA, Pharmacy POS, Part D MMA Process, "Duals" Project, Nursing Home MDS Process, MSIS or T-MSIS, and Other. Some States added additional categories into this list.

Table 14. State Estimated Effort and Costs by Life Cycle Phase (Constant FY14\$)

Life Cycle Phase	Option 1		Option 2	
	Effort (Hours)	Cost (FY14\$)	Effort (Hours)	Cost (FY14\$)
Project Management	37,054	\$ 5,079,839	8,384	\$ 1,078,858
Initiation and Planning	33,069	\$ 4,466,746	9,083	\$ 1,190,392
Requirements Analysis and Design	80,172	\$ 10,526,845	19,017	\$ 2,369,966
Development and Implementation	198,406	\$ 26,218,568	40,465	\$ 5,056,377
TOTALS	348,701	\$ 46,291,998	76,949	\$ 9,695,593

Table 15. State Estimated Effort and Costs by Impacted Function (Constant FY14\$)

Impacted Function	Option 1		Option 2	
	Effort (Hours)	Cost (FY14\$)	Effort (Hours)	Cost (FY14\$)
"Duals" Project	10,085	\$ 1,300,364	3,425	\$ 476,647
Access HICN to MBI Translator Service	17,431	\$ 2,341,980	6,263	\$ 780,579
Data Base Expansion / Buy in, Data Warehouse	58,237	\$ 7,896,378	6,728	\$ 768,832
Eligibility Determination	55,346	\$ 7,227,798	11,326	\$ 1,351,416
MDS	240	\$ 18,548	61	\$ 4,714
Medicare Buy-In	54,412	\$ 7,072,639	13,662	\$ 1,853,726
Medicare Cross-Over Claims / COBA	34,781	\$ 4,679,663	9,484	\$ 1,122,467
MSIS or T-MSIS	13,089	\$ 1,800,175	1,671	\$ 226,126
Nursing Home MDS Process	5,465	\$815,927	1,025	\$ 157,216
Part D MMA Process	39,446	\$ 4,942,575	7,416	\$ 962,423
Pharmacy POS	11,337	\$ 1,514,800	2,683	\$ 315,700
Other	48,833	\$ 6,681,152	13,205	\$ 1,675,746
TOTALS	348,701	\$ 46,291,998	76,949	\$ 9,695,593

The results by impacted function are shown in Figures 2 and 3 in Constant FY14 Dollars. Figure 2 shows that most of the costs for Option 1 are in Database Expansion and Eligibility Determination functions.

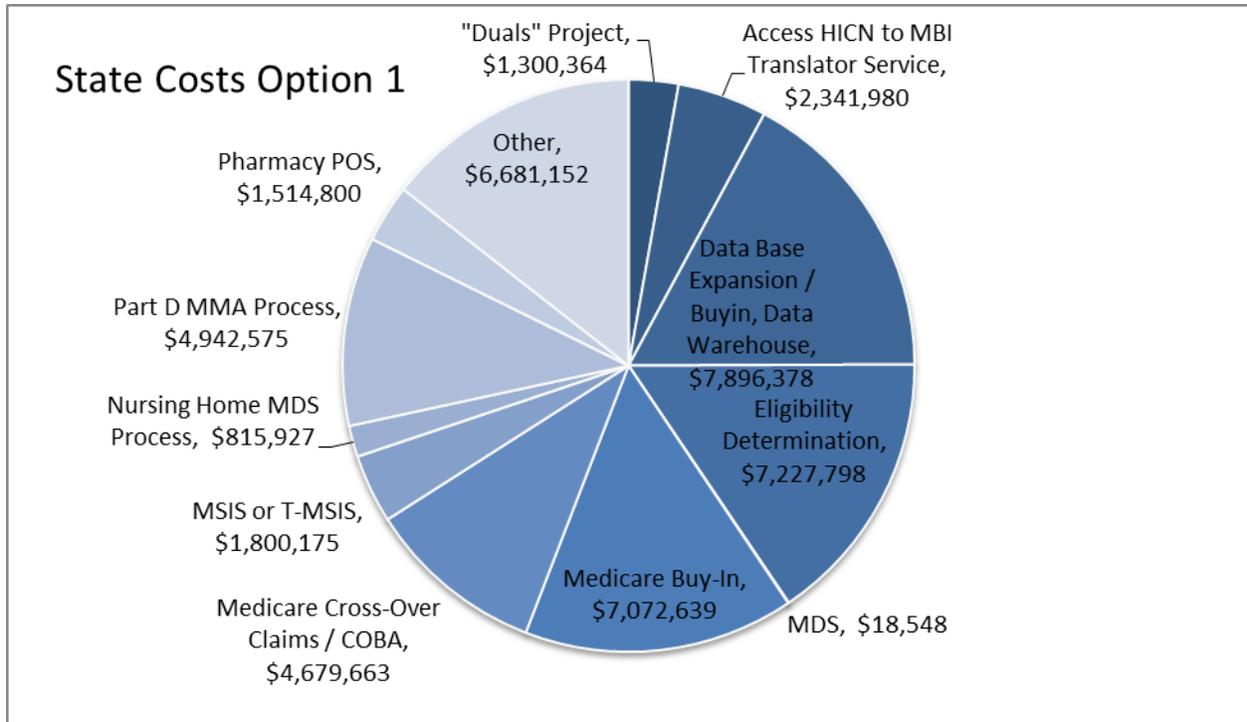


Figure 2. Option 1 Distribution of Costs by Functional Impact (FY14\$)

Figure 3 shows that the largest share of costs in Option 2 is in Medicare Buy-in and Eligibility Determination. Compared with Option 1, the costs for Database Expansion are much reduced.

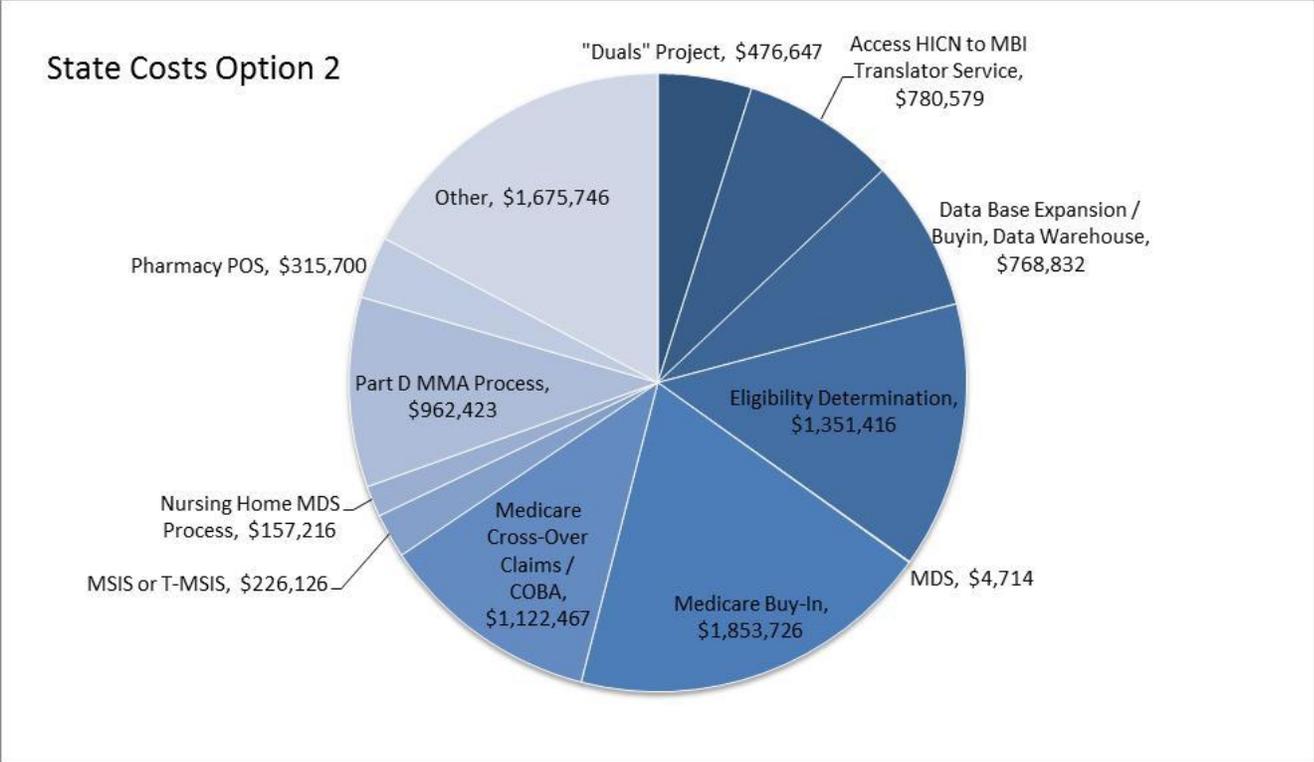


Figure 3. Option 2 Distribution of Costs by Functional Impact (FY14\$)

Each State provided its own cost estimate, accounting for the architecture and systems design of their Medicaid Management Information System and its interfaces with CMS systems; the technical expertise of their staff; the local cost of labor; and any other relevant factors. As a result the estimates vary from State to State. A graphical display of the variation across States is provided in Figures 4 through 7. These show the distribution (count) by Option, for the estimated hours and estimated costs. For Option 1, the mean hours estimate is 6,974 with standard deviation 10,427. The median hours estimate is 4,017. Three States estimated there would be zero cost for Option 1.

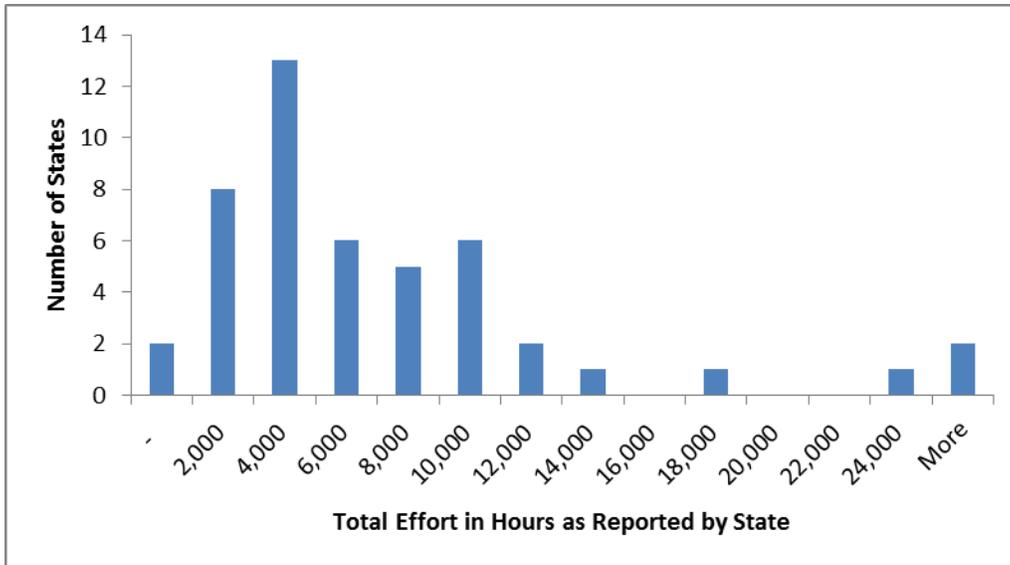


Figure 4. Option 1 Estimated Effort by State (Hours)

Note that the distribution of hours by reporting State resembles a log-normal curve, with a relatively long right tail. Although not shown here, this is only partly explained by differences in beneficiary population by State; a more likely explanation is the known variation in MMIS design and architecture, and the ease or complexity of changes as a result.

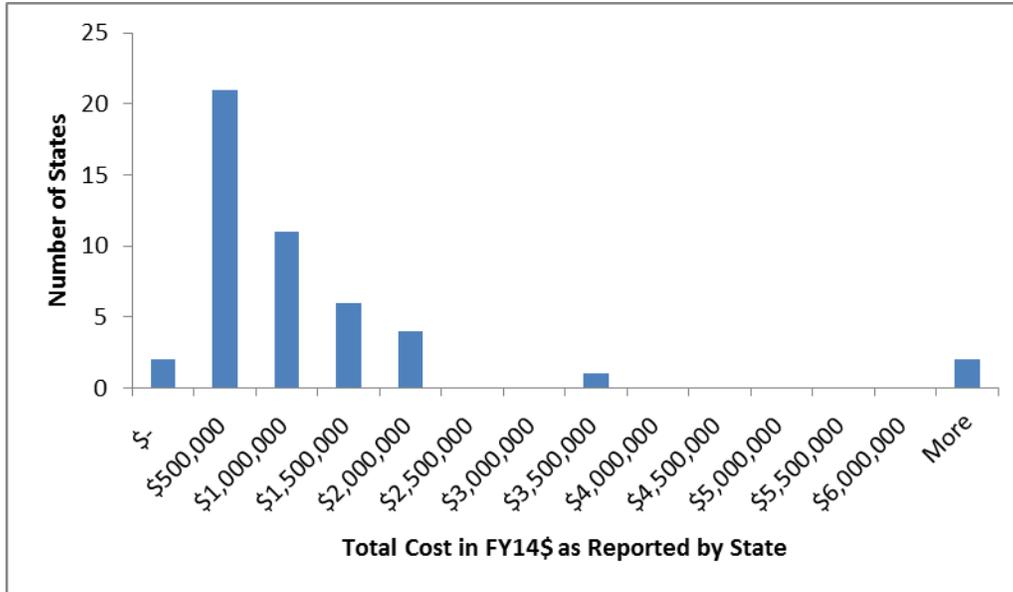


Figure 5. Option 1 Estimated Costs by State (FY14\$)

Figure 5 shows an even sharper distribution of costs, with a plurality of States reporting costs of between \$0 and \$500,000, and more than half reporting costs under \$1M.

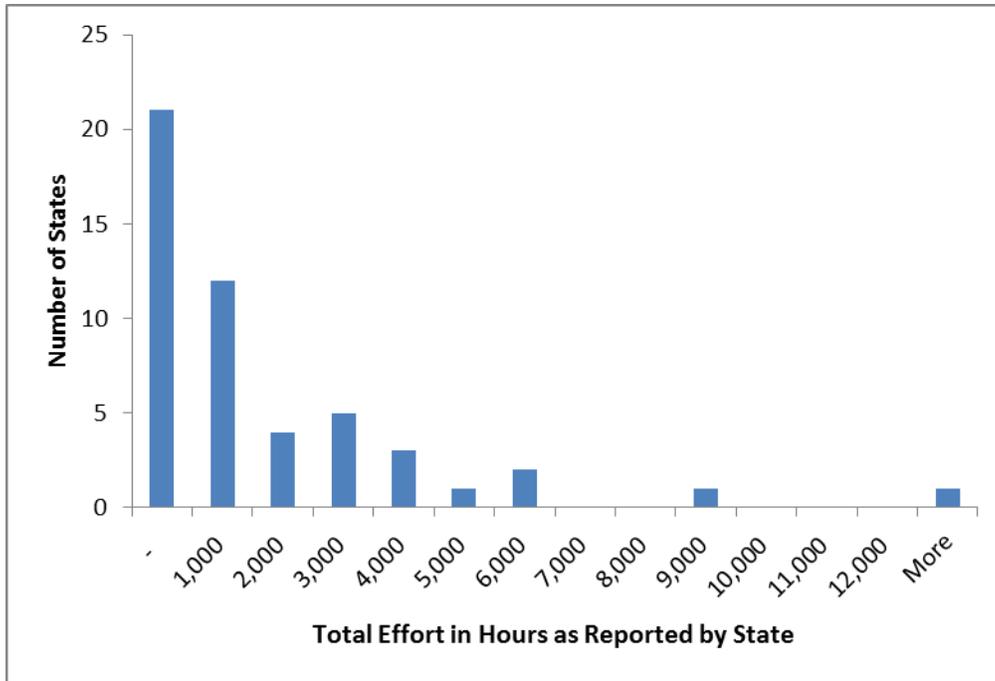


Figure 6. Option 2 Estimated Effort by State (Hours)

Figure 6 shows the differences across States for Option 2 effort. Unlike Option 1, the plurality of States report zero effort for Option 2, as most of the systems and business costs are borne elsewhere: beneficiaries, providers, CMS, and other organizations.

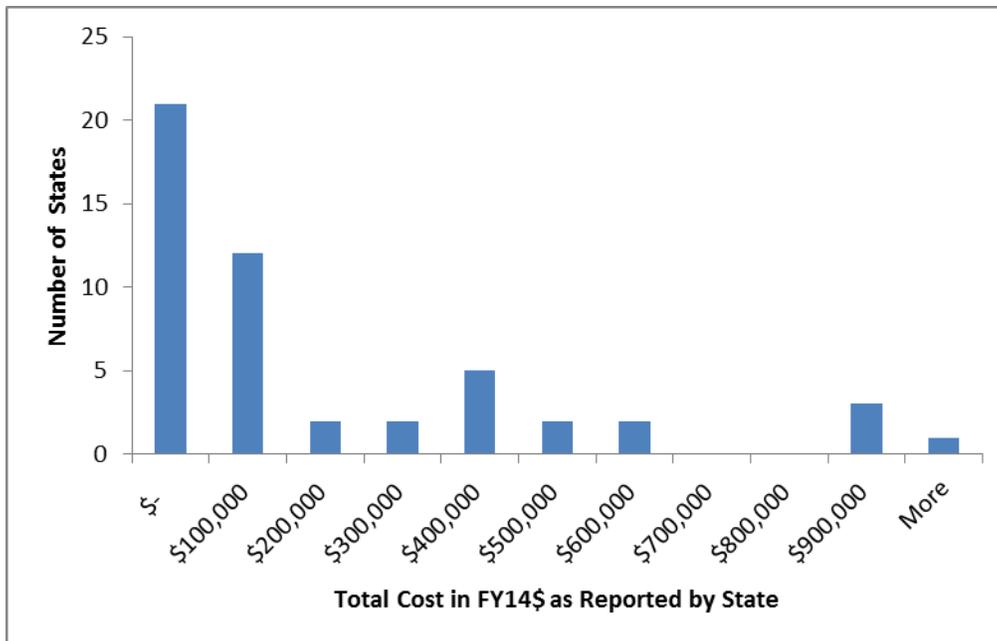


Figure 7. Option 2 Estimated Costs by State (FY14\$)

The cost data shown in Figure 7 similarly show a highly skewed distribution. For Option 2 the mean hours estimate is 1,539, with standard deviation 2,794. The median hours estimate is 388. Twenty-one States estimated zero cost for Option 2.

APPENDIX 4 - RRB COSTS

The Railroad Retirement Board (RRB) universe of beneficiaries is 480,000. RRB assumed an undeliverable rate of 10% for the mailing of new Medicare cards. RRB assumed that 20% of all beneficiaries inquire as a result of outreach prior to mailing of new Medicare cards and the actual mailing. RRB included direct salary and fringe benefits (26.7%) in their estimates. All RRB cost estimates have been adjusted to constant FY14 dollars for presentation in this document. Cost totals may not sum exactly due to rounding.

Table 16. RRB Cost Summary

RRB Estimates (assumes 480,000 RRB beneficiaries)	Option 1 MBI Costs (FY14\$)	Option 2 Obscured HICN Costs (FY14\$)
Business Processes Costs	\$ 994,319	\$ 994,319
Systems Costs	\$ 839,066	\$ 398,635
Total: RRB Costs	\$ 1,833,385	\$ 1,392,955

Table 17. RRB Business Process Costs

RRB Business Processes (assumes 480,000 RRB beneficiaries)	Costs (FY14\$)
Printing and Mailing of New Medicare Cards	\$400,735
Beneficiary Inquiries as a Result of the Mailing of New Medicare Cards	\$294,865
Undeliverable Mail Handling as a Result of the Mailing of New Medicare Cards	\$57,423
User Costs Related to System and Procedure Changes	\$186,168
Beneficiary Education and Publications	\$55,127
Total: RRB Business Process Costs	\$994,319
<i>RRB estimated Business Process Costs are the same for Option 1 and Option 2</i>	



Table 18. RRB Systems Costs

RRB System Costs (assumes 480,000 RRB beneficiaries)		
Task/Program	Option 1: MBI Costs (FY14\$)	Option 2: Obscured HICN Costs (FY14\$)
Application Design Center	\$ 809,844	\$ 371,927
Database Administrator	\$ 2,513	\$ 0
Miscellaneous Costs	\$ 26,708	\$ 26,708
Total: RRB Systems Costs	\$ 839,066	\$ 398,635

APPENDIX 5 - SSA COSTS

The tables below present the Administrative Estimates for SSN Removal provided by Social Security Administration (SSA), adjusted to FY14 dollars and rounded to the nearest hundred thousand dollars. SSA provided Administrative Estimates for Implementation Costs and ongoing costs in FY12 dollars, and level of effort in Workyears. As SSA notes, “*Workyears refer to the level of effort required and can either be full-time equivalents, overtime or a combination of the two.*”

SSA provided costs for multiple line items included in Implementation Costs and in Ongoing Costs for Option 1 and Option 2. The tables here replicate the rounding used by SSA for their cost reporting. Columns may not sum due to rounding. In addition, the final cost totals were rounded to the nearest million before being grouped and added with the other stakeholder cost estimates, again following the format of SSA’s report. Thus the Option 1 cost used in the body of this report is \$97M, and the Option 2 cost is \$98M.

SSA provided three undeliverable rates during the year of card issuance: 3% (low); 4% (medium); and 5% (high). Therefore, SSA provided Low, Mid, and High costs and workyears for the Undeliverable Workload portion of Implementation costs. In the overall CMS SSN Removal cost analysis, the “Mid” SSA estimates are used as the point estimates for SSN Removal tables showing stakeholder estimates and for any additional SSN Removal analysis. Note: Due to rounding, the sum of SSA’s detailed costs may differ from SSA’s summary costs.

Note that the scope of the overall project effort is FY14-FY15. SSA ongoing O&M costs begin in FY16. As these costs occur outside the time frame of this estimate, they are not included in total cost estimates, but are provided here in Table 21 for reference.

Additional SSA assumptions are shown after the last SSA table below, Table 21.

Table 19. SSA Cost Summary

SSA Administrative Estimates (Using SSA Rounded Estimates)	Option 1 MBI Costs (FY14\$)			Option 1 MBI Workyears		
	Low	Mid	High	Low	Mid	High
Implementation Costs	\$88,800,000	\$97,200,000	\$105,700,000	577	667	757
Ongoing Costs	\$4,900,000	\$4,900,000	\$4,900,000	30	30	30
SSA Administrative Estimates (Using SSA Rounded Estimates)	Option 2 Obscured HICN Costs (FY14\$)			Option 2 Obscured HICN Workyears		
	Low	Mid	High	Low	Mid	High
Implementation Costs	\$89,900,000	\$98,300,000	\$106,700,000	592	687	782
Ongoing Costs	\$6,000,000	\$6,000,000	\$6,000,000	38	38	38

Table 20. SSA Implementation Costs

SSA Administrative Estimates (Using SSA Rounded Totals): Implementation	Option 1 MBI Costs (FY14\$ rounded to nearest \$100,000)			Option 1 MBI Workyears		
	Low	Mid	High	Low	Mid	High
Inquiries	\$52,700,000	\$52,700,000	\$52,700,000	265	265	265
Undeliverable Workload	\$25,340,000	\$33,700,000	\$42,200,000	265	355	445
Replacement Card Requests	\$3,200,000	\$3,200,000	\$3,200,000	25	25	25
Outreach	\$200,000	\$200,000	\$200,000	2	2	2
Systems	\$7,400,000	\$7,400,000	\$7,400,000	20	20	20
Total SSA Implementation Costs (SSA Administrative Estimates; Rounded Totals): Option 1	\$88,800,000	\$97,200,000	\$105,700,000	577	667	757
SSA Administrative Estimates (Using SSA Rounded Totals): Implementation	Option 2 Obscured HICN Costs (FY14\$ rounded to nearest \$100,000)			Option 2 Obscured HICN Workyears		
	Low	Mid	High	Low	Mid	High
Inquiries	\$52,700,000	\$52,700,000	\$52,700,000	265	265	265
Undeliverable Workload	\$26,400,000	\$34,800,000	\$43,200,000	280	375	470
Replacement Card Requests	\$3,200,000	\$3,200,000	\$3,200,000	25	25	25
Outreach	\$200,000	\$200,000	\$200,000	2	2	2
Systems	\$7,400,000	\$7,400,000	\$7,400,000	20	20	20
Total SSA Implementation Costs (SSA Administrative Estimates; Rounded Totals): Option 2	\$89,900,000	\$98,300,000	\$106,700,000	592	687	782

Table 21. SSA Ongoing O&M Costs

SSA Administrative Estimates (Using SSA Rounded Totals): Ongoing Costs	Option 1 MBI Costs (FY14\$)	Option 1 MBI Workyears	Option 2 Obscured HICN Costs (FY14\$)	Option 2 Obscured HICN Workyears
Inquiries related to change in Medicare award notice	\$400,000	2	\$400,000	2
Inquiries related to the new Medicare number	\$2,100,000	13	\$2,100,000	13
Replacement Card Requests	\$1,100,000	5	\$1,100,000	5
Supplementary Medical Insurance (SMI)	\$100,000	1	\$200,000	1
Query to process Medicare related requests	\$1,100,000	8	\$2,100,000	16
Query to process undeliverable Medicare cards	\$100,000	1	\$100,000	1
Total SSA Ongoing Costs (SSA Administrative Estimates; Rounded Totals): Option 1	\$4,900,000	30	\$6,000,000	38

Additional SSA Assumptions

(These assumptions are extracted from the Administrative Estimates input provided by SSA.)

General

- SSA requires training for Operations staff; however, SSA have included this cost in their overhead.

Implementation Costs

- **Inquiries:** SSA expects to receive a 5 percent increase in inquiries in response to the release of the new Medicare card. The time needed to address beneficiaries' questions regarding the new card will be the same whether the person talks to an 800-number technician or visits a Field Office (FO).
- **Undeliverable Workload:** The undeliverable mail is sent to the Processing Centers (PCs) for review when CMS is unsuccessful at obtaining a better address. If the PCs are unsuccessful, a development request is sent to the FO. SSA uses an undeliverable mail rate of 3, 4 and 5 percent for this mailing. Also, since the PCs will have to query CMS for the beneficiary's SSN, they estimate these undeliverable actions will take an extra half a minute to process [Option 1] and an extra minute to process [Option 2].
- **Replacement:** The work done on the undeliverable items should result in most Medicare beneficiaries receiving the new Medicare card. SSA estimates that only 0.5 percent of Medicare beneficiaries will visit a FO to request a replacement card due to non-receipt. This does not include internet or automated telephone requests that do not require manual actions.
- **Outreach:** SSA will conduct six months of outreach beginning October 2014 that will supplement CMS's outreach efforts.
- **Systems:**

- Option 1: SSA systems will need modifications to an existing CMS/SSA query to translate the MBI to the full HICN and visa-versa. In addition, SSA will modify the existing Medicare replacement card internet and intranet screens to accept the MBI or full HICN. SSA systems would also add a replacement selection feature giving the reason for the request (lost, stolen, and other). SSA will require systems changes to add a Statement regarding the new MBI on all Medicare award notices. Finally, SSA will require ITS funding for additional telephone costs.
- Option 2: SSA will need to modify an existing CMS/SSA query to translate the partial HICN to the full HICN and visa-versa. In addition, SSA will modify the existing Medicare replacement card internet and intranet screens to accept the partial HICN or the full HICN. SSA will require systems changes to add a Statement regarding the obscured HICN on all Medicare award notices. Finally, SSA will require ITS funding for additional telephone costs.

Ongoing Costs

- **Inquiries related to change in Medicare award notice:** SSA will add a line on the Medicare award notice that will alert the beneficiary that the SSN provided on this notice will not be the same as their Medicare number. These notices are provided to approximately 25 percent of Medicare applicants who are not receiving Title II benefits at least 4 months before Medicare entitlement begins. They assume 5 percent of this population will contact SSA with questions about this.
- **Inquiries related to the new Medicare number:** SSA assumes they will have an ongoing modest increase in inquiries related to the change in the Medicare number.
- **Replacement Card Requests:** SSA assumes they will have an ongoing modest increase in replacement card requests for those individuals who misplace their new card and require it to obtain medical services.
- **Supplementary Medical Insurance (SMI) Refusals:** SSA assumes that they will need half a minute to query the SSN of the beneficiary declining SMI [Option 1] and a minute would be needed to query the SSN of the beneficiary declining SMI [Option 2].
- **Query to process Medicare related requests:** SSA expects that Operations staff would need to query for the SSN/HICN in order to process Medicare related requests when the beneficiary does not have that information. Therefore, they are estimating 50 percent of Part A/B actions may require a query to convert the MBI to the SSN (HICN) in order to transact business.
 - Option 1: SSA assumes that Operations staff will enter only one field of data (the MBI) to get the SSN/HICN. They estimate this action will take half a minute.
 - Option 2: SSA assumes that Operations staff will enter at least two fields of data (the obscured HICN and name of the beneficiary) to get the full SSN/HICN. They estimate this action will take a minute.
- **Query to process undeliverable Medicare cards:** The PCs will continue to query CMS for the SSN when there is an undeliverable Medicare card. This action will take the PC technicians an extra half a minute [Option 1] and an extra minute [Option 2].

APPENDIX 6 - DETAILED STAKEHOLDER FEEDBACK RESULTS

The following graphs represent input from providers, clearinghouses and other stakeholders. The providers and clearinghouses anticipate that changes to workflow and increased support staff may result in higher costs with the Obscured HICN option. Providers anticipate that costs driven by internal computer system changes will be higher for Option 2 as well. Both groups conclude the MBI (Option 1) is the better choice for their organizations. Others, including DME suppliers, colleges/universities, and others, anticipate little difference in costs and disruption for either option. However, they do prefer the MBI option.

PROVIDERS ONLY

This data provides a summary of the providers’ responses to feedback questions one through five.

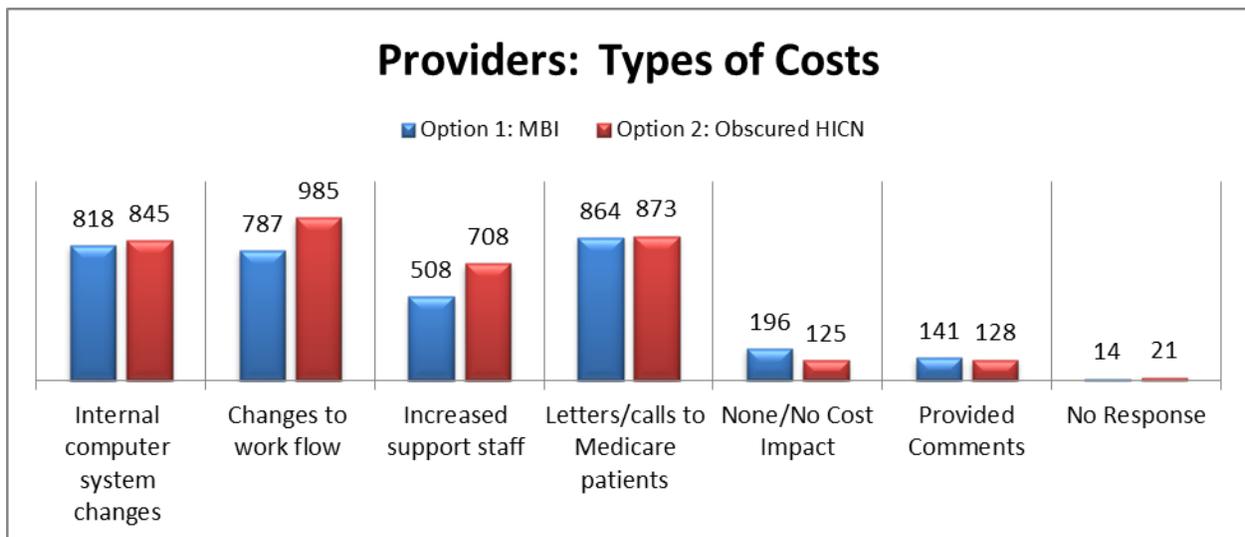


Figure 8. Stakeholder Feedback: Provider Costs

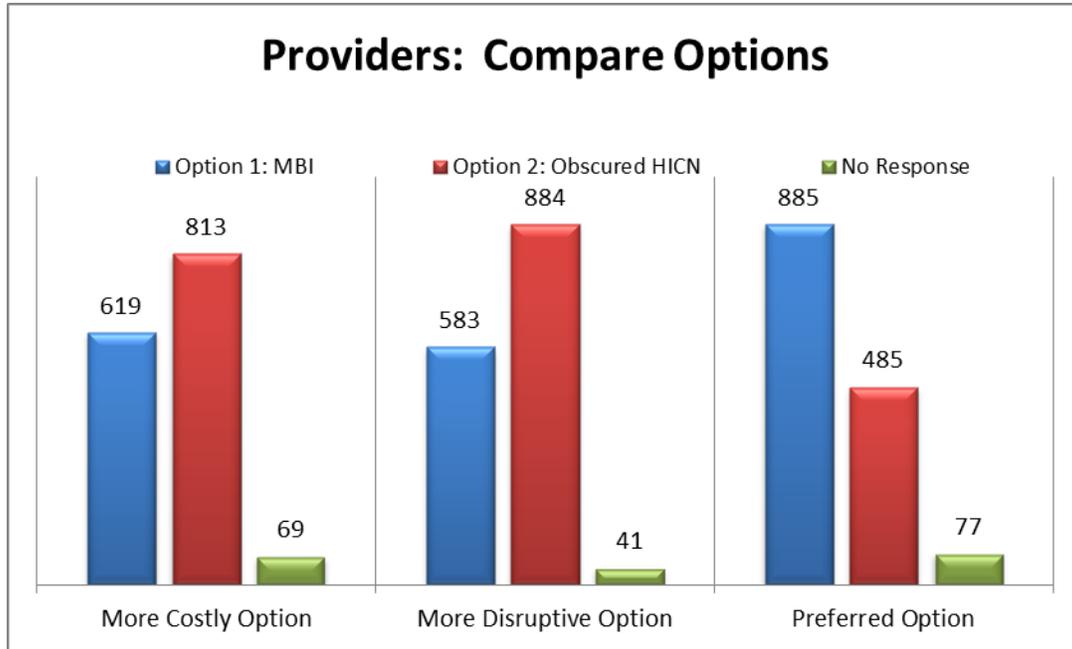


Figure 9. Stakeholder Feedback: Provider Options Comparison

CLEARINGHOUSES ONLY

This data is a summary of the clearinghouses' responses to feedback questions one through five.

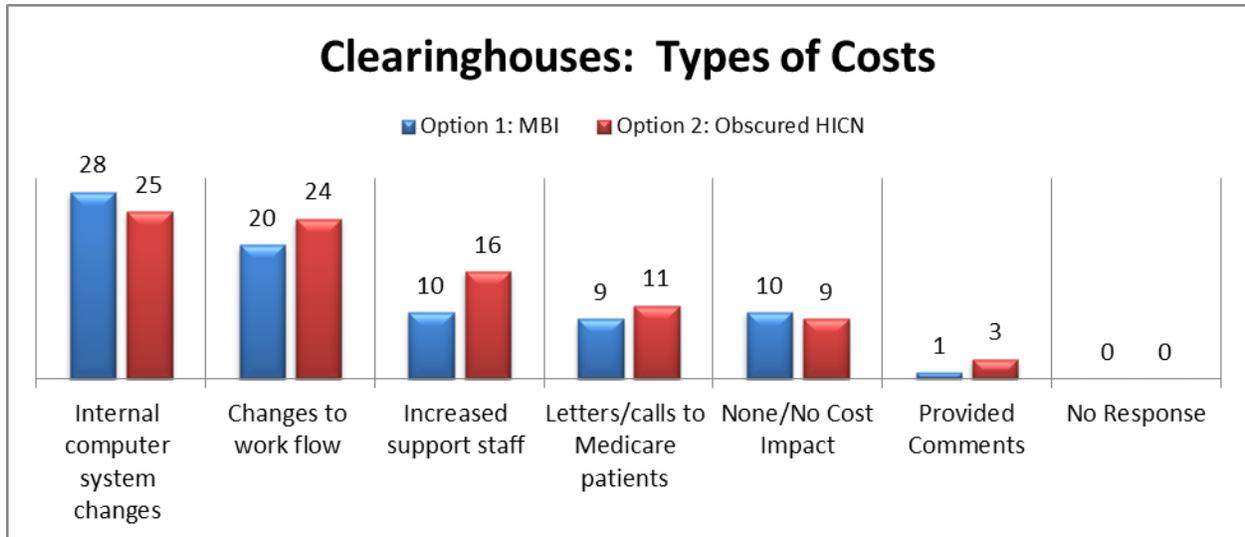


Figure 10. Stakeholder Feedback: Clearinghouse Costs

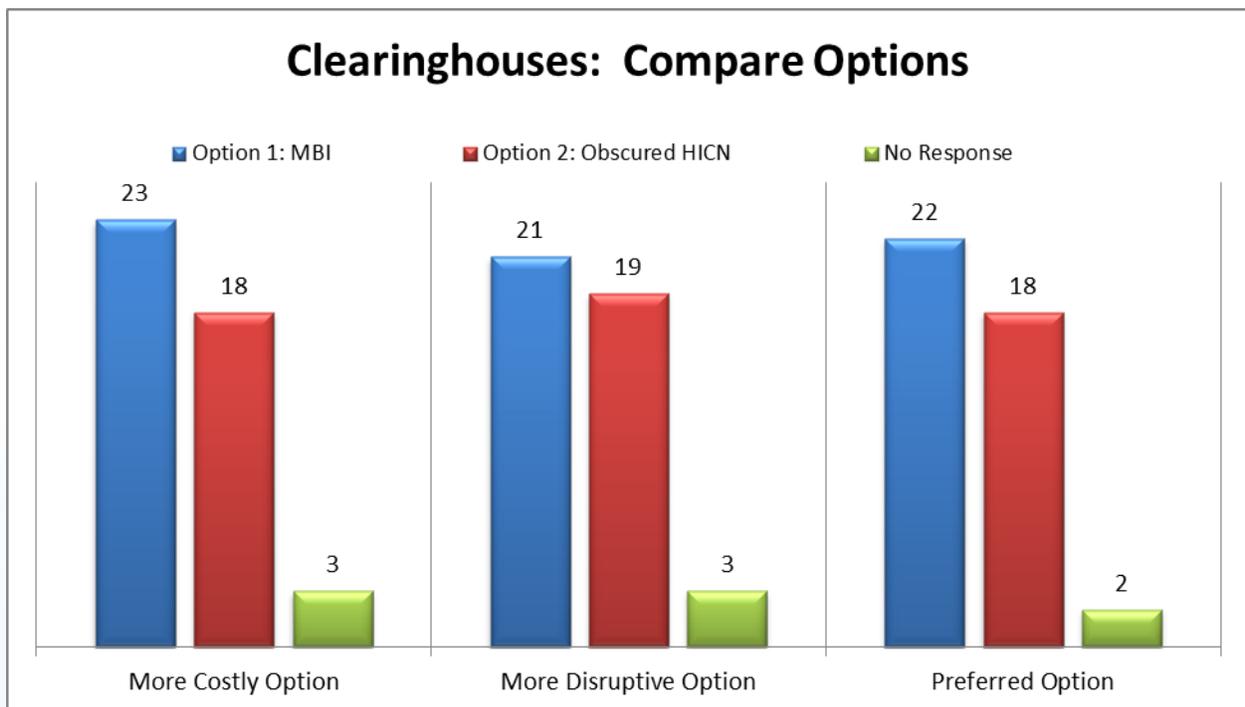


Figure 11. Stakeholder Feedback: Clearinghouse Options Comparison

OTHER RESPONDENTS

This data is a summary of other respondents' responses to feedback questions one through five.

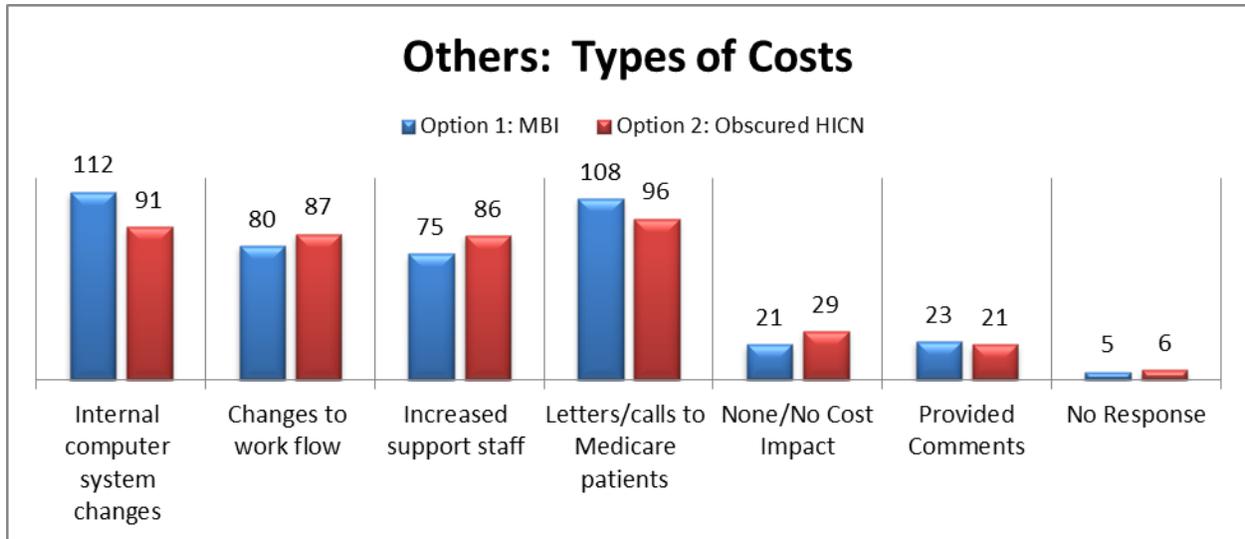


Figure 12. Stakeholder Feedback: Other Costs

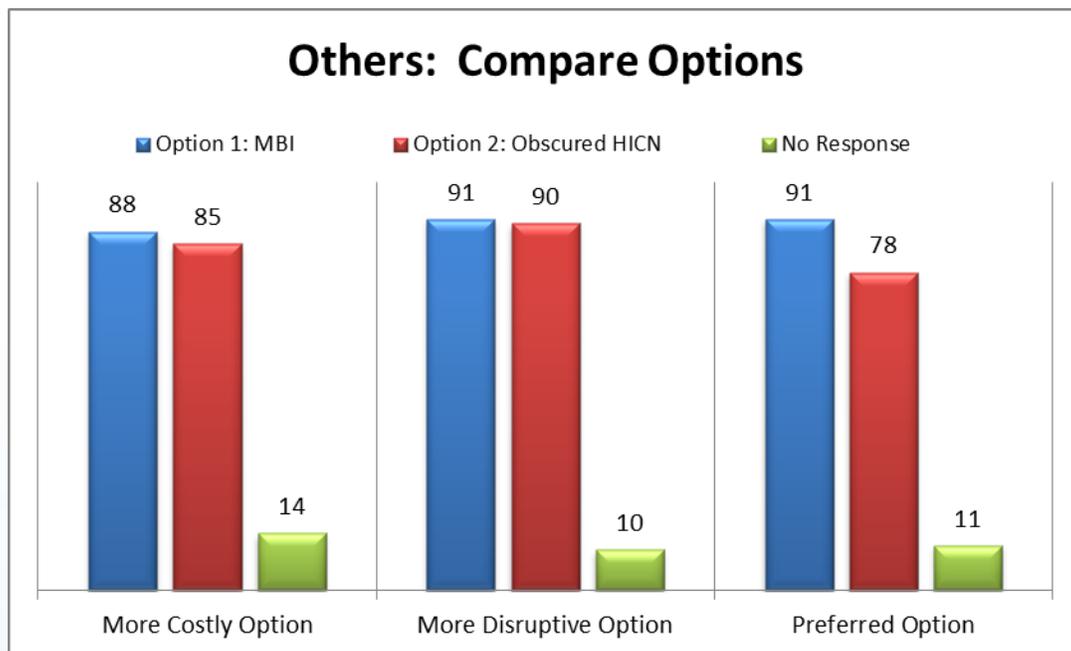


Figure 13. Stakeholder Feedback: Others Options Comparison