

**Analysis of Puerto  
Rico Fee-For-  
Service Medicare  
Experience:  
Implications for Setting  
Medicare Advantage  
Benchmarks**

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# Analysis of Puerto Rico Fee-For-Service Medicare Experience

## Implications for Setting Medicare Advantage Benchmarks

### Executive Summary

The Puerto Rico (PR) Crisis Coalition asked The Moran Company (TMC) to request, obtain, manage and analyze PR Medicare fee-for-service (FFS) claims data from the Centers for Medicare and Medicaid Services (CMS). TMC had conducted a study of similar data provided by CMS in 2015, after which CMS indicated that it had not provided the most complete data for the study. This spring, TMC requested CMS to provide updated and complete PR FFS claims data for 2010 through 2014, and that data was received at the end of July 2016. In addition, TMC collected data from the health plans with Medicare Advantage (MA) contracts for PR Medicare beneficiaries, to make comparisons between the MA and FFS Medicare populations.

The 2015 TMC study found that PR FFS beneficiaries had a significantly higher rate of “zero claims” compared to the US states and the District of Columbia (US), indicating that PR FFS beneficiaries were more likely to not use any Medicare services for prolonged periods of time than were other Medicare FFS beneficiaries. While the data did not reveal any reason for this difference in utilization, CMS was able to confirm that the difference was real and significant. The Department of Health and Human Services (HHS) determined that this difference warranted an adjustment of PR FFS estimation methods in setting the Medicare Advantage benchmarks. CMS made such an adjustment to the 2017 PR benchmarks.

The PR Crisis Coalition has a number of other concerns about the use of PR FFS data in setting the MA benchmarks, including the credibility of the FFS data and the ability to accurately risk adjust FFS data. In the US excluding PR, MA enrollment generally falls well below 50% of the Medicare eligible population. PR has the exceptional circumstance that MA enrollment exceeds 75% of the Medicare eligible population and has been increasing every year, resulting in a smaller and smaller FFS population. When only beneficiaries with both Part A and Part B are considered (as used in setting PR MA benchmarks), that population is even smaller. We have also been told by CMS that many PR beneficiaries are excluded from MA benchmark calculations for a wide variety of CMS trimming methods further reducing an already very small FFS population.

**This study explores the assumption that FFS data accurately represents the costs for all PR resident FFS beneficiaries, and therefore provides a valid basis for estimating MA benchmarks, and tests the hypothesis that: The dwindling PR FFS population is sufficiently different from the MA enrolled population, that it does not provide a valid basis for estimating MA benchmarks.** Study results confirm this hypothesis and are elaborated in detail in the full report.

## Key Findings

- PR FFS months have decreased 27 percent over five years.
- PR FFS months have decreased from 18.7 percent of all Medicare beneficiary months with continuous Part A and B enrollment in 2010 to 12 percent in 2014. The year to year decrease is steady and will likely continue, further reducing the FFS population utilization data used for setting Benchmarks in 2018 and future years.
- More than 30 percent of PR FFS enrollees switch to MA each year, compared to 3-5 percent in the US, and less than 1 percent switching from MA to FFS in PR, or 3-5 percent switching from MA to FFS in the US.
- More than 50 percent of MA enrollees are dually eligible for Medicaid and Medicare (duals) while the proportion of duals in the FFS population dropped from 13 percent to 10 percent from 2010 to 2014. A significant portion of the dual population is disabled and under age 65, making the mix of MA and FFS beneficiaries very different with respect to age, and socio-economics where dual status is a proxy for very low socio-economic status. Risk adjustment does not adequately take socio-economic differences into account as the data used for this adjustment is different in PR and the mainland US population.
- MA risk scores are significantly higher than those for FFS beneficiaries in 2014.
- Utilization of services differ between FFS and MA populations in 2014. Some of these utilization differences may represent differences in access to care (e.g., to physician office services for FFS), while others may reflect the higher risk scores evidenced by MA beneficiaries.
  - Emergency room encounter rates are much higher for MA enrollees than for FFS beneficiaries.
  - Primary care visit rates are much higher for MA duals and lower for non-duals than for all FFS beneficiaries.
  - Specialty physician visits are much higher for FFS non-duals than all MA enrollees. Specialty physician visit rates are much lower for FFS duals than for all MA enrollees.
  - FFS Outpatient hospital visits are more than twice the rate of MA enrollees.
  - Part B drug utilization for MA enrollees PMPM is 38 percent higher than for FFS beneficiaries.
- FFS beneficiaries in PR have significantly higher rates of zero-claims (no utilization of Medicare services) over a time span from 1-3 years of Part A and B enrollment compared to the comparable US population and the PR MA enrolled population. This fact artificially increases the denominator in all PMPM calculations reducing PMPM amounts of historic payment.
- Sub-populations observed in the CMS-provided data are missing risk scores and dual status flags, and, according to CMS are excluded from MA benchmark calculations.

These populations have significant volume relative to the FFS population with the needed data. The zero claims experience in this population is more than twice that of the population with risk scores and dual status flags.

## Study Conclusions

Evidence exists to argue that the eroding size of the FFS population, its characteristics, and utilization patterns are not representative of the much larger MA population and therefore may not provide a valid basis for MA benchmarks, which are intended to represent the average cost to Medicare of the FFS population in the area. The assumption underlying this statutory requirement is that MA cost should not exceed that of the average FFS beneficiary PMPM, but that assumption is based on MA utilization that falls below 70%, a level only reached in Puerto Rico. Selection bias is highly likely increasingly differentiating these two populations. Furthermore, the price basis for FFS services and historical differences in services covered in PR compared to the mainland US (e.g., Part D low income subsidies not available in PR) depress historical FFS cost. The net effect of differences in utilization and demographics for the two populations, and historically depressed Medicare cost, leads to the conclusion that the FFS utilization would under-estimate benchmarks for MA. In other words, MA plans would be required to pay for a range of services whose actual costs are higher than estimated in the benchmarks, an outcome not anticipated by the policy or methodology.

TMC suggests criteria are needed to evaluate statistical representativeness when the accuracy of using one population's utilization to set MA benchmarks is seriously questioned. We do not believe that CMS's actuarial credibility standard is a sufficient criteria, as it assumes representativeness and stability over time in the underlying data and relies on an absolute minimum number regardless of the proportion of the population that number represents or the probability that significant selection bias is present. It is also the case that risk adjustment cannot correct for the level of difference observed in this study. The HCC risk adjustment model applied historically only explains about 11-12 percent of cost variation. It was not intended and is not capable of correcting for the degree of selection bias and non-representativeness observed between these two populations.

While Puerto Rico represents an outlier in its high rate of MA enrollment, it is likely that there are or will be US counties that approach similar levels of MA enrollment, raising the question of how and when to evaluate the representativeness of a FFS population as the basis for accurately estimating MA benchmarks. While the statute sets the rules for using FFS experience for setting MA benchmarks, it does not abrogate CMS's responsibility to evaluate the accuracy of implementing the requirements of statute the same way under all conditions, particularly where evidence is strong that sufficient selection bias exists to raise the possibility that doing so may adversely affect access to care and other policy objectives.

TMC asserts that sufficient evidence exists to question whether the PR FFS beneficiary utilization can be used to accurately estimate MA benchmarks with the same methodology used for the mainland US, even with the adjustments that have been made. CMS uses somewhat different data to set benchmarks in PR from that available for the rest of the US. Inconsistency across data sources continues to raise questions as to the completeness of data used to set MA benchmarks for PR.

We recommend that CMS articulate criteria for determining the representativeness of one population to estimate MA benchmarks for another population with demonstrably different characteristics, and demonstrate that its on-going use of PR FFS data to estimate MA benchmarks is valid. We would suggest that the probability that selection bias skews any comparisons between two populations, increases as MA penetration exceeds some level in the range of 70 percent, at which point, CMS should be able to demonstrate that the FFS population continues to be representative of the MA enrolled population. If CMS cannot demonstrate representativeness, it should measure the type and extent of non-representativeness to determine what kind of adjustments, if any, may be warranted. We suggest that this problem, and any criteria that CMS sets forth, be subject to comment through the Advanced Notice or other form of rulemaking.

# **Analysis of Puerto Rico Fee-For-Service Medicare Experience: Implications for Setting Medicare Advantage Benchmarks**

## **Introduction**

The Puerto Rico (PR) Crisis Coalition asked The Moran Company (TMC) to request, obtain, manage and analyze PR Medicare fee-for-service (FFS) claims data from the Centers for Medicare and Medicaid Services (CMS). TMC had conducted a study of similar data provided by CMS in 2015, after which CMS indicated that it had not provided the most complete data for the study. This spring, TMC requested CMS to provide updated and complete PR FFS claims data for 2010 through 2014, and that data was received at the end of July. This report presents the findings from a series of analyses of the data provided by CMS combined with data from the 2010 through 2014 Medicare Standard Analytic Files (SAFs)<sup>1</sup>, utilizing both 100 percent and 5 percent sample data for all Medicare services. In addition, TMC collected data from the health plans with Medicare Advantage (MA) contracts for PR Medicare beneficiaries, to make comparisons between the MA and FFS Medicare populations.

The 2015 TMC study found that PR FFS beneficiaries had a significantly higher rate of “zero claims” compared to the US states and the District of Columbia (US), indicating that PR FFS beneficiaries were more likely to not use any Medicare services for prolonged periods of time than were other Medicare FFS beneficiaries. While the data did not reveal any reason for this difference in utilization, CMS was able to confirm that the difference was real and significant. The Department of Health and Human Services (HHS) determined that this difference warranted an adjustment of PR FFS estimation methods in setting the Medicare Advantage benchmarks. CMS made such an adjustment to the 2017 PR benchmarks. The increase in the benchmarks resulted from removing zero claim beneficiaries and their enrollment months (for whom there were no payments in the total payments for each year) from the denominator of per-member-per month (PMPM) payments, to the same level as exists in the FFS data for the US.

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<sup>1</sup> The Moran Company has a data use agreement with CMS for use of the Medicare Standard Analytic Files (SAFs) and purchases both the 100% and 5% sample files for Inpatient and Outpatient hospital, Skilled Nursing Facility, Home Health and Hospice. Only a 5% sample file is available for Carrier processed files (physician services) and only a 5% sample DME file is purchased. A 100% “denominator” file is purchased which contains demographic and Medicare eligibility data for all Medicare beneficiaries. The claims files are only available for fee-for-service (FFS) beneficiaries, and they are all linked by an encrypted beneficiary identifier. Medicare FFS experience can be tracked by beneficiary across all claims for all covered services across different providers, and across different years. The CMS data provided a 100% file for Carrier processed claims for Puerto Rico residents in SAF format that TMC linked to all other claims for those residents in the US SAFs to make up for the fact that only a 5% Carrier file is publicly available as an SAF. Risk scores and dual eligibility flags were provided by CMS—these data are not available in the SAFs purchased by TMC. The SAF data have at least a 6 month run-out for claims, meaning that after the close of a calendar year, any claims processed and paid by June 30 of the following year are included. The SAFs are the most complete source of Medicare FFS claims available, and represent the data used for most research and modeling of the Medicare FFS program.

The PR Crisis Coalition has a number of other concerns about the use of PR FFS data in setting the MA benchmarks, including appropriate credibility standards and accurate risk adjustment. Some of these concerns were discussed in the TMC 2015 report, but were dismissed by CMS due to the finding that the data used as the basis for that report were incomplete. By statute, MA benchmarks are set based on FFS claims for a five year period. In the US excluding PR, MA enrollment generally falls well below 50% of the Medicare eligible population. PR has the exceptional circumstance that MA enrollment exceeds 75% of the Medicare eligible population and has been increasing every year, resulting in a smaller and smaller FFS population. When only beneficiaries with both Part A and Part B are considered (as used in setting PR MA benchmarks), that population is even smaller. The assumption underlying statute, is that the FFS population utilization of covered services provides a statistically representative and valid basis for comparison for setting MA benchmarks. While this assumption is probably valid for the US as a whole, it is less clear that it is valid for PR. **This study explores the assumption that FFS data provides a valid basis for estimating MA benchmarks, and tests the hypothesis that: The dwindling PR FFS population is sufficiently different from the MA enrolled population, that it does not provide a valid basis for estimating MA benchmarks.**

CMS has the authority to make modifications to its methodologies to correct for statistical and other forms of error, and to improve accuracy. It has done so in a number of instances in setting MA benchmarks. For example, it recognizes the difference in Part A enrollment in PR from that in the US, and uses only FFS beneficiaries with both Part A and Part B to set PR benchmarks, instead of combining separate Part A and Part B benchmarks as it does in the US. Another example is its combination of adjacent geography to address low Medicare enrollment that falls below actuarial credibility thresholds. It combines all of PR into a single entity for setting benchmarks because very few PR counties would meet minimum credibility thresholds as set by the CMS Office of the Actuary (OACT). While the remaining FFS population for the island exceeds the flat number of beneficiary years set by OACT, that standard does not take into account the proportion of the population represented, anomalies in the data, or lack of representativeness, all factors that are assumed in the use of a single credibility standard. As authorized by the Secretary of HHS, CMS made an adjustment for the zero claims difference between PR and the US. CMS also makes adjustments to PR payment rates retrospectively to reflect current policy, as it did in re-pricing hospital services in 2017 benchmarks, and as it is expected to do to incorporate the change in the PR GPCI that was finalized in the Medicare Physician Fee Schedule Rule in November.

After a discussion of the analytic methods used, the report provides an overview of the PR FFS population over the five year period 2010-2014, compared to the MA population in 2014. It then addresses a series of comparisons that include PR FFS to PR MA and, for some topics, to the US. These comparisons include:

- Enrollment characteristics
- Demographics
- Analysis of why the FFS population is dwindling
- Migration out of PR

- Utilization of services

The report also provides a zero claims analysis, and an analysis of PMPM payments for the five year period.

The report results are complicated by a finding that a large number of beneficiaries in the files CMS provided, are missing risk scores and monthly dual eligibility flags. Also all ESRD beneficiaries are in this category with no risk scores or dual eligibility flags, and only a few are in the file including this information. We submitted questions in writing to CMS on October 10<sup>th</sup> asking for explanations of how these data were used in setting MA benchmarks. A draft of this report was sent to CMS on October 28<sup>th</sup>, noting that the absence of answers to these questions affect the full range of conclusions we seek to include in this report. We had a conference call with CMS and HHS leaders on November 15<sup>th</sup> at which time, CMS leadership indicated its intent to get answers to our questions to us the following week. We contacted CMS November 30<sup>th</sup> to inquire regarding the promised responses to our questions. We were notified on December 2<sup>nd</sup> that it would be another week before responses would be available. We are generating a final report at this time without the benefit of answers to our questions so that the information can be used to support discussions regarding policy that is being worked on in preparation for issuing the MA Advanced Notice February 1<sup>st</sup>. Should future information provided by CMS become available as promised, we will update this report. We provide some analysis of this population, as its inclusion or exclusion from benchmarks, and any assumptions about its inclusion, have a material effect on the resulting PMPM payment data used in setting benchmarks. The report concludes with a discussion of these results with respect to the hypothesis being tested.

## Key Findings

- PR FFS months have decreased 27 percent over five years.
- PR FFS months have decreased from 18.7 percent of all Medicare beneficiary months with continuous Part A and B enrollment in 2010 to 12 percent in 2014. The year to year decrease is steady and will likely continue, further reducing the FFS population utilization data used for setting Benchmarks in 2018 and future years.
- More than 30 percent of PR FFS enrollees switch to MA each year, compared to 3-5 percent in the US, and less than 1 percent switching from MA to FFS in PR, or 3-5 percent switching from MA to FFS in the US.
- More than 50 percent of MA enrollees are dually eligible for Medicaid and Medicare (duals) while the proportion of duals in the FFS population dropped from 13 percent to 10 percent from 2010 to 2014. A significant portion of the dual population is disabled and under age 65, making the mix of MA and FFS beneficiaries very different with respect to age, and socio-economics where dual status is a proxy for very low socio-economic status. The dually eligible FFS population is not representative of the dually eligible MA population.
- MA risk scores are significantly higher than those for FFS beneficiaries in 2014.

- Utilization of services differ between FFS and MA populations in 2014. Some of these utilization differences may represent differences in access to care (e.g., to physician office services for FFS), while others may reflect the higher risk scores evidenced by MA beneficiaries.
  - Emergency room encounter rates are much higher for MA enrollees than for FFS beneficiaries.
  - Primary care visit rates are much higher for MA duals and lower for non-duals than for all FFS beneficiaries.
  - Specialty physician visits are much higher for FFS non-duals than all MA enrollees. Specialty physician visit rates are much lower for FFS duals than for all MA enrollees.
  - FFS Outpatient hospital visits are more than twice the rate of MA enrollees.
  - Part B drug utilization for MA enrollees PMPM is 38 percent higher than for FFS beneficiaries.
- FFS beneficiaries in PR have significantly higher rates of zero-claims (no utilization of Medicare services) over a time span from 1-3 years of Part A and B enrollment compared to the comparable US population and the PR MA enrolled population. This fact artificially increases the denominator in all PMPM calculations reducing PMPM amounts of historic payment, and also distorts service utilization rates in making comparisons to determine the extent to which the FFS population is similar enough to the MA population to support using its utilization data to estimate MA utilization and cost.
- Sub-populations observed in the CMS-provided data are missing risk scores and dual status flags, and CMS reports that in most cases these beneficiaries are trimmed out of the benchmark calculations due to various trimming methods used. These populations have significant volume relative to the FFS population with the needed data. The zero claims experience in this population is more than twice that of the population with risk scores and dual status flags.

## Study Conclusions

Evidence exists to argue that the eroding size of the FFS population, its characteristics, and utilization patterns are not representative of the much larger MA population. Selection bias is highly likely increasingly differentiating these two populations, suggesting that FFS utilization may not represent an appropriate basis for accurately estimating MA benchmarks in PR. The net effect of differences in utilization and demographics for the two populations, and historically depressed payment rates and different Medicare services on the Island compared to the US, leads to the conclusion that the FFS utilization under-estimates MA benchmarks.

TMC suggests criteria are needed to evaluate statistical representativeness when the accuracy of using one population's utilization to estimate MA benchmarks for a materially different population, are seriously questioned. We do not believe that actuarial credibility is a sufficient criteria, as it assumes representativeness in the underlying data

and relies on an absolute minimum number regardless of the proportion of the population that number represents or the probability that significant selection bias is present. It is also the case that risk adjustment cannot correct for the level of difference observed in this study. The HCC risk adjustment model applied historically only explains about 11-12 percent of cost variation. It was not intended and is not capable of correcting for the degree of selection bias and non-representativeness observed between these two populations.

While Puerto Rico represents an outlier in its high rate of MA enrollment, it is likely that there are or will be US counties that approach similar levels of MA enrollment, raising the question of how and when to evaluate the representativeness of a FFS population as the basis for accurately estimating MA benchmarks. While the statute sets the rules for using FFS experience for setting MA benchmarks, it does not abrogate CMS's responsibility to evaluate the accuracy of implementing the requirements of statute the same way under all conditions, particularly where evidence is strong that sufficient selection bias exists to raise the possibility that doing so may adversely affect access to care and other policy objectives.

TMC asserts that sufficient evidence exists to question whether the PR FFS beneficiary utilization can be used to accurately estimate MA benchmarks with the same methodology used for the mainland US, even with the adjustments that have been made. CMS uses somewhat different data to set benchmarks in PR from that available for the rest of the US. Inconsistency across data sources continues to raise questions as to the completeness of data used to set MA benchmarks for PR. We recommend that CMS articulate criteria for determining the representativeness of one population to estimate MA benchmarks for another population, and demonstrate that its on-going use of PR FFS data to estimate MA benchmarks is valid. We would suggest that the probability that selection bias skews any comparisons between two populations, increases as MA penetration exceeds some level in the range of 70 percent, at which point, CMS should be able to demonstrate that the FFS population continues to be representative of the MA enrolled population. If CMS cannot demonstrate representativeness, it should measure the type and extent of non-representativeness to determine what kind of adjustments, if any, may be warranted. We suggest that this problem, and any criteria that CMS sets forth be subject to comment through the Advanced Notice or other form of rulemaking.

## Methods & Data

In 2015, CMS had provided a file that included 100% of Carrier processed claims for PR residents in the requested five year period, and these data included HCC risk scores as well as flags for dual eligibility that were based on a single month. In reviewing TMC's 2015 report, CMS noted that it utilized a file to develop MA benchmarks for PR that had a monthly dual eligibility flag that was more complete. In 2016, TMC requested this more complete version of the same data updated to include 2014 claims. CMS provided the requested 100% Carrier processed claims (for physician, DME and other non-institutional services) in an SAF format, the risk scores and monthly dual eligibility flags, and a "denominator file" containing the demographic and Medicare eligibility data for all PR residents under an updated data use agreement with TMC. TMC linked this CMS PR file with its SAF files for the US and for all Medicare covered FFS services. The denominator files from CMS for PR and the TMC US denominator files for PR residents substantially matched. There were a small percentage of beneficiaries appearing in one file that were not in the other as shown in Tables A-C in Appendix A. We cannot evaluate any impact associated with these discrepancies. Therefore, the analyses in this report rely upon the identification of Medicare beneficiaries in the CMS PR denominator file.

TMC made a number of comparisons to test the completeness of the CMS PR data. A representation of the beneficiary months and of beneficiaries in different categories is presented in Tables 1-3 below.

- FFS months have decreased 27 percent over five years.
- FFS months have decreased from 18.7 percent of all Medicare beneficiary months with continuous Part A and B enrollment in 2010 to 12 percent in 2014.
- MA months have increased by 24 percent over the same period.
- Fifteen percent of all dually eligible PR residents may be dually eligible based on eligibility for Medicaid in another US state/District of Columbia, and are not identified as duals in the CMS PR files as well as not having risk scores<sup>2</sup>. We examine this population and its payments later in our analysis. Note that in Appendix A, additional PR resident duals are identified in the US denominator file that are not in the CMS provided denominator file.

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<sup>2</sup> CMS does not use the state buy-in variable which is the only data available to TMC to evaluate the accuracy of the PR data file. Because CMS uses somewhat different data for PR compared to the mainland, TMC determined a need to check the completeness of the data used in setting the benchmarks. CMS asserts that its data is complete and that the PR residents with state buy-in status (state pays the Part B premium) is not accurate and that some states pay the Part B premium for people not eligible for Medicaid. TMC does not take a position on this explanation, as it cannot be validated by data available to TMC. Because TMC cannot validate a number of CMS assertions that its data are complete and correct despite inconsistencies identified in this study, we report the magnitude of inconsistencies along with CMS explanations.

- Table 3 shows that the size of the FFS population without any risk scores or dual flags is greater than 40 percent of all the FFS beneficiaries with risk scores and dual flags consistently over the five years. It also shows that the average months per beneficiary in any year is lower for FFS beneficiaries than for those in MA. CMS asserts that this population is not used in setting the benchmarks. TMC was only able to account for part of the trimmed population based on CMS's explanation of its trimming methods.

**Table 1. Count of Medicare Beneficiary Months in CMS PR Denominator File**

	2010		2011		2012		2013		2014	
	Count of Beneficiary-months	% of total								
<i>Total Medicare beneficiary-months*</i>	6,432,066	100.0%	6,642,663	100.0%	6,909,824	100.0%	7,186,828	100.0%	7,389,666	100.0%
MA	5,228,613	81.3%	5,553,850	83.6%	5,907,420	85.5%	6,253,083	87.0%	6,506,114	88.0%
Medicare FFS Part A and B, no MA	1,203,453	18.7%	1,088,813	16.4%	1,002,404	14.5%	933,745	13.0%	883,552	12.0%

\*Part A and B FFS/MA months only

Data Source: CMS 100% PR Denominator File

**Table 2. Count of Medicare FFS Beneficiary Months in CMS PR Denominator File By Dual and Non-Dual Eligibility Status (For Beneficiaries with Dual/non-dual flags)**

	2010		2011		2012		2013		2014	
	Count of Beneficiary-months	% of total								
<i>Medicare FFS Part A and B, no MA</i>	1,203,453	100.0%	1,088,813	100.0%	1,002,404	100.0%	933,745	100.0%	883,552	100.0%
Dual (monthly flag), no State buy-in	122,155	10.2%	101,562	9.3%	84,044	8.4%	76,200	8.2%	70,402	8.0%
Dual (monthly flag), and State buy-in	9,911	0.8%	9,167	0.8%	8,048	0.8%	7,426	0.8%	7,356	0.8%
State buy-in, no dual flag	13,184	1.1%	13,739	1.3%	13,268	1.3%	12,396	1.3%	11,908	1.3%

Data Sources: CMS 100% PR Denominator File + CMS PR Monthly File

**Table 3. Count of Medicare Beneficiaries in CMS PR Denominator File By Enrollment Status and Completeness of Data**

Year	Data Source	2010	2011	2012	2013	2014
Count of Beneficiaries with >0 MA month	CMS Denominator File	461,934	489,903	522,678	549,537	568,507
Count of Beneficiaries with >0 FFS month	CMS Denominator File	128,027	114,579	108,136	99,489	94,437
Count of Beneficiaries with >0 FFS month	CMS Monthly File	91,011	83,000	75,272	69,658	65,729
Count of Beneficiaries with >0 State Buyin months only	CMS Denominator File	3,330	3,422	3,313	3,142	3,089
<i>Difference in FFS Beneficiaries in the CMS files</i>	<i>CMS 100% PR Denominator File + CMS PR Monthly File*</i>	<i>37,016</i>	<i>31,579</i>	<i>32,864</i>	<i>29,831</i>	<i>28,708</i>
<i>Months per MA beneficiary</i>	CMS Denominator File	<i>11.32</i>	<i>11.34</i>	<i>11.30</i>	<i>11.38</i>	<i>11.44</i>
<i>Months per FFS beneficiary</i>	CMS Denominator File	<i>9.40</i>	<i>9.50</i>	<i>9.27</i>	<i>9.39</i>	<i>9.36</i>
<i>Months per FFS beneficiary</i>	CMS Monthly File	<i>11.12</i>	<i>11.06</i>	<i>10.99</i>	<i>11.03</i>	<i>11.05</i>

TMC notes that CMS asserts that it has excluded all of the data without risk scores or dual/non-dual indicators from the benchmark calculation.

For all analyses, TMC limited the population to PR residents with continuous eligibility for both Part A and Part B. There is a significant population of PR FFS beneficiaries who only have Part A eligibility and CMS reports excluding these beneficiaries from calculation of the MA

benchmarks for PR. TMC then linked all other claims from the US SAF files to the beneficiaries in the CMS PR files to be able to calculate total Medicare payments in each year and to study services and payments delivered outside PR. TMC used the US SAFs to track migration of PR residents to US states/District of Columbia, and to study the attrition of the FFS PR population over time.

A separate analysis was performed to identify ESRD beneficiaries, as their payments are dramatically higher than all other Medicare enrollment categories and because their MA benchmarks are set separately. We found a high but not perfect agreement between identification of ESRD eligibility based on that variable in the CMS PR denominator file, and provision of dialysis services based on 72x type claims: the later identifies fewer beneficiaries than the former. Some ESRD eligible beneficiaries may have foregone dialysis treatment in each period or may have had transplants. We relied upon the denominator file, and excluded all ESRD beneficiaries from all calculations for the FFS payment rates. We did find, however, that only a very small number of ESRD FFS beneficiaries were included in the file with HCC risk scores and dual eligibility flags. CMS explained reasons for the presence of these data in the files associated with timing and other factors.

TMC developed a set of data specifications which were provided to the four MA health plans enrolling PR Medicare beneficiaries. The plans were asked to provide detailed data for their 2014 enrolled population, and to perform a zero claims analysis over a longer period of time. All four plans submitted data for the study in August and these data were combined into a single database.

In the interest of CMS potentially replicating any of the analyses discussed in this report, we provide technical footnotes in tables or in text, rather than distract the less technically inclined reader.

## **Comparing the FFS & MA Populations in PR**

In the method and data section of this report we show that the FFS population eligible for Medicare Part A and B has eroded each year to 12% of Medicare beneficiary months. The rate of erosion is about 5% each year. To better understand this erosion in FFS participation in PR, TMC used the Denominator Files to identify the status of each Medicare beneficiary from one year to the next. The results of this analysis are shown in Tables 4 and 5.

- Over one third of FFS enrollees switch to MA each year in PR.
- Only 2-2.5 percent of FFS enrollees switch to MA from FFS in the US.
- Less than 1 percent of MA enrollees switch to FFS each year in PR.
- Between 3-5 percent of MA enrollees switched to FFS, and similar rates of switching from FFS to MA occurred in the US.
- Rates of death each year are between 3-4 percent for each group except US FFS enrollees whose death rate is over 4 percent.

**Table 4. Analysis of Switching between FFS and MA, PR and US**

Medicare Status in the year following Enrollment in Medicare (2011 - 2014)	Beneficiaries Enrolled in Medicare 2010		Beneficiaries Enrolled in Medicare in 2011		Beneficiaries Enrolled in 2012		Beneficiaries Enrolled in 2013	
	N	%	N	%	N	%	N	%
Beneficiaries residing in Puerto Rico who remained on Medicare FFS Part A & B	79,976	62.5%	72,362	63.2%	68,005	62.9%	64,602	64.9%
Beneficiaries residing in Puerto Rico who remained Medicare Advantage	411,891	94.7%	439,962	94.1%	470,862	94.5%	498,294	94.3%
Beneficiaries residing in US 50 States who remained on Medicare FFS Part A & B	30,475,552	92.2%	30,871,249	91.7%	31,108,260	91.5%	30,927,854	90.5%
Beneficiaries residing in US 50 States who remained on Medicare Advantage	10,124,501	91.3%	11,135,386	93.1%	12,182,953	92.9%	13,237,786	92.7%

**Table 5. Changes in Medicare Status From Year to Year for FFS & MA in PR and in the US**

Medicare Status in the year following Enrollment in Medicare FFS Part A and B (2011 - 2014) in Puerto Rico	Beneficiaries Enrolled in Medicare FFS Part A and B in 2010		Beneficiaries Enrolled in Medicare FFS Part A and B in 2011		Beneficiaries Enrolled in Medicare FFS Part A and B in 2012		Beneficiaries Enrolled in Medicare FFS Part A and B in 2013	
	N	%	N	%	N	%	N	%
<i>Remained on Medicare FFS</i>	79,976	62.5%	72,362	63.2%	68,005	62.9%	64,602	64.9%
Switched to Medicare Advantage	31,822	24.9%	27,774	24.2%	28,236	26.1%	23,502	23.6%
Switched to MA Midyear	9,050	7.1%	7,893	6.9%	5,721	5.3%	5,453	5.5%
Dropped Part B	948	0.7%	894	0.8%	682	0.6%	730	0.7%
Died	4,000	3.1%	3,560	3.1%	3,393	3.1%	2,993	3.0%
Presumed Migrated to Mainland*	2,231	1.7%	2,096	1.8%	2,099	1.9%	2,099	2.1%
Medicare Status in the year following Enrollment in Medicare Advantage (2011 - 2014) in Puerto Rico	Beneficiaries Enrolled in MA in 2010		Beneficiaries Enrolled in MA in 2011		Beneficiaries Enrolled in MA in 2012		Beneficiaries Enrolled in MA in 2013	
	N	%	N	%	N	%	N	%
<i>Remained on Medicare Advantage</i>	411,891	94.7%	439,962	94.1%	470,862	94.5%	498,294	94.3%
Switched to Medicare FFS Part A & B	434	0.1%	736	0.2%	586	0.1%	711	0.1%
Switched to Medicare FFS Part A	314	0.1%	373	0.1%	334	0.1%	413	0.1%
Switched to Medicare FFS Midyear	3,121	0.7%	5,930	1.3%	5,050	1.0%	6,301	1.2%
Died	14,293	3.3%	14,923	3.2%	15,606	3.1%	15,827	3.0%
Presumed Migrated to Mainland*	4,854	1.1%	5,490	1.2%	5,996	1.2%	7,058	1.3%
Medicare Status in the year following Enrollment in Medicare FFS Part A and B (2011 - 2014) in the 50 United States	Beneficiaries Enrolled in Medicare FFS Part A and B		Beneficiaries Enrolled in Medicare FFS Part A and B		Beneficiaries Enrolled in Medicare FFS Part A and B		Beneficiaries Enrolled in Medicare FFS Part A and B	
	N	%	N	%	N	%	N	%
<i>Remained on Medicare FFS</i>	30,475,552	92.2%	30,871,249	91.7%	31,108,260	91.5%	30,927,854	90.5%
Switched to Medicare Advantage	628,024	1.9%	750,220	2.2%	792,802	2.3%	803,551	2.4%
Switched to MA Midyear	386,030	1.2%	468,807	1.4%	524,849	1.5%	845,196	2.5%
Dropped Part B	105,002	0.3%	115,306	0.3%	106,878	0.3%	106,412	0.3%
Died	1,452,721	4.4%	1,472,296	4.4%	1,471,480	4.3%	1,482,361	4.3%
Medicare Status in the year following Enrollment in Medicare Advantage (2011 - 2014) in the 50 United States	Beneficiaries Enrolled in MA in 2010		Beneficiaries Enrolled in MA in 2011		Beneficiaries Enrolled in MA in 2012		Beneficiaries Enrolled in MA in 2013	
	N	%	N	%	N	%	N	%
<i>Remained on Medicare Advantage</i>	10,124,501	91.3%	11,135,386	93.1%	12,182,953	92.9%	13,237,786	92.7%
Switched to Medicare FFS Part A & B	345,015	3.1%	193,935	1.6%	204,391	1.6%	227,514	1.6%
Switched to Medicare FFS Part A	6,581	0.1%	7,284	0.1%	6,981	0.1%	8,063	0.1%
Switched to Medicare FFS Midyear	209,421	1.9%	195,653	1.6%	262,295	2.0%	306,793	2.1%
Died	398,296	3.6%	423,194	3.5%	460,016	3.5%	502,246	3.5%

\*See migration analysis

The demographics of the PR FFS and MA populations are shown in Tables 6-8. The most pronounced difference is that more than half of the MA population is comprised of dually (duals) eligible beneficiaries, while only a very small proportion (10% in 2014) of the FFS population is comprised of duals. The mean age of sub-populations differ. The dual FFS population is much younger than the non-dual population, likely due to inclusion of a high proportion of disabled

beneficiaries. We don't have this split by age for duals and non-duals in the MA population, but it likely also includes a significant proportion of younger disabled beneficiaries. If these proportions are substantively different, then it will reflect another source for selection bias.

The sub-population of FFS PR beneficiaries without risk scores or dual flags (reportedly excluded from setting benchmarks) is shown in Table 8. The beneficiaries without risk scores and dual flags are made up partly of those newly enrolled in Medicare, but do include thousands of beneficiaries that were enrolled in a prior year. This population is much younger and much more likely to be male. It includes a significant number of disabled and most of the ESRD beneficiaries. Given an explanation of CMS regarding the trims it would apply to exclude these beneficiaries from the benchmark calculation, we can partially, but not entirely reconcile our data.

**Table 6. Demographics of MA Beneficiaries in 2014 Based on MA Plan Reporting<sup>3</sup>**

	Member Months		Unique Members	
<b>Total Members</b>	6,164,238	100%	636,343	100%
<b>Coverage</b>				
Dual Medicare Advantage & Medicaid	3,169,050	51.4%	352,721	55.4%
Medicare Advantage, non-dual	2,995,188	48.6%	286,057	45.0%
<b>Age</b>				
Less than 65 years old	1,673,019	27.1%	184,678	29.0%
From 65 to 74 years old	2,622,286	42.5%	263,742	41.4%
From 75 to 84 years old	1,395,713	22.6%	138,996	21.8%
85 or older	473,220	7.7%	48,927	7.7%
Mean Age*	68.70	NA	68.37	NA
<b>Gender</b>				
Male	2,822,830	45.8%	292,411	46.0%
Female	3,341,408	54.2%	343,932	54.0%
<b>ESRD</b>				
Paid based on ESRD status	32,374	0.5%	3,490	0.5%

Cell values are the sum of the corresponding cells from each plan

\* Based on data from three plans.

<sup>3</sup>MA plans were given the following definitions for reporting their data: age as of December 31, 2013, Medicaid Member if enrolled in Medicaid any time during 2014, Medicaid months are those months beneficiary enrolled in Medicaid.

**Table 7. Demographics of PR FFS and MA Medicare Beneficiaries**

<i>Medicare Advantage (MA) months only</i>					
	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
<i>Beneficiary-Months</i>	5,228,613	5,553,850	5,907,420	6,253,083	6,506,114
Mean age	69.0	69.0	69.0	69.0	69.0
Age group (%)					
<65	26.7%	26.7%	27.1%	27.2%	27.0%
65-74	43.5%	43.6%	43.4%	43.4%	43.4%
75-84	22.1%	22.1%	22.1%	22.0%	22.2%
>=85	7.7%	7.6%	7.5%	7.4%	7.4%
% Female	54.43%	54.31%	54.18%	54.08%	54.10%

*Data Source: CMS 100% PR Denominator File*

<i>FFS PR Dual months</i>					
	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
<i>Beneficiary-Months</i>	129,097	108,210	89,198	81,096	75,613
Mean age	65.0	65.0	65.0	64.0	64.0
Age group (%)					
<65	40.6%	40.4%	41.4%	42.3%	42.3%
65-74	33.6%	33.9%	32.4%	31.6%	32.1%
75-84	18.2%	18.1%	18.8%	18.6%	18.2%
>=85	4.6%	3.6%	4.0%	3.7%	3.9%
% Female	53.25%	53.20%	53.15%	52.75%	52.83%

*Data Sources: CMS 100% PR Denominator File + CMS PR Monthly File*

<i>FFS buyin months (no PR dual months)</i>					
	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
<i>Beneficiary-Months</i>	13,435	13,937	13,448	12,553	12,016
Mean age	61.0	61.0	61.0	61.0	62.0
Age group (%)					
<65	50.9%	51.0%	51.1%	52.3%	51.6%
65-74	31.5%	32.4%	31.9%	30.6%	31.6%
75-84	13.0%	12.9%	13.0%	13.4%	12.8%
>=85	5.0%	4.8%	4.8%	4.6%	4.7%
% Female	55.23%	52.42%	54.51%	55.75%	55.63%

*Data Source: CMS 100% PR Denominator File*

<i>FFS PR non-dual months*</i>					
	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
<i>Beneficiary-Months</i>	1,074,356	980,603	913,206	852,649	807,939
Mean age	71.0	71.0	71.0	71.0	71.0
Age group (%)					
<65	22.3%	21.8%	21.9%	21.7%	20.9%
65-74	40.4%	39.7%	38.8%	38.5%	38.5%
75-84	27.6%	28.2%	28.6%	28.8%	28.9%
>=85	9.7%	10.2%	10.7%	11.0%	11.7%
% Female	54.44%	54.51%	54.46%	54.14%	54.04%

*Data Sources: CMS 100% PR Denominator File + CMS PR Monthly File*

\*Non-dual months are defined as months without the dual flag

\*State buyin variable was not taken into consideration to be consistent with how CMS would define non-duals

**Table 8. Comparison of FFS Demographics in Files With and Without Risk Scores and Dual Flags.**

	Beneficiaries in CMS's Denominator File but not the Monthly Dual File		Beneficiaries in CMS's Denominator File and in the Monthly Dual File	
	Frequency	Percent	Frequency	Percent
Beneficiaries Eligible for FFS in 2014 with no Risk Score or Dual Eligibility Information	28,508	100%	65,732	100%
Eligible for FFS in 2013	9,821	34.4%	60,236	91.6%
Not Eligible for FFS in 2013	18,687	65.6%	5,496	8.4%
Age Mean (sd)	63.0 (13.2)		71.7 (11.7)	
Age Group				
Less than 65	14,556	51.1%	13,617	20.7%
65 to 74	9,183	32.2%	24,324	37.0%
75 to 84	3,495	12.3%	19,515	29.7%
85 and over	1,274	4.5%	8,227	12.5%
Female	13,778	48.3%	36,287	55.2%
Male	14,730	51.7%	29,445	44.8%

TMC also looked at the HCC risk score profile for both FFS beneficiaries as reported in the CMS PR file containing risk scores and dual flags, and in the 2014 data submitted by the health plans. The risk scores for these populations are shown in Tables 9 and 10. Note the small number of ESRD months in this file are not used in any non-ESRD benchmarks according to explanations by CMS. There is a steady small increase from year to year in the risk scores for the non-duals in FFS. Comparing 2014 risk scores for MA plans to FFS risk scores, MA risk scores are significantly higher than FFS risk scores for both duals and non-duals<sup>4</sup>.

**Table 9. Average Risk Scores for FFS Beneficiaries in PR (excludes beneficiaries with no risk scores)**

	Data Source	2010	2011	2012	2013	2014
<b>FFS Beneficiary-Months</b>						
Dual Medicare & Medicaid	CMS Monthly File	130,457	109,626	90,597	82,475	76,981
Non-Dual (Medicare Only)	CMS Monthly File	897,221	823,742	752,917	701,779	664,819
ESRD Treatment <sup>1</sup>	TMC SAF 100% ESRD extract + CMS Monthly File	203	176	211	181	66
ESRD Indicator only <sup>2</sup>	CMS 100% PR Denominator File	90	84	115	74	60
<b>Average HCC Risk-Score (weighted by months)*</b>						
Dual Medicare & Medicaid	CMS Monthly File	1.238	1.249	1.234	1.220	1.248
Non-Dual (Medicare Only)	CMS Monthly File	0.924	0.936	0.947	0.952	0.961
ESRD Treatment <sup>1</sup>	TMC SAF 100% ESRD extract + CMS Monthly File	2.882	1.743	2.386	3.264	0.865
ESRD Indicator only <sup>2</sup>	CMS 100% PR Denominator File	1.240	1.752	1.440	1.085	2.318

\*fluctuations in year-to-year HCC scores for ESRD patients may be a result of very small counts

1. With 72x claim, w/ or w/o ESRD indicator

2. Indicator on denominator file only; no 72x claim

<sup>4</sup> We note that in recent responses to TMC questions, CMS clarifies that it only uses a sample of beneficiaries with risk scores in July of each year to calculate the average risk score used to risk adjust the PMPMs used in setting the benchmarks for all MA jurisdictions. TMC has used all available risk score data to risk adjust its calculations of the PMPM for comparison purposes.

**Table 10. Average Risk Score Reported by PR Plans in 2014**

	Weighted Average Risk Score (by Member Month)	Weighted Average Risk Score (by Unique Members)
<b>Total Members</b>	1.3211	1.3395
<b>Coverage</b>		
Dual Medicare Advantage & Medicaid	1.5163	1.5149
Medicare Advantage, non-dual	1.1147	1.1226
<b>Age</b>		
Less than 65 years old	1.1836	1.1786
From 65 to 74 years old	1.1906	1.2186
From 75 to 84 years old	1.5524	1.5829
85 or older	1.8786	1.9059
<b>Gender</b>		
Male	1.2815	1.3032
Female	1.3546	1.3702
<b>ESRD</b>		
Paid based on ESRD rates	1.4380	1.4491

Cells are the weighted averages of risk scores from the four plans.

Column one is weighted by member months, and row two is weighted by unique member counts

TMC compared utilization rates in MA and FFS for 2014 as shown in Tables 11 and 12. Utilization rates are shown in terms of member months. As will be shown later, the rate of FFS beneficiaries with zero claims in the data are much higher than for MA plans. If FFS months were adjusted either to US national levels or to MA levels, FFS utilization rates would be higher. Note that while duals are a much smaller proportion of the FFS population than they are in the MA population, their differential utilization rates distort comparisons of rates for the total population in each group. For example, hospitalization rates for FFS are 18.9/1000 beneficiary months compared to 20.1 for MA, but the MA dual and non-dual rates are both lower than the FFS rates.

**Table 11. Utilizations Rates in 2014 for FFS and MA in PR**

	FFS			MA			Individual Members who Used Health Services on the Mainland	
	Rate per 1000 Beneficiary-Months			Rate per 1000 Member Months	Rate per 1000 Member Months Dual Medicare / Medicaid	Rate per 1000 Member Months Medicare Advantage, non-dual		
	TOTAL	Dual	Non-Dual				N of Unique Members	% of Total Members
Inpatient Hospital Admissions	18.9	25.2	18.1	20.1	23.4	16.6		
Emergency Room Encounters	43.0	57.6	41.3	59.0	75.3	42.1		
<b>Office Visits</b>								
Primary Care Physicians	424.8	473.7	418.8	467.1	550.9	379.5		
Non-Primary Care Physicians	654.5	407.6	684.2	519.5	518.8	519.5		
Physician Extenders	4.4	13.3	3.3	NA	NA	NA		
<b>Outpatient Hospital Visits (not ER)</b>								
Any visit not ER	156.6	211.2	150.0	69.3	81.6	64.4		
<b>Clinic Visits*</b>	0.9	3.2	1.4	0.4	0.5	0.5		
<b>Mainland Services</b>								
Inpatient Hospital Admissions				0.3	0.4	0.3	1,726	0.3%
Emergency Room Encounters				1.3	1.5	1.1	5,378	0.8%
Outpatient Hospital Visits (not ER)				0.4	0.5	0.3	880	0.1%
Physician Visits				4.0	4.2	3.7	10,640	1.7%
<b>Hospice Enrollment</b> (Hospice months per 1000 beneficiary-months)	3.1	2.9	4.7					

\* Based on data from three plans.

- Emergency room encounter rates are much higher for MA enrollees than for FFS beneficiaries.

- Primary care visit rates are much higher for MA duals and lower for non-duals than for all FFS beneficiaries.
- Specialty physician visits are much higher for FFS non-duals than all MA enrollees. Specialty physician visit rates are much lower for FFS duals than for all MA enrollees.
- FFS Outpatient hospital visits are more than twice the rate of MA enrollees.
- Use of US mainland services is relatively low among MA enrollees with about 1.7 percent having physician visits outside PR.
- Part B drug utilization for MA enrollees PMPM is 38 percent higher than for FFS beneficiaries.

These utilization statistics suggest that MA plans are better at getting beneficiaries to use primary care services, while non-dual FFS beneficiaries rely more on specialist care. It appears that FFS beneficiaries also rely much more on getting ambulatory care in hospital clinics, while MA enrollees are more likely to have physician office visits. Differences in utilization patterns, particularly of physician office and outpatient hospital care may reflect differences in access to care between FFS and MA beneficiaries, particularly for FFS duals. It is not clear what the much higher MA utilization rates for ER use and Part B drugs mean. But these are essential Medicare covered health care services and not optional services that health plans can provide. It could signal patients with more acute and more expensive drug needs which could be associated with the higher MA risk scores. The differences could also be skewed by the very high zero claims rates for FFS beneficiaries.

**Table 12. Utilization of Part B Drugs MA and FFS 2014**

	Medicare Part-B Drug Payments per member per month	
	Medicare Advantage*	Medicare FFS
<b>Total Members</b>	\$ 27.43	\$ 17.07
<b>Coverage</b>		
Duals	\$ 30.13	\$ 12.74
Non-Duals	\$ 24.64	\$ 13.88
<b>Age</b>		
Less than 65 years old	\$ 30.20	\$ 9.44
From 65 to 74 years old	\$ 26.51	\$ 13.92
From 75 to 84 years old	\$ 28.45	\$ 14.04
85 or older	\$ 19.96	\$ 7.98
<b>Gender</b>		
Male	\$ 28.73	\$ 11.04
Female	\$ 26.34	\$ 13.28

\*Medicare Advantage PMPM data are derived from MA plans serving Puerto Rico.

## Zero Claims Analysis

The issue raised in the TMC 2015 report on zero claims can be framed as follows: The PR rate of FFS beneficiaries having a much higher rate of zero claims compared to the US means that a large part of the denominator in the benchmark calculations is not associated with any payments, thereby artificially lowering the PMPM payment used in the benchmarks. While we have no explanation for the reasons FFS beneficiaries have such high rates of zero claims, the rates are real and they support an argument that the FFS population is substantially different from the US FFS population as well as being different from the MA population. In 2015, we had limited information on the zero-encounter equivalent to zero-claims in MA. In this report, we again looked closely at zero claims experience in FFS PR claims, in US (excluding PR) claims, and in MA equivalent zero-encounter experience. Consistent with the 2015 report, PR FFS beneficiaries have much higher rates of zero claims over one, two, and three year continuous enrollment periods<sup>5</sup> (in Parts A and B) compared to the US FFS population and the PR MA population. These rates are shown in Tables 13-15.

**Table 13. Profile of Zero Claims Experience for PR FFS Population Over Three Year Period**

	Number of beneficiaries/ members in 2014	Number of beneficiaries/ members with no claims in 2014	% with no claims in 2014	Number of beneficiaries/ members in 2013-2014	Number of beneficiaries/ members with no claims in 2013-2014	% with no claims in 2013-2014	Number of beneficiaries/ members in 2012-2014	Number of beneficiaries/ members with no claims in 2012-2014	% with no claims in 2012-2014
Puerto Rico Beneficiaries enrolled in FFS Part A and B* (Data Source: CMS PR Denominator file) (with and without risk scores)	94,237	24,466	26.0%	70,057	7,612	10.9%	61,562	4,539	7.4%
Non-Dual PR Beneficiaries Enrolled in FFS Part A and B (Data Source: CMS PR Denominator file)	58,207	7,262	12.5%	54,143	4,182	7.7%	49,768	2,844	5.7%
Dual PR Beneficiaries Enrolled in FFS Part A and B (Data Source: CMS PR Denominator file)	7,525	1,500	19.9%	6,093	614	8.2%	5,245	336	4.5%
Full Year Dual PR Beneficiaries Enrolled in FFS Part A and B (Data Source: CMS PR Denominator file)	5,837	784	13.4%	5,456	536	9.8%	4,752	299	6.3%
Part Year Dual PR Beneficiaries Enrolled in FFS Part A and B (Data Source: CMS PR Denominator file)	1,688	716	42.4%	637	78	12.2%	493	37	7.5%
<b>Beneficiaries without Risk Scores or Dual Flags</b>									
<b>PR Beneficiaries Enrolled in FFS Part A and B with no Risk Score</b> (Data Source: CMS PR Denominator file)	28,508	15,705	55.1%	9,821	2,816	28.7%	6,549	1,359	20.8%

Data Sources:

CMS' Monthly Dual Status/HCC Scores File for Puerto Rico Beneficiaries (aka CMS PR 2016 File)

CMS' Custom 100% Denominator Standard Analytic File for Puerto Rico Beneficiaries (aka CMS 100% PR Denominator File)

<sup>5</sup> Excluding beneficiaries with any MA enrollment in these periods.

**Table 14. Comparison of Zero-Claims Rates for PR FFS, PR US, and PR MA over Time**

	Number of beneficiaries/ members in 2014	Number of beneficiaries/ members with no claims in 2014	% with no claims in 2014	Number of beneficiaries/ members in 2013-2014	Number of beneficiaries/ members with no claims in 2013-2014	% with no claims in 2013-2014	Number of beneficiaries/ members in 2012-2014	Number of beneficiaries/ members with no claims in 2012-2014	% with no claims in 2012-2014
Puerto Rico Beneficiaries enrolled in FFS Part A and B (Data Source: CMS PR Denominator file) (with and without risk scores)	94,237	24,466	26.0%	70,055	7,612	10.9%	61,560	4,539	7.4%
Puerto Rico Members enrolled in MA plan (Data Sources: CMS PR Denominator File; MA plans)	510,749	16,860	3.3%	459,611	2,233	0.4%	406,135	1,035	0.3%
<i>Difference between FFS non-utilization rate and MA non-utilization rate</i>	NA	NA	<b>22.7%</b>	NA	NA	<b>10.4%</b>	NA	NA	<b>7.1%</b>
US 50 States Beneficiaries enrolled in FFS Part A and B* (Data Source: CMS 5% SAF projected to Nation)	35,631,980	2,800,340	7.9%	32,082,960	1,266,340	3.9%	29,209,060	812,520	2.8%

**Data Sources:**

CMS' Monthly Dual Status/HCC Scores File for Puerto Rico Beneficiaries (aka CMS PR 2016 File)  
 CMS' Custom 100% Denominator Standard Analytic File for Puerto Rico Beneficiaries (aka CMS 100% PR Denominator File)  
 Data provided by Medicare Advantage Plans that Serve Puerto Rico

There are a number of ways to calculate zero-claims experience. TMC makes the assumption that because both Part A and B beneficiaries are used in setting the benchmarks, all zero claims calculations must be based on this population. The rate of zero claims in Part A by itself is irrelevant to the role zero-claims experience plays in the calculation of benchmarks, because the FFS beneficiaries in PR with only Part A experience are excluded from these benchmarks. Also, in PR, there are fewer Part A services available to be utilized in SNF, home health, and specialty hospitals due to differences in historical service patterns and capacities between PR and the US. In our utilization data we show the variations in Part A inpatient hospitalization service between FFS and MA beneficiaries in Table 11.

The critical issue underlying the PR Crisis Coalition's and health plans' concerns about adjusting the PR benchmarks to the level observed in the US, is based on the likelihood that this difference between PR FFS beneficiaries and all other comparison groups represents a form of selection bias, and that bias distorts benchmarks and other comparisons. PR FFS zero claims beneficiaries are enrolled in Part A and Part B but are not seeing physicians or hospitals that participate in the Medicare program. The choices that drive the patterns of care for this group may be part of their considerations in not enrolling in MA, and, therefore, result in significant differences from the MA population. As the use of FFS utilization is assumed by statute to represent the basis for MA benchmarks, the absence of any utilization in a significant portion of a population that erodes in size into a smaller and smaller group, supports the argument that the FFS population is biased and not suitable as the basis for estimating MA benchmarks. The zero-claims adjustment represented one way to correct for this specific source of bias to increase the accuracy of the benchmarks.

To demonstrate the magnitude of the zero-claims variations, TMC calculated zero-claims rates for different spans of time, and for sub-populations as shown in Table 13. Using a 12 month period to estimate zero-claims rates presents the problem that many new Medicare beneficiaries who have only been eligible for part of one year are included, and a zero claims rate for people enrolled for less than a year is not meaningful. Similarly, TMC considered that many FFS

beneficiaries not experiencing acute illness could not use services in a 12 month period, but would be much less likely to avoid using services over a longer period such as 24 months. TMC would suggest that the 24 month span of time represents a more accurate characterization of the meaningful differences in zero-claim rates between PR FFS, US FFS, and MA populations illustrating the selection bias inherent in using the zero-claim PR population in setting PR MA benchmarks. Also note the extremely high rate of zero-claims in the PR FFS population for which no risk scores or dual flags are available. CMS asserts that these beneficiaries are not included in benchmark calculations.

**Table 15. Zero-Claims Equivalent Zero-Encounter Experience for Three of Four MA Plans**

Percent of Beneficiaries Enrolled in MA in 2014 with Zero Claims					
	with no Claims in 2014	with no Claims in 2013 - 2014	with no Claims in 2012 -2014	with no Claims in 2011 -2014	with no Claims in 2010 -2014
Members enrolled in MA in 2014	3.33%				
Members continuously enrolled in MA 2013 - 2014	0.90%	0.44%			
Members continuously enrolled in MA 2012 - 2014	0.65%	0.32%	0.20%		
Members continuously enrolled in MA 2011 - 2014	0.48%	0.24%	0.15%	0.11%	
Members continuously enrolled in MA 2010 - 2014	0.38%	0.19%	0.11%	0.08%	0.06%

\* Based on data from three plans.

The MA benchmarks for PR are intended to function as the basis for bidding to provide services equivalent to those available to FFS beneficiaries. While MA plans may provide additional services not ordinarily available to FFS beneficiaries, if the FFS based benchmarks are too low, they will not support the provision of core Medicare FFS covered services for MA beneficiaries. Based on comparisons of utilization between FFS and MA beneficiaries, and taking into account the rate at which PR beneficiaries utilize no Medicare services, there appears to be significant bias in the FFS experience that would result in a serious underestimation of MA benchmarks.

### **Analysis of FFS Payment & PMPM Estimates Used in Benchmarks**

TMC analyzed the payment experience of the FFS population by type of service and by subgroups of duals and non-duals, beneficiaries with and without risk score data, and duals based on a state buy-in variable outside PR not identified in CMS data for PR. TMC did not re-price hospital claims as needed to comply with current regulation, nor did we re-price physician claims to take account of the new GPCI expected to be implemented for 2018 MA benchmarks based on release of the final Medicare Physician Fee Schedule Rule. We also use the historic HCC risk scores that have not been modified for the newly proposed 2017 modified risk model. So the analysis here describes payment experience that pre-dates these changes in policy and will understate the actual PMPMs that should be observed in the CMS benchmarks for PR. What is important in this analysis are the relativities, and observation of change over time.

The benchmark methodology used by OACT does not adjust or account in any way for the erosion of the FFS population relative to the MA population. Such evaluation has not been

necessary in most of the US where FFS enrollment remains dominant compared to MA. However, there is substantial change in a number of characteristics of the PR FFS population over time, and in the experience represented in PR FFS sub-populations that, we would argue, CMS should take into consideration in evaluating whether its current methodology accurately or fairly estimates MA benchmarks. TMC does not question the accuracy of the calculations, but asks that an independent examination of the issue of using one population to estimate benchmarks for another population be undertaken in the case of PR. While a historical five year period is used to calculate benchmarks along with simple rather than weighted averages, such methodology assumes no material change in the population over time. In observing the trends in FFS utilization and even risk scores for non-duals, there are patterns of change that are uni-directional, suggesting continued change into the years for which benchmarks are estimated. We suggest these consistent patterns of change need to be taken into account in making adjustments to the benchmarks.

Tables 16-18 describe the five year payment PMPM for the sub-populations that comprise FFS beneficiaries eligible for both Part A and Part B. Table 16 describes the dual and non-dual populations with risk scores in the CMS files provided for this study. Note that, as the FFS population erodes as a proportion of all Medicare beneficiaries relative to MA, the risk scores for the non-dual population increase each year. The unadjusted and adjusted PMPMs are also somewhat volatile over the five year period. We would expect these PMPMs to be similar or increasing as updates in payment system inputs generally increase each year to account for increasing costs built into market baskets and other measures of inflation used in rate setting. We believe this volatility is likely to result from the declining population and high variation in utilization, including distortions created by the high rate of zero claims experience incorporated into these values.

To illustrate the impact of including or excluding different sub-populations for which we have no risk scores, we simulated the same PMPM five year average analysis with and without each separate group. Table 17 (Simulation #1) compares the PMPM five year series and average to that same population plus the non-ESRD population with no risk-scores or dual flags, imputing the average overall risk score from the Table 16 population to the combined population. The result is a significant decrease in the value of the PMPM five year series and average values.<sup>6</sup> This decrease is due to two factors: the imputation of average Table 16 overall risk score will misrepresent the mix of duals and non-duals in the new population, and the new population has more than twice the rate of zero claims compared to the Table 16 population. To get a more accurate representation of comparable PMPM for the population without risk scores or dual flags, the payment experience would need to be adjusted for the substantial difference in zero claims experience between the two populations. Such an adjustment would substantially increase the PMPM for the population with missing risk scores and dual flags, and reverse the comparison shown below: a zero-claim adjusted PMPM would increase the PMPM for the combined

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<sup>6</sup> CMS asserts that the population without risk-scores are not used in the benchmark calculations, however when TMC tries to match CMS trims as explained in response to questions, we cannot fully replicate these trims and are left with beneficiaries with no risk scores or dual flags with the requisite Part A and B eligibility and no MA utilization. Any such volume included in benchmarks has the effect of reducing PMPMs.

population to the same or higher level than the population for which risk scores are available. The same type of volatility from year to year is evident in this simulation.

**Table 16. Five Year Trend and Average PMPM for Dual and Non-Dual FFS PR Beneficiaries with Risk Scores and Dual Flags**

	2010	2011	2012	2013	2014	5-Year Simple Average	5-Year Weighted Average
<b>HCC Risk Score</b>							
<i>TOTAL</i>	0.9623	0.9702	0.9754	0.9775	0.9881	0.9747	0.9738
Dual	1.238	1.249	1.234	1.220	1.248	1.238	1.237
Non-Dual	0.924	0.936	0.947	0.952	0.961	0.944	0.940
<b>Beneficiary-months</b>							
<i>TOTAL</i>	1,041,352	945,909	855,642	794,806	750,522	877,646	N/A
Dual	132,134	110,903	92,126	83,596	77,834	99,319	N/A
Non-Dual	909,218	835,006	763,516	711,210	672,688	778,328	N/A
<b>Part A+B payments per beneficiary-month (unadjusted)</b>							
<i>TOTAL</i>	\$ 247.32	\$ 252.81	\$ 243.74	\$ 251.18	\$ 272.41	\$ 253.49	\$ 252.79
Dual	\$ 303.64	\$ 312.36	\$ 316.69	\$ 326.67	\$ 346.59	\$ 321.19	\$ 318.62
Non-Dual	\$ 239.13	\$ 244.90	\$ 234.94	\$ 242.31	\$ 263.83	\$ 245.02	\$ 244.40
<i>Ratio of Dual to Non-dual</i>	1.27	1.28	1.35	1.35	1.31	1.31	1.30
<b>Part A+B payments per beneficiary-month (adjusted)</b>							
<i>TOTAL</i>	\$ 257.0	\$ 260.6	\$ 249.9	\$ 257.0	\$ 275.7	\$ 260.02	\$ 259.6
Dual	\$ 245.3	\$ 250.0	\$ 256.7	\$ 267.9	\$ 277.8	\$ 259.54	\$ 257.6
Non-Dual	\$ 258.7	\$ 261.7	\$ 248.0	\$ 254.6	\$ 274.6	\$ 259.53	\$ 260.0
<i>Ratio of Dual to Non-dual</i>	0.95	0.96	1.04	1.05	1.01	1.00	0.99

Notes:

1. Payments include Total Part A and B payments
2. Months with ESRD coverage are excluded

**Table 17. Simulation #1 of Inclusion of PR FFS Population with no Risk Scores or Dual Flags in Average PMPM Series and 5 Year Averages.**

	2010	2011	2012	2013	2014	5-Year Simple Average	5-Year Weighted Average
HCC Risk Score (For all PR beneficiaries with available risk scores)	0.9623	0.9702	0.9754	0.9775	0.9881	0.9747	0.9738
<b>Including Months with Missing Risk Scores</b>							
Payments per Month (unadjusted)	\$ 242.30	\$ 246.23	\$ 227.53	\$ 235.77	\$ 254.92	\$ 241.35	\$ 241.20
Payments per Month (adjusted)	\$ 251.78	\$ 253.79	\$ 233.26	\$ 241.19	\$ 257.99	\$ 247.60	\$ 247.70
<b>Not Including Months with Missing Risk Scores</b>							
Payments per Month (unadjusted)	\$ 269.73	\$ 271.72	\$ 261.07	\$ 267.61	\$ 287.23	\$ 271.47	\$ 271.08
Payments per Month (adjusted)	\$ 280.29	\$ 280.06	\$ 267.65	\$ 273.76	\$ 290.70	\$ 278.51	\$ 278.38

Notes:

1. Payments include Total Part A and B payments
2. Months with ESRD coverage are excluded

TMC was concerned that, in the dual FFS population, a significant number of duals based on a US state buy-in variable, were excluded from the CMS data with dual flags or treated as non-duals which would result in different risk scores. The PMPM experience is significantly different for this group. CMS indicates it does not use this variable to identify duals, and uses other sources of data which are reflected in the dual flags in the data set provided. Without more

investigation of these data, we cannot definitively determine whether or not their experience is appropriately used in the benchmark calculations. We performed a second simulation (Simulation #2) to illustrate the difference between the PMPM experience for this population and the rest of the PR dual FFS population and the results are shown in Table 18. In this simulation, lacking any risk scores, we imputed the average Table 16 dual risk score to the state buy-in only population. Clearly the unadjusted PMPM for the population with the State buy-in beneficiaries is substantially increased over the dual population identified in the CMS data. That difference results in higher adjusted PMPM. These data have not been adjusted to make the zero-claim experience comparable. The significantly higher PMPM for this population, however would likely impact the overall benchmarks, if included in the benchmark calculation. Note that, in this simulation, the unadjusted and adjusted PMPMs increase steadily from year to year, reflecting the expected increase in payments for Medicare services over time, but also potentially showing increased utilization in the most recent year.

**Table 18. Simulation #2 Comparing PR Dual FFS PMPM Series & 5-Year Average with and without State Buy-In Only Duals**

	2010	2011	2012	2013	2014	5-Year Simple Average	5-Year Weighted Average
HCC Risk Score (For all PR dual beneficiaries with available risk scores)	1.2377	1.2494	1.2336	1.2196	1.2477	1.2376	1.2370
<b>Dual Months + Months of State Buyin Only</b>							
Payments per Month (unadjusted)	\$ 326.89	\$ 341.35	\$ 359.83	\$ 371.38	\$ 410.85	\$ 362.06	\$ 357.31
Payments per Month (adjusted)	\$ 264.12	\$ 273.22	\$ 291.69	\$ 304.51	\$ 329.29	\$ 292.55	\$ 288.86
<b>Dual Months (Not Including Months of State Buyin Only)</b>							
Payments per Month (unadjusted)	\$ 303.64	\$ 312.36	\$ 316.69	\$ 326.67	\$ 346.59	\$ 321.19	\$ 318.62
Payments per Month (adjusted)	\$ 245.34	\$ 250.01	\$ 256.71	\$ 267.85	\$ 277.78	\$ 259.54	\$ 257.58

Notes:

1. Payments include Total Part A and B payments
2. Months with ESRD coverage are excluded

## Migration

To further understanding of the erosion of the FFS population in PR, TMC performed an analysis of migration based on tracking Medicare FFS and MA residents of PR in one year through the US denominator file to identify both residence in the US (excluding PR) and participation in MA vs FFS in that state. The results of this analysis are shown in a series of tables in Appendix B to this report. Migration has increased from 2010-2011 when it was about 8000 Medicare beneficiaries, to 2014 when it was 10,000 beneficiaries. That migration has increased its choice of MA plan enrollment in the mainland US gradually, but just under half of the migrating population opts for FFS enrolment in contrast to the proportions of its enrollment in MA in PR in the previous year. (Enrollment in MA or FFS is reported for December the year after PR enrollment).

Just over a quarter of the 2010-2011 migrating PR Medicare beneficiaries were FFS in PR before moving, and over time to 2014, this proportion declines as MA migration increases as a proportion of all migration. About two thirds of FFS migration continues to enroll in FFS in their new homes. While MA migration is more likely to choose MA plans in their new homes in rates that increase over time, but do not approach their enrollment rates in MA in PR. Florida

and New York account for about half of Medicare migration out of PR, with significant migration to other northeast and Mid-Atlantic states and widely dispersed migration throughout the US in much smaller numbers.

## Conclusion

TMC set out to provide a comprehensive description of the PR Medicare FFS population and make relevant comparisons to the PR MA and US FFS populations to explore the question: does the erosion in the PR FFS population over time result in selection bias and differences in utilization that make the reliance on its utilization to estimate MA benchmarks inaccurate? Taken together, the results of this study suggest the following:

- Significant evidence of selection bias is evident in the data:
  - Demographic and socioeconomic differences between FFS and MA beneficiaries are evident and cannot be entirely accounted for by risk adjustment. Interaction with CMS regarding modification of its risk adjustment methodology earlier in 2016 illustrates the differences in the PR and US socioeconomic distribution (and lack of partial dual status in PR) that cannot be fully accounted for in proposed changes, based on recognition of the need for greater attention to socio-economic status in risk adjustment. These analyses utilize the risk adjustment model used prior to the new model proposed for use in the future. Note that the MA risk adjustment models explain a very small proportion of cost variation and cannot correct for substantial differences in utilization patterns which may be the result of differential access to care.<sup>7</sup>
  - The residual dwindling proportion of Medicare beneficiaries in FFS have different utilization patterns of essential Medicare covered health care services (lower use rates for key services and differing mix of services compared to MA) than MA enrollees.
  - Significant differences in utilization associated with the zero-claims rate in FFS compared to minimal equivalent zero-claims/encounter rates in MA.

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<sup>7</sup> HCC risk scores are based on data for a prior year, and rely on demographic, Medicare eligibility, and diagnoses of mostly chronic conditions in that prior year. Therefore they tend to explain patterns of utilization driven by such factors as age, dual eligibility and/or disability, and chronic illness. They do not predict acute illness, use of high cost drugs, or onset of new disease (such as cancer). Beneficiaries not using services will have no diagnoses to score risk because they have no claims, and so their risk scores will be based only on demographic factors. Risk scores for the zero claims beneficiaries omit any information regarding health care conditions, and it cannot be assumed that these beneficiaries are entirely healthy—their failure to utilize health care services may be cultural or due to access problems. The MA program relies upon risk adjustment to standardize benchmark calculations, but such reliance depends on the stability of the population and its size. The risk adjustment model is less reliable as the size of the population decreases and as it varies in ways not accounted for in the model. Both of these issues are prominent in PR. The historic HCC risk model explained about 11-12 percent of variation in cost when a publication of its R-squared was last available.

- High rates of switching from FFS to MA not reflected on the US mainland or in PR MA, and accelerating erosion in FFS enrollment over time.
- Data discrepancies found in CMS data sources that are not fully explained by CMS in response to questions, and potential material impacts on benchmarks if discrepancies can be confirmed.<sup>8</sup>
- Overall, the high zero claims FFS rate distorts many comparisons of PR FFS to MA based on similar zero claims rates in the US mainland and inside MA. Understanding comparisons in populations in the interest of arguing for accuracy in basing MA benchmarks on the very small and dwindling FFS population in PR will require standardization of all data to the same level of zero-claims. Failure to do so, artificially inflates the denominator in all PMPM calculations and utilization rates resulting in undervaluing PMPM and miss-stating utilization rates.

While Puerto Rico represents an outlier in its high rate of MA enrollment, it is likely that there are or will be US counties that approach similar levels of MA enrollment, raising the question of how and when to evaluate the representativeness of a FFS population as the basis for accurately estimating MA benchmarks. While the statute sets the rules for using FFS utilization for MA benchmarks, it does not abrogate CMS’s responsibility to evaluate the accuracy of implementing the requirements of statute the same way under all conditions, particularly where evidence is strong that sufficient selection bias exists that consequences of doing so may adversely affect access to care and other policy objectives. CMS denies that selection bias is sufficient to reconsider any of its methods, but has not investigated the selection bias discussed in this report except in its previous confirmation of the zero claims source of bias.

TMC asserts that sufficient evidence exists to question whether the PR FFS beneficiary utilization can be used to estimate MA benchmarks with sufficient accuracy to continue setting benchmarks with the same methodology used for the mainland US, even with the adjustments that have been made. We recommend that CMS specify criteria for determining the representativeness of one population to estimate the MA benchmarks for another, and demonstrate that its on-going use of PR FFS data to estimate MA benchmarks is valid. To-date, CMS explanations have been that the data are “good enough” and that data such as that included in this report are not persuasive. If FFS beneficiaries are experiencing access to care barriers to getting the services they need, this will depress MA benchmarks and perpetuate inadequacies in the PR health care system, already challenged by depressed wages for health care workers and out-migration from the island.

We further suggest that a criterion for such determination of representativeness be that at some level of MA penetration, such as 70 percent, CMS undertake analysis to determine the degree to which selection bias will skew the estimation of MA benchmarks. The actuarial credibility standard is not sufficient because it assumes a stable and representative population above the standard. Trends are readily available in MA penetration for all US jurisdictions such that it is easy to identify those that require evaluation. Evaluation should involve the identification of areas of non-representativeness that are likely to be associated with selection bias, and measurement of each type of bias. Only then can adjustments or alternative methods be

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<sup>8</sup> CMS asserts that discrepancies can be explained but has not checked the data in responding to TMC questions. TMC cannot fully replicate the stated trims CMS explains as the basis to deny that discrepancies are relevant.

identified to make appropriate corrections. When selection bias is present that under-estimates MA benchmarks, it will be increasingly difficult for the MA plans serving these populations to provide the level of service needed.

CMS has the authority to make adjustments to its methodologies consistent with the overall intent of the statute. The combined analytic results in this report suggest that the eroded FFS population in PR is not representative of the MA population's service needs, and failure to make appropriate adjustments to correct for bias will understate PR benchmarks relative to these service needs. The data shows that erosion in the FFS population continues at the same or increasing levels each year, increasing the bias inherent in using this population to estimate MA benchmarks, and worsening the outlook for delivery of adequate services to the PR Medicare population.

## APPENDIX A

### Discrepancies between US Denominator File & CMS-Provided PR Denominator File for PR Residents

**Table A. Comparison of US Denominator & CMS Provided PR Denominator File for PR Residents—All Medicare Beneficiaries**

Year	CMS 100% Denominator File for Puerto Rico, Count of Residents	CMS 100% Denominator File for US, Puerto Rico Residents	Puerto Rico Residents Reported Only in PR Denominator File		Puerto Rico Residents Reported Only in US Denominator File	
			N	Percent of Total Beneficiaries reported in Custom File	N	Percent of Total Beneficiaries reported in 100% Denominator File
2010	698,772	697,767	3,530	0.5%	2,525	0.4%
2011	719,965	718,892	4,019	0.6%	2,946	0.4%
2012	743,080	741,774	4,286	0.6%	2,980	0.4%
2013	763,420	760,457	5,888	0.8%	2,925	0.4%
2014	777,060	773,288	6,764	0.9%	2,992	0.4%

**Table B. Comparison of US Denominator & CMS Provided PR Denominator File for PR Residents—Medicare Part A and B Eligible**

Year	CMS 100% Denominator File for Puerto Rico, Count of Residents	CMS 100% Denominator File for US, Puerto Rico Residents	Puerto Rico Residents Reported Only in PR Denominator File		Puerto Rico Residents Reported Only in US Denominator File		Puerto Rico Residents Reported Only in US Denominator File who have State Buy In	
			N	Percent of Total Beneficiaries reported in Custom File	N	Percent of Total Beneficiaries reported in 100% Denominator File	N	As percent of total PR residents reported in 100% Denominator File
2010	101,853	102,169	589	0.6%	905	0.9%	443	49%
2011	92,997	93,379	495	0.5%	877	0.9%	451	51%
2012	84,788	85,182	486	0.6%	880	1.0%	444	50%
2013	79,446	79,564	653	0.8%	771	1.0%	368	48%
2014	75,078	75,205	586	0.8%	713	0.9%	326	46%

**Table C. Beneficiaries Listed as PR Residents in Both Files**

Year	Count of Puerto Rico Residents found in 100% Denominator File and Custom File	Puerto Rican Residents with Identical Enrollment Information in both files	Puerto Rican Residents with Different Enrollment Information on Custom file and 100% Denominator file	
			N	%
2010	695,242	693,750	1,492	0.2%
2011	715,946	714,213	1,733	0.2%
2012	738,794	736,677	2,117	0.3%
2013	757,532	755,216	2,316	0.3%
2014	770,296	767,859	2,437	0.3%

## APPENDIX B

### Migration

**Migration by all Medicare Beneficiaries Enrolled in Part A and B (FFS or MA) From Puerto Rico to the 50 United States 2010 - 2013  
Reported by the Type of Medicare in which the Beneficiary Enrolled in the Mainland (FFS or MA) in the Destination State  
Prepared for: Puerto Rico Crisis Coalition**

**Data Sources:**

CMS' Custom 100% Denominator Standard Analytic File for Puerto Rico Beneficiaries 2010 - 2013  
(aka CMS 100% PR Denominator File)

CMS 100% Denominator SAF (2011-2014)

All Medicare Beneficiary PR Residents

	<b>Beneficiaries from 2010 who survive to December 2011 reported by State of Residence in 2011</b>					
	<b>All Beneficiaries</b>		<b>Beneficiaries Enrolled in FFS*</b>		<b>Beneficiaries Enrolled in MA</b>	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Total Out Migration</b>	7,086	100%	3,743	53%	3,343	47%
Florida	2,422	34%	994	41%	1,428	59%
New York	962	14%	461	48%	501	52%
Pennsylvania	562	8%	308	55%	254	45%
Massachusetts	532	8%	376	71%	156	29%
New Jersey	495	7%	296	60%	199	40%
Connecticut	411	6%	275	67%	136	33%
Texas	263	4%	141	54%	122	46%
Illinois	226	3%	145	64%	81	36%
Ohio	139	2%	88	63%	51	37%
Georgia	129	2%	73	57%	56	43%
California	100	1%	59	59%	41	41%
North Carolina	99	1%	66	67%	33	33%
All Remaining US States	746	11%	461	62%	285	38%

	<b>Beneficiaries from 2011 who survive to December 2012 reported by State of Residence in 2012</b>					
	<b>All Beneficiaries</b>		<b>Beneficiaries Enrolled in FFS*</b>		<b>Beneficiaries Enrolled in MA</b>	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Total Out Migration</b>	7,583	100%	3,569	47%	4,014	53%
Florida	2,788	37%	938	34%	1,850	66%
New York	964	13%	436	45%	528	55%
Pennsylvania	520	7%	266	51%	254	49%
Massachusetts	553	7%	365	66%	188	34%
New Jersey	545	7%	308	57%	237	43%
Connecticut	441	6%	257	58%	184	42%
Texas	313	4%	159	51%	154	49%
Illinois	208	3%	134	64%	74	36%
Ohio	154	2%	95	62%	59	38%
Georgia	127	2%	60	47%	67	53%
California	119	2%	57	48%	62	52%
North Carolina	119	2%	72	61%	47	39%
All Remaining US States	732	10%	422	58%	310	42%
	<b>Beneficiaries from 2012 who survive to December 2013 reported by State of Residence in 2013</b>					
	<b>All Beneficiaries</b>		<b>Beneficiaries Enrolled in FFS*</b>		<b>Beneficiaries Enrolled in MA</b>	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Total Out Migration</b>	8,080	100%	3,633	45%	4,447	55%
Florida	3,130	39%	961	31%	2,169	69%
New York	1,014	13%	460	45%	554	55%
Pennsylvania	594	7%	296	50%	298	50%
Massachusetts	521	6%	352	68%	169	32%
New Jersey	474	6%	249	53%	225	47%
Connecticut	442	5%	245	55%	197	45%
Texas	333	4%	164	49%	169	51%
Illinois	223	3%	140	63%	83	37%
Ohio	144	2%	89	62%	55	38%
Georgia	122	2%	64	52%	58	48%
California	134	2%	73	54%	61	46%
North Carolina	132	2%	79	60%	53	40%
All Remaining US States	817	10%	461	56%	356	44%

	<b>Beneficiaries from 2013 who survive to December 2014 reported by State of Residence in 2014</b>					
	<b>All Beneficiaries</b>		<b>Beneficiaries Enrolled in FFS*</b>		<b>Beneficiaries Enrolled in MA</b>	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Total Out Migration</b>	9,326	100%	3,981	43%	5,345	57%
Florida	3,825	41%	1,116	29%	2,709	71%
New York	1,035	11%	446	43%	589	57%
Pennsylvania	663	7%	325	49%	338	51%
Massachusetts	607	7%	398	66%	209	34%
New Jersey	550	6%	320	58%	230	42%
Connecticut	478	5%	258	54%	220	46%
Texas	363	4%	160	44%	203	56%
Illinois	218	2%	104	48%	114	52%
Ohio	178	2%	90	51%	88	49%
Georgia	151	2%	68	45%	83	55%
California	117	1%	60	51%	57	49%
North Carolina	153	2%	75	49%	78	51%
All Remaining US States	988	11%	561	57%	427	43%

\*Fee for Service in the 50 State is defined as any Fee For Service, not just Part A and B

### FFS Medicare PR Beneficiaries

	Beneficiaries from 2010 who survive to December 2011 reported by State of Residence in 2011					
	All Beneficiaries		Beneficiaries Enrolled in FFS*		Beneficiaries Enrolled in MA	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Total Out Migration</b>	1,941	100%	1,374	71%	567	29%
Florida	641	33%	407	63%	234	37%
New York	250	13%	157	63%	93	37%
Pennsylvania	129	7%	89	69%	40	31%
Massachusetts	147	8%	112	76%	35	24%
New Jersey	152	8%	113	74%	39	26%
Connecticut	96	5%	73	76%	23	24%
Texas	81	4%	64	79%	17	21%
Illinois	73	4%	60	82%	13	18%
Ohio	38	2%	*	*	*	*
Georgia	43	2%	*	*	*	*
California	34	2%	*	*	*	*
North Carolina	29	1%	*	*	*	*
All Remaining US States	228	12%	179	79%	49	21%
	Beneficiaries from 2011 who survive to December 2012 reported by State of Residence in 2012					
	All Beneficiaries		Beneficiaries Enrolled in FFS*		Beneficiaries Enrolled in MA	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Total Out Migration</b>	1,822	100%	1,217	67%	605	33%
Florida	670	37%	416	62%	254	38%
New York	226	12%	140	62%	86	38%
Pennsylvania	118	6%	74	63%	44	37%
Massachusetts	139	8%	103	74%	36	26%
New Jersey	154	8%	107	69%	47	31%
Connecticut	85	5%	61	72%	24	28%
Texas	70	4%	50	71%	20	29%
Illinois	51	3%	37	73%	14	27%
Ohio	40	2%	*	*	*	*
Georgia	32	2%	*	*	*	*
California	23	1%	*	*	*	*
North Carolina	27	1%	*	*	*	*
All Remaining US States	187	10%	137	73%	50	27%

	<b>Beneficiaries from 2012 who survive to December 2013 reported by State of Residence in 2013</b>					
	<b>All Beneficiaries</b>		<b>Beneficiaries Enrolled in FFS*</b>		<b>Beneficiaries Enrolled in MA</b>	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Total Out Migration</b>	1,816	100%	1,220	67%	596	33%
Florida	637	35%	386	61%	251	39%
New York	243	13%	160	66%	83	34%
Pennsylvania	123	7%	70	57%	53	43%
Massachusetts	126	7%	95	75%	31	25%
New Jersey	107	6%	70	65%	37	35%
Connecticut	90	5%	66	73%	24	27%
Texas	91	5%	69	76%	22	24%
Illinois	51	3%	38	75%	13	25%
Ohio	35	2%	*	*	*	*
Georgia	34	2%	*	*	*	*
California	30	2%	*	*	*	*
North Carolina	35	2%	*	*	*	*
All Remaining US States	214	12%	162	76%	52	24%
	<b>Beneficiaries from 2013 who survive to December 2014 reported by State of Residence in 2014</b>					
	<b>All Beneficiaries</b>		<b>Beneficiaries Enrolled in FFS*</b>		<b>Beneficiaries Enrolled in MA</b>	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Total Out Migration</b>	1,946	100%	1,277	66%	669	34%
Florida	756	36%	449	59%	307	41%
New York	224	11%	133	59%	91	41%
Pennsylvania	127	6%	79	62%	48	38%
Massachusetts	126	6%	85	67%	41	33%
New Jersey	117	6%	85	73%	32	27%
Connecticut	79	4%	51	65%	28	35%
Texas	87	4%	66	76%	21	24%
Illinois	44	2%	32	73%	12	27%
Ohio	36	2%	*	*	*	*
Georgia	45	2%	*	*	*	*
California	31	1%	*	*	*	*
North Carolina	32	2%	*	*	*	*
All Remaining US States	242	12%	183	76%	59	24%

## MA Beneficiaries

	Beneficiaries from 2010 who survive to December 2011 reported by State of Residence in 2011					
	All Beneficiaries		Beneficiaries Enrolled in FFS		Beneficiaries Enrolled in MA	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Total Out Migration</b>	5,145	100%	2,369	46%	2,776	54%
Florida	1,781	35%	587	33%	1,194	67%
New York	712	14%	304	43%	408	57%
Pennsylvania	433	8%	219	51%	214	49%
Massachusetts	385	7%	264	69%	121	31%
New Jersey	343	7%	183	53%	160	47%
Connecticut	315	6%	202	64%	113	36%
Texas	182	4%	77	42%	105	58%
Illinois	153	3%	85	56%	68	44%
Ohio	101	2%	*	*	*	*
Georgia	86	2%	*	*	*	*
California	66	1%	*	*	*	*
North Carolina	70	1%	*	*	*	*
All Remaining US States	518	10%	282	54%	236	46%
	Beneficiaries from 2011 who survive to December 2012 reported by State of Residence in 2012					
	All Beneficiaries		Beneficiaries Enrolled in FFS*		Beneficiaries Enrolled in MA	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Total Out Migration</b>	5,761	100%	2,352	41%	3,409	59%
Florida	2,118	37%	522	25%	1,596	75%
New York	738	13%	296	40%	442	60%
Pennsylvania	402	7%	192	48%	210	52%
Massachusetts	414	7%	262	63%	152	37%
New Jersey	391	7%	201	51%	190	49%
Connecticut	356	6%	196	55%	160	45%
Texas	243	4%	109	45%	134	55%
Illinois	157	3%	97	62%	60	38%
Ohio	114	2%	*	*	*	*
Georgia	95	2%	*	*	*	*
California	96	2%	*	*	*	*
North Carolina	92	2%	*	*	*	*
All Remaining US States	545	9%	285	52%	260	48%

	<b>Beneficiaries from 2012 who survive to December 2013 reported by State of Residence in 2013</b>					
	<b>All Beneficiaries</b>		<b>Beneficiaries Enrolled in FFS*</b>		<b>Beneficiaries Enrolled in MA</b>	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Total Out Migration</b>	6,264	100%	2,413	39%	3,851	61%
Florida	2,493	40%	575	23%	1,918	77%
New York	771	12%	300	39%	471	61%
Pennsylvania	471	8%	226	48%	245	52%
Massachusetts	395	6%	257	65%	138	35%
New Jersey	367	6%	179	49%	188	51%
Connecticut	352	6%	179	51%	173	49%
Texas	242	4%	95	39%	147	61%
Illinois	172	3%	102	59%	70	41%
Ohio	109	2%	*	*	*	*
Georgia	88	1%	*	*	*	*
California	104	2%	*	*	*	*
North Carolina	97	2%	*	*	*	*
All Remaining US States	603	10%	299	50%	304	50%
	<b>Beneficiaries from 2013 who survive to December 2014 reported by State of Residence in 2014</b>					
	<b>All Beneficiaries</b>		<b>Beneficiaries Enrolled in FFS*</b>		<b>Beneficiaries Enrolled in MA</b>	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Total Out Migration</b>	7,380	100%	2704	37%	4,676	63%
Florida	3,069	41%	667	22%	2,402	78%
New York	811	11%	313	39%	498	61%
Pennsylvania	536	7%	246	46%	290	54%
Massachusetts	481	7%	313	65%	168	35%
New Jersey	433	6%	235	54%	198	46%
Connecticut	399	5%	207	52%	192	48%
Texas	276	4%	94	34%	182	66%
Illinois	174	2%	72	41%	102	59%
Ohio	142	2%	*	*	*	*
Georgia	106	2%	*	*	*	*
California	86	1%	*	*	*	*
North Carolina	121	2%	*	*	*	*
All Remaining US States	746	11%	378	51%	368	49%

\*Fee for Service in the 50 State is defined as any Fee For Service, not just Part A and B