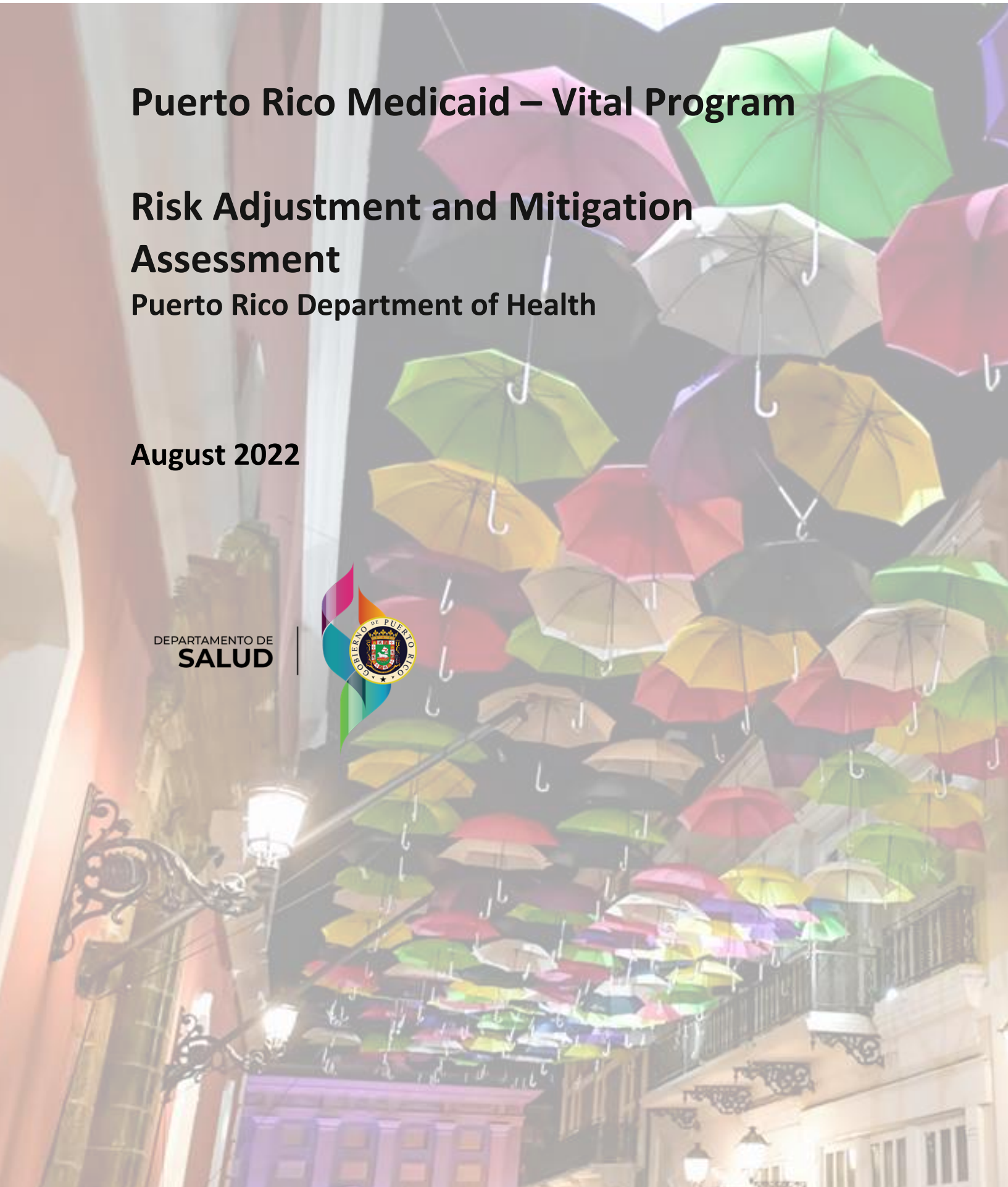
Puerto Rico Medicaid – Vital Program

Risk Adjustment and Mitigation Assessment

Puerto Rico Department of Health

August 2022



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Key Acronyms Glossary

ACG	Adjusted Clinical Group
ASES or PRHIA	Puerto Rico Health Insurance Administration
CDPS	Chronic Illness and Disability Payment System
CHIP	Children's Health Insurance Program
CMS	Center for Medicare and Medicaid Services
CRG	Clinical Risk Grouping
CY	Contract Year
FFS	Fee For Service
FY	Fiscal Year
GPR	Government of Puerto Rico
HCHN	High Cost High Need
IPA	Independent Physician Association
MAO	Medicare Advantage Organization
MCO	Managed Care Organization
MLR	Medical Loss Ratio
NDC	National Drug Code
PAHP	Prepaid Ambulatory Health Plan
PIHP	Prepaid Inpatient Health Plan
PMG	Primary Medical Group
PMPM	Per Member Per Month
PRDOH or DOH	Puerto Rico Department of Health

PRMP	Puerto Rico Medicaid Program
PRPL	Puerto Rico Poverty Level
RAF	Risk Adjustment Factor
RFP	Request for Proposal
SFY	State Fiscal Year
SSI	Supplemental Security Income
TANF	Temporary Assistance for Needy Families

Introduction

According to a letter from the Puerto Rico Secretary of Health to the Center for Medicare and Medicaid Services (CMS) Deputy Administrator and Director[1]:

"The Government of Puerto Rico (GPR), through the Department of Health (DOH) and the Puerto Rico Health Insurance Administration (ASES), is in the process of developing a Request for Proposal (RFP) for the contracting of Managed Care Organizations (MCO) to provide coverage to Medicaid Eligible beneficiaries through the Medicaid Managed Care Model and Program called, Vital.

When Vital was enacted in 2018, ASES implemented a Risk Adjustment Payment methodology for MCOs and Providers to allow additional reimbursement for servicing of High-Risk beneficiaries. Since the program's inception, the methodology has been challenged by MCOs and Providers due to perceived different points of view.

As of this date, the new Medicaid MCO Vital RFP has been delayed for a month due to the need for an updated risk adjustment methodology. GPR, DOH, and ASES need to contract a third party to evaluate due to the delays, and the risk GPR faces given the monetary implications of MCO and Provider issues. GPR has requested that Deloitte Consulting LLP[2] (Deloitte), a party independent of the MCO actuarial process, be contracted to conduct the assessment as required."

As part of this process, considerations for the Puerto Rico Medicaid program were identified for potential future process enhancements to risk adjustment and other risk mitigation programs. The assessment includes the following:

- Develop an understanding of Puerto Rico's current risk adjustment process
- Perform a national scan of comparable states' risk adjustment process and note similarities and differences with Puerto Rico
- Gather stakeholder feedback on Vital and its risk adjustment and other risk mitigation programs
- Identify potential program improvements for DOH/ASES to consider

This report provides a detailed description of the assessment completed for DOH.

Actuarial Qualification

Tim FitzPatrick and Steve Wander are Principals with Deloitte Consulting LLP and members of the American Academy of Actuaries. Tim and Steve meet the Academy's qualification standards for rendering this opinion.

Deloitte is an independent consulting firm that has experience preparing such assessments of Medicaid programs. The approach followed in this assessment is consistent with that employed on similar engagements and with industry practices.

This Report complies with the following Actuarial Standards of Practice, promulgated by the Actuarial Standards Board:

[1] Mellado Lopez, Carlos R. (2022, Feb. 14). *Department of Health – Emergency Contract Justification*. Government of Puerto Rico, Department of Health, Office of the Secretary.

[2] This document may contain confidential Information and is intended strictly for DOH's internal use and not for any other third party. As such, Deloitte is not, by means of any resulting disclosure or publication of this document, rendering professional advice or services to any third party. This document and its contents should not be used by any third party as a basis for any decision or action. Deloitte shall not be responsible for any loss sustained by any third party who relies on this document or its contents.
About Deloitte: Deloitte refers to Deloitte Consulting LLP.

- ASOP 23 – Data Quality
- ASOP 41 – Actuarial Communications
- ASOP 45 – The Use of Health Status Based Risk Adjustment Methodologies

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August 30, 2022

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Executive Summary

On November 1, 2018, Puerto Rico implemented a risk adjustment payment methodology for a new managed Medicaid program, known as Vital. In the years since Vital was implemented, the risk adjustment methodology has faced scrutiny from a variety of stakeholders. Several issues, including data quality concerns due to factors such as COVID-19, hurricanes, earthquakes, adverse selection, under-reporting of encounter data from sub-capitated providers, and an MCO leaving the program have led to risk adjustment factors and proposed payments that are highly volatile from year-to-year. This has caused issues for stakeholders in budgeting and managing revenue due to the uncertainties caused by these factors. Furthermore, several changes to the risk adjustment factors over the years have added to the complexity and confusion for stakeholders. As a result, risk adjusted payments have not yet been settled due to these disputes and the Puerto Rico legislature has passed a Joint Resolution ordering ASES to re-calculate risk adjustment factors using experience prior to 2019.

Because of these issues, the goals of this assessment are to summarize how risk adjustment and other risk mitigation programs have evolved in Puerto Rico, how these arrangements have been implemented in other Medicaid managed care programs (where available) and identify possible opportunities for future process enhancements. To perform the assessment, information and data was provided by ASES, DOH, and other stakeholders, feedback was gathered from MCOs and providers, and researched was conducted of other Medicaid programs.

This assessment examines several focus areas of risk adjustment and other risk mitigation programs in Puerto Rico and other comparison programs, as detailed in the table below:

Table 1 – Assessment Focus Areas

Assessment Focus Area	Definition of Focus Area	Link to Access This Section
Overall Method	The risk adjustment method as a whole, including what factors are included, the timing, and process flow of risk adjustment	Assessment of Overall Method
Rate Structure	How certified capitation rates are developed, including the number of rate cells, how populations are segmented into different rate cells, how regions are incorporated (or not incorporated) into rate cells, and how high-cost conditions are considered (or not considered) in rate cells	Assessment of Rate Structure
Data and Model	What types of data are used, what adjustments (and exclusions) are made based on credibility or other factors, and which model is used to develop risk scores and other factors that may be included within a risk adjustment calculation	Assessment of Data and Model
Application	How risk adjustment factors are calculated and applied to capitated payment rates in order to pay MCOs or providers on a risk-adjusted basis	Assessment of Application
Other Risk Mitigation Programs	Risk mitigation arrangements other than risk adjustment include risk corridors, stop loss, reinsurance, minimum medical loss ratio (MLR), risk sharing arrangements, withholds/bonuses, and other mitigation programs	Assessment of Other Risk Mitigation Programs

Within each of these focus areas, we developed a four-pronged approach from which to evaluate and assess Puerto Rico's risk adjustment and other risk mitigation programs, including:

- Develop an understanding of Puerto Rico's current risk adjustment process
- Perform a national scan of comparable Medicaid risk adjustment processes and note similarities and differences compared with Puerto Rico
- Gather stakeholder feedback on Vital and its risk adjustment and other risk mitigation programs
- Identify potential program improvements for DOH/ASES to consider

The potential improvements that were identified for DOH to consider implementing in future risk adjustment and risk mitigation programs were made with regard to stakeholder feedback and methodologies employed in other Medicaid programs. These high-level considerations are summarized in the table below and mentioned in more detail throughout the report.

Table 2 – Focus Area Considerations

Assessment Focus Area	Considerations	Link to Access This Section
Overall Method	• Reduce the complexity of the risk adjustment program or use a methodology MCOs are more familiar with (e.g., Medicare) • Revisit or remove the High Cost High Need (HCHN) program • Increase transparency with stakeholders (MCOs and PMGs) on risk adjustment process and factors	Overall Method Considerations
Rate Structure	• Reduce the number of rate cells • Create regionally certified rates under the island-wide model	Rate Structure Considerations
Data and Model	• Use Puerto Rico specific cost weights in the CDPS+Rx model • Revisit the most appropriate risk adjustment model for Puerto Rico • Consider using more stable historical data or multiple years to mitigate potential data issues	Data and Model Considerations
Application	• Use a prospective approach in applying and paying risk-adjusted premiums • Normalize risk scores at the rate cell and/or regional levels	Application Considerations
Other Risk Mitigation Programs	• Provide guidance on stop loss and risk sharing arrangements between MCOs and Primary Medical Groups (PMGs)	Other Risk Mitigation Programs Considerations

Assessment Approach

Risk Adjustment Goals & Guiding Principles

Risk adjustment is the process by which relative risk factors are assigned to individuals or groups based on expected resource use and by which those factors are taken into consideration and applied[3]. Without risk adjustment, it may be financially advantageous to enroll only lower-acuity members. With risk adjustment, MCOs can be compensated appropriately based on the overall acuity of their members.

The goals of risk adjustment, which were established as guiding principles for this assessment, are[4]:

- To make equitable comparisons among health plans that take the health status of their enrolled members into consideration
- To minimize the incentives for plans and providers from selectively enrolling healthier members
- To provide adequate financing for those who treat individuals with higher-than-average health needs
- For Medicaid, to provide a budget-neutral mechanism to allocate capitated payments between contracted MCOs.

Risk adjustment is not intended to address differences in utilization across MCOs that are not explained by differences in acuity. It is also not intended to address differences in contracting costs between providers.

Purpose and Scope

The purpose of this assessment is to analyze the risk adjustment and risk sharing/mitigation methodologies currently in place in Puerto Rico's Vital Managed Care Program. As part of this assessment, the Puerto Rico Department of Health's ("DOH" or "PRDOH") goals are to understand how risk adjustment and other risk mitigation arrangements have been implemented in other Medicaid managed care programs (where available) and identify possible opportunities for future process enhancements. Throughout this report, in the context of Puerto Rico, "risk adjustment" is defined to include both MCO risk score relativity factors and area cost relativity factors. Both of these factors, which are described in more detail throughout the report, are collectively referred to as Risk Adjustment Factors (or RAFs).

Data Sources, Reliance, and Limitations

This assessment relied on several sources of information from ASES, DOH, Milliman, and other stakeholders, such as MCOs and Independent Physician Associations (IPAs). Publicly available documents from other Medicaid programs were also relied upon for the national scan, as outlined in Appendix C. Most of the sources gathered from ASES, DOH, Milliman, and other stakeholders are qualitative in nature. These include items such as risk adjustment reports, actuarial certifications, MCO contracts, high-level risk adjustment calculation examples, MCO communications with ASES/DOH, survey responses from IPAs, and summarized feedback from stakeholder interviews. These sources can also be found in Appendix C.

[3] *Actuarial Standard of Practice No. 45 | The Use of Health Status Based Risk Adjustment Methodologies*. Actuarial Standards Board. (2012, January). Retrieved from http://www.actuarialstandardsboard.org/asops/use-health-status-based-risk-adjustment-methodologies/

[4] *Session 77, Medicaid Risk Adjustment: Understanding State Specific Design & Application for Effective Program Management*. Society of Actuaries 2019 Health Meeting. (2019, June 25). Retrieved from https://www.soa.org/globalassets/assets/files/e-business/pd/events/2019/health-meeting/pd-2019-06-health-session-077.pdf

As part of this assessment, all data was reviewed for reasonableness, but an audit was not performed on the data. To the extent the data contains errors or anomalies that were unknown at the time the data was provided, the assessment may be affected by those issues.

This assessment is not an audit or detailed review of calculations of the risk adjustment results or risk sharing arrangements under the Vital program that have been calculated by ASES's actuaries. Furthermore, this assessment is not intended to produce any decisions on changes (or lack thereof) to the risk adjustment or other risk mitigation programs in Puerto Rico. Several considerations are outlined related to our findings which may lead to improvements in the program in the future, based on our research and discussions with stakeholders, but final decisions regarding any potential implementation of these considerations are the responsibility of DOH.

The report, as well as the opinions and conclusions contained herein, was created solely for DOH's benefit and is not intended to be relied upon by any other person or entity. We have prepared this report with the understanding that it will be used by DOH to analyze potential enhancements to its risk adjustment processes. Reference hereto, or distribution or disclosure hereof, to any other party is expressly prohibited without the prior written consent of Deloitte.

Our Approach

Our approach to assessing the four primary tasks is outlined below:

Review Current Risk Adjustment and Risk Mitigation Methodology in Puerto Rico

The team analyzed several sources, including the most recent risk adjustment reports, actuarial certifications, model MCO contracts, select MCO communications with ASES/DOH, and high-level risk adjustment calculations in order to gain an understanding of the current processes and methodologies. A full list of sources gathered can be found in Appendix C. The team also met with DOH, ASES, and ASES's actuaries at Milliman to further clarify and confirm our understanding.

Perform National Scan

A national scan was conducted to gain a broad understanding of other risk adjustment approaches used across other managed care programs in the United States. Comparing the methodology currently in place for the Puerto Rico Medicaid program to these other programs may provide insight into other potential options to implement in Puerto Rico.

The states included in the national scan were selected based on the following criteria:

- **Medicaid Enrollees:** Puerto Rico has approximately 1.5 million members enrolled in Medicaid, so states with 1-2 million Medicaid enrollees were targeted
- **Portion of Medicaid Enrollees in Managed Care:** Puerto Rico has 100% managed care, so states with over 80% of members in managed care were targeted
- **Availability of Information:** States with publicly available risk adjustment information were targeted

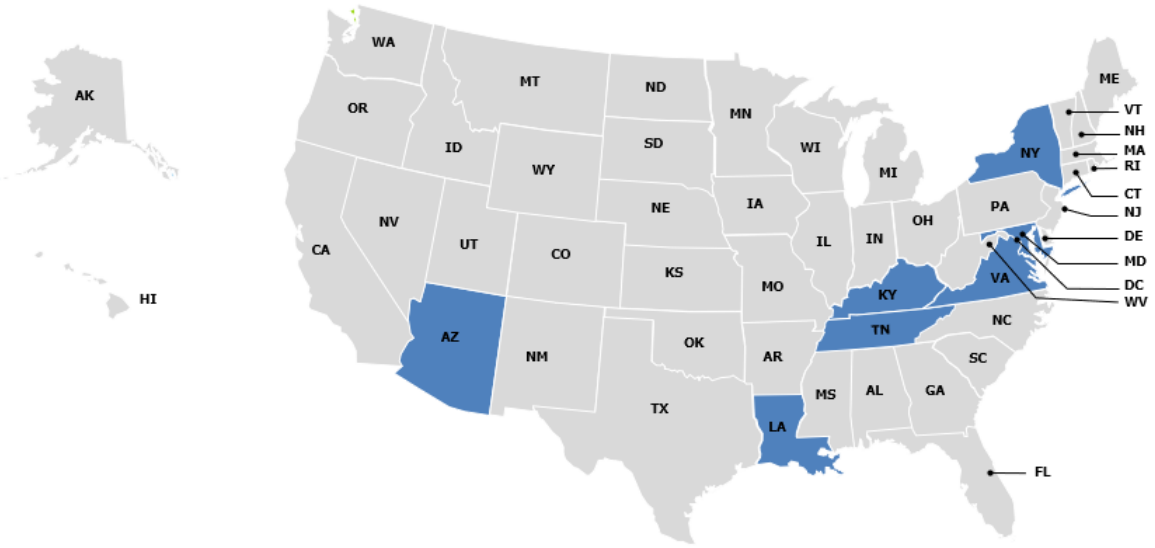
Based on the criteria, the following seven states were identified[5]:

[5] Some states that fit the enrollment and managed care criteria, such as New Jersey, Oregon, and Washington, were not chosen due to a lack of publicly available risk adjustment documentation.

Table 3 – National Scan States[6]

State	Total Medicaid Enrollees (FY 2019)	Portion Comprehensive Managed Care
Arizona	1,874,857	84%
Kentucky	1,353,368	91%
Louisiana	1,622,025	84%
Maryland	1,457,966	82%
New York[7]	6,140,117	73%
Tennessee	1,565,485	92%
Virginia	1,460,075	87%

Figure 1 – Map of National Scan States



Please see Appendix C for a list of the sources used to gather and summarize risk adjustment information and methodologies from the selected states. These include publicly-available sources such as actuarial certifications, MCO contracts, and state laws which outline risk adjustment programs and requirements in various states.

While no state is exactly the same as Puerto Rico in terms of the similarity of the Medicaid programs, the population covered, and other factors, we believe the selected states allow for a reasonable comparison and sample from which to understand similarities and differences of risk adjustment approaches.

[6] *FY 2019 Medicaid Managed Care Enrollment Report*. Medicaid.gov. Retrieved from https://www.medicaid.gov/medicaid/managed-care/enrollment-report/index.html

[7] New York does not meet all state selection criteria, but was included due to the availability of risk adjustment information for this state.

High-level takeaways and comparisons from our national scan are found throughout this report. Detailed information for each of the comparison states is found in Appendix B.

Collect Stakeholder Feedback

Feedback from MCOs, PMGs, and other stakeholders on the current risk adjustment process was collected through interviews, surveys, and other communications. The feedback collected includes comments on the implementation of the Vital program over the past three years as well as suggestions for improvement. Specifically, the team conducted an interview of one to two hours with each of the five MCOs in the Vital program, in addition to an interview with a select group of provider representatives. The team also sent a survey to IPA/PMG representatives in order to increase representation and gather additional feedback. This survey contained similar questions as those addressed during the PMG/IPA interviews.

Identifying Considerations for Future Improvement

Based on the results of the national scan and stakeholder feedback, the team identified several potential improvements for DOH to consider to improve the Vital program going forward. These considerations are highlighted in detail throughout the report and are summarized at the end of the report. Please note that any decisions regarding implementing these considerations are the responsibility of DOH.

Background

Puerto Rico Medicaid Overview

Puerto Rico Department of Health (PRDOH) is the Single State Agency for administering the State Medicaid Program. There is a long-standing sister agency relationship between PRDOH and the Puerto Rico Health Insurance Agency ("PRHIA", also known as "ASES" for its acronym in Spanish), defined by an interagency memorandum of understanding. Puerto Rico Medicaid Program (PRMP), a department under the PRDOH, oversees the Medicaid State Plan, determines Medicaid eligibility of residents, and is responsible for the operation of the Medicaid Management Information System (MMIS) for the program. PRHIA was created in 1993 to oversee, monitor, and evaluate services offered by MCOs under contract with PRHIA. In 2006, PRHIA implemented the Medicare Platino program to provide additional coverage benefits to beneficiaries of Medicaid and Vital (formerly called Reforma) who are also eligible for Medicare (i.e., "dually eligible") and enrolled in a Medicare Advantage Organization (MAO).

Currently, 1.4 million individuals in Puerto Rico, out of a population of 3.2 million, are enrolled in Medicaid[8]; making it one of the largest programs by percentage of population compared to other state Medicaid programs.

Puerto Rico Medicaid Risk Adjustment History

In recent years, the risk adjustment program within Puerto Rico Medicaid's Vital program has been an area of concern for various stakeholders including Managed Care Organizations (MCOs), Primary Medical Groups (PMGs) and Independent Physician Associations (IPAs). The Vital program was implemented on November 1, 2018. Under Vital, a risk adjustment process and a High-Cost High Need (HCHN) program were created. Prior to the Vital program, risk adjustment did not exist in Puerto Rico Medicaid and each region had only one MCO and MCO-specific rates. The Vital risk adjustment process was created to be budget neutral between MCOs and to redistribute funds based on an MCO's membership acuity levels

[8] *Estadisticas*. Gobierno de Puerto Rico Departamento de Salud Programa Medicaid. Retrieved from https://medicaid.salud.gov.pr/Info/Statistics/

and historical differences in costs between regions. A high-cost high need program (HCHN) was also created within the Vital program to assign different premiums based on specified member diagnoses.

Since implementation, the risk adjustment process has evolved over the years, with the primary objective of appropriately redistributing funds based on differences in member acuity across MCOs and geographic regions. This section summarizes how the process has evolved and highlights changes over the past few years. Note that the methodologies discussed below are based on the most recent risk adjustment reports available; these methodologies may be different from prior versions.

Pre-Vital (Prior to 11/1/2018)

Prior to the implementation of the Vital program, risk adjustment was not performed in Puerto Rico. There were eight separate regions and only one MCO operated in each region. Beneficiaries were assigned to an MCO according to their primary residence. Doctors and providers charged fees that varied depending on their region and certified capitation rates were set using one rate cell for each region. Historically, there were differences in the total cost of care between regions. These differences were relatively stable year-over-year and were historically reflected in the regional capitation rates paid to MCOs[9].

Contract Year One (11/1/2018-10/31/2019)

When the Vital program was implemented, MCOs started to compete in attaining enrollees across the island. The single-MCO-per-region model was eliminated, and beneficiaries were initially assigned to an MCO but had free selection of MCOs and providers across the island[10]. Island-wide rates were created, and risk adjustment was implemented to account for historical differences in prices between regions and for the differences in MCOs' member acuity levels. Risk-adjusted premium reconciliation for MCOs was performed to achieve budget neutrality of risk adjustment payments among MCOs. To calculate the premium reconciliation, ASES created area cost relativity factors and MCO risk score relativity factors. These factors are both collectively referred to as Risk Adjustment Factors (RAFs).

The current state of how the MCO risk score relativity factor is calculated can be found in the Assessment of Application section of this report. The calculation of the MCO risk score relativity factors has remained relatively stable over time, therefore we have not duplicated an explanation of the process.

The area cost relativity factors have evolved each year. Initially, the area cost relativity factors were calculated using the following process[11]:

1. Total cost of care per member per month (PMPM) was calculated for each rate cell by region. The total cost was the sum of the fee for service (FFS) cost of care and the capitated cost of care. Paid amounts from state fiscal year 2017 were used to calculate the PMPMs.
2. Cost relativities among regions in each rate cell were calculated by using the ratio of region-specific cost of care PMPM to the average cost of care PMPM in the rate cell.
3. A composite area cost relativity for each region was calculated by taking a weighted average of the rate cell specific area cost relativity factors across all the rate cells. Dollar weights were used in the weighted average.
4. The composite area relativity factor for each region was adjusted to maintain revenue neutrality.

[9] *Joint Resolution 277; Statement of Motives*. Estado Libre Asociado de Puerto Rico, Cámara de Representantes. (2022, February 7).
[10] MCOs indicated that they experienced anti-selection during this period of free selection. Beneficiaries with higher acuity seemed to return to their original MCO, while healthier beneficiaries remained with their assigned MCO.
[11] Pantely, S. & Lee, C. (2021, August 17). *Risk Adjustment for Contract Year 1H 2018-2019 Vital Capitation Rates*. Milliman.

The description of the current calculation of the area cost relativity factor can be found in the Assessment of Application section of this report.

Contract Year Two (11/1/2019-6/30/2020)

In contract year two of the Vital program, Milliman and ASES identified large variations in area cost factors developed using state fiscal year 2019 data compared to state fiscal year 2017 (data used to calculate initial area cost relativity factors). To attempt to mitigate significant changes in the factors, the data from the two years was blended using a 50/50 weight to calculate the updated area cost relativity factors. There were no other significant changes to the risk adjustment methodology in contract year two of the Vital program.

Contract Year Three (7/1/2020-9/30/2021)

In contract year three of the Vital program, both the MCO risk score relativity and area cost relativity methodology were updated from contract year two. The MCO risk score relativity factor was adjusted to use a weighted average risk score by MCO and rate cell, using member months as weights, rather than a straight average. For the area cost relativity factor, the blending approach was removed, and the factor was calculated based on the combination of separate factors for unit cost and utilization. The area cost relativities were also normalized based on each region's risk scores. The methodology used in contract year three represents the current state methodology found in the Assessment of Application section of this report.

Joint Resolution 277

On February 25, 2022, the Governor of Puerto Rico signed Joint Resolution 277 into law. The English translation of this law includes the following language[12]:

"Section 1.- This Joint Resolution will apply to payments made to insurers (Managed Care Organizations) under the Vital Health Plan during the years federal tax 2019, 2020 and 2021 as defined by federal law corresponding.

Section 2.- The Puerto Rico Health Insurance Administration is hereby ordered (ASES) to calculate the Risk Adjustment Factor of the Health Plan Vital at the regional level based on the historical experience prior to the year 2019. This Section will only apply in the circumstances described in Section 1 of this Joint Resolution."

Based on this Joint Resolution, ASES must use experience data prior to 2019 to calculate RAF. This impacts the RAF calculations for contract years 2019-2020, 2020-2021, and 2021-2022. Thus, the methodology described in the following sections must be changed to use experience prior to 2019 for the applicable contract years.

As a result of the Joint Resolution and the various issues cited within related to data quality, this report was developed to help improve the program going forward.

Assessment of Overall Method

This section describes the overall risk adjustment methodology employed in Puerto Rico and comparison states, as well as stakeholder feedback and future considerations. In this section, the overall method

[12] *Joint Resolution 277.* Estado Libre Asociado de Puerto Rico, Cámara de Representantes. (2022, February 7).

describes the risk adjustment method as a whole, including what factors are included, the timing, and process flow of risk adjustment.

Puerto Rico

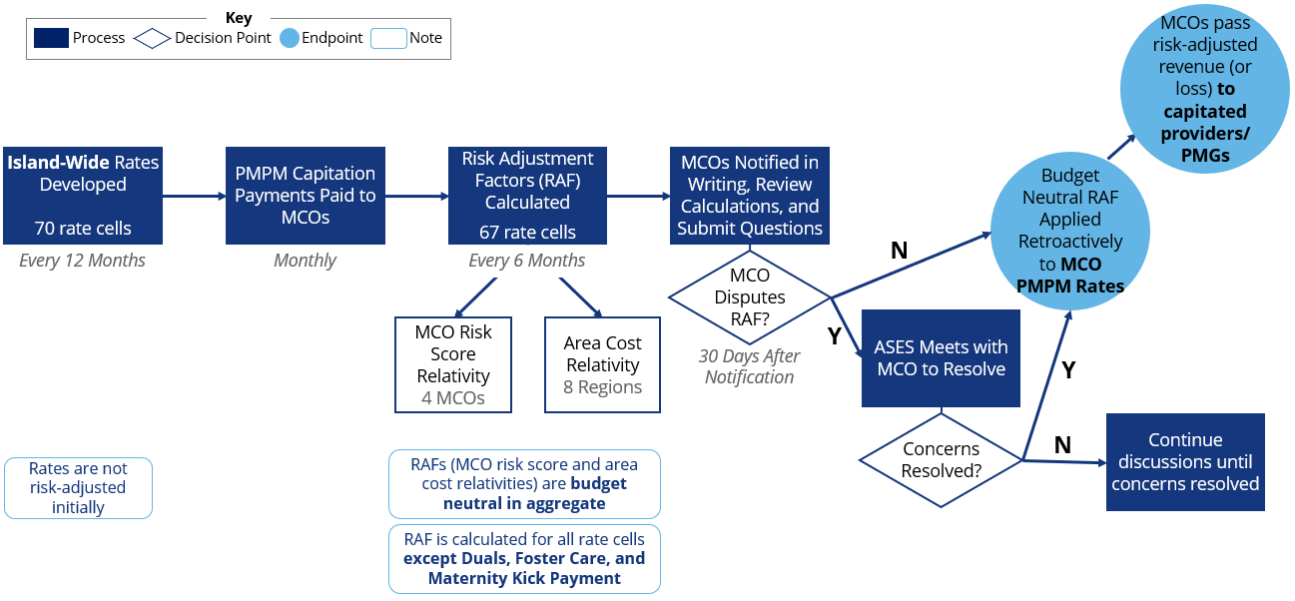
Since the start of the Vital program in November 2018, Puerto Rico has implemented a risk adjustment program to account for differences in member acuity across MCOs as well as differences in provider reimbursement and practice patterns across regions. These two considerations result in two different factors (collectively referred to as Risk Adjustment Factors or RAFs) that are calculated for each MCO: the MCO risk score relativity and area cost relativity factors.

The RAFs are retroactively applied to the certified capitation rates that are paid to each MCO. The payment process is budget neutral to ASES in aggregate, across all MCOs, regions, and rate cells. Therefore, upon the application of RAFs, payments are distributed among MCOs (with some paying into the program and some receiving additional payment from the program) based on the relative acuity of their members, the area cost relativity factors, and the distribution of membership across regions. MCOs generally pass these RAF payments on to their contracted providers, based on the terms of their contracts.

This section describes the current RAF process and calculation for Puerto Rico in detail. Note that all details described below are current as of the date of this report and based on risk adjustment documentation provided by ASES/DOH for the CY2020-2021 payment year. Several changes have been made in recent years to this process, and it is expected that changes will be made in the future, especially considering recent laws passed by the government of Puerto Rico. Therefore, this process is representative of the most recent year's documentation and does not represent historical or future potential methodologies.

The high-level process for risk adjustment is depicted in the graphic below. The various steps are discussed in more detail below.

Figure 2 – Puerto Rico Risk Adjustment Process Flow



The risk adjustment process in Puerto Rico begins with the certification of capitation rates. Once a year, ASES's actuaries will develop an actuarial memorandum to provide documentation for the development of actuarially sound capitation rates. In the most recent version of this actuarial certification (CY 2021-2022, or the fourth year of the Vital program), these rates are certified in 72 rate cells. These rate cells are reflective of various factors, including a member's age, gender, specific diagnosis (High Cost High Need), Medicare eligibility and program eligibility. The certified rates are island-wide rates and are therefore not reflective of regional differences in cost. A full list of rate cells included in the most recent actuarial certification can be found in Appendix A.

Once capitation rates are certified, each MCO receives monthly capitation payments for the applicable rating period based on their membership distribution among each rate cell. These initial capitation payments do not include risk adjustment factors for MCO risk score relativity or area cost relativity. MCOs who have a sub-capitation or risk share arrangement with providers will then pass along a portion of these monthly capitation payments to the providers based on contract specifications (often times a percentage of premium).

Every six months, ASES's actuaries will calculate two sets of risk adjustment factors:

- **MCO Risk Score Relativity Factors**, which accounts for differences in member acuity across MCOs; there is one factor reported for each MCO (four in total; a fifth MCO left the program in 2020)
- **Area Cost Relativity Factors**, which accounts for differences in provider reimbursement and practice patterns across geographic areas; there is one factor reported for each region (eight in total)

Once these factors are calculated, each of the MCOs are notified in writing of the initial factors, along with details supporting the calculations. MCOs then have 30 days to review these calculations and submit any questions to ASES. When an MCO disputes the RAF calculation, ASES will meet with the MCO in order to achieve a good faith resolution to the dispute[13].

If ASES is able to resolve the disputed matters with MCOs, the risk adjustment factors will be applied retroactively to the monthly capitation rates paid to MCOs during the risk adjustment period. The formula below illustrates how RAFs are applied to each rate cell in order to retroactively adjust initial payments made based on the certified capitation rates. This reconciliation of premiums must be budget neutral to ASES (normalized to a total adjustment of 1.000 across all MCOs, all rate cells, and all regions). This is not, however, budget neutral at a more granular level (such as within a rate cell or within a region). An individual MCO's risk-adjustment revenue (or loss) will be equal to the total risk-adjusted premium minus the total certified premium paid.

Figure 3 – Risk-Adjusted Premium Calculation

$$\text{Risk-Adjusted Premium Rate} = \text{Certified Rate Cell Premium} \times \left[\frac{\text{MCO Risk Score Relativity} \times \text{Area Cost Relativity}}{\text{Aggregate Budget Neutrality Factor}} \right]$$

The final step in the RAF process involves MCOs passing along risk adjustment revenue (or loss) to sub-capitated providers (such as PMGs). Thus, some of the payment risk associated with risk adjustment is ultimately passed onto these sub-capitated providers. ASES does not have a prescribed methodology for

[13] *Model Contract Between ADMINISTRACIÓN DE SEGUROS DE SALUD DE PUERTO RICO (ASES) and NOMBRE ASEGURADORA for PROVISION OF PHYSICAL & BEHAVIORAL HEALTH SERVICES UNDER THE GOVERNMENT HEALTH PLAN PROGRAM*. Provided by ASES. (2020, September 15).

MCOs to approach this process, but some MCOs may use the reported area cost relativity factors or membership in order to allocate risk adjustment payments, depending on the nature of their sub-capitated contracts.

To date, none of the calculated risk adjustment payments since the beginning of the Vital program have been paid to or received from MCOs due to disputes in the factors, data, and methodologies employed under the first three contract years of Vital.

National Scan

The detailed methodology used to calculate risk adjustment factors varies by state, but each state examined follows a similar overall process. Generally, risk weights are developed using the state-selected risk adjustment model and applying any applicable credibility adjustments for groups deemed not fully credible. Members with sufficient experience, most commonly six months of enrollment, are assigned an encounters-based risk score. Members with insufficient experience are typically assigned the average risk score for their demographic group, MCO, or some other assumption. Using aggregated member-level risk scores by MCO, an MCO relativity factor is calculated for each MCO and is adjusted for budget neutrality. The MCO relativity factor is multiplied by certified rate to produce the risk-adjusted rate.

Since other Medicaid programs typically build regional cost differences into the certified rates by developing rates at the regional and rate cell level, there is no area cost relativity factor applied during the risk adjustment process for the other Medicaid programs we examined. Therefore, Vital is the only Medicaid program examined which includes an adjustment for cost variations by region within risk adjustment.

While most states follow the described general process, the application of the process varies slightly from state to state. In Arizona, the CDPS+Rx risk adjustment model is modified to include additional state-specific markers for Social Determinants of Health, Children's Rehabilitative Services, and Prior Period Coverage. Additionally, the Age < 1 (newborns) rate cell follows a different risk adjustment methodology than all other rate cells in Arizona[14]. In Maryland, the final calculated MCO risk factor is adjusted such that it is not greater than 1.1 or below 0.9[15]. See Appendix B for more detailed state-specific information on the risk adjustment process in each state examined.

Stakeholder Feedback

Stakeholders expressed frustration with the complexity of the overall risk adjustment process, including the large number of rate cells. MCOs noted that the risk adjustment program is difficult for them to understand, which makes it difficult to explain performance to PMGs. This can, at times, lead to a perception from PMG/IPAs that MCOs are not being transparent with regards to risk adjustment. Additionally, with the implementation of Vital, PMGs now must manage multiple contracts with multiple MCOs, and these contracts are not uniform across MCOs. The complexity and non-unform nature of these contracts increases the risk for PMGs across the island.

[14] AHCCCS Division of Health Care Management. (2021, August 11). *Contract Year Ending 2022 AHCCCS Complete Care Program Capitation Rate Certification*. AHCCCS Capitation Rates. Retrieved March 9, 2022, from https://www.azahcccs.gov/PlansProviders/Downloads/CapitationRates/acc/CYE_22_ACC_Capitation_Rate_Certification_SOF.pdf

[15] *Section 10.67.04.19 - MCO Reimbursement.* Md. Code Regs. 10.67.04.19. (2022, April 8). Retrieved April 8, 2022, from https://casetext.com/regulation/maryland-administrative-code/title-10-maryland-department-of-health/part-5/subtitle-67-maryland-healthchoice-program/chapter-106704-maryland-medicaid-managed-care-program-managed-care-organizations/section-10670419-effective442022mco-reimbursement

Some stakeholders believe that the risk adjustment process does not reward efficiency or medical management efforts. According to these stakeholders, MCOs in regions with lower costs due to good medical management may be subsidizing MCOs in regions with higher costs.

Many stakeholders identified problems with the process for High Cost High Need (HCHN) members (which represent their own rate cells in the actuarial certification) in terms of timing and identification. There is frequently a timing lag between when the member is identified as HCHN through an encounter record and when the member is flagged as HCHN by ASES, which can take approximately four to six months. In addition, if a HCHN member switches MCOs or PMGs, stakeholders noted that the first MCO or PMG does not receive the HCHN premium, which can be approximately ten times higher than the equivalent basic premium. Some stakeholders also mentioned there are high-cost diagnoses that do not receive a HCHN designation (i.e., hemophilia, multiple sclerosis). As a result of the HCHN program, both MCOs and PMGs have noted they are constrained to focus on managing revenue rather than managing member health and claims cost.

Stakeholders also indicated a perceived lack of transparency from ASES in terms of the data used and development of the published risk adjustment factors. Multiple MCOs requested detailed data from ASES so that they could better understand their population in relation to the rest of the program as well as understand the cause of the large changes in the area cost relativity factor from year to year. Without being provided this more detailed information, stakeholders find it difficult to accept the published risk score factors, especially given the large swings in Contract Years 2 and 3. Going forward, some MCOs have suggested that receiving more granular risk score data from ASES, including average factors by member, rate cell, and region, would be helpful to understand the drivers of the single MCO-level factors provided.

Considerations

Reduce the complexity of the risk adjustment program

Challenge: The multiple components of the risk adjustment factor (risk relativity and regional factor) and the number of rate cells make the overall methodology very complex. It is difficult for stakeholders (PMGs and MCOs) to understand their risk profile/performance and to explain the methodology to others. PMGs also noted that managing contracts with multiple MCOs can increase their risk. Some MCOs also noted that managing the complexities of the risk adjustment program has taken focus away from managing claims and shifting it toward understanding revenue drivers.

Standard Practice: Most other Medicaid programs have a regional rate structure and only have a factor for MCO risk score within risk adjustment; Vital is the only Medicaid program examined which includes an adjustment for cost variations by region within risk adjustment.

Consideration: Find ways to reduce the complexity of risk adjustment wherever possible, which allows stakeholders to better understand and have more confidence in the process. Several examples of how to reduce complexity are discussed throughout this report. While not necessarily less complex, stakeholders were more familiar and comfortable with the Medicare risk adjustment methodology.

Revisit or remove the High Cost High Need (HCHN) program

Challenge: Stakeholders believe the program does not capture the appropriate high-cost diseases and noted that the identification of HCHN members has a long lag, delaying allocation to the rate cell by up to 6 months from when members are initially identified in an encounter record. There may also be

unintended incentives to shift members towards a HCHN rate cell to take advantage of the higher HCHN rate, even when not appropriate.

Standard Practice: As noted in the Assessment of Rate Structure section below, most other comparison states do not have High Cost High Need programs or rate cells that vary by diagnosis. If risk adjustment appropriately captures this additional member acuity and is included within initial capitation rates, the HCHN program may be duplicative with risk adjustment.

Consideration: If risk adjustment can be paid within initial capitation rates and appropriately includes compensation for additional member acuity, then the HCHN program may be unnecessary. Removing the program may reduce complexity and alleviate some of the concerns voiced by stakeholders.

Increase transparency with stakeholders

Challenge: In addition to the complexity of the risk adjustment program, most stakeholders noted that they did not believe they received sufficiently transparent information from which to understand and evaluate the appropriateness of risk adjustment factors.

Standard Practice: Providing enhanced access to information may improve stakeholders' knowledge and confidence in the risk adjustment process.

Consideration: If feasible, allow stakeholders access to additional data and explanations when providing risk adjustment reports, such as breakdowns of risk scores by member, MCO, region, and/or rate cell.

Assessment of Rate Structure

This section describes the rate structure employed in Puerto Rico and comparison states, as well as stakeholder feedback and future considerations. In this section, rate structure is defined as how certified capitation rates are developed, including how many rate cells are included, what populations are segmented into different rate cells, how regions are incorporated (or not incorporated) into rate cells, and how high-cost conditions are considered (or not considered) in rate cells.

Puerto Rico

In Puerto Rico, island-wide capitation rates are currently developed for 72 rate cells. Rate cells are developed on a PMPM basis and are reflective of a member's age, gender, specific diagnosis (HCHN), Medicare eligibility, and program eligibility. In the most recent actuarial certification (CY2021-2022), the number of rate cells was increased as a result of an increase in the income threshold used to determine eligibility. Rates are developed on an island-wide basis, meaning they do not vary by region or MCO. Differences between MCOs and regions are intended to be captured by the MCO Risk Score Relativity and Area Cost Relativity factors applied during the risk adjustment process.

National Scan

The level at which rates are certified as well as the number of rate cells vary by state. **Figure 4** below outlines the number of rate cells and regions by state.

Figure 4 – Rate Structure by State

Rate Certification Level	State	Rate Cells		Regions	Rate Cells x Regions	
		Total	Risk Adjusted		Total	Risk Adjusted
Rates are certified by region and rate cell	AZ	8	6	3	24	18
	KY	39	*unknown*	2	78	*unknown*
	LA	30	7	4	120	28
	MD	65	*unknown*	3	195	*unknown*
	NY	9	4	9	60*	36
	TN	15	14	3	45	42
	VA	20	3	6	100*	18
Rates certified by rate cell	PR	70	68	8	560**	544**

*Not all rate cells have regional rates (i.e., use state-wide rates)
**While Puerto Rico certifies rates at the island-wide level (not by region), regional cost relativity factors are applied so the effective number of rate cells is higher

All of the comparison states examined certify rates at the region and rate cell level. As shown in the figure above, the number of rate cells multiplied by the number of regions represents the total number of certified rates for these states. However, Puerto Rico is the only state or territory examined that has rates that do not vary by region. Rather than certifying rates at the regional level, the area cost relativity factor applied during the risk adjustment process is intended to account for regional cost differences. Therefore, the rates used in Puerto Rico still vary by region, resulting in many more rates in total by rate cell and region.

Additionally, Puerto Rico has a significantly higher number of rate cells compared to most states examined. For all states examined, not all rate cells are subject to risk adjustment. The most common excluded rate cells include dual eligible (members eligible for both Medicaid and Medicare) and maternity kick payments. While it is unclear how many rate cells are risk adjusted in Kentucky and Maryland, Puerto Rico has the most risk-adjusted rate cells compared to other Medicaid programs examined.

The level of detail in which rate cells are defined varies by state. Most commonly, states have rate cells based on demographics (i.e., age, gender), Medicaid eligibility, program, or some combination of these factors. In Puerto Rico, there are also separate rate cells for members with diagnoses considered High-Cost High Need such that their certified rates are much higher than other rate cells. The only other Medicaid programs that had some form of diagnosis-based risk cells were Louisiana[16] and Maryland[17].

[16] Mercer Government Human Services Consulting. (2021, November 15). *Healthy Louisiana Rate Certification Effective January 1, 2022 through December 31, 2022*. Mercer Rate Letters | La Dept. of Health. Retrieved March 11, 2022, from https://ldh.la.gov/assets/docs/BayouHealth/MercerRateLetters/HealthyLouisianaRateCertificationEffectiveJan2022-Dec2022_2021115_FINAL.pdf
[17] *Section 10.67.04.19 - MCO Reimbursement*. Md. Code Regs. 10.67.04.19. (2022, April 8). Retrieved April 8, 2022, from https://casetext.com/regulation/maryland-administrative-code/title-10-maryland-department-of-health/part-5/subtitle-67-maryland-healthchoice-program/chapter-106704-maryland-medicaid-managed-care-program-managed-care-organizations/section-10670419-effective442022mco-reimbursement

Louisiana has a separate rate cell for Breast and Cervical Cancer, while Maryland has rate cells based on groupings of Adjusted Clinical Group (ACG) assignments in addition to HIV and AIDS. As outlined in **Figure 5** below, most other Medicaid programs examined do not have separate rate cells for members with high-cost diagnoses. Instead, these costs are accounted through adjustments to the premium rates (mostly through risk adjustment).

Figure 5 – Rate Cell Classification by State

Rate Cell Classifications	States	Diagnosis-Based Rate Cells
Diagnosis-Based Rate Cells		LA: Breast Cancer and Cervical Cancer MD: HIV, AIDS, and Adjusted Clinical Group (ACG) Assignment PR: Cancer, Diabetes or Low Cardio, High Cardio, Pulmonary, and Renal
No Diagnosis-Based Rate Cells		N/A

Stakeholder Feedback

Some stakeholders expressed support for rates to be certified at the regional level, which would eliminate the need for the area cost relativity factor. If rates were certified at the regional level, this would implicitly include variations in costs across regions within the certified rates and reduce the burden of retroactively adjusting premium rates after the factors are calculated.

Many stakeholders also indicated that the large quantity of rate cells cause complications for budgeting. Since each rate cell has its own premium amount, MCOs and PMGs need to forecast the number of members in each rate cell in order to budget accurately. Stakeholders have suggested condensing rate cells into fewer groups, potentially based on demographics and program eligibility rather than diagnoses.

Some stakeholders also suggested removing the HCHN rate cells altogether and using risk adjustment to account for the differences in costs for these members, similar to how other Medicaid programs approach high-cost diagnoses. As noted above, many stakeholders have voiced concerns with the timing, identification, and conditions included in the HCHN rate cells. Some stakeholders have noted that, as long as the risk adjustment system works as intended, the HCHN rate cells may be duplicative with risk adjustment. If the MCO risk score relativity factor accurately includes costs for the additional acuity of members with HCHN diagnoses, there may be further room to consolidate and simplify rate cells. This could also help to alleviate the concerns with the HCHN program noted above.

Considerations

Reduce the number of rate cells

Challenge: The large number of rate cells adds to the complexity of the program and administrative burden of reconciling and managing various rate cells, according to several stakeholders.

Standard Practice: Most comparison states have fewer rate cells than Puerto Rico:

- PR has 68 different rate cells that are risk adjusted
- Examples of rate cells in other Medicaid programs include: 6 (AZ), 3 (VA), 7 (LA), 4 (NY), 14 (TN)

- Risk relativity factor is applied to reflect the acuity difference of populations being served by MCOs and reduce the need for several rate cells

Consideration: DOH could develop rate cells based on major population groups rather than diagnoses (e.g., remove HCHN rate cells, by Temporary Assistance for Needy Families/TANF adult, Supplemental Security Income/SSI, etc.). Reducing the number of rate cells could simplify the complexity of risk adjustment and increase the credibility of rate cells.

Create regionally-certified rates

Challenge: Applying a regional cost factor in concert with risk relativity is increasing complexity and reducing transparency with stakeholders. MCOs and PMGs noted that it is difficult to estimate their own revenue due to the variations in this factor.

Standard Practice: All of the comparison states examined certify rates at the region and rate cell level. Therefore, Puerto Rico is the only state or territory examined that has rates that do not vary by region in the initial capitation rates.

Consideration: Puerto Rico could maintain an island-wide model for MCOs, but reflect regional cost differences in rates and normalize risk scores at the regional level. Regional rates would eliminate the need for a regional cost factor, which is a primary point of contention with the stakeholders.

Assessment of Data and Model

This section describes the risk adjustment data and model employed in Puerto Rico and comparison states, as well as stakeholder feedback and future considerations. In this section, data and model are defined as what types of data are used, what adjustments (and exclusions) are made based on credibility or other factors, and which model is used to develop risk scores and other factors which may be included within a risk adjustment calculation.

Puerto Rico

The data used to calculate risk adjustment factors and payments differs between the MCO risk score relativity and area cost relativity factors. According to model contracts between ASES and MCOs, claims and encounter data with dates of service from the most recent twelve-month period which ASES determines to be reasonably complete are to be used.[18]

To develop MCO risk score relativity factors, the following information is used:

I. Medical and prescription drug claims data: Diagnosis codes and National Drug Codes (NDCs) in the medical and prescription drug claims data incurred during a specified time period
   - Diagnosis codes from laboratory and radiology claims are excluded

II. Eligibility Data: The number of eligible months during a specified time period for each member
   - Only members with six months of eligibility in the diagnosis period are included

To develop the area cost relativity factors, the following information is used:

- Medical and prescription drug claims data: Paid amounts in the medical and prescription drug claims data incurred during a specified time period

[18] *Model Contract Between ADMINISTRACIÓN DE SEGUROS DE SALUD DE PUERTO RICO (ASES) and NOMBRE ASEGURADORA for PROVISION OF PHYSICAL & BEHAVIORAL HEALTH SERVICES UNDER THE GOVERNMENT HEALTH PLAN PROGRAM*. Provided by ASES. (2020, September 15).

- Costs for services paid under capitation (paid capitation amounts reported by MCOs)
- Eligibility data: The number of eligible months during a specified time period for each member

Tables 4 and 5 below provide an overview of the specific dates of service used for each of the first three years of the Vital program:

Table 4 – Information Used to Develop MCO Risk Score Relativity Factors

Risk Adjustment Period	Medical and Prescription Drug Data	Eligibility Data
1st Half CY2018-2019	SFY 2018 (7/1/2017 – 6/30/2018)	SFY 2018 (7/1/2017 – 6/30/2018)
2nd Half CY2018-2019	1/1/2018 – 12/31/2018	1/1/2018 – 12/31/2018
CY2019-2020	1/1/2019 – 12/31/2019	1/1/2019 – 12/31/2019
CY2020-2021	3/1/2019 – 2/29/2020	3/1/2019 – 2/29/2020

Table 5 – Information Used to Develop Area Cost Relativity Factors

Risk Adjustment Period	Medical and Prescription Drug Claims Data	Costs for Services Paid Under Capitation	Eligibility Data
CY2018-2019	SFY 2017	Current capitation rates PMPM shown in the actuarial certification of SFY 2017 premium rates	SFY 2017
CY2019-2020	50/50 blend of SFY 2017 and SFY 2019	50/50 blend of re-priced data in SFY 2017 and actual paid capitation amounts in SFY 2019	50/50 blend of SFY 2017 and SFY 2019
CY2020-2021	SFY 2021	Paid capitation amounts reported by MCOs	SFY 2021

In order to develop MCO risk score relativity factors, ASES uses the CDPS+Rx Version 6.3 risk adjustment model, which is maintained by the University of California San Diego. This model uses the diagnosis codes and NDCs from Puerto Rico's data, along with cost weights derived from nation-wide data, to develop a risk score for each member. The model is prospective, meaning it uses historical experience to predict the acuity of each member during the rating period.

Because area cost factors are not based on risk scores for individual members, ASES does not use a diagnosis-based risk adjustment model to develop area cost factors. Instead, ASES's actuaries summarize claims and encounter data into various actuarial cost models. These models include the cost of services paid under both FFS arrangements as well as sub-capitation payments. Actuarial cost models allow for the analysis of claim costs broken out between utilization and unit cost. The cost models also break out claims between service categories (i.e., inpatient, outpatient, professional, prescription drug, etc.). The cost model used by ASES is generated for each rate cell and region, with the all-region member month distribution used to normalize for differences in population mix between regions.

According to CMS guidelines in 42 CFR § 438.5(c), "states and their actuaries must use the most appropriate base data, from the three most recent and complete years prior to the rating period, for

developing capitation rates." Furthermore, according to 42 CFR § 438.5(g), acuity adjustments may be used prospectively or retrospectively. CMS's 2022-2023 Medicaid Managed Care Rate Development Guide notes that "while retrospective acuity adjustments may be permissible, they are intended solely as a mechanism to account for differences between assumed and actual health status when there is significant uncertainty about the health status or risk of a population." Based on this assessment, ASES's actuaries selected a risk adjustment methodology that uses generally accepted models and applied it in a budget neutral manner, consistent with generally accepted actuarial principles and practices. ASES's actuaries used data for CY2018-2019, CY2019-2020, and CY2020-2021 that predated the COVID -19 pandemic for risk score relativity (prior to March 2020). The area cost relativity factors for CY2020-2021 used data following the onset of COVID-19 pandemic (SFY 2021 data).

National Scan

The enrollment data used to assign risk scores to members varies across different states. The majority of states reviewed in the national scan required at least six months of eligibility to assign a member a risk score. New York[19] and Kentucky[20] only required three or more months of eligibility, and Virginia[21] did not specify a minimum enrollment period. Puerto Rico requires at least six months of eligibility, which aligns with most comparison states.

The majority of comparison states assigned members who did not meet the eligibility criteria risk scores using different methodologies. The methodologies are shown in more detail in **Figure 6** below. In Puerto Rico, enrollees who do not have at least six months of eligibility in the diagnosis period receive a risk score equal to the average risk score for the MCO.

The majority of states also incorporate credibility adjustments for rate cells or cohorts with small populations. The criteria can be found in **Figure 6** below. There are currently no credibility considerations in place for Puerto Rico on handling small populations at the rate cell or cohort level.

[19] Deloitte Consulting LLP. (2021, September 1). *SFY 2021-22 Mainstream Managed Care Risk Adjustment Actuarial Memorandum*.
[20] Wakely Consulting Group. (2019, April 8). *Capitation Rate Development for the Medicaid Managed Care Program for the period April 1, 2019 through June 30, 2020*. Commonwealth of Kentucky Department for Medicaid Services (DMS). Retrieved April 1, 2022, from https://www.bidnet.com/bneattachments?/574289936.pdf
[21] Mercer Government Human Services Consulting. (2021, May 25). *Fiscal Year 2022 Medallion 4.0 Rate Report Final Rates Effective July 1, 2021. Commonwealth of Virginia*. Retrieved April 6, 2022, from https://www.dmas.virginia.gov/media/3662/fy-2022-medallion-4-rate-report-effective-july-1-2021.pdf

Figure 6 – Member Eligibility and Data Used by State

State	Members Scored: Months of Eligibility	Unscored Assumption	Credibility Adjustments
	6+ in the diagnosis period	Average risk score for the MCO	*N/A*
	6+ in base period and 1+ in projection period	50% pure age/gender factor + 50% adjusted plan factor	Rate cells with <500 members are not fully credible
	3+ in base period (newborns and pregnant women: 1+)	Average risk score for rate cell/region/MCO combination	Budget neutral smoothing adjustments for small rate cells at the regional level
	6+ enrollment experience	Risk score based on age/gender risk assumption	Rate cells not sufficiently credible at the regional level are assigned a single statewide capitation rate
	6+ program eligibility, assigned to a demographic rate cell, and aged 1 year or older	Assign enrollees to a risk adjustment category that reflects the enrollee's age, residence, and gender	Cohorts with <50 enrollees are not fully credible
	3+ eligibility	Average risk score for rate cell/region/MCO combination 50/50 blend of MCO risk score and age/gender risk score	Region/premium groups with <100 or <50% scored members are not fully credible
	6+ eligibility in first year and 1+ in second year (of most recent 2 years)	Average risk score of members within same rate cell	*N/A*
	6+ in the diagnosis period	Average risk score of age/gender combination within MCO	Eligibility categories/regions with < 550 members are not fully credible

In order to develop MCO risk score relativity factors, four of the eight states use the CDPS+Rx risk adjustment model. There are three states that utilize the ACG risk adjustment model, and New York utilizes the 3M Clinical Risk Grouping Software risk adjustment model. While Kentucky uses a similar approach to Puerto Rico and uses national cost weights to develop risk scores, most other Medicaid programs examined made state-specific adjustments to calibrate risk weights to represent cost relationships found within the state. Additional details on each model can be found in **Figure 7** below.

Figure 7 – Risk Adjustment Data Models[22, 23, 24]

Data Model	High Level Overview	Notable States		
		State-specific adjustments	National "off the shelf" model	Unknown
CDPS+Rx	CDPS+Rx is a diagnostic and pharmacy based predictive model grouper that was developed by University of California Department of Family and Preventive Medicine to predict medical cost consumption for the next one year. The higher the cost the higher the predicted severity. CDPS+Rx was built using Medicaid claims data and therefore predicts most accurately the cost for Medicaid patients.			
ACG	The Johns Hopkins Adjusted Clinical Group system is a population/patient case-mix adjustment system. The ACG system measures health status by grouping diagnoses into clinically cogent groups. The goal of the ACG system is to assign each individual a single, mutually exclusive ACG value, which is a relative measure of the individual's expected or actual consumption of health services.			
3M Clinical Risk Grouping Software	The 3M™ CRG model is a clinical model and makes use of the patient's entire clinical history for a twelve-month period. Both medical and pharmaceutical information from fee for service (FFS) claims and managed care encounter data is utilized to assign a member to a mutually exclusive grouping providing information on their health status.			

Stakeholder Feedback

The CDPS+Rx model used to develop risk adjustment factors was not a major cause of concern among most stakeholders. However, some individuals noted that they would prefer the use of Puerto Rico-specific cost weights within the risk adjustment model rather than the national cost weights which come with CDPS+Rx. Stakeholders cited factors such as the difference in Medicaid programs and cost structures in Puerto Rico as compared to a national dataset as the basis for their feedback. Additionally, some stakeholders noted that since encounter data from sub-capitated providers is sometimes under-reported in Puerto Rico, using an Rx-only model could be a better approach than the CDPS+Rx model in order to alleviate these data gaps.

Some stakeholders recommended normalizing the area cost factor for service mix differences between regions. The distribution of high (or low) cost services may differ by region, contributing to the cost differences between regions. Stakeholders pointed out that the current area cost factor relativity may overlook a regional difference in service mix if it exists.

The data used to develop risk adjustment factors for CY2019-2020 and CY2020-2021 was a common concern among MCOs, PMGs and IPAs. COVID-19 utilization reductions and other impacts, including hurricanes, earthquakes, adverse selection following Vital implementation, and incomplete encounter data from sub-capitated providers have been common factors that may be contributing to the shift from historical results. Many stakeholders noted that they did not trust the data used to develop historical factors, and that they did not believe the data produced factors that accurately reflected cost and acuity differences across the island and across MCOs.

The various factors mentioned above have impacted the quality of encounter data. Stakeholders explained that there was no ramp-up period for providers to get accustomed to submitting encounter

[22] *CHRONIC ILLNESS AND DISABILITY PAYMENT SYSTEM (CDPS)*. UC San Diego. (2022). Retrieved from https://hwsph.ucsd.edu/research/programs-groups/cdps.html#Using-CDPS-Risk-Scores

[23] *Concept: Adjusted Clinical Groups (ACG) - Overview*. (2019, January 17). Retrieved from http://mchp-appserv.cpe.umanitoba.ca/viewConcept.php?printer=Y&conceptID=1304

[24] Deloitte Consulting LLP. (2021, September 1). *SFY 2021-22 Mainstream Managed Care Risk Adjustment Actuarial Memorandum*.

data for the Vital program, which caused many providers to not submit the appropriate data needed to effectively calculate risk scores. Stakeholders also speculate that the lack of encounters due to COVID-19 and hurricanes have skewed results in the data with many individuals not going to the doctor as frequently and postponing non-emergency operations.

Another factor that stakeholders believe may be affecting the data is the departure of one MCO from the program in November 2020. This MCO primarily operated in the East and South-West regions of the island. According to stakeholders, when this MCO left Vital, many outstanding claims with PMGs/IPAs were settled for a fraction of the contracted rate so that the PMG/IPAs could secure some form of revenue. Stakeholders believe that many claims were also denied by the MCO after (or shortly before) their departure, creating claim PMPMs in the East and South-West regions that were not representative of the actual historical experience. As a result, area relativity factors in these regions decreased significantly from what they had been in the first two years of the Vital program. The significance of the changes can be observed in **Table 6** below.

Table 6 – Area Cost Factors by Contract Year

Payment Period	North	Metro-North	East	North-East	South-East	San Juan	South-West	West
CY 2018-2019	0.940	1.047	1.168	0.928	0.971	1.177	1.014	0.814
CY 2019-2020	0.963	1.039	1.122	0.953	0.971	1.128	1.007	0.859
CY 2020-2021	0.954	1.023	1.032	1.067	0.942	1.133	0.942	0.947

The East and South-West were not the only regions that experienced significant changes between payment periods. Stakeholders indicated concern with large year-over-year variations in area cost relativity factors by region; these factors had historically been relatively stable. Stakeholders have noted that the cause of these variations has not been verified or addressed to date by ASES.

Considerations

Use Puerto Rico-specific cost weights

Challenge: Some stakeholders noted concern with developing cost weights for the risk score model based on nation-wide data versus Puerto Rico-specific data, as the cost structure and model in Puerto Rico Medicaid is different than the rest of the United States.

Standard Practice: While Kentucky uses a similar approach to Puerto Rico and uses national cost weights to develop risk scores, most other Medicaid programs examined made state-specific adjustments to calibrate risk weights to represent cost relationships found within the state (including Arizona, Virginia, Tennessee, Louisiana, and New York).

Consideration: Using Puerto Rico-specific cost weights may improve the accuracy and predictability of the risk score model.

Revisit the most appropriate risk adjustment model

Challenge: While most stakeholders did not voice concerns with the CDPS+Rx model itself, some expressed concern with data credibility and availability in recent years. Based on stakeholder feedback,

physicians in sub-capitated arrangements were not given thorough training or proper communication on the importance of tracking encounter data, which directly affects risk scores.

Standard Practice: While many other Medicaid programs use the CDPS+Rx model to develop risk scores, some states have used "pharmacy only" models when there are concerns with encounter medical data.

Consideration: Using a "pharmacy only" risk adjustment model could improve risk score accuracy when there are concerns with the encounter medical data.

Consider using more stable historical data or multiple years of data

Challenge: Stakeholders noted several concerns related to the data completeness and accuracy used for risk adjustment given the pandemic, natural disasters, and changing MCOs.

Standard Practice: Using multiple years of data could lessen the swings in risk adjustment, but may not reflect the current population being served. DOH would want to assess the changes in members through the base data and current period. Relying on data prior to the periods with data concerns may be a better representation of the population and more appropriate for risk adjustment.

Consideration: Coordinate with stakeholders to better understand their data concerns and issues, and what the data reflects to support risk adjustment results.

Assessment of Application

This section describes how risk adjustment is applied in Puerto Rico and comparison states, as well as stakeholder feedback and future considerations. In this section, risk adjustment application is defined as how risk adjustment factors are calculated and applied to capitated payment rates in order to pay MCOs or providers on a risk-adjusted basis.

The current approach for calculating risk adjustment factors differs between the MCO risk score relativity and area cost relativity factors. The methodologies for each factor are described below. Note that the methodology described is based on the most recently available risk adjustment documentation (2H CY2020-2021, corresponding to the January 1, 2021-September 30, 2021 payment period) dated January 24, 2022, and discussions with ASES and their actuaries.

Puerto Rico

MCO Risk Score Relativity Factor

According to the most recent risk adjustment documentation for 2H CY2020-2021, MCO risk score relativity factors were calculated for each of the four MCOs using the following process:

1. CDPS+RX Version 6.3 was used to develop risk score for each member. A prospective risk score using the combined medical and prescription drug risk adjuster was calculated for each member with at least six months of eligibility from March 1, 2019 through February 29, 2020. A common set of prospective risk scores were used for all populations. A common set of prospective risk scores were developed from the CDPS+RX model reflecting the relative cost among the population categories.

2. A weighted average risk score for each rate cell by MCO was calculated using the number of member's eligible months in the January 1, 2021 through September 30, 2021 period as weights. Members were only included in the weighted average if the member had six months of eligibility in the diagnosis period.
3. Risk score relativities among MCOs in each rate cell was calculated using a ratio of MCO-specific risk score to the average risk score in the rate cell.
4. A composite risk score relativity for each MCO was calculated by using a weighted average of the risk score relativity in each rate cell across all the rate cells for the MCO. Dollar weights (i.e., the product of January 2021 – September 2021 member months and Contract Year 2020-2021 premium rate in each rate cell) were used in the weighted averaging calculation.

The above process ultimately produces one factor for each MCO in the program (four in total).

Area Cost Relativity Factor

According to the most recent risk adjustment documentation for 2H CY2020-2021, area cost relativity factors were calculated for each of the eight regions using the following process:

1. An actuarial cost model was developed by rate cell and region. The cost model included cost of services paid under a fee-for-service (FFS) arrangement and the sub-capitation payment amounts.
2. A composite actuarial cost model by region was developing using the all-region member months for each rate cell. The resulting composite regional cost model represented a population normalized per member per month cost to facilitate understanding variation in utilization rates per 1,000 and cost per unit across the various regions.
3. A set of area factors for utilization rate per 1,000 was calculated by developing per member per month costs using the all-region cost per unit of service applied to each region's utilization rate per 1,000. Note, the sub-capitation payment amounts were not adjusted for each specific region. The sub-capitation payment amounts reflect actual payments for the region.
4. A set of area factors for cost per unit was calculated by developing per member per month costs using the all-region utilization rate per 1,000 applied to each region's cost per unit. Note, the sub-capitation payment amounts were not adjusted for each specific region. The subcapitation payment amounts reflect actual payments for the region.
5. The two area factors were multiplied to arrive at the composite area factor for each region before normalizing for morbidity.
6. A relative risk score was developed for each region by applying the all-region member month distribution by rate cell to the region-specific risk scores by rate cell. The resulting relative risk score reflects the normalized risk score by region. The relative risk score used the same prospective risk score analysis used for the risk scores by health plan.
7. The composite area factor in Step 5 was divided by the relative risk score developed in Step 6 to arrive at the final area factor for each region.

This process ultimately produces one factor for each of the eight regions in Puerto Rico. The visual below illustrates an example of how the final area cost relativity factors are developed by region. Please note this is intended to be illustrative and is not reflective of actual factors calculated by region. Only four regions are shown here for brevity, but a similar process is followed for all eight regions.

Figure 8 – Area Cost Relativity Factor Development

Area	1	2	3	4
Cost Per Unit Area Factor	1.10	1.21	1.00	0.69
Utilization Area Factor	0.83	1.45	0.80	0.93
Composite Area Factor	**0.91**	**1.75**	**0.8**	**0.64**

A composite Area factor is calculated by multiplying the cost per unit and utilization area factors
= 1.10 * 0.83

Area	1	2	3	4
Relative Risk Score	1.02	1.09	0.92	0.97
Final Area Factor	**0.89**	**1.61**	**0.87**	**0.66**

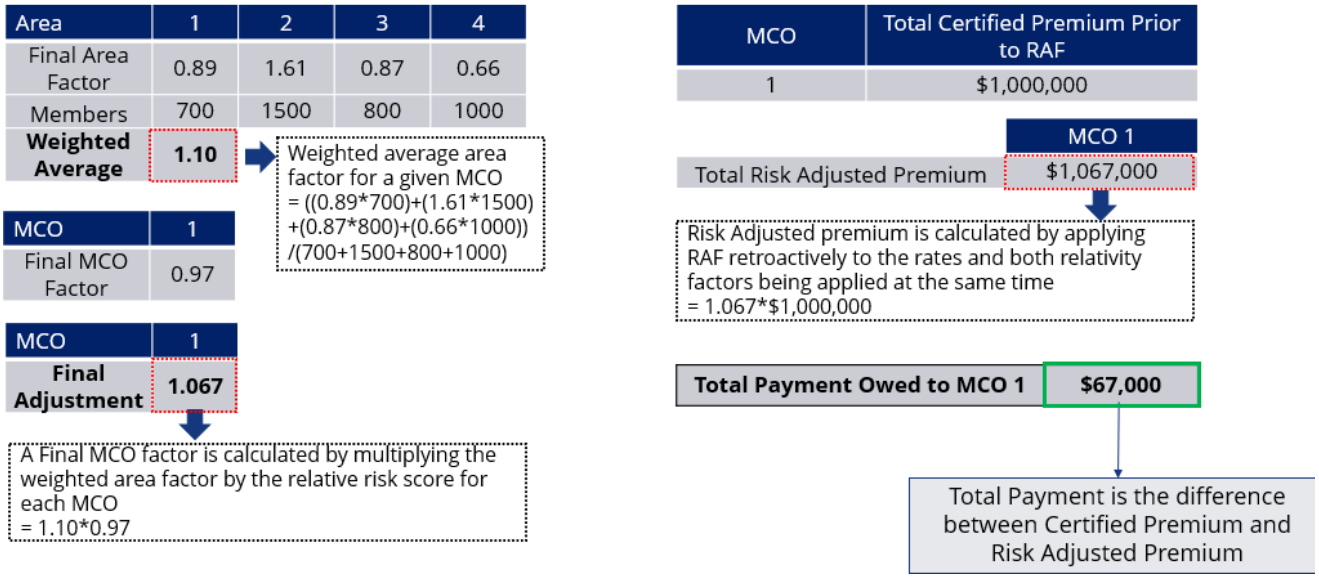
A Final Area factor is calculated by dividing the composite area factor by the relative risk score for each Area
= 0.91 / 1.02

Payment Methodology

After the MCO risk score relativity and area cost relativity factors are calculated, the two factors are combined to calculate a final risk adjustment factor for each of the four MCOs. This final factor, which is designed to be budget-neutral for ASES in aggregate, is then applied retroactively to the total capitation payments made to each MCO. The difference between the risk-adjusted premium amount and the non-risk adjusted premium amount reflects the amount of additional risk adjustment premium revenue (or loss) paid to (or received from) each MCO.

The visual below represents an example of how this calculation may be completed for an MCO. In this example, the MCO's membership distribution by area is used to calculate a weighted average area cost relativity factor for the MCO of 1.10. This factor is then multiplied by the MCO's risk score relativity factor of 0.97 to result in a final adjustment factor of 1.067. When applied to the example total certified premium of $1,000,000, the final adjustment factor results in a risk adjustment payment owed to the MCO in the amount of $67,000.

Figure 9 – Risk Adjustment Factor Application and Payment Illustration



The process shown above is repeated for all MCOs such that the total payment amounts in aggregate before and after risk adjustment are the same (budget-neutral). **Table 7** below illustrates the total premium amounts before and after risk adjustment as reported in the 2H CY2020-2021 risk adjustment documentation dated January 24, 2022. Note that these amounts have not been finalized, so are shown here for illustrative purposes.

Table 7 – Change in Revenue Due to Risk Adjustment Illustration

MCO	Revenue Before Risk Adjustment	Revenue After Risk Adjustment	Ratio
First Medical Health Plan, Inc.	$640,565,088	$646,506,034	1.009
MMM Multi Health, LLC	$660,548,605	$666,355,297	1.009
Plan de Salud Menonita	$307,620,425	$314,107,550	1.021
Triple-S Salud, Inc.	$888,070,160	$869,835,395	0.979
Total	**$2,496,804,277**	**$2,496,804,277**	**1.000**

National Scan

Risk adjustment payments can be applied either retrospectively or prospectively. In this context a "prospective" risk adjustment application means risk adjustment factors are included in the initial certified capitation rates, whereas a "retrospective" or "retroactive" payment application means that certified rates do not include risk adjustment and the risk adjustment factors are determined later and applied to capitation rates on a retroactive basis. Of the states examined, most states include risk adjustment prospectively within certified capitation rates.

Additionally, the selected risk score model can be used to calculate risk scores concurrently (also referred to as "retrospectively") or prospectively. According to 42 CFR § 438.5, *prospective risk adjustment* is defined as "a methodology to account for anticipated variation in risk levels among contracted MCOs, PIHPs, or PAHPs that is derived from historical experience of the contracted MCOs, PIHPs, or PAHPs and

applied to rates for the rating period for which the certification is submitted." Meanwhile, *retrospective risk adjustment* is defined as "a methodology to account for variation in risk levels among contracted MCOs, PIHPs, or PAHPs that is derived from experience concurrent with the rating period of the contracted MCOs, PIHPs, or PAHPs subject to the adjustment and calculated at the expiration of the rating period."

Of the states examined, most use a prospective risk score model and pay risk adjustment payments prospectively within the certified rates. Kentucky uses concurrent cost weights and does not include risk adjustment in the initial certified capitation rates[25]; the risk scores are updated at least once per state fiscal year. Puerto Rico was the only state examined that calculates risk scores using a prospective model, but adjusts capitated rates retrospectively.

Figure 10 – Risk Adjustment Model and Payment Methodologies

Risk Score Model/Risk Adjustment Reconciliation	Description	Notable States
Prospective/Prospective	Calculates risk scores prospectively and adjusts capitated rates prospectively	
Concurrent/Retrospective	Calculates risk scores concurrently and adjusts capitated rates retrospectively	
Prospective/Retrospective	Calculates risk scores prospectively and adjusts capitated rates retrospectively	
Unavailable	The model and reconciliation method could not be determined from publicly available information	

Stakeholder Feedback

Many stakeholders noted difficulties using a retrospective risk adjustment reconciliation process, especially in terms of budgeting and negotiating contracts without knowing premium in advance. The retroactive nature of the risk adjustment payments, along with large year-to-year swings in RAFs, leaves both MCOs and providers with an unclear expectation of their future revenue. Many stakeholders noted they would support prospective risk adjustment, assuming data issues are solved.

In addition to establishing the risk adjustment factors prospectively, some stakeholders suggested removing the budget neutrality constraint on the risk adjustment process. However, budget neutrality is required by federal regulation under 42 CFR § 438.5(g).

Due to the variety of models used for MCOs to assign risk adjustment payments to IPAs/PMGs, some stakeholders noted that the premium for PMGs does not always align well with the acuity of each PMGs members. Some MCOs assign flat rates to all PMGs in a region, while others risk adjust the premium by

[25] Wakely Consulting Group. (2019, April 8). *Capitation Rate Development for the Medicaid Managed Care Program for the period April 1, 2019 through June 30, 2020*. Commonwealth of Kentucky Department for Medicaid Services (DMS). Retrieved April 1, 2022, from https://www.bidnet.com/bneattachments?/574289936.pdf

PMG. Many stakeholders would appreciate guidance or data from ASES on how to pass along risk adjustment payments accurately to PMGs so that it is consistent throughout the program.

Finally, some IPAs expressed difficulties with the assignment of member costs in the area cost relativity factor based on where a member resides rather than where a member received services. As one survey respondent noted, "the risk adjustment methodology is not accurate as most services are not provided where the patient resides. The current methodology positions the PMG in a deficit given that the risk adjustment is based on where the patient resides ignoring where the patient receives the services."

Considerations

Use a prospective approach in applying and paying risk-adjusted premiums

Challenge: Currently, initial capitation rate payments are absent of the risk adjustment factor (RAF). Stakeholders noted concerns with the unknown nature of the final RAF impacts on both MCOs and PMGs regarding reconciling risk arrangements and final revenue from Puerto Rico. Furthermore, stakeholders noted that the Vital program may be maturing (with less member movement amongst MCOs), so a prospective approach may be more appropriate now than in earlier years of the program.

Standard Practice: Most other Medicaid programs employ a similar methodology using prospective risk adjustment payments (including AZ, LA, TN, NY, and VA).

Consideration: Including risk adjustment (estimated or final) in the capitation payment rates upfront could assist to reduce or eliminate the reconciliation payment amounts, and contribute to more stable budgeting for MCOs and providers.

Normalize risk scores at the rate cell and/or regional levels

Challenge: In Puerto Rico, risk adjustment is calculated for each rate cell and compared across MCOs, and the aggregate relativity factor is normalized across MCOs. Stakeholders noted that the aggregate approach makes it difficult to understand and track their population risk profile when there is one factor for each MCO.

Standard Practice: Many other Medicaid programs will normalize their risk adjustment at the certified rate cell level, often by rate cell and/or region. This is done to avoid any potential cross subsidization between rate cells.

Consideration: Normalizing risk scores at the rate cell level across all MCOs would help avoid any potential overlap of risk relativity scores and the rate differences by rate cell. Normalizing risk scores at the regional level could help isolate cost difference driven by acuity differences and cost differences driven by actual regional cost variance.

Assessment of Other Risk Mitigation Programs

In addition to risk adjustment, states may use a variety of mechanisms to adjust plan risk, incentivize plan performance, and ensure payments are not too high or too low[26].

Risk mitigation arrangements other than risk adjustment include risk corridors, stop loss, and reinsurance. Under risk corridor arrangements, states and plans agree to share profit or losses if aggregate spending falls above or below specified thresholds. Stop-loss and reinsurance arrangements protect plans from losses beyond a specific threshold.

A Medical Loss Ratio (MLR) reflects the proportion of total capitation payments received by an MCO spent on clinical services and quality improvement. CMS published a final rule in 2016 that requires states to develop capitation rates for Medicaid to achieve an MLR of at least 85% in the rate year. There is no federal requirement for Medicaid plans to pay remittances to the state if they fail to meet the MLR standard, but states have discretion to require remittances.

States may factor payment mechanisms like incentive and withhold arrangements into rate development. Using incentive arrangements, states may make payments over and above capitation rates to plans for meeting specified performance targets. Under withhold arrangements, states may hold back a portion of capitation rates to be paid if plans meet specified performance targets (e.g., quality performance measures or quality-based outcomes).

Puerto Rico

In Puerto Rico, MCOs are subject to a minimum medical loss ratio (MLR) and are required to maintain reinsurance and stop loss. According to federal regulation 42 CFR § 438.8, MCOs are required to report an MLR. In Puerto Rico, the MCO must pay a remittance to ASES if the reported MLR is below 92%, per ASES's model contract with MCOs. The amount of remittance owed is the difference between the MCO's MLR for the reporting year and target MLR of 92%.

While ASES does not administer its own reinsurance program, MCOs in Puerto Rico are required to have and maintain a minimum of $1,000,000 in reinsurance or self-insurance acceptable to ASES. Separately, MCOs in Puerto Rico are required to establish a stop-loss limit amount that is in compliance with the limits specified in 42 CFR § 422.208(f). When outpatient and inpatient expenses for a given enrollee reach the stop-loss limit, MCOs assume all losses that exceed this limit. MCOs must report monthly to PMGs regarding stop loss, and they cannot transfer this risk to PMGs unless a written risk share agreement is in place and has been approved by ASES. [27]

Finally, all MCOs in Puerto Rico have some sort of risk sharing or sub-capitation arrangements in place with providers. While the specifics of these arrangements vary across MCOs and provider groups, most arrangements involve the use of a "target" or "budget" PMPM cost for the provider group. In most cases, MCOs and provider groups will share in gains or losses either above or below this "target" PMPM. Therefore, in cases where substantial risk sharing or sub-capitation arrangements are in place, most of the risk of claims fluctuations or risk adjustment payments are borne by providers rather than MCOs.

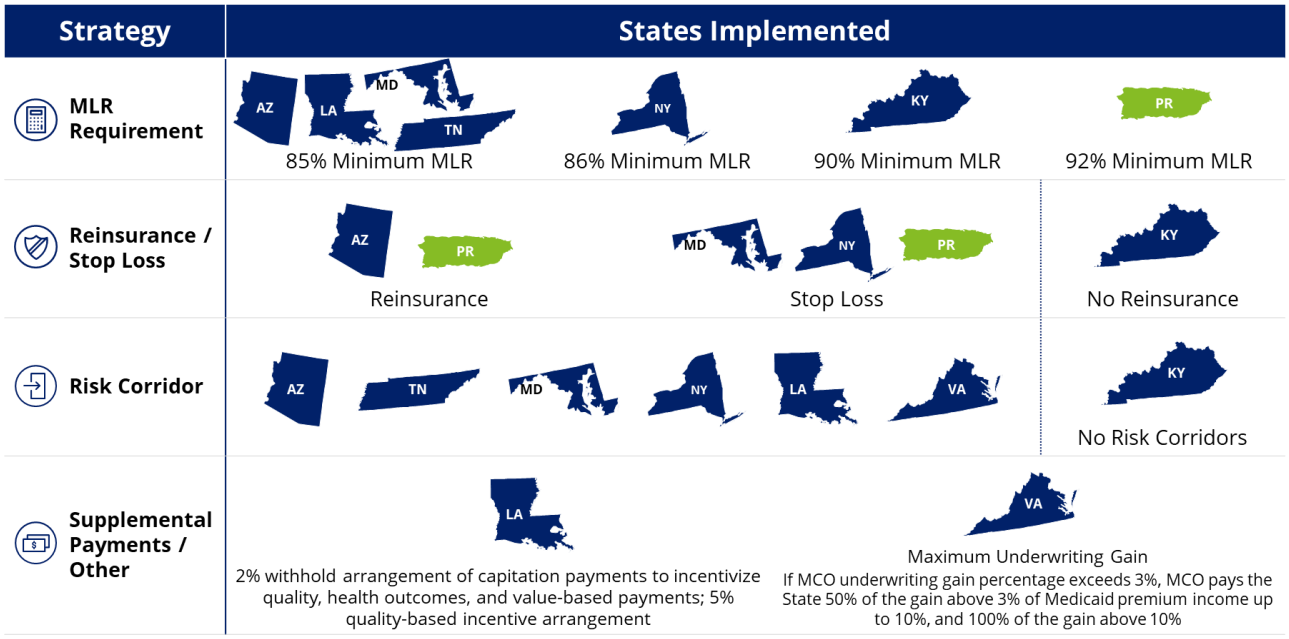
[26] Hinton, E., & Musumeci, M. B. (2020, September 9). *Medicaid Managed Care Rates and Flexibilities: State Options to Respond to COVID-19 Pandemic*. Kaiser Family Foundation. Retrieved from https://www.kff.org/medicaid/issue-brief/medicaid-managed-care-rates-and-flexibilities-state-options-to-respond-to-covid-19-pandemic/

[27] *Model Contract Between ADMINISTRACIÓN DE SEGUROS DE SALUD DE PUERTO RICO (ASES) and NOMBRE ASEGURADORA for PROVISION OF PHYSICAL & BEHAVIORAL HEALTH SERVICES UNDER THE GOVERNMENT HEALTH PLAN PROGRAM*. Provided by ASES. (2020, September 15).

National Scan

The risk mitigation strategies implemented by the states selected for the national scan are shown in **Figure 11** below. States that are not shown within this table did not have readily available public information to determine whether or not they have implemented other risk mitigation strategies.

Figure 11 – National Scan Risk Mitigation Strategies[28]



Stakeholder Feedback

Some stakeholders said the 92% minimum MLR requirement removes any incentive to manage claims expense below the 92% mark. In addition to the unknown amount of risk adjustment payment at the beginning of the period, the relatively small profit margin available with a 92% minimum MLR requirement further complicates the budgeting process for stakeholders.

Stakeholders indicated that the stop loss and reinsurance programs for the Medicaid program are not consistent across MCOs. Additionally, the risk models used between PMGs and MCOs are not consistent. Managing the various requirements across multiple contracts can be a source of confusion for providers and create difficulties in managing their businesses. Specifically, one IPA noted that an MCO has established its own system of "Tiers" for rate cells established by ASES, which the IPA claims results in a loss of premium of around 15%. Because of this, many stakeholders have requested that ASES provide more guidance in order to increase uniformity across MCOs and remove some of the unnecessary complications of the program.

In the IPA survey, respondents had several comments related to how risk adjustment may (or may not) be considered at the IPA/PMG level when MCOs pass along risk adjusted revenue to these providers. A selection of these comments (loosely translated into English) is noted below:

- *"If this option is considered, there should be no membership minimum for a PMG adjustment to be considered."*

[28] This figure reflects the risk mitigation strategies that are reflected in the sources cited in the Appendix. Note that many states implemented a risk corridor during COVID that do not regularly have one otherwise.

- *"If this is considered, the type of IPA should be taken into consideration. There are many types of IPA (small central structure with many peripheral providers, big central structure, 330 centers, etc.). As such, we have (big central structure) more expenses and more added value to our customers."*
- *"If a risk factor is imposed, it must be at the individual level. In this way, regardless of where the beneficiary resides – MCO and/or PMG – that beneficiary's premium will be reflected by their risk factor according to the health conditions and treatments they have."*
- *"We understand the adjustment should not be at the IPA level since this negatively impacts the groups that do not have a sufficient enrollment to carry out such an adjustment which would result in an adverse selection of patients."*
- *"The IPA/PMG level does not work in this model, because you have the same IPAs across the island under contract with all MCOs participant of the Vital program. As of today, you will have the same IPA having a great performance with one MCO and a poor performance with the rest due to adverse selection or distribution of membership mix (demo vs HCHN)."*

Considerations

Provide guidance on stop loss and risk sharing arrangements between MCOs and PMGs

Challenge: Both PMGs and MCOs noted variations in stop loss provisions and risk sharing arrangements between MCOs and PMGs, which can increase risk and complexity of these programs. Some providers noted that managing multiple different arrangements imposed an additional operational burden that does not benefit the focus on quality service to the patient.

Standard Practice: There are limitations to what DOH can do to influence MCO contracts with PMGs. Some states manage a stop loss program which plans can buy into. Some states also have provider directed payments or minimum fee schedules to help limit the variation in payment models between providers and MCOs.

Consideration: DOH could provide guidance to MCOs on stop loss provisions and risk sharing arrangements to encourage uniformity.

Summary of Considerations

After reviewing the approaches to risk adjustment used by comparison states as well as stakeholder feedback, there are many changes to the risk adjustment process which DOH could consider going forward. The considerations are outlined below and relate to each aspect of the risk adjustment methodology as outlined above. Further details and discussions can be found in the preceding sections.

Table 3 – Focus Area Considerations

Assessment Focus Area	Considerations
Overall Method	• Reduce the complexity of the risk adjustment program or use a methodology MCOs are more familiar with (e.g., Medicare) • Revisit or remove the High Cost High Need (HCHN) program • Increase transparency with stakeholders (MCOs and PMGs) on risk adjustment process and factors

Rate Structure	• Reduce the number of rate cells • Create regionally certified rates under the island-wide model
Data and Model	• Use Puerto Rico specific cost weights in the CDPS+Rx model • Revisit the most appropriate risk adjustment model for Puerto Rico • Consider using more stable historical data or multiple years to mitigate potential data issues
Application	• Use a prospective approach in applying and paying risk-adjusted premiums • Normalize risk scores at the rate cell and/or regional levels
Other Risk Mitigation Programs	• Provide guidance on stop loss and risk sharing arrangements between MCOs and PMGs

Appendices

Appendix A: Rate Cells Used in Puerto Rico

The rate cells listed below are found in the CY2021-2022 Actuarial Certification.

- Medicaid Under 1
- Medicaid Age 1-6
- Medicaid Age 7-13
- Medicaid Female 14-18
- Medicaid Female 19-44
- Medicaid Female 45+
- Medicaid Male 14-18
- Medicaid Male 19-44
- Medicaid Male 45+
- Medicaid Cancer
- Medicaid Diabetes or Low Cardio
- Medicaid High Cardio
- Medicaid Pulmonary
- Medicaid Renal
- Dual Eligible Part A Only
- Dual Eligible Part A and B
- Foster Child/Domestic Abuse All
- CHIP Under 1
- CHIP Age 1-6
- CHIP Age 7-13
- CHIP Age 14+
- CHIP Diabetes
- CHIP Pulmonary
- PRPL Medicaid Under 1
- PRPL Medicaid Age 1-6
- PRPL Medicaid Age 7-13
- PRPL Medicaid Female 14-18
- PRPL Medicaid Female 19-44
- PRPL Medicaid Female 45+
- PRPL Medicaid Male 14-18
- PRPL Medicaid Male 19-44
- PRPL Medicaid Male 45+
- PRPL CHIP Under 1
- PRPL CHIP Age 1-6
- PRPL CHIP Age 7-13
- PRPL CHIP Age 14+
- Transferred to Medicaid Under 1
- Transferred to Medicaid Age 1-6
- Transferred to Medicaid Age 7-13
- Transferred to Medicaid Female 14-18
- Transferred to Medicaid Female 19-44
- Transferred to Medicaid Female 45+
- Transferred to Medicaid Male 14-18
- Transferred to Medicaid Male 19-44
- Transferred to Medicaid Male 45+
- Transferred to Medicaid Cancer
- Transferred to Medicaid Diab/Low Cardio
- Transferred to Medicaid High Cardio
- Transferred to Medicaid Pulmonary
- Transferred to Medicaid Renal
- Transferred to CHIP Under 1
- Transferred to CHIP Age 1-6
- Transferred to CHIP Age 7-13
- Transferred to CHIP Age 14+
- Transferred to CHIP Diabetes
- Transferred to CHIP Pulmonary
- Commonwealth Under 1
- Commonwealth Age 1-6
- Commonwealth Age 7-13
- Commonwealth Female 14-18
- Commonwealth Female 19-44
- Commonwealth Female 45+
- Commonwealth Male 14-18
- Commonwealth Male 19-44
- Commonwealth Male 45+
- Commonwealth Cancer
- Commonwealth Diabetes or Low Cardio
- Commonwealth High Cardio
- Commonwealth Pulmonary
- Commonwealth Renal
- Maternity Kick Payment
- Correctional Facility Hospital Case Rate

Appendix B: National Scan Detailed Information

National Scan | Arizona

Overview

State	Risk Adjustment Model	Prospective or Concurrent Model	Initial Rates are Risk Adjusted	State-Specific Adjustments	Inclusion Criteria	Budget Neutrality
AZ	CDPS+Rx	Prospective (Age <1 Retrospective)	✓	• Additional risk markers • State-specific cost weights	Risk factor set to 1.00 for rate cells with less than 500 members	At the rate cell, region, and MCO level

Risk Adjustment Process (Timing, Payments)

- Capitation rates are set at a rate cell and geographic service area (GSA) level
- Risk adjustment for the Age <1 rate cell is retrospective (modeled differently than other rate cells) – uses aggregate, concurrent approach based on 11 risk markers for newborns

Other Risk Considerations

- Risk corridor arrangement
- Reinsurance arrangement
- Minimum MLR of 85%
- For the CY22 rating period, AHCCCS added a cost-settlement for administration of COVID-19 vaccines and carving these costs outside of the capitation rates

Risk Adjustment Methodology (Data, Model, Inputs)

- CDPS+Rx V6.4, modified with additional state-specific risk markers:
  - Social Determinants of Health (SDoH)
  - Children's Rehabilitative Services (CRS)
  - Prior Period Coverage (PPC)
- Encounter and member data are used to calculate risk adjustment factors
- Diagnosis codes exclude lab/radiology
- Costs not at risk ($ above reinsurance threshold, maternity costs, and costs offset by Rx rebates) – excluded from cost weight calibration
- Only members with at least 6 months of experience in the base period and at least 1 month of experience in the projection period are used
- All rate cells except Duals and Delivery Supplemental Payments are risk adjusted

Risk Adjustment Methodology

Risk weights are developed by age and gender category, all CDPS+Rx conditional categories, and additional state-specific markers

Risk factor set to 1.00 for any rate cell that is not fully credible (<500 members during experience period)

Long Cohort (members with at least 6 months of enrollment during experience period) RAF is **encounters-based**

Short Cohort (members with less than 6 months of enrollment during experience period) RAF = **50% pure age/gender factor + 50% adjusted plan factor**

$$\text{Adjusted Plan Factor} = \frac{\text{average MCO specific risk score of long cohort}}{\text{pure age/gender factor of long cohort}} \times \text{pure age/gender factor of short cohort}$$

$$\text{MCO Relative Risk Score} = \frac{\text{MCO weighted average risk score of long and short cohorts}}{\text{GSA average risk score}}$$

$$\text{Final MCO RAF} = \frac{\text{MCO Relative Risk Score}}{\text{Budget Neutrality Adjustment}}$$

Contract Year Ending 2022 AHCCCS Complete Care Program Capitation Rate Certification
https://www.azahcccs.gov/PlansProviders/Downloads/CapitationRates/acc/CYE_22_ACC_Capitation_Rate_Certification_SOF.pdf

National Scan | Kentucky

Overview

State	Risk Adjustment Model	Prospective or Concurrent Model	Initial Rates are Risk Adjusted	State-Specific Adjustments	Inclusion Criteria	Budget Neutrality
KY	CDPS+Rx	Concurrent	✗	✗	Not Specified	At the rate cell, region, and MCO level

Risk Adjustment Process (Timing, Payments)

- Rates presented in the actuarial certification are base rates before risk adjustment
- Capitation rates are set at the rate cell level by region
- Risk scores are updated at least one time per State Fiscal Year, either in the form of a full enrollee re-score or an update for changes in enrollee distributions, with all calculations including a budget neutrality adjustment
- Supplemental pass-through payments and payments related to the HIF are not risk adjusted
  - Once these amounts are removed from the base capitation rate, risk scores are applied to the rates at the MCO, region, and rate cell level

Risk Adjustment Process (Data, Model, Inputs)

- CDPS+Rx model
- The national concurrent weights are used to develop the risk scores for the population
- Member-level risk scores are developed using detailed medical and pharmacy encounter data and FFS claims data
  - Risk scores are based on the first 12 diagnosis codes for facility and physician encounters
- Detailed capitation data as of a single point (month) in time was used for enrollment and eligibility information
- Dual eligible enrollees are not risk scored

Other Risk Considerations

- The Commonwealth does not have any risk sharing arrangements (risk corridors) with the contracted MCOs
- 90% MLR requirement – 75% refund between 86%-90% MLR + 100% refund for MLR <86%
- No reinsurance requirements
- The Commonwealth historically operated an incentive program based on HEDIS measures. This was discontinued effective 1/1/2018

Risk Adjustment Methodology

Enrollees assigned risk scores based on demographics, disease conditions, rate cell, and duration of enrollment

Members must have at least 3 months of enrollment* within base period to receive a risk score
*Newborns and pregnant women must have 1 month of enrollment

New members and members not meeting enrollment criteria receive the average risk score for their rate cell, region, and MCO

$$\text{MCO Risk Score Relativity} = \frac{\text{Average MCO Risk Score}}{\text{Average State Risk Score}}$$

$$\text{Risk Adjusted Premium Rate} = \text{Base Capitation Rate} \times \text{MCO Risk Score Relativity}$$

Managed Care Organization (MCO) Contracts (https://chfs.ky.gov/agencies/dms/dpqo/Pages/mcocontracts.aspx)
Commonwealth of Kentucky; Capitation Rate Development for the Medicaid Managed Care Program for the period July 1, 2019 through June 30, 2020; prepared by Wakely Consulting Group

National Scan | Louisiana

Overview						
State	Risk Adjustment Model	Prospective or Concurrent Model	Initial Rates are Risk Adjusted	State-Specific Adjustments	Inclusion Criteria	Budget Neutrality
LA	ACG	Prospective	✓	• State-specific cost weights	Not Specified	At the rate cell, region, and MCO level

Risk Adjustment Process (Timing, Payments)

- Risk scores are typically updated semi-annually
- Capitation rates are set at the rate cell level by region
- Capitation payments are risk adjusted

Risk Adjustment Process (Data, Model, Inputs)

- ACG model with state-specific cost weights
- Rates are set using available and appropriate sources, including FFS claims data, encounter data, and financial data and supplemental ad hoc data and analyses
  - Rates are adjusted based on factors such as utilization trend, unit cost trend, TPL recoveries, and administrative costs
- Rate cells not sufficiently credible at the regional level are assigned a single statewide capitation rate

Other Risk Considerations

- 85% MLR requirement
- Risk corridor for Hepatitis C-related pharmacy, physician, and laboratory costs
- Zolgensma risk pool arrangement (a high-cost, low-frequency drug)
- 2% withhold arrangement of capitation payments to incentivize quality, health outcomes, and value-based payments
- 5% quality-based incentive arrangement

Risk Adjustment Methodology

Each member with 6+ months of enrollment experience with an MCO is assigned a risk score

Members without an ACG assignment are assigned a risk score based on an age/gender risk assumption

Separate sets of risk scores are developed for each rate cell and region

LaCHIP Affordable Plan (LAP) rate cell risk scores are developed on a statewide basis

MCO Risk Score = aggregation of member-level risk scores

$$\text{Final MCO RAF} = \frac{\text{MCO Risk Score}}{\text{Budget Neutrality Factor}}$$

Final Rate = Risk Adjusted Rate + full Medicaid pricing (FMP) component

Healthy Louisiana Rate Certification Effective January 2022 through December 31 2022 https://ldh.la.gov/assets/docs/BayouHealth/MercerRateLetters/HealthyLouisianaRateCertificationEffectiveJan2022Dec2022_2021115_FINAL.pdf
Louisiana Medicaid MCO Manual https://ldh.la.gov/assets/medicaid/MCOManual.pdf

National Scan | Maryland

Overview						
State	Risk Adjustment Model	Prospective or Concurrent Model	Initial Rates are Risk Adjusted	State-Specific Adjustments	Inclusion Criteria	Budget Neutrality
MD	ACG	Prospective	Unknown	• State-specific cost weights	Cohorts with <50 enrollees are disregarded	At the rate cell, region, and MCO level

Risk Adjustment Process (Timing, Payments)

- MCOs are paid risk adjusted capitation rates on a monthly, prospective basis
- Calculations are repeated every 6 months to update current MCO enrollees' region of residence, age, and enrollment categories as of the calendar year before the rate year
- For the rate adjustment periods beginning January 1 and July 1 of each rate year, each MCO's updated risk adjustment category mix measures and updated demographic case mix measures are used to compute its demographic rates for the rate adjustment period

Risk Adjustment Process (Data, Model, Inputs)

- ACG model
- Diagnoses based on encounter and fee-for-service data
- In the risk assessment year, enrollees for each MCO must be certified eligible for the Program for at least 6 months, assigned to a demographic rate cell, and be 1 year or older as of June 30
  - In the prior calendar year, enrollees must have been enrolled in the MCO in June
  - If a mid-year rate adjustment is issued, enrollees must have been enrolled in the MCO in December

Other Risk Considerations

- Risk corridor for CY 2020 based on MCO MLR
- MLR requirement of 85%
- Stop loss (state responsible for 90% of inpatient hospital charges above the stop loss limit)

Risk Adjustment Methodology

Each enrollee is assigned into 1 of 8 risk assessment cohorts

Cohorts with fewer than 50 enrollees in an MCO are disregarded

Each enrollee is assigned to a risk adjustment category (RAC) based on diagnoses in risk assessment year

An MCO's average RAC rates are calculated separately for each cohort in an MCO

$$\text{MCO relative RAC case mix factors by cohort} = \frac{\text{MCO average RAC rate}}{\text{cohort overall average RAC rate for all MCOs}}$$

MCO average demographic rates are calculated separately for each of MCO's cohorts

$$\text{MCO relative demographic case mix factor} = \frac{\text{MCO average demo. rate}}{\text{cohort overall average demo. rate for all MCOs}}$$

$$\text{MCO Specific RAF} = \frac{\text{relative RAC case mix facor}}{\text{relative demo. case mix factor}}$$

RAFs higher than 1.1 are reduced to 1.1
RAFs lower than 0.9 and increased to 0.9

Maryland Administrative code | Title 10 | MARYLAND DEPARTMENT OF HEALTH | Section 10.67.04.19 MCO-Specific Case Mix Adjustment
Section 10.67.04.19 - MCO-Specific Case Mix Adjustment, Md. Code Regs. 10.67.04.19 | CasetextSearch + Citator

National Scan | New York

Overview						
State	Risk Adjustment Model	Prospective or Concurrent Model	Initial Rates are Risk Adjusted	State-Specific Adjustments	Inclusion Criteria	Budget Neutrality
NY	3M CRG	Concurrent	✓	• State-specific cost weights	Region/rate cells with <100 or <50% scored members assigned 1.0 relative risk score	At the rate cell, region, and MCO level

Risk Adjustment Process (Timing, Payments)

- A series of standardized encounter data pricing procedures are used to compare paid amounts across various plans in the state
  - These processes are referred to as "Standardized Pricing" where the standardization process is applied to encounters that exhibited zero dollar or outlier paid amounts
- The final plan risk scores produced using the methods and assumptions result in risk -adjusted capitation rates for each MCO by region

Other Risk Considerations

Risk Adjustment Process (Data, Model, Inputs)

- 3M Clinical Risk Grouping (CRG) Software prospective "P" model version 2.10
- Encounters with dates of service during 12 -month rating period were used for 3M CRG assignment
- Enrollment data was used to assign eligibility and demographic attributes to members
- A one-month snapshot period was used as an anchor to assign these eligibility and demographic attributes as well as determine MMC enrollees to be scored
- Enrollees with less than 3 months of eligibility in 12 -month eligibility period were not scored or used in cost weight development methods
  - These enrollees receive the risk score of their plan/region/rate cell
  - Members with less than 3 months of eligibility in 12-month eligibility period receive a 50/50 blend of the MCO risk score and age/gender risk score

Risk Adjustment Methodology

Raw risk scores are calculated by rate cell for each region

↓

MCO raw risk scores are calculated based on the membership as of the enrollment snapshot

↓

Regional risk scores for each region/rate cell combination are calculated by weighting CRG cost weights for enrollees in each MCO based on their total enrollment

↓

$$\text{MCO Relative Risk Score for each rate cell} = \frac{\text{Raw MCO Risk Score}}{\text{Regional Average Risk Score}}$$

MCOs without full credibility receive a 1.0 relative risk score:

- Fewer than 100 scored members under a region/rate cell combination
  - Less than 50% of enrolled members under a region/premium group combination were scored

↓

Risk-adjusted capitation rates for each rate cell and MCO by region

SFY 202122 Mainstream Managed Care Risk Adjustment Actuarial Memorandum

National Scan | Tennessee

Overview						
State	Risk Adjustment Model	Prospective or Concurrent Model	Initial Rates are Risk Adjusted	State-Specific Adjustments	Inclusion Criteria	Budget Neutrality
TN	ACG	Prospective	✓	• State-specific risk weights	Not Specified	At the rate cell, region, and MCO level

Risk Adjustment Process (Timing, Payments)

- Risk adjustment applies to the core rates without directed payment increases
- 'Core' rates are first developed by region and rate cell that apply to each rate cell for all MCOs
- Tennessee has a CHOICES program that includes nursing facility services and home & community -based services for adults 21 and older and seniors with a physical disability
  - The CHOICES rates are not risk adjusted for health status of individuals, but CHOICES 1 & 2 rates are adjusted based on the variation of the long-term care mix between CHOICES 1 & 2 among the three plans at the rate cell level in each region

Risk Adjustment Process (Data, Model, Inputs)

- ACG model with state -specific weights, calculated in a prospective manner
  - Risk weights are developed for two different Categories of Aid (COA): Medicaid/Uninsured/Uninsurable and Non -Dual Disabled
- Uses the most recent two years of claim and eligibility data for members with at least six months of eligibility in the first year and at least one month in the second year
- Enrollment data for the month following the open enrollment period within the contract period is used to calculate MCO -level risk scores

Other Risk Considerations

- There is a two -way risk corridor program in place for both the MCOs and the State

Risk Adjustment Methodology

For members with assigned resource utilization bands (RUBs), average risk weights are calculated for each rate cell and plan with RUB specific risk weights

Members with no assigned RUB are assigned the average risk weight across all 3 plans of members within the same rate cell with assigned RUBs

↓

Plan-specific risk scores are calculated using a weighted average by risk weight for each plan and rate cell

↓

$$\text{Normalized Plan Specific Risk Score at regional and rate cell level} = \frac{\text{MCO Specific Raw Risk Score}}{\text{Overall Raw Risk Score across all MCOs in region}}$$

↓

$$\text{MCO Specific Risk Adjusted Rate} = \text{Rate Cell Risk Neutral Rate} \times \text{Normalized MCO Specific Risk Score}$$

State of Tennessee Department of Finance and Administration Bureau of TennCare
https://www.tn.gov/content/dam/tn/tenncare/rfp/TennCare%20Actuarial%20Documentation%20-%20CY22%20Preliminary%20Capitation%20Rates%20v2.pdf

National Scan | Virginia

Overview

State	Risk Adjustment Model	Prospective or Concurrent Model	Initial Rates are Risk Adjusted	StateSpecific Adjustments	Inclusion Criteria	Budget Neutrality
VA	CDPS+Rx	Concurrent	✓	• State specific relative weights	• Eligibility categories/regions with less than 550 members are excluded • Members with < 6 months in data period receive MCO specific age/gender average risk score	At the rate cell, region, and MCO level

Risk Adjustment Process (Timing, Payments)

- Risk adjustment is included in the original capitation rates paid to MCOs

Risk Adjustment Process (Data, Model, Inputs)

- CDPS+Rx model with state -specific relative weights
- Three separate models classify individuals based on their eligibility category and age
- Capitation rates are set by MCO, region, aid category, and age group
- Development of the person -level risk scores uses all the diagnosis codes included on the health plan encounter data and any available FFS claims data within the evaluation period
- Calculations are based on the most recent fiscal year of both MCO and DMAS FFS data with a minimum length of eligibility of six months

Other Risk Considerations

- The pharmacy reinsurance pool mitigates risk associated with excessive pharmacy claims between MCOs
  - The reinsurance pool is budget -neutral overall and funds are redistributed between MCOs after the rating period based on actual pharmacy claims exceeding the $175,000 attachment point
- The Medicaid Expansion population is subject to a risk corridor that provides two -sided risk mitigation for both MCOs and the State and is evaluated for medical expenses only
- MCOs are subject to a maximum underwriting (UW) gain for the contract period, determined as the ratio of Medicaid UW gain to the amount of Medicaid premium income for FY2022
  - If the UW gain percentage exceeds 3%, the MCO pays the State 50% of the UW gain in excess of 3% of Medicaid premium income up to 10%, and 100% of the UW gain above 10%

Risk Adjustment Methodology

Risk adjustment factors are calculated for each MCO and region combination

Individuals with no health status information receive a base score from their demographic characteristics

Individuals with less than 6 months of eligibility are assigned the age/gender average for their MCO

MCO Risk Score is calculated based on an aggregation of the individual scores for the plan's enrollees

$$\text{MCO/Region Risk Score} = \frac{\sum \text{enrollee risk score by rate cell}}{\text{number of eligible people}}$$

$$\text{MCO Risk Score Relativity} = \frac{\text{Average MCO Risk Score}}{\text{Average Score across all MCOs in Region}}$$

Fiscal Year 2022 Medallion 4.0 Rate Report https://www.dmas.virginia.gov/media/3662/2022-medallion-4-ratereport-effective-july-1-2021.pdf
Medallion 3.0 Data Book and Capitation Rates Fiscal Year 2017 https://www.dmas.virginia.gov/media/1885/medallion-30-ratebookfy-2017rateseffective-july-1-2016.pdf

Appendix C: Sources

In addition to sources cited in footnotes throughout the report, the following sources of information were relied upon on the assessment.

National Scan Sources

The national scan was performed using the most recent, publicly available rate certifications and other relevant supplemental documentation.

Arizona

1. AHCCCS Division of Health Care Management. (2021, August 11). *Contract Year Ending 2022 AHCCCS Complete Care Program Capitation Rate Certification*. AHCCCS Capitation Rates. Retrieved March 9, 2022, from https://www.azahcccs.gov/PlansProviders/Downloads/CapitationRates/acc/CYE_22_ACC_Capitation_Rate_Certification_SOF.pdf

Kentucky

2. Wakely Consulting Group. (2019, April 8). *Capitation Rate Development for the Medicaid Managed Care Program for the period April 1, 2019 through June 30, 2020*. Commonwealth of Kentucky Department for Medicaid Services (DMS). Retrieved April 1, 2022, from https://www.bidnet.com/bneattachments?/574289936.pdf

Louisiana

3. Louisiana Department of Health. (2021, March 5). *Louisiana Medicaid Managed Care Organization (MCO) Manual*. MCO Manual. Retrieved March 31, 2022, from https://ldh.la.gov/assets/medicaid/MCOManual.pdf

4. Mercer Government Human Services Consulting. (2021, November 15). *Healthy Louisiana Rate Certification Effective January 1, 2022 through December 31, 2022*. Mercer Rate Letters | La Dept. of Health. Retrieved March 11, 2022, from https://ldh.la.gov/assets/docs/BayouHealth/MercerRateLetters/HealthyLouisianaRateCertificationEffectiveJan2022-Dec2022_2021115_FINAL.pdf

Maryland

5. *Section 10.67.04.19 - MCO Reimbursement*. Md. Code Regs. 10.67.04.19. (2022, April 8). Retrieved April 8, 2022, from https://casetext.com/regulation/maryland-administrative-code/title-10-maryland-department-of-health/part-5/subtitle-67-maryland-healthchoice-program/chapter-106704-maryland-medicaid-managed-care-program-managed-care-organizations/section-10670419-effective442022mco-reimbursement

6. *Section 10.67.04.19-3 - MCO-Specific Case Mix Adjustment*. Md. Code Regs. 10.67.04.19-3. (2022, April 8). Retrieved April 8, 2022, from https://casetext.com/regulation/maryland-administrative-code/title-10-maryland-department-of-health/part-5/subtitle-67-maryland-healthchoice-program/chapter-106704-maryland-medicaid-managed-care-program-managed-care-organizations/section-10670419-3-mco-specific-case-mix-adjustment

7. Schrader, D. R. (2021, July 1). *2021 Joint Chairmen's Report (p. 113) – Report on CY20 MCO Risk Corridor Settlement Process and Results by Individual MCO*. Maryland Department of Health. Retrieved March 31, 2022, from https://health.maryland.gov/mmcp/Documents/JCRs/2021/MCOriskcorridorsettlementJCRfinal7-21.pdf

New York

8. Deloitte Consulting LLP. (2021, September 1). *SFY 2021-22 Mainstream Managed Care Risk Adjustment Actuarial Memorandum*.

9. New York Medicaid actuaries, personal communication.

Tennessee

10. Guidehouse. (2021, January 27). *Preliminary Medicaid Capitation Rate Ranges for the Non-CHOICES, CHOICES, and CoverKids Programs and Additional Informational Program Reports for CY22 MCO Reprocurement*. State of Tennessee Department of Finance and Administration Bureau of TennCare. Retrieved March 9, 2022, from https://www.tn.gov/content/dam/tn/tenncare/rfp/TennCare%20Actuarial%20Documentation%20-%20CY22%20Preliminary%20Capitation%20Rates%20v2.pdf

11. Knutson, D. (2017, October 16). *Combined Chronic Illness and Pharmacy Payment System (CDPS+Rx) Basics*. State of Tennessee Division of TennCare. Retrieved March 9, 2022, from https://www.tn.gov/content/dam/tn/tenncare/documents2/CDPSTennCareProvidersWebinar.pdf

Virginia

12. Mercer Government Human Services Consulting. (2021, May 25). *Fiscal Year 2022 Medallion 4.0 Rate Report Final Rates Effective July 1, 2021*. Commonwealth of Virginia. Retrieved April 6, 2022, from https://www.dmas.virginia.gov/media/3662/fy-2022-medallion-4-rate-report-effective-july-1-2021.pdf

13. PricewaterhouseCoopers LLP. (2016, July 27). *Medallion 3.0 Data Book and Capitation Rates Fiscal Year 2017: Rates Effective July 1, 2016*. Managed Care Capitation | DMAS. Retrieved April 6, 2022, from https://www.dmas.virginia.gov/media/1884/medallion-30-ratebook-contract-year-2018rates-effective-july-1-2017-to-nov-30-2018.pdf

Other Sources

The following information was provided by ASES, DOH, Milliman, or other stakeholders and were relied upon in this assessment:

14. Almodovar, Pablo. (2022, May 2). *Re: Risk Adjustment Process for the Period of 2019-2021.pdf*. Plan de Salud Menonita. Communication via email to Roxanna K. Rosario Serrano.

15. Damler, R.; Pantely, S.; and Carlo, J. (2022, February 4). *Contract Year 2021-2022 Actuarial Memorandum: Administración de Seguros de Salud, October 1, 2021 through September 30, 2022 – Capitation Rates*. Milliman, Inc.

16. Galva, J. (2022, February 14). *Re: Actuarial Opinion-Risk Adjustment Report for years 2019, 2020 & 2021*. Government of Puerto Rico, Health Insurance Administration.

17. Gonzalez Rivera, O. (2019, December 20). *Letter_ASES_YolandaGarcia_12-20-19.pdf*. MMM Multi Health. Communication via email to Yolanda Garcia.

18. Gonzalez Rivera, O. (2021, May 21). *ASES_JGALVA – Risk Adjustment_Response to 0511 Letter.pdf*. MMM Multi Health. Communication via email to Jorge E. Galva.

19. Gonzalez Rivera, O. (2021, October 6). *ASES RESPONSE CIRCULAR LETTER #21-1001F (002).pdf*. MMM Multi Health. Communication via email to Jorge E. Galva.

20. *Model Contract Between ADMINISTRACIÓN DE SEGUROS DE SALUD DE PUERTO RICO (ASES) and NOMBRE ASEGURADORA for PROVISION OF PHYSICAL & BEHAVIORAL HEALTH SERVICES UNDER THE GOVERNMENT HEALTH PLAN PROGRAM*. Provided by ASES. (2020, September 15).

21. Pantely, S. and Lee, C. (2021, August 17). *Risk Adjustment for Contract Year 1H 2018-2019 Vital Capitation Rates*. Milliman, Inc.

22. Pantely, S. and Lee, C. (2021, August 17). *Risk Adjustment for Contract Year 2H 2018-2019 Vital Capitation Rates*. Milliman, Inc.

23. Pantely, S. and Lee, C. (2021, August 6). *Risk Adjustment for Contract Year 2019-2020 Vital Capitation Rates*. Milliman, Inc.

24. Pantely, S. and Lee, C. (2022, January 24). *Risk Adjustment for 1H Contract Year 2020-2021 Vital Capitation Rates*. Milliman, Inc.

25. Pantely, S. and Lee, C. (2022, January 24). *Risk Adjustment for 2H Contract Year 2020-2021 Vital Capitation Rates*. Milliman, Inc.

26. Vivaldi, C. A. (2021, October 7). *MMM Response to ASES - 10_01_2021.pdf*. MMM Multi Health. Communication via email to Roxanna Rosario.

27. Valentin-Cameron, J. E. (2022, March 7). *Re: Risk Adjustment Reports*. First Medical Health Plan, Inc. Communication via email to Jorge E. Galva.

28. Zetina, C. E. (2021, November). *Analysis of ASES Area Relativity Data*. Zetina Logixx, LLC. Provided via email.

29. Zetina, C. E. (2022, April 8). *Analysis of GHIP Historical Region Relativities v2 (2022-04-08).xlsx*. Zetina Logixx, LLC. Provided via email.

30. (2022, March 18). *20220318114725099.pdf.* Communications between Plan de Salud Menonita and ASES, Milliman, and Zetina Logixx provided via email.