Quality Incentive Payment Program (QIPP) Evaluation

Interim Evaluation Analyses for QIPP SFY 2023

(Year 6)

January 31, 2024

EQRO
Texas External Quality Review Organization

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Abbreviations

CDC	Centers for Disease Control and Prevention		**NFA**	Nursing Facility Administrator
CFR	Code of Federal Regulations		**NPI**	National Provider Identifier
CHOW	change of ownership		**NSGO**	Non-state government owned nursing facility
CMS	Centers for Medicare and Medicaid Services		**Pandemic**	The COVID-19 pandemic that affected Texas during 2020
COVID-19	coronavirus disease of 2019		**PIP**	performance improvement project
DON	Director of Nursing		**PO**	privately-owned nursing facility
EQRO	external quality review organization		**PT**	physical therapy
EQ	evaluation question		**Q**	quarter
FPN	Federal Provider Number		**QAPI**	quality assurance/performance improvement
HHSC	(Texas) Health and Human Services Commission		**QIPP**	Quality Incentive Payment Program
HP	hypothesis		**RN**	registered nurse
ID	identification number		**SD**	standard deviation
MDS	Minimum Data Set		**SDA**	service delivery area
MSR	Measure Set Review		**SFY**	(Texas) state fiscal year
N	population size		**UTI**	urinary tract infection
NF	nursing facility		**Y**	year

Executive Summary

This document presents the interim evaluation results for the sixth year of the Quality Incentive Payment Program (QIPP), State Fiscal Year 2023 (SFY 2023). For this evaluation, the Texas Health and Human Services Commission (HHSC) defined the following three evaluation questions (EQs) and four specific hypotheses (HPs) with corresponding evaluation measures.

Evaluation Questions, Hypotheses, Measures, and Key Findings

Key conclusions of the QIPP SFY 2023 interim evaluation immediately follow each measure.

Evaluation Question 1. Does QIPP keep patients free from harm?

- Hypothesis 1.1. QIPP will reduce the rate of avoidable complications or adverse healthcare events.
  To evaluate QIPP's progress according to Hypothesis (HP) 1.1, HHSC identified the following four measures:
  1.1.1 (CMS N015.03) Percent of high-risk residents with pressure ulcers, including unstageable pressure ulcers.

  > Key findings: Multivariable regression analyses[1] revealed that POs never enrolled in QIPP had pressure ulcer rates that were 1.9 percentage points higher than POs enrolled since the first year of QIPP (overall sample mean = 7.4 percent).

  1.1.2. (CMS N031.03) Percent of residents who received an antipsychotic medication.

  > Key findings: Descriptive analyses[2] revealed that for NSGOs and POs enrolled in QIPP in Year 6, 8.5 percent of NSGO residents received an antipsychotic medication in SFY 2023 and 9.7 percent of PO residents received an antipsychotic medication over the same period. These percentages were lower than the 11.5-12.0 percent average observed for those NFs that were not enrolled in QIPP in Year 6.

  1.1.3. (CMS N035.03) Percent of residents whose ability to move independently has worsened.

  > Key findings: Multivariable regression analyses revealed that POs never enrolled in QIPP had an average worsening of independent movement that was 4.5 percentage points higher than POs enrolled since the first year of QIPP (overall sample mean rate = 13.8 percent).

  1.1.4. (CMS N024.02) Percent of residents with a urinary tract infection.

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[1] All the multiple regression reported herein controlled not only for ownership category (NSGO vs. PO), but also for other possible influences on the rate (e.g., annual QIPP enrollment cohort, NF size (number of certified beds), utilization (average numbers of residents per day), staffing intensity (total nurse hours and physical therapy (PT) hours per resident per day), and geography (the service delivery area of the nursing facility)).
[2] None of the descriptive comparisons presented here involved statistical significance testing. Consequently, the observed differences may have occurred by chance and should not be taken as definitive.

> **Key findings:** Multivariable regression analyses revealed that POs that were never enrolled in QIPP had a mean percentage of long-stay residents with a UTI that was 1.6 percentage points higher than POs enrolled since the first year of QIPP (mean overall rate = 1.6 percent) after controlling for NF size, utilization, staffing intensity (total nursing and physical therapy), and the SDA of the nursing facility.

- **Hypothesis 1.2. QIPP will reduce rate of avoidable hospitalizations for NF residents.**
  To evaluate QIPP's progress according to Hypothesis 1.2, HHSC identified the following measure:

  1.2.1 Number of hospitalizations per 1,000 Long-Stay Nursing Home Resident Days

  > **Key findings:** The data on the number of hospitalizations per 1,000 long-stay nursing home resident days is only updated once a year with a seven-month delay. Hence, the interim analysis of Year 6 could not include this measure. We anticipate including the results for the number of hospitalizations per 1,000 long-stay nursing home resident days in the final Year 6 evaluation report.

Evaluation Question 2. Does QIPP promote effective practices for people with chronic, complex, and serious conditions?

- **Hypothesis 2.1. QIPP will reduce rate of avoidable hospital and emergency department visits for individuals with medical complexity.**
  To evaluate HP 2.1, HHSC selected the following measures:

  2.1.1 (CMS N020.02) Percent of Residents Assessed and Appropriately Given the Pneumococcal Vaccine

  > **Key findings:** Multivariable regression analyses revealed that POs never enrolled in QIPP had a mean pneumococcal vaccination rate that was 0.06 percentage points higher than POs enrolled since the first year of QIPP (overall sample mean rate = 94.2 percent).

  2.1.2 (CMS N016.03) Percent of Residents Assessed and Appropriately Given the Seasonal Influenza Vaccine

  > **Key findings:** Multivariable regression analyses revealed that POs never enrolled in QIPP had a mean influenza vaccination rate that was 4.0 percentage points-higher than POs enrolled since the first year of QIPP (overall sample mean rate = 95.5 percent).

Evaluation Question 3. Does QIPP attract and retain high-performing Medicaid providers?

- **Hypothesis 3.1. QIPP will encourage providers to actively monitor patient outcomes and perspectives to address their needs and improve healthcare delivery.**
  To evaluate HP 3.1, HHSC established that the relevant metrics of success consist of complying with or attesting to the following:

  For NSGOs only:

  > **3.1.1 Submission of a PIP on a Long-stay MDS Measure**

3.1.3 Submission of documentation demonstrating evidence-based antibiotic stewardship elements and infection control practices

3.1.4 Evidence of completion of CMS and CDC's 'Nursing Home Infection Preventionist Training Course' by Nursing Facility Administrator (NFA) and Director of Nursing (DON)

For all NF ownership types:

3.1.2 Submission of a Workforce development focused PIP

3.1.5 Self-reported direct-care RN staffing hours as described in Table 1

A total of five metrics of success were available for NSGOs (3.1.1-3.1.5) while a total of two metrics of success were available for POs (3.1.2 and 3.1.5).

To test Hypothesis 3.1, a series of regression analyses compared those NFs that were compliant with all relevant metrics of success to those NFs that fell short of full compliance on the four outcome measures from HP 1.1:

1. Percent of high-risk residents with pressure ulcers, including unstageable pressure ulcers

2. Percent of residents who received an antipsychotic medication

3. Percent of residents whose ability to move independently has worsened

4. Percent of residents with a urinary tract infect

We estimated four multiple regression models (one each for the four outcome measures) controlling for full compliance with the metrics of success along with the NF's size (number of certified beds), utilization (average numbers of residents per day), and staffing intensity (physical therapy (PT) hours per resident per day), and the service delivery area (SDA) of the nursing facility.

Key Findings: For NSGOs, compliance on all five EQ3 metrics was significantly associated with all four HP 1.1 outcome measures. Full compliance was associated with statistically significant lower proportions of pressure ulcers, anti-psychotic medications, worsening of movement, and UTIs. For POs, compliance with both EQ3 metrics was significantly associated with three of the four outcome measures, with full compliance associated with statistically significant lower proportions of antipsychotic medications, the worsening of movement, and UTIs.

Introduction and Background

In State Fiscal Year (SFY) 2018, the Texas Health and Human Services Commission (HHSC) introduced a performance-based Quality Incentive Payment Program (QIPP) for nursing facilities (NFs), under federal regulatory authority 42 Code of Federal Regulations Section 438.6(c).

The objective of the QIPP program is to incentivize nursing facilities to enhance their quality of care by providing reward payments if they meet or exceed established performance improvement targets for specified structure, process, and health outcome measures. QIPP's aim reflects HHSC's overarching goals of (a) promoting effective health care practices for beneficiaries with chronic, complex, and serious conditions and (b) promoting patient safety.

Every QIPP program year, HHSC defines the criteria for performance achievement and the incentive payment arrangement. These rely on (a) nursing facility data from the Centers for Medicare and Medicaid Services' (CMS) validated Minimum Data Set (MDS) Long-Stay Quality Measures, (b) nursing facilities' self-reported data on direct-care staffing hours, (c) attestation or submission of compliant documentation (i) demonstrating use of evidence-based Quality Assurance Performance Improvement (QAPI) practices and (ii) showing development of Performance Improvement Projects (PIPs) to monitor patient outcomes and improve healthcare delivery and workforce development, and (d) attestation or submission of compliant documentation (i) demonstrating use of an evidence-based infection control program and (ii) demonstrating improved outcomes in vaccination rates and antibiotic stewardship. Success and payment assessment criteria range from attestation and submission of appropriate documentation to meeting or exceeding program-wide and facility-specific performance targets on quality metrics.

Table 1 summarizes the SFY 2023 (Year 6 or Y6) QIPP incentive components by showing each component's corresponding (a) NF eligibility type, (b) performance measures, (c) frequency of reward payment, (d) data source for performance monitoring, and (e) criteria defining target achievement. QIPP in Y6 consisted of four components, each with eligibility rules and target measures. These eligibility rules and target measures are in the first and second columns, respectively, of Table 1. The eligibility rules specify the NF ownership classes that are eligible for each measure within each component. There are two classes of nursing facility ownership in Texas: (1) Non-State Government Owned (NSGO) NF - a network nursing facility where a non-state governmental entity located in Texas holds the NF license and is a party to the NF's Medicaid provider enrollment agreement, and (2) Privately Owned (PO) NF - a network nursing facility that is not owned by a governmental entity located in Texas and holds the NF license. In SFY 2023, eligibility for QIPP was open to all NSGOs and to POs with a Medicaid utilization rate of 65 percent.

Table 1. QIPP Program Incentive Components in SFY 2023 (Year 6)

Eligible Provider	Target Measure	Payment Frequency	Data source	Target Assessment Criteria
Component one: Holding a QAPI Meeting each month and submitting a their QAPI Validation Report form and data demonstrating a NF-specific performance improvement project (PIP) based on a Long-Stay Minimum Data Set (MDS) quality measure of relevance to the NF				
NSGO	Hold a QAPI meeting every month and submit PIP report and data	Monthly	NF records and reports	Attestation (submission sufficient)
Component two: Performance incentive payment based on achievement of quality metrics focused on workforce development				
All	Metric 1: NF maintains four additional hours of registered nurse (RN) staffing coverage per day, beyond the CMS mandate.	Monthly	NF staffing reports and self-attestation to exceeding CMS staffing mandate	Reported RN staffing per day ≥ CMS mandate plus 4 hours (12 total) on at least 90 percent of the days within reporting period
All	Metric 2: NF maintains eight additional hours of RN staffing coverage per day, beyond the CMS mandate.	Monthly	NF staffing reports and self-attestation to exceeding CMS staffing mandate	Reported RN staffing per day ≥ CMS mandate plus 8 hours (16 total) on at least 90 percent of the days within reporting period
All	Metric 3: NF has a workforce development program in the form of a PIP that includes a self-directed plan and monitoring outcomes.	Monthly	NF PIP portfolio	Attestation (submission sufficient)
Component three: Meeting program-wide and facility-specific targets on Long-Stay MDS quality measures				
All	Metric 1: (CMS N015.03) Percent of high-risk residents with pressure ulcers, including unstageable pressure ulcers.	Quarterly	Long-Stay MDS data from CMS	Program-wide and facility-specific quantitative target (defined quarterly)
All	Metric 2: (CMS N031.03) Percent of residents who received an antipsychotic medication.	Quarterly	Long-Stay MDS data from CMS	Program-wide and facility-specific quantitative target (defined quarterly)

Eligible Provider	Target Measure	Payment Frequency	Data source	Target Assessment Criteria
All	Metric 3: (CMS N035.03) Percent of residents whose ability to move independently has worsened.	Quarterly	Long-Stay MDS data from CMS	Program-wide and facility-specific quantitative target (defined quarterly)
All	Metric 4: (CMS N024.02) Percent of residents with a urinary tract infection.	Quarterly	Long-Stay MDS data from CMS	Program-wide and facility-specific quantitative target (defined quarterly)
Component four: Demonstrating evidence of an active infection control program that includes pursuing improved outcomes in vaccination rates and antibiotic stewardship				
NSGO	NFs attest to whether their antibiotic stewardship program meets specific requirements and submit supporting documentation on Antibiotic prescription policies, Hand Hygiene audit documentation, PPE audit documentation (Q1, Q3); infection control training certificates, updated infection control policies and procedures (Q2); In Q4, NFs must meet or exceed program-wide and facility-specific quantitative targets for Long-Stay MDS data from CMS on Pneumococcal Vaccine (CMS N020.02) and Seasonal Influenza Vaccine (CMS N016.03) measures.	Quarterly	NF records	Attestation
NSGO	Evidence of completion of Preventionist Training	Q2	NF records	Attestation

This document presents the evaluation approaches that the External Quality Review Organization (EQRO) implemented in response to HHSC's request to evaluate QIPP. The EQRO's evaluation approaches followed the CMS-approved questions, hypotheses, and evaluation measures that HHSC specified in the Evaluation Plan for QIPP Y6 (specifically, in Attachment G, Question 44b, 42 CFR §438.340).

Evaluation Questions, Hypotheses, and Measures

To evaluate the performance of QIPP in SFY 2023 in promoting effective care and patient safety for nursing facility residents with chronic, complex, and serious conditions, HHSC defined the following three evaluation questions (EQs) and four specific hypotheses (HPs)[3]:

Evaluation Question 1. Does QIPP keep patients free from harm?

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[3] See Attachment G, Question 44b, 42 CFR §438.340.

- **Hypothesis 1.1. QIPP will reduce the rate of avoidable complications or adverse healthcare events.**

  To evaluate QIPP's progress according to Hypothesis 1.1, HHSC identified the following four measures:

  1.1.1. (CMS N015.03) Percent of high-risk residents with pressure ulcers, including unstageable pressure ulcers.

  1.1.2. (CMS N031.03) Percent of residents who received an antipsychotic medication.

  1.1.3. (CMS N035.03) Percent of residents whose ability to move independently has worsened.

  1.1.4. (CMS N024.02) Percent of residents with a urinary tract infection

- **Hypothesis 1.2. QIPP will reduce rate of avoidable hospitalizations for NF residents.**

  To evaluate QIPP's progress according to Hypothesis 1.2, HHSC identified the following measure:

  1.2.1 Number of hospitalizations per 1,000 Long-Stay Nursing Home Resident Days[4]

Evaluation Question 2. Does QIPP promote effective practices for people with chronic, complex, and serious conditions?

- **Hypothesis 2.1. QIPP will reduce rate of avoidable hospital and emergency department visits for individuals with medical complexity.**

  To evaluate HP 2.1, HHSC selected the following measures:

  2.1.1 (CMS N020.02) Percent of Residents Assessed and Appropriately Given the Pneumococcal Vaccine

  2.1.2 (CMS N016.03) Percent of Residents Assessed and Appropriately Given the Seasonal Influenza Vaccine

Evaluation Question 3. Does QIPP attract and retain high-performing Medicaid providers?

- **Hypothesis 3.1. QIPP will encourage providers to actively monitor patient outcomes and perspectives to address their needs and improve healthcare delivery.**

  To evaluate HP 3.1, HHSC established that the relevant metrics of success consist of complying with or attesting to the following items (see HHSC's Attachment I document).

  For NSGOs only:

  > 3.1.1 Submission of a PIP on a Long-stay MDS Measure

  > 3.1.3 Submission of documentation demonstrating evidence-based antibiotic stewardship and infection control practices.

  > 3.1.4 Evidence of completion of CMS and CDC's 'Nursing Home Infection Preventionist Training Course' by Nursing Facility Administrator (NFA) and Director of Nursing (DON)

  For all NF types:

  > 3.1.2 Submission of a Workforce development focused PIP

  > 3.1.5 Self-reported direct-care RN staffing hours as described in Table 1.

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[4] Unfortunately, the data on the number of hospitalizations per 1,000 long-stay nursing home resident days is only updated once a year and then only after a seven-month delay. Consequently, we are unable to address Hypothesis 1.2 in this interim evaluation. However, we anticipate including the results for Hypothesis 1.2 in the final Year 6 evaluation report.

Data and Methods

Data Sources and Data Limitations

Long-Stay Minimum Data Set (MDS)

The CMS validated MDS Long-Stay Quality Measures dataset contains values for evaluation measures 1.1.1 through 1.1.4, 2.1.1, and 2.1.2 for all operative nursing facilities in Texas. The data has quarterly frequency. CMS publishes the data five months after the end of each calendar quarter. This generates a one-month mismatch with the QIPP SFY quarters (e.g., Sept-Nov 2023 in QIPP versus Oct-Dec 2023 in the MDS file). The latest available data for the QIPP Evaluation interim analysis covers April-June 2023 (the closest to Q3 of SFY 2023). Each nursing facility has a unique identifier, the Federal Provider Number (FPN). The file includes data for 1,190 nursing facilities in the first quarter of QIPP SFY 2023 (i.e., Oct-Dec 2022 in the data). 95 percent of them include MDS measure values.

Eligibility data (HHSC – QIPP file)

This source contains a list of 1,206 NFs with NF identifiers ("Facility IDs", defined by QIPP) but no federal provider codes, and data on eligibility for QIPP either as Non-State Government Organizations (NSGOs) or Privately-Owned Organizations (POs) and based on the share of Medicaid utilization. Facility IDs are unique codes. In the Eligibility file for Y6, 74 NFs do not have data on the share of Medicaid utilization. One of them is NSGO, nine are state-owned, and the rest are POs. The data file defines POs with no information on Medicaid utilization as not eligible for QIPP.

To retrieve federal provider numbers for NFs in this data file (which are necessary for a merge with MDS data), it is necessary to merge this file with the file "QIPP Facility Enrollment by Year" (henceforth also "Enrollment" file, see below for a description) using Facility IDs. The Enrollment file contains both the Facility ID and the federal provider code. Two-hundred-seven facilities do not have a matching facility entry in the Enrollment file through the Facility ID code (after removing nine facilities with a duplicate federal provider number – but different facility IDs - in the Enrollment file).

On the other hand, 208 NFs from MDS file did not match with the Enrollment file by FPN. To retrieve ownership types for the above 208 NFs, we matched the eligibility data with the MDS file through an algorithm based on the correspondence of facility names in the two files. We found a perfectly corresponding name pair for 156 NFs (six of which did not have ownership type in eligibility file) and an almost perfectly corresponding pair for four others, for a total of 154 retrieved ownership types. The EQRO categorized the remaining NFs as ownership unknown.

QIPP Facility Enrollment by Year (HHSC- QIPP file)

This source contains data for 1,030 unique nursing facilities. The dataset includes information on the first year of enrollment in QIPP, the enrollment pattern over program years (i.e., whether a facility was enrolled at the beginning and at the end of each QIPP fiscal year), and an indication of the HHSC-defined NF type (privately owned or NSGO). HHSC compiled the file at the end of SFY 2023 and it should include all facilities that never enrolled in QIPP throughout the program's existence, even if not enrolled in SFY 2023. Enrollment information for SFY 2023 needs to be cross-checked with CMS' MDS dataset to identify active versus closed/inactive facilities during the fiscal year. The analysis excluded facilities listed in the

Enrollment file but not present in the MDS data because they were not active in the corresponding period of time.

Some name-based matched NFs were in the Eligibility and MDS files but not in the Enrollment file. After merging the Eligibility, Enrollment, and MDS files, the EQRO considered NFs' eligibility as "Unknown" if a facility on MDS did not have corresponding data on eligibility and type (54 NFs). We considered those NFs as never enrolled in QIPP. If a facility was in the Eligibility file and not in the Enrollment file, we classified it as never enrolled.

Table 2 reports the number of nursing facilities whose IDs (either Facility ID or "Federal Provider Number") were located in the Enrollment, Eligibility, or both files, versus only in the MDS file. The table specifies the source that the EQRO used to infer the facility ownership type. The table distinguishes between NSGOs, POs, and Unknown facility types in separate columns. Forty-eight nursing facilities did not have a corresponding Facility ID and, hence, did not have information on type. The EQRO classified them as "Unknown".

Table 2. Data sources and source of information on nursing facility ownership type in SFY 2023

Data source	NSGO	Privately Owned	Unknown
Number of NFs present only in MDS files	0	0	48
Number of NFs with type inferred from "Enrollment" file	744	207	0
Number of Facility IDs retrieved by matching MDS and "Eligibility" files by name	0	154	6
Number of facilities not active in SFY 2022 (not in MDS)	16	63	0
Number of facilities enrolled in SFY 2022 but not did have MDS scores	0	0	0

Provider Information (CMS)

This data source includes the following relevant information at the nursing facility level that regression analyses included as optional additional covariates:

- Number of Certified Beds
- Average Number of Residents per Day
- Total Nurse Staffing Hours per Day
- Physical Therapy Staffing Hours per Resident per Day

CMS releases Provider Information data with quarterly frequency (called "processing date") on 3/1, 6/1, 9/1, and 12/1 of each calendar year. For example, a processing date of 9/1/2023 corresponds to 1/1-3/1/2023.

The EQRO noted that the information in the variable Ownership Type in the Provider Information CMS dataset may not correspond with ownership type listed with HHSC in the Eligibility or Enrollment file (which HHSC uses to classify NFs as NSGO or Privately Owned). The EQRO recommends that HHSC should improve its reconciliation process between the two data files.

Table 3 reports the number and percentage of nursing facilities that had a Change of Ownership (CHOW) in the previous 12 months, by ownership type as defined in YR6. The EQRO compared ownership types of NFs in YR6 Eligibility file with those in the YR5 (SFY2022) Eligibility file and attributed an ownership change to NFs that had different ownership types over the two years. Ninety-six nursing facilities changed ownership type between SFY2022 and SFY2023, and all 96 changed from PO to NSGO. Among these 96 NFs, 15 were continuously enrolled since 2018, one since SFY2019, 15 since SFY2020, and nine since SFY2021. Fifty enrolled in SFY 2023 for the first time and six who participated in SFY2023 had different past enrollment patterns. The EQRO did not perform additional regression analyses by CHOW because the frequency of occurrence of CHOWs across types of facilities by participation status did not vary sufficiently to allow for statistically meaningful comparisons across the three dimensions of enrollment, type, and CHOW.

Table 3. Change of Ownership by type: facilities not enrolled in QIPP in SFY 2023

Ownership Type and Cohort	Number	Proportion
From PO to NSGO	96	100%
From NSGO to PO	0	0%
Total	96	100%
By QIPP enrollment cohort		
Enrolled since 2018	15	15.6%
Enrolled since 2019	1	1.0%
Enrolled since SFY 2020	15	15.6%
Enrolled since SFY 2021	9	9.4%
Enrolled since SFY2023	50	52.1%
Enrolled in SFY2023, inconsistent enrollment pattern	6	6.3%

Methods

This section summarizes the empirical and methodological approaches that the EQRO undertook to address each evaluation question, hypothesis, and measure that HHSC selected for the evaluation of QIPP Year 6 (SFY 2023).

Definition of comparative cohorts

Because QIPP participation expanded each year over the 2018-2023 period, the analysis considered facilities that enrolled at different times as separate enrollment cohorts, one for each year, in addition to facilities that never enrolled, for comparative purposes.

The EQRO identified a feasible cohort classification using information on ownership type and enrollment patterns over QIPP program years. The EQRO classified 54 NFs with a "federal provider code" or name that did not match with those included in the "Enrollment" or "Eligibility" data sources (i.e., were present only in the MDS data) as of *Unknown* type and hypothesized that they never enrolled in QIPP. Table 4

presents the NF enrollment profiles by the beginning and ending of each SFY from 2018 to 2023. A one in the enrollment pattern indicates enrollment in QIPP at that time (beginning or ending of the fiscal year) while zero in the enrollment pattern indicates lack of enrollment at that time. The time points in the enrollment pattern go from most recent on the left (ending SFY2023) to the oldest on the right (beginning SFY2018). So, the enrollment pattern "000000000111" indicates enrollment in QIPP at the beginning and ending of SFY2018 and the beginning of SFY2019, but no enrollment subsequently.

Table 4 shows all possible enrollment profiles by ownership type and enables the reader to identify key patterns. Table 3 reveals that 459 NFs enrolled in QIPP at the beginning of SFY2018 and remained enrolled ever since (see the last rows in the table). Reading upward from the bottom of the table, we see that 59 NFs enrolled at the beginning of SFY2019, 197 at the beginning of SFY2020, 70 at the beginning of SFY2021, 46 at the beginning of SFY 2022, and 70 at the beginning of SFY 2023 and remained continuously enrolled until present. Eight NFs have never enrolled in QIPP since its start in 2018.

Table 4 shows that the majority of NFs had consistent enrollment patterns and remained enrolled (or non-enrolled) in QIPP after joining the program, with some differences between POs and NSGOs. Of the 208 NFs that never joined QIPP, 154 were POs, none were NSGOs, and 54 were Unknown. Fifty-six NSGOs and 14 POs joined QIPP at the beginning of 2023, 44 NSGOs (2 POs) joined in 2022, 47 NSGO and 23 POs joined in 2021, 104 and 93 in 2020. 42 NSGOs and 17 POs in 2019, and 425 NSGOs and 34 PO facilities joined QIPP continuously since 2018. Some NFs did not display consistent enrollment patterns across QIPP years. For example, 5 NFs unenrolled from QIPP before SFY 2022 and 39 unenrolled and re-enrolled at least once before participating in QIPP in SFY 2023. Inconsistent enrollment patterns may be indicative of changes in governance or restructuring, making those facilities not comparable to the majority of consistently enrolled NFs when analyzing different time patterns and lengths of enrollment in QIPP.

To maintain a consistent classification of NF cohorts over QIPP program years, the EQRO defined the following comparative cohorts for Privately Owned and Non-State Government Owned facilities separately:

- A. NF never enrolled in QIPP (since SFY 2018) – Only POs
- B. NF enrolled in QIPP since SFY 2018
- C. NF enrolled in QIPP since SFY 2019
- D. NF enrolled in QIPP since SFY 2020
- E. NF enrolled in QIPP since SFY 2021
- F. NF enrolled in QIPP since SFY 2022
- G. NF enrolled in QIPP since SFY 2023

Table 4. Enrollment profile over QIPP program years (from the end of SFY 2023 on the left to the beginning of SFY 2018 on the right)

Enrollment pattern (End of SFY2023 to beginning of SFY 2018)	NSGO	Privately Owned	Unknown	Total
000000000000	0	154	54	208

Enrollment pattern (End of SFY2023 to beginning of SFY 2018)	NSGO	Privately Owned	Unknown	Total
000000000011	4	2	0	6
000000000100	0	1	0	1
000000000111	4	0	0	4
000000010000	0	5	0	5
000000011100	0	2	0	2
000000011111	3	0	0	3
000000110000	0	8	0	8
000000111100	0	1	0	1
000000111111	1	2	0	3
000001000000	0	2	0	2
000001110000	0	1	0	1
000001111100	0	1	0	1
000001111111	0	3	0	3
001100000000	0	1	0	1
001111000000	0	8	0	8
001111001100	0	1	0	1
001111110000	0	21	0	21
001111110011	1	1	0	2
001111111100	0	1	0	1
001111111111	3	2	0	5
011111110000	1	3	0	4
011111111100	1	1	0	2
011111111111	4	1	0	5
110000000011	1	0	0	1
110000110000	5	3	0	8
110011110000	0	1	0	1
111100110000	6	0	0	6
111111000011	0	3	0	3

Enrollment pattern (End of SFY2023 to beginning of SFY 2018)	NSGO	Privately Owned	Unknown	Total
110000000011	1	0	0	1
110000110000	5	3	0	8
111111001111	4	1	0	5
111111110011	4	11	0	15
110000000000	56	14	0	70
111100000000	44	2	0	46
111111000000	47	23	0	70
111111110000	104	93	0	197
111111111100	42	17	0	59
111111111111	425	34	0	459
Total	760	424	54	1238

Source: EQRO elaboration from HHSC' Eligibility and Enrollment files (QIPP Year 6 evaluation).
Note: There are 3 rows in the above table that start with "01" containing a total of 6 NSGOs and 5 POs, meaning that these NFs were not enrolled at the beginning of 2023 but enrolled at the end of 2023. We are unsure how QIPP eligibility rules allow this.

Descriptive analysis

We calculated and reported descriptive statistics (i.e., population size, means, medians, and measures of dispersion (such as the standard deviation of the mean) for each EQ1 and EQ2 measure that HHSC selected, and CMS approved for each comparison cohort in SFY 2023 (precisely, Q4 of calendar year 2022 and Q1 and Q2 of calendar year 2023). For the descriptive analysis, the EQRO produced mean values over the three available quarters. For the descriptive analysis, the EQRO produced mean values for NFs that were enrolled or not enrolled in Y6, by ownership type. The distinction between NFs in the descriptive analysis reflects their enrollment status in QIPP Y6 and does not consider patterns of enrollment in QIPP over time. For measure 1.2.1 (hospitalizations), there was no available data.

None of the descriptive comparisons presented in the results involved statistical significance testing. Consequently, the observed differences may have occurred by chance and should not be taken as definitive.

The EQRO also produced descriptive statistics reporting the number and percentage of NFs that met the criteria for incentive payment in SFY 2023, for each EQ3 HP 3.1 measure. The population included all the component-eligible NFs that participated in QIPP in SFY 2023.

Visual trend analysis

The EQRO plotted the pre-enrollment and enrollment quarterly mean values of each EQ1 and EQ2 measure for selected comparative cohorts with a sufficient number of NFs. Visual trend analyses included the 2018 continuous enrollment cohort of POs, the 2018 continuous enrollment cohort of NSGOs, and the nursing facilities cohort that never enrolled. The interim evaluation extended the analysis up to that portion of SFY 2023 for which data was available (i.e., October 2022 through June 2023). The trend analysis displays the differences in mean values of EQ1 and in EQ2 measures that HHSC selected for the SFY 2023 between NF cohorts between the final calendar quarter of 2015 to the second calendar quarter of 2023. The analysis facilitates a comparison of the differences in overall rates and trends in the selected measures between PO and NSGO facilities that enrolled in QIPP and NFs that never joined QIPP. The visual trend analysis did not consider statistical significance in differences between cohorts.

Regression analysis

First, the EQRO designed and conducted regression analyses that related cohorts of QIPP-enrolled facilities with different lengths of participation in QIPP and mean values of outcome measures 1.1.1-1.1.4 and 2.1.1-2.1.2 in SFY 2023. These regression analyses included only the NFs that maintained continuous participation in QIPP after joining the program and excluded cohorts with intermittent patterns.

The analyses used distinct regression specifications for POs and NSGOs. For POs, the regressions compared POs that never enrolled in QIPP with cohorts that enrolled in each year of QIPP. Because there were no NSGO NFs in Y6 that had never participated in QIPP, the NSGO regressions compared cohorts of NFs enrolled in QIPP since 2018 with cohorts that enrolled in each subsequent year of QIPP.

The regression models also controlled for other pertinent covariates, including NF's size (number of certified beds), utilization (average numbers of residents per day), staffing intensity (total nurse hours and physical therapy [PT] hours per resident per day), and geography (the service delivery area [SDA] of the nursing facility).

Interpretation. These analyses examine whether annual QIPP enrollment cohorts had statistically significantly different performances in terms of the selected EQ1 and EQ2 measures compared with NFs continuously enrolled since YR1.

In another set of regression analyses, the EQRO estimated the association between EQ1 measures as dependent variables and whether the NF in question met all criteria for incentive payment for the component metrics that HHSC selected for EQ3. The EQRO expressed compliance with EQ3 metrics as a binary yes/no variable indicating that the facility complied with all ("yes") or less than all ("no") of the payment components of EQ3. Additional covariates included: number of certified beds, average number of residents per day, total physical therapist hours per resident per day, and service area. The EQRO estimated two separate sets of regressions by ownership type because POs are not eligible for the same set of criteria that apply to NSGOs as shown in Table 1 above. The EQRO excluded EQ2 measures from the analysis (pneumococcal and Influenza vaccinations) because these measures were among the EQ3 incentive metrics (Component Four, Q4) and would therefore be both part of the explanatory variable and the outcome. The population for these estimations included only facilities that participated in QIPP in SFY 2023 and were eligible for each measure in EQ3 HP 3.1.

Interpretation. The EQ1 outcome measures are the dependent variables and success in fully meeting the criteria for an incentive payment in EQ3 is the key regressor in these analyses. These regression results suggest whether fully meeting an incentive metric was associated with a difference in NF performance on the EQ1 outcome measures.

Results

The following tables display descriptive statistics for each EQ1 HP 1.1 and EQ2 HP 2.1 measure by enrollment status and ownership type in SFY 2023. The descriptive statistics include mean and median values, the standard deviation (SD) of the mean, and the number of nursing facilities (N) in each type and cohort with a non-missing measure score. After the descriptive tables are visual trend analyses of mean measure values over quarters (SFY 2016 to SFY 2023). Regression analyses for all measures (by evaluation question) follow immediately after.

For several measures and cohorts, the number of nursing facilities was very small. For example, only one to three NSGOs had not enrolled in QIPP in Year 6, depending on the chosen measure. Such small sample sizes limit the ability to make reliable inferences. Consequently, the tables that follow do not include the results for these categories.

Evaluation Question 1 Does QIPP keep patients free from harm?

Hypothesis 1.1. QIPP will reduce the rate of avoidable complications or adverse healthcare events

Percentage of high-risk residents with pressure ulcers, including unstageable (measure 453)

Descriptive analysis

Table 5 reveals that NFs enrolled in QIPP in Year 6 typically had lower mean percentages of high-risk residents with pressure ulcers than those NFs not enrolled, although without considering statistical significance. NSGOs and POs enrolled in QIPP in Year 6 reported mean proportions of residents with pressure ulcers of 6.3 percent and 6.7 percent, respectively, compared to 9.4 percent of residents with pressure ulcers in POs not enrolled in QIPP in Year 6.

Table 5. Percentage of high-risk residents with pressure ulcers, including unstageable (measure 453)

Nursing Facility Type	SFY 2023 Values for Pressure Ulcers			
	N	Mean	Median	SD
NSGO Enrolled	711	6.3%	5.7%	3.8
PO Enrolled	189	6.7%	6.4%	3.9
NSGO Not Enrolled	1	--*	--*	--*
PO Not Enrolled	145	9.4%	7.7%	6.0
Unknown Not Enrolled	34	7.1%	7.4%	4.4

* The "NSGO Not Enrolled" category is omitted because of small sample size.

Visual trend analysis

Figure 1 shows that NSGOs and POs enrolled in QIPP since SFY 2018 generally had lower mean pressure ulcer percentages across time than NFs that were never enrolled in QIPP in Year 6. This difference is more pronounced in recent years, where pressure ulcer rates for never-enrolled nursing facilities are distinctly higher than the rates for enrolled NFs.

Figure 1. Percentage of high risk long-stay residents with pressure ulcers, including unstageable ulcers
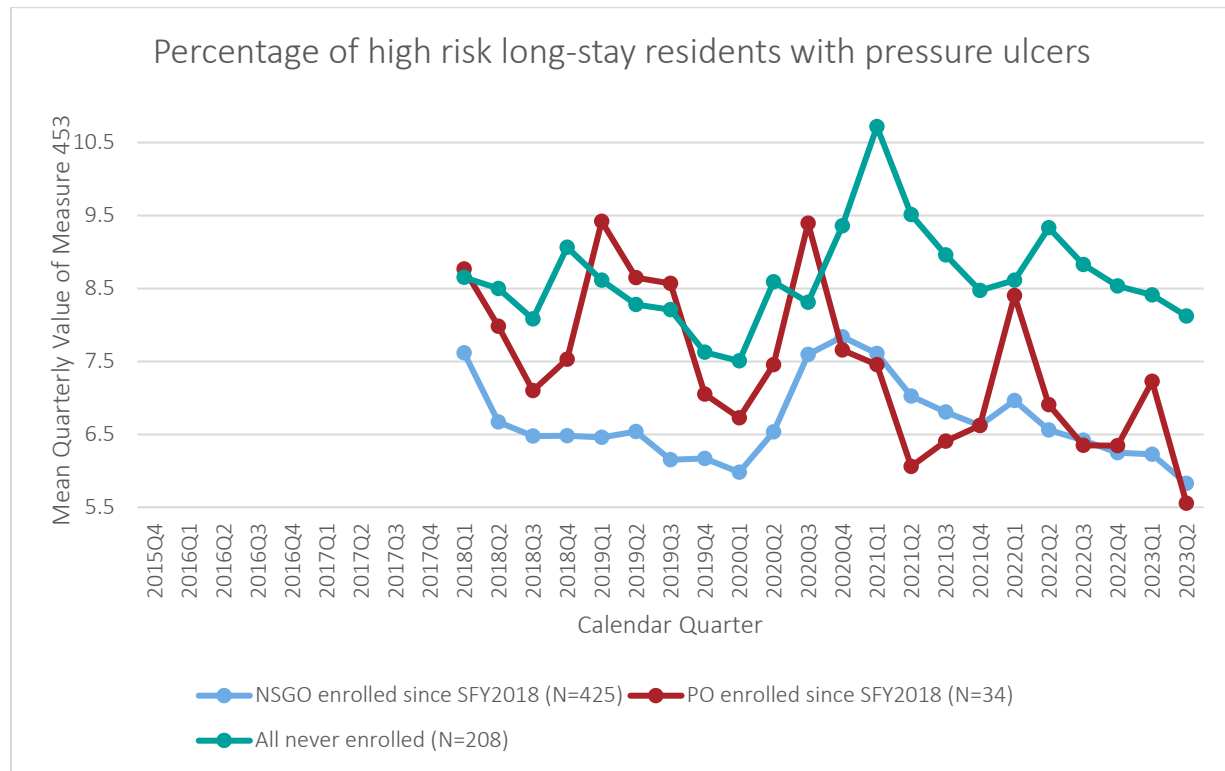
Descriptive analysis

On average, 8.5 percent of the NSGO residents enrolled in QIPP received an antipsychotic medication in SFY 2023. In contrast, 9.7 percent of the enrolled PO residents received an antipsychotic medication over the same period. These that were not enrolled percentages were lower than the 11.5-12.0 percent averages observed for NFs in QIPP in SFY 2023.

Table 6. Percentage of residents who received antipsychotic medication (measure 419)

Nursing FacilityType	SFY 2023 Values for Antipsychotic Medication			
	N	Mean	Median	SD
NSGO Enrolled	724	8.5%	7.5%	6.0

Nursing FacilityType	SFY 2023 Values for Antipsychotic Medication			
PO Enrolled	195	9.7%	8.3%	7.4
NSGO Not Enrolled	3	--*	--*	--*
PO Not Enrolled	161	11.5%	9.9%	7.5
Unknown Not Enrolled	35	12.0%	12.3%	6.2

* The "NSGO Not Enrolled" category is omitted because of the small sample size

Visual Trend Analysis

Figure 2 shows that all three NF cohorts (NSGO enrolled since 2018, POs enrolled since 2018, and never-enrolled NFs) exhibited declining rates of antipsychotic medication use across the 2015-2023 period. This decline reflects better outcomes over time because lower values correspond to better relative performance. Interestingly, never-enrolled NFs were performing better than the other two NF cohorts in 2015, with the lowest mean percentage of residents who received antipsychotic medications. POs enrolled since the start of QIPP, by contrast, had the highest antipsychotic medication rates in 2015. Over time, however, POs enrolled since the start of QIPP showed the steepest decline in antipsychotic medication rates and achieved a rate similar to the never-enrolled NFs by 2023. NSGOs that participated in QIPP since 2018 displayed higher mean values than never-enrolled NFs in 2015, but showed greater declines over time and achieved the lowest 2023 rate among the three cohorts. Ultimately, the dispersion of antipsychotic medication rates across the three cohorts decreases substantially over the 2015-2023 period.

Figure 2. Percentage of long-stay residents who received an antipsychotic medication
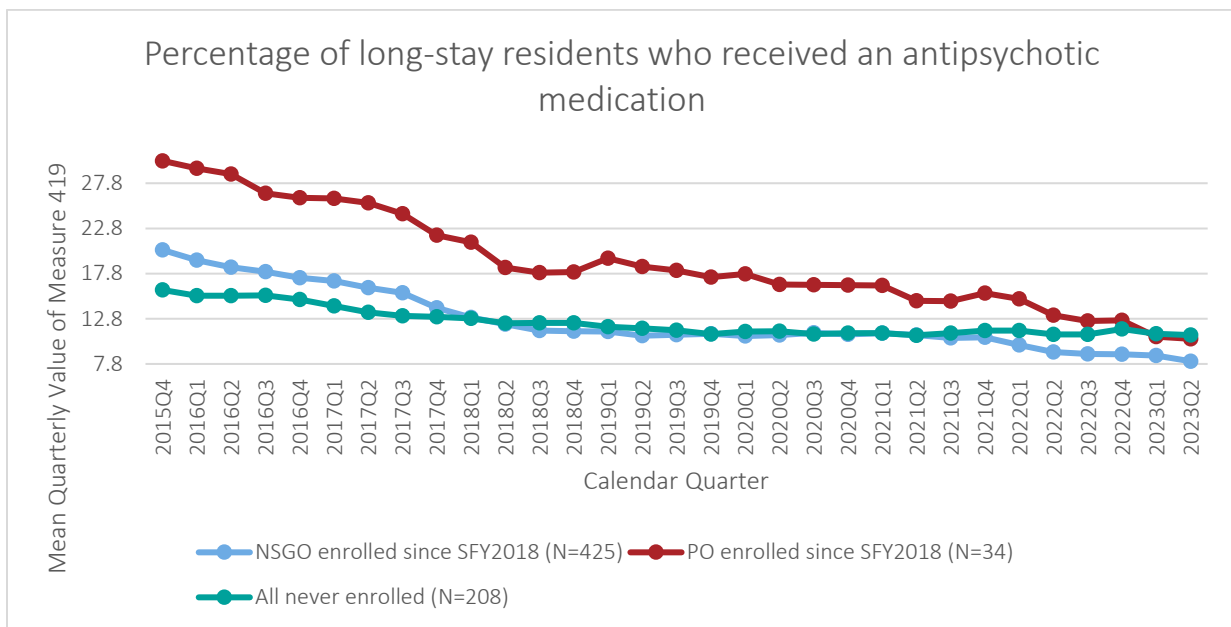
Percent of residents whose ability to move independently has worsened

Descriptive analysis

Table 7 shows that 11.6 percent of enrolled NSGO residents' abilities to move independently worsened in Year 6. On average, 12.8 percent of enrolled PO residents' abilities to move independently worsened in Year 6. These rates were lower (i.e., better) than the 17.1-17.9 percent mean rates for those NFs not enrolled in QIPP.

Table 7. Percentage of residents whose ability to move independently worsened (measure 451)

Nursing FacilityType	SFY 2023 Values for Independent Movement Worsened			
	N	Mean	Median	SD
NSGO Enrolled	709	11.6%	10.6%	6.3
PO Enrolled	190	12.8%	12.0%	7.8
NSGO Not Enrolled	1	--*	--*	--*
PO Not Enrolled	121	17.9%	16.6%	8.6
Unknown Not Enrolled	31	17.1%	16.9%	6.8

* The "NSGO Not Enrolled" category is omitted because of small sample size.

Visual trend analysis

Measure 451, the percentage of residents whose ability to move independently has worsened, became a program metric for QIPP at the beginning of Year 3 (SFY 2020). Figure 3 shows that all nursing facilities had similar performances before HHSC introduced measure 451 as a program metric. The introduction of Measure 451 as a QIPP metric largely coincided with the start of COVID-19 pandemic, thereby making it impossible to disentangle these two events descriptively. The trend analysis, however, does suggest a general worsening in performance for all NF cohorts coinciding with these two events. Subsequently, however, Figure 3 does show lower movement worsening for the enrolled NSGO and PO cohorts relative to the never-enrolled cohort starting in mid-2022. Coinciding with its introduction, NFs enrolled in QIPP started performing better than the never-enrolled NFs.

Figure 3. Percentage of residents whose ability to move independently has worsened
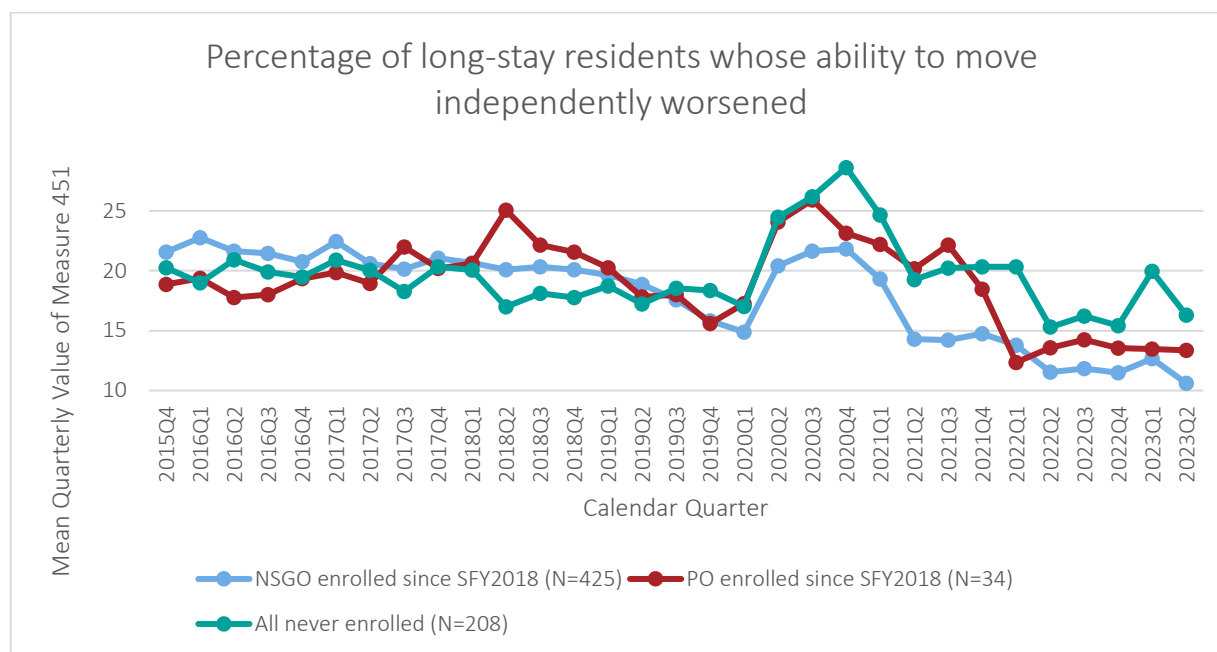
Percent of residents with a urinary tract infection

Descriptive Analysis

As shown in Table 8, NSOGs enrolled in QIPP in SFY 2023 had a rate of 0.9 residents with a urinary tract infection (UTI) out of 100 residents. For POs, on average, the rate was 1.0 residents. These rates are substantially smaller than the 1.8-2.7 percent means for NFs not enrolled in QIPP in SFY 2023.

Table 8. Percentage of residents with a urinary tract infection (measure 407)

| Nursing FacilityType	SFY 2023 Values for Urinary Tract Infection			
	N	Mean	Median	SD
NSGO Enrolled	733	0.9%	0.0%	1.8
PO Enrolled	202	1.0%	0.2%	1.6
NSGO Not Enrolled	3	--*	--*	--*
PO Not Enrolled	157	2.7%	1.7%	3.4
Unknown Not Enrolled	36	1.8%	1.2%	1.8

* The "NSGO Not Enrolled" category is omitted because of small sample size.

Visual trend analysis

Measure 407 (Percentage of residents with a urinary tract infection) became a program metric in Year 3 (SFY 2020). As shown in Figure 4, facilities enrolled in QIPP and those that never enrolled had

substantially different performances in terms of measure 407 already in 2015. In 2015, the percentage of residents with a UTI was about 7.0 among non-enrolled NFs and ranged between 4.0 and 5.0 among NFs that enrolled in QIPP in 2018. All three NF cohorts display decreasing trends over time with the two enrolled cohorts having lower rates than the never enrolled cohort.

Figure 4. Percentage of residents with a urinary tract infection
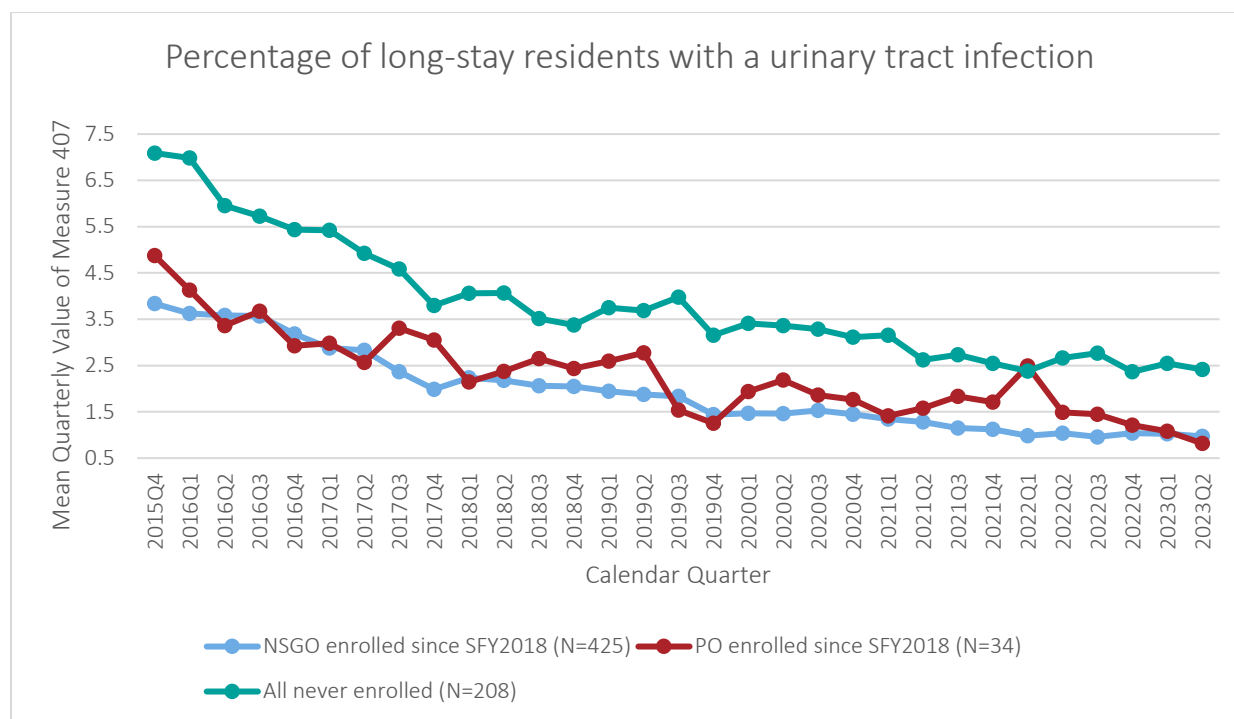
Hypothesis 1.2. QIPP will reduce rate of avoidable hospitalizations for NF residents

Number of hospitalizations per 1,000 long-stay nursing home resident days

Unfortunately, the data on the number of hospitalizations per 1,000 long-stay nursing home resident days is only updated once a year and then only after a seven-month delay. We anticipate including the results for the number of hospitalizations per 1,000 long-stay nursing home resident days in the final Year 6 evaluation report.

Regression analysis

Table 9 reports the estimated regression coefficients for NSGOs showing each annual QIPP enrollment cohort's association with each EQ1 HP 1.1 QIPP outcome metric relative to the original 2018 QIPP enrollment cohort. The table reports the results of each regression in a separate column for each measure. The analyses included only nursing facilities that participated in QIPP with a constant profile over the years. The analyses excluded four NSGOs that never enrolled in QIPP due to their insufficient population size.

In addition to controlling for the enrollment profiles of NSGOs, the regressions also controlled for NSGOs' size (number of certified beds), utilization (average numbers of residents per day), staffing intensity (total nurse hours and physical therapy [PT] hours per resident per day), and geography (service delivery area [SDA] of the nursing facility). These additional coefficients are omitted from the regression tables.

Overall, the results suggest that comparing the NSGOs continuously enrolled in QIPP since 2018 to each subsequent year's enrollment cohort (i.e., those NSGOs enrolled since 2019, 2020, 2021, 2022, and 2023) did not present statistically significant differences in mean values of metrics 453, 419, 451, and 407 in SFY 2023 at conventional levels (1 percent or 5 percent significance level).

Table 9. Regression analysis by enrollment cohort for NSGOs (EQ1)

VARIABLES	% of residents with pressure ulcers (453)	% of residents who received antipsychotic medication (419)	% of residents whose ability to move independently worsened (451)	% of long-stay residents with a UTI (407)
Enrollment cohort				
NSGOs Enrolled since 2018 (reference group)	-	-	-	-
NSGOs Enrolled since 2019	0.315	0.525	0.296	0.140
	(0.572)	(0.926)	(0.926)	(0.229)
NSGOs Enrolled since 2020	0.477	-0.209	-0.542	-0.044
	(0.435)	(0.604)	(0.666)	(0.200)
NSGOs Enrolled since 2021	-0.133	0.032	-1.039	-0.485
	(0.537)	(0.784)	(1.020)	(0.299)
NSGOs Enrolled since 2022	0.949	0.062	0.868	-0.323
	(0.682)	(0.904)	(1.076)	(0.288)
NSGOs Enrolled since 2021	-0.133	0.032	-1.039	-0.485
	(0.537)	(0.784)	(1.020)	(0.299)
NSGOs Enrolled since 2022	0.949	0.062	0.868	-0.323
	(0.682)	(0.904)	(1.076)	(0.288)

VARIABLES	% of residents with pressure ulcers (453)	% of residents who received antipsychotic medication (419)	% of residents whose ability to move independently worsened (451)	% of long-stay residents with a UTI (407)
NSGOs Enrolled since 2023	0.572	-0.748	-1.171	-0.049
	(0.518)	(0.893)	0.823	(0.400)
Constant	8.178***	6.398***	9.434***	-0.645
	(1.28)	(1.784)	(2.117)	(0.542)
Observations	1975	2066	1952	2095
Mean	6.24	8.27	11.37	0.90
SD	4.50	6.39	7.71	2.08

Robust standard errors in parentheses. Significance level legend: *** p<0.01, ** p<0.05, * p<0.1
All the multiple regressions in this table controlled not only QIPP enrollment cohort, but also for NF size (number of certified beds), utilization (average numbers of residents per day), staffing intensity (total nurse hours and physical therapy (PT) hours per resident per day), and geography (the service delivery area of the nursing facility)).

Table 10 presents the estimated regression coefficients for POs showing each annual QIPP enrollment cohort's association with each EQ1 HP 1.1 QIPP outcome metric relative to the original 2018 QIPP enrollment cohort. These regressions for POs also include a cohort variable for PO that have never enrolled in QIPP as of SFY 2023. The table reports the results of each regression in a separate column. The analysis includes nursing facilities that maintained a consistent participation profile over QIPP program years (i.e., continuously enrolled or never enrolled).

The results suggest that there were some statistically significant differences in QIPP measure means in SFY 2023 by enrollment cohort for POs. In particular, POs that have never enrolled in QIPP had higher rates of pressure ulcers, worsening independent movement, and higher UTI rates compared to ever enrolled POs.

Table 10. Regression analysis by enrollment cohort for POs (EQ1)

Variables	% of residents with pressure ulcers (453)	% of residents who received antipsychotic medication (419)	% of residents whose ability to move independently worsened (451)	% of long-stay residents with a UTI (407)
Enrollment cohort				
PO never enrolled	1.893**	0.749	4.540***	1.640***
	(0.850)	(1.543)	(1.418)	(0.414)

PO Enrolled since 2019	0.729	1.077	1.109	-0.113
	(1.329)	(2.098)	(2.086)	(0.453)
PO Enrolled since 2020	0.322	-2.699*	-0.423	-0.126
	(0.746)	(1.404)	(1.283)	(0.333)
PO Enrolled since 2021	-0.630	2.704	1.474	-0.199
	(1.082)	(3.038)	(1.930)	(0.398)
PO Enrolled since 2022	-0.083	-6.267**	-1.466	-0.488
	(1..3469)	(2.665)	(4.523)	(0.388)
PO Enrolled since 2023	1.070	-2.863	1.883	1.419*
	(1.252)	(2.037)	(2.263)	(0.743)
PO Enrolled since 2018 (reference group)	-	-	-	-
Constant	5.784***	14.377***	9.715***	0.609
	(2.018)	(3.767)	(2.833)	(0.950)
Observations	771	840	692	854
Mean	7.40	10.33	13.76	1.63
SD	5.31	7.92	9.32	2.90

Robust standard errors in parentheses. Significance level legend: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

All the multiple regressions in this table controlled not only for QIPP enrollment cohort, but also for NF size (number of certified beds), utilization (average numbers of residents per day), staffing intensity (total nurse hours and physical therapy (PT) hours per resident per day), and geography (the service delivery area of the nursing facility)).

Evaluation Question 2. Does QIPP promote effective practices for people with chronic, complex, and serious conditions?

Hypothesis 2.1. QIPP will reduce rate of avoidable hospital and emergency department visits for individuals with medical complexity

Percentage of Residents Assessed and Appropriately Given the Pneumococcal Vaccine

Descriptive analysis

As shown in Table 11, the mean assessment and vaccination rates for pneumococcal vaccines in SFY 2023 were above 95 percent for both enrolled NSGOs (97.5 percent) and POs (96.0 percent, respectively). By contrast, means for NFs not enrolled were lower (91.4 and 90.4 percent).

Table 11. Percent of residents assessed and appropriately given pneumococcal vaccine (measure 415)

Nursing FacilityType	SFY 2023 Values for Pneumococcal Vaccines			
	N	Mean	Median	SD
NSGO Enrolled	735	97.5%	100.0%	7.8
PO Enrolled	202	96.0%	99.6%	9.1
NSGO Not Enrolled	3	--*	--*	--*
PO Not Enrolled	162	91.4%	98.7%	15.4
Unknown Not Enrolled	36	90.4%	97.8%	17.5

* The "NSGO Not Enrolled" category is omitted because of small sample size.

Visual trend analysis

Measure 415 was not a QIPP program metric until SFY 2020. Over the 2015-2023 period shown in Figure 5, enrolled NSGOs had the strongest upward trend in the percentage of residents assessed and appropriately given the pneumococcal vaccine. NSGOs started as the lowest ranking cohort in 2015 at 84.5 percent but had improved to become the highest ranked cohort by 2021 at almost 98.5 percent.[5] While the never-enrolled cohort had the highest vaccination rate in 2015, this cohort had the lowest rate by 2023. POs enrolled since 2018 showed cyclic behavior over the 2015-2013 period but trended upward in 2022 and 2023 to approach the rates achieved by the NSGOs enrolled since 2018.

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[5] It should be noted that this improved performance began well before the measure became a program metric.

Figure 5. Percentage of long-stay residents assessed and appropriately given the pneumococcal vaccine
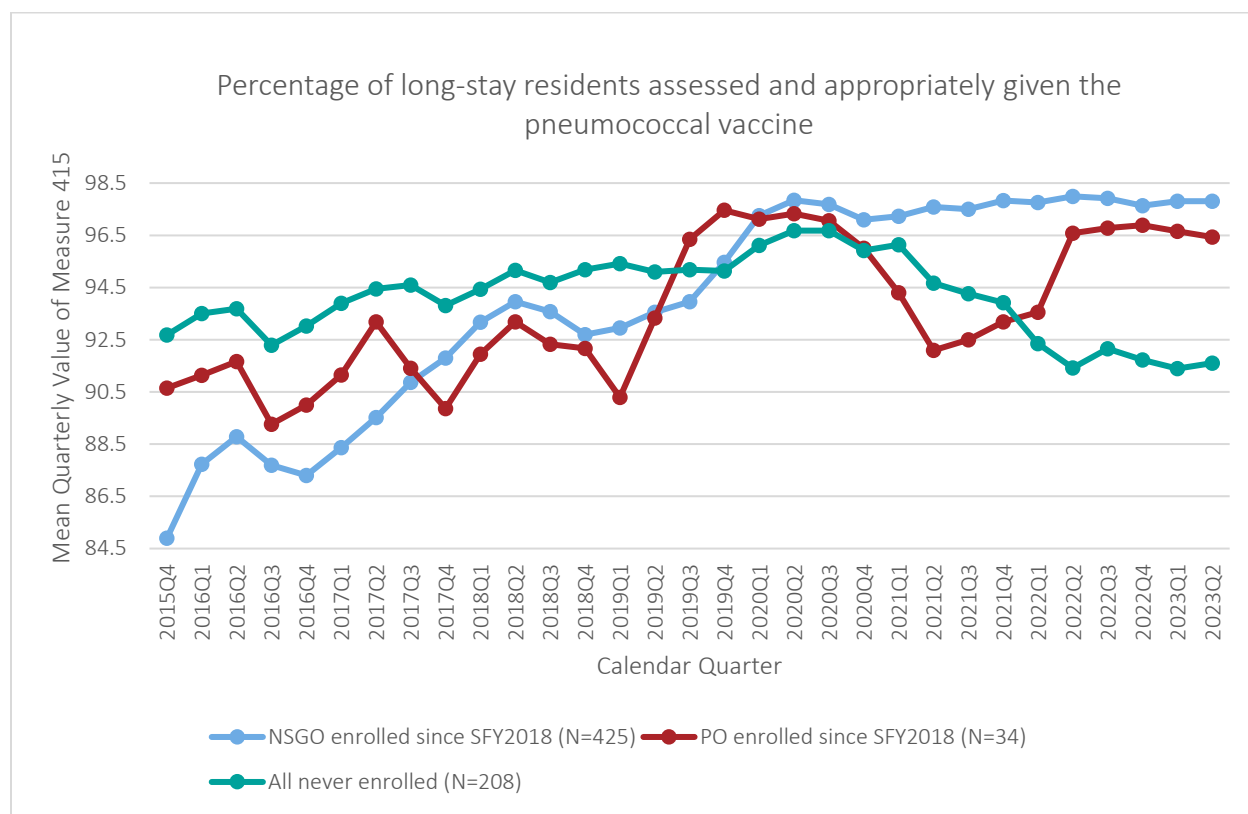
Percentage of Residents Assessed and Appropriately Given the Seasonal Influenza Vaccine

Descriptive analysis

Table 12 reveals that enrolled NSGOs in Year 6 had a mean rate of influenza vaccination of 98.0 percent while enrolled POs had a mean rate of 97.0 percent. Not-enrolled NFs had lower mean rates at 93.6-94.6 percent.

Table 12. Percent of residents assessed and appropriately given the seasonal influenza vaccine (measure 454)

Enrollment Status and Ownership Type	SFY 2023 Values			
	N	Mean	Median	SD
NSGO Enrolled	735	98.0%	99.4%	3.4
PO Enrolled	202	97.0%	98.8%	5.3
NSGO Not Enrolled	3	--*	--*	--*
PO Not Enrolled	166	93.6%	97.1%	8.2
Unknown Not Enrolled	36	94.6%	96.6%	7.8

* The "NSGO Not Enrolled" category is omitted because of small sample size

Visual trend analysis

The influenza vaccine measure shown in Figure 6 exhibits a yearly pattern where quarter-specific values change in the first calendar quarter of each year and remain the same until the following year. This suggests that the measure is calculated yearly rather than quarterly. NSGOs enrolled since SFY 2018 show a general upward trend starting at 95.5 percent in 2018 and increasing to almost 98.5 percent in 2023. POs enrolled since 2018 show less of trend, with mean rates ranging between 96.0 percent to 97.5 percent. Never-enrolled NFs exhibited uniformly lower means ranging from 93.0 percent to 96.0 percent.

Figure 6. Percentage of residents Assessed and Appropriately Given the Seasonal Influenza Vaccine
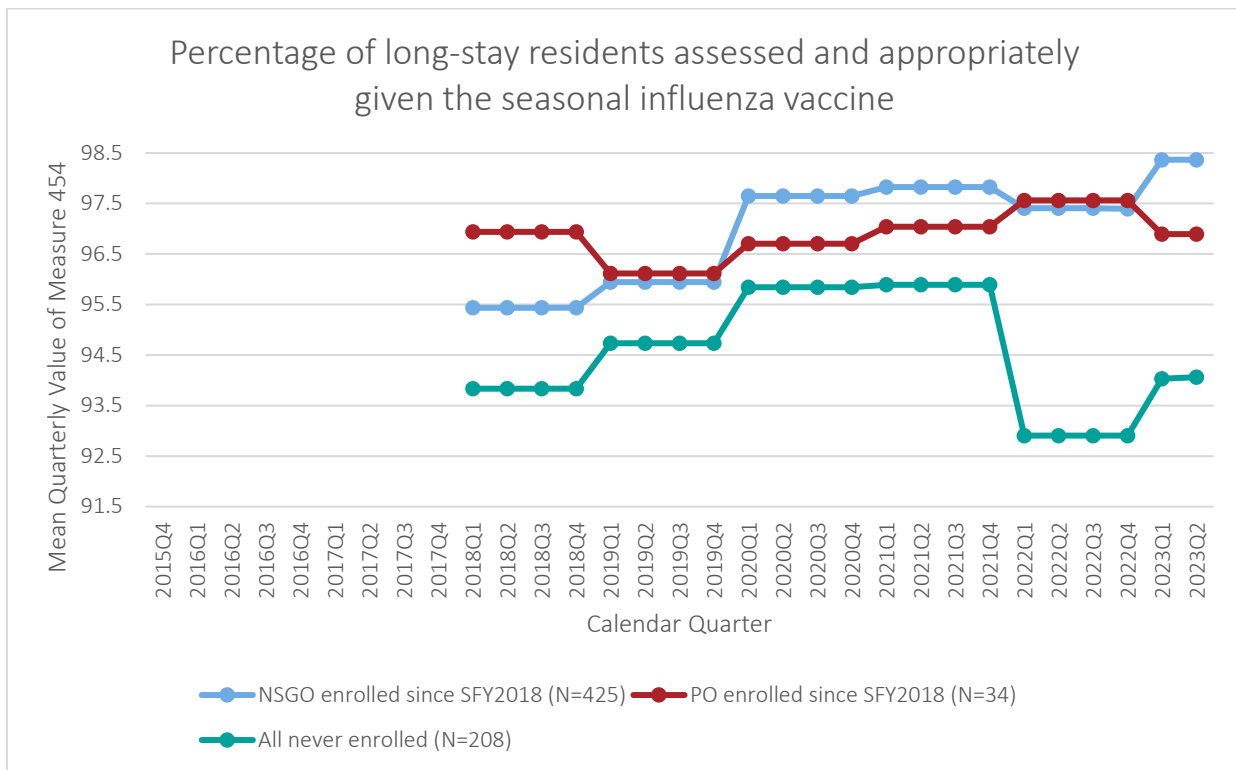
Regression analysis

Table 13 reports the NSGO regression coefficients showing the association between the QIPP outcome measures for EQ2 and the annual QIPP enrollment cohorts. The analyses included NSGOs with consistent enrollment patterns over time but excluded NSGOs that never participated in QIPP because of insufficient sample sizes.

The results suggest that there were generally no statistically significant differences in EQ2 measures n SFY 2023 between NSGOs enrolled in 2018 and NSGOs enrolled in subsequent years. The only exception was that NSGOs enrolled since 2022 showed statistically significant higher vaccination rates for both measures compared to the 2018 cohort.

Table 13. Regression Analysis by enrollment cohort for NSGOs (EQ2)

VARIABLES	% of residents Appropriately Given the Pneumococcal Vaccine (415)	% of residents Appropriately Given the Seasonal Influenza Vaccine (454)
Enrollment cohort		
NSGOs Enrolled since 2018 (reference group)	-	-
NSGOs Enrolled since 2019	-0.022	-0.468
	(0.019)	(0.560)
NSGOs Enrolled since 2020	-0.002	0.177
	(0.009)	(0.352)
NSGOs Enrolled since 2021	-0.005	0.266
	(0.011)	(0.408)
NSGOs Enrolled since 2022	0.017***	0.762**
	(0.004)	(0.340)
NSGOs Enrolled since 2023	-0.019	-0.908
	(0.018)	(0.581)
Constant	4.607***	98.890***
	(0.030)	(0.912)
Observations	2100	2101
Mean	97.54	98.03
SD	8.46	4.44

Robust standard errors in parentheses. Significance level legend: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.
All the multiple regressions in this table controlled not only QIPP enrollment cohort, but also for NF size (number of certified beds), utilization (average numbers of residents per day), staffing intensity (total nurse hours and physical therapy (PT) hours per resident per day), and geography (the service delivery area of the NF)).

Table 14 shows that PO enrollment in QIPP since 2018 was associated with better performance both in terms of the percentage of residents assessed and appropriately given the influenza vaccine (measure 415) and the seasonal influenza vaccine (measure 454) with respect to POs that never enrolled in QIPP. POs enrolled in QIPP since 2018 showed 0.06 and 3.98 higher percentage point scores, respectively, for measures 415 and 454 than POs that never enrolled in QIPP. Consistent with the results for NSGOs, POs enrolled since 2022 had higher rates for both vaccinations compared to those POs never enrolled in QIPP (+0.08 for the pneumococcal vaccine and +2.76 for the influenza vaccine).

Table 14. Regression analysis by enrollment cohort for POs (EQ2)

VARIABLES	% of residents Appropriately Given the Pneumococcal Vaccine (415)	% of residents Appropriately Given the Seasonal Influenza Vaccine (454)
Enrollment cohort		
Never Participate	-0.062***	-3.977***
	(0.022)	(1.116)
Enrolled since 2019	-0.006	0.433
	(0.019)	(1.141)
Enrolled since 2020	-0.027	-0.158
	(0.019)	(0.896)
Enrolled since 2021	-0.009	-1.753
	(0.032)	(1.655)
Enrolled since 2022	0.076***	2.758*
	(0.029)	(1.450)
Enrolled since 2023	0.026	-2.432
	(0.021)	(3.282)
Enrolled since 2018	reference group	reference group
Constant	-0.062***	-3.977***
	(0.022)	(1.116)
Number of observations	771	840
Mean	7.40	10.33
SD	5.31	7.92

Robust standard errors in parentheses. Significance level legend: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

All the multiple regressions in this table controlled for not only QIPP enrollment cohort, but also for NF size (number of certified beds), utilization (average numbers of residents per day), staffing intensity (total nurse hours and physical therapy (PT) hours per resident per day), and geography (the service delivery area of the nursing facility).

Evaluation Question 3. Does QIPP attract and retain high-performing Medicaid providers?

Hypothesis 3.1. QIPP will encourage providers to actively monitor patient outcomes and perspectives to address their needs and improve healthcare delivery

To evaluate HP 3.1, HHSC established the following metrics of success:

For NSGOs only:

- 3.1.1 Submission of a PIP on a Long-stay MDS Measure
- 3.1.3 Submission of documentation demonstrating evidence-based antibiotic stewardship elements and infection control practices
- 3.1.4 Evidence of completion of CMS and CDC's 'Nursing Home Infection Preventionist Training Course' by the Nursing Facility Administrator (NFA) and Regression analysis by enrollment cohort for POs (EQ2) the Director of Nursing (DON)

For all NF types:

- 3.1.2 Submission of a workforce development-focused PIP
- 3.1.5 Self-reported direct-care RN staffing hours as described in Table 1.

The source of data for these measures is information that NFs self-report and/or submit to HHSC and that HHSC provides to the EQRO.

Descriptive analysis: NFs that met EQ3 HP 3.1 targets

Table 15 below presents the number and percentage of NFs that met the criteria for incentive payment by quarter in SFY 2023, for each EQ3 HP 3.1 measure. The population includes all the component-eligible NFs that participated in QIPP in SFY 2023.

Table 155. Number and percentage of nursing facilities that met the criteria for incentive payment SFY 2023

Components	Ownership	Q1 N (%)	Q2 N (%)	Q3 N (%)	Q4 N (%)
Component One					
3.1.1 Holding QAPI and Submission of a PIP on a Long-stay MDS Measure	NSGO	707 (95.0%)	713 (95.8%)	719 (96.6%)	721 (96.9%)
Component Two					
3.1.2 Submission of a Workforce development focused PIP	NSGO	741 (99.6%)	740 (99.5%)	738 (99.2%)	737 (99.1%)
	PRIVATE	206 (99.5%)	206 (99.5%)	205 (99.0%)	203 (98.1%)
3.1.5 (8RN) Self-reported direct-care RN staffing hours as described in Table 1	NSGO	638 (85.8%)	639 (85.9%)	677 (91.0%)	686 (92.2%)
	PRIVATE	160 (77.3%)	163 (78.7%)	170 (82.1%)	168 (81.2%)
Component Four					
3.1.3 Submission of documentation demonstrating evidence-based antibiotic stewardship elements & infection control policies	NSGO	682 (91.7%)		697 (93.7%)	
3.1.4 Evidence of completion of CMS and CDC's 'Nursing Home Infection Preventionist Training Course' by Nursing Facility Administrator (NFA) and Director of Nursing (DON)	NSGO		604 (81.2%)		

Component Three is omitted from Table 14 because Component Three consists of the outcome measures that are the dependent variables in Table 15 and Table 16 and is not part of EQ3

Regression analysis (heterogeneity analysis)

Table 16 presents the regression analyses that examine the associations between full compliance with the QIPP performance measures, and the EQ1 evaluation outcome measures for NSGOs. The models detected several statistically significant associations between measure compliance and outcomes.

Perhaps the most striking result in Table 15 is that full compliance on all five EQ3 metrics was significantly associated with all four MDS outcomes. In particular, full compliance was associated with lower proportions of pressure ulcers, anti-psychotic medications, the worsening of movement, and UTIs among NF long-stay NSGO residents.

Table 166. Regression Results of the association between MDS Measures and Full Compliance with QIPP Criteria NSGOs

Regression Results for Each MDS Measure as a Function of Full Compliance with QIPP Criteria NSGOs				
Explanatory Variables	MSR 453 Pressure Ulcers	MSR 419 anti-psychotic meds	MSR 451 Independent. Movement Worsened	MSR 407 Urinary Tract infection
Intercept	10.357*** (0.828)	10.023*** (1.114)	15.088*** (1.237)	1.040** (0.410)
Compliant on all 5 EQ3 Metrics	-0.886*** (0.315)	-1.332*** (0.430)	-2.866*** (0.539)	-0.680*** (0.117)
Number of obs.	2012	2105	1992	2136
Mean outcome	6.23	8.45	11.39	0.89
SD	4.49	6.38	7.72	2.07

Robust standard errors in parentheses. Significance level legend: *** $p<0.01$, ** $p<0.05$, * $p<0.1$
All the multiple regressions in this table controlled not only for QIPP full compliance, but also for NF size (number of certified beds), utilization (average numbers of residents per day), staffing intensity (physical therapy (PT) hours per resident per day), and geography (the service delivery area of the nursing facility).

Table 17 shows that compliance with both EQ3 metrics for POs is significantly associated with three of the four metrics, with compliance associated with statistically significant fewer antipsychotic medications, reduced movement worsening, and fewer UTIs.

Table 17. Regression Results of the association between MDS Measures and Full Compliance with QIPP Criteria POs

Regression Results of the association between MDS Measures and Full Compliance with QIPP Criteria POs				
Explanatory Variables	MSR 453 Pressure Ulcers	MSR 419 anti-psychotic meds	MSR 451 Independent. Movement Worsened	MSR 407 Urinary Tract infection
Intercept	7.488*** (1.264)	17.822*** (3.438)	17.335*** (2.489)	1.441*** (0.438)
Met both EQ3 Metrics	-0.757 (0.595)	-3.280** (1.589)	-5.060*** (1.272)	-0.952*** (0.181)
Number of observations	531	559	524	584
Mean	6.65	9.76	12.28	0.99
SD	4.62	8.04	8.90	2.10

Robust standard errors in parentheses. Significance level legend: *** $p<0.01$, ** $p<0.05$, * $p<0.1$
All the multiple regressions in this table controlled not only for QIPP full compliance, but also for NF size (number of certified beds), utilization (average numbers of residents per day), staffing intensity (physical therapy (PT) hours per resident per day), and geography (the service delivery area of the nursing facility

Table 18 presents quarterly data on the number and percent of NSGOs that were compliant with zero through five questions for EQ3 (questions 311, 312, 313, 314, and 315) and the number and percent of POs that were compliant with zero through two questions for EQ3 (312 and 315). For NSGOs in Q1 of YR 6, 79.7 percent of NFs were compliant with all five questions and 4.30 percent of NFs were compliant with four out of five questions. By Q4, these had shifted to 64.8 percent compliance for all five questions and 27.8 percent compliance with four out of five questions. For POs in Q1, 77.3 percent were compliant with both relevant questions and 22.2 percent were compliant with one question. By Q4, 81.2 percent were compliant with both questions and 16.9 percent were compliant with one question.

Table 18. Number of NSGOs and POs that were compliant for questions 311, 312,313/14, 315, and 316 8RN

Number of NSGOs that were compliant (for questions 311, 312, 313/314, 315, and 316 8RN)								
	Q1		Q2		Q3		Q4	
	N	Percent	N	Percent	N	Percent	N	Percent
Compliant to 0 questions	3	0.4%	4	0.5%	6	0.8%	7	0.9%
Compliant to 1 question	2	0.3%	3	0.4%	0	0.0%	0	0.0%
Compliant to 2 questions	10	1.3%	30	4.0%	8	1.1%	18	2.4%
Compliant to 3 questions	104	14.0%	66	8.9%	45	6.1%	30	4.0%
Compliant to 4 questions	32	4.3%	107	14.4%	54	7.3%	207	27.8%
Compliant to 5 questions	593	79.7%	534	71.8%	631	84.8%	482	64.8%
Number of PO that were compliant								
	N	Percent	N	Percent	N	Percent	N	Percent
Compliant to 0 questions	1	0.5%	1	0.5%	2	1.0%	4	1.93
Compliant to 1 question	46	22.22	43	20.8%	35	16.9%	35	16.9%
Compliant to 2 questions	160	77.3%	163	78.7%	170	82.1%	168	81.2%