

MISSOURI QUALITY INITIATIVE FOR NURSING HOMES (MOQI)

IN BRIEF: THE MISSOURI QUALITY INITIATIVE FOR NURSING HOMES (MOQI) SINCLAIR SCHOOL OF NURSING, UNIVERSITY OF MISSOURI

On March 15, 2012, the US Department of Health and Human Services Centers for Medicare and Medicaid Services (CMS) Innovations and Medicare-Medicaid Coordination Office released a funding opportunity (FOA). The following organizations met to consider applying for this grant for Missouri: faculty from the Sinclair School of Nursing, School of Medicine, School of Social Work; Tiger Institute and Connect Missouri affiliates; the Quality Improvement Program for Missouri Nursing Homes (QIPMO); Primaris (the Quality Improvement Organization for Missouri); LeadingAge Missouri (a continuum of senior care provider organizations); Missouri Health Care Association; Missouri Health Connection (MHC, the State authorized Health Information Network); and industry representatives from technology and electronic health records.

The FOA, *Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents*, asked groups like ours to test an intervention for long-stay Medicare-Medicaid enrollees in our state to:

- Reduce the frequency of avoidable hospital admissions and readmissions;
- Improve resident health outcomes;
- Improve the process of transitioning between inpatient hospitals and nursing facilities; and
- Reduce overall healthcare spending without restricting access to care or choice of providers.

THE INTERVENTION HAD TO INCLUDE THESE KEY ACTIVITIES

Partner with staff in nursing facilities with good quality of care and survey history to implement preventive services and improve recognition, assessment, and management of conditions such as pneumonia, congestive heart failure, chronic obstructive pulmonary disease and asthma, urinary tract infections, dehydration, skin ulcers, falls, and other common causes of avoidable hospitalizations;

- Work in cooperation with existing providers, nursing facility staff, and families to implement best practices and improve the overall quality of nursing facility care, focusing on quality improvement activities that most directly relate to avoidable hospitalizations;
- Facilitate residents' transitions to and from inpatient hospitals and nursing facilities, including facilitating timely and complete exchange of health information among providers and providing support for residents, family members, and nursing facility staff to support successful discharge to the community as appropriate;
- Provide the information technology to support improved communication and coordination among hospital staff (including attending physicians), nursing facility staff, residents' primary care providers and other specialists, and pharmacies; and
- Coordinate and improve management and monitoring of prescription drugs to reduce risk of polypharmacy and adverse drug events for residents, including inappropriate prescribing of psychotropic drugs.

WHY MISSOURI? WHY ST. LOUIS?

Missouri, particularly the St. Louis area, was identified as a region of the country with the highest re-hospitalizations for key diagnoses and readmissions within 30 days of discharge for all medical or surgical conditions (**Figure 1**). Examining Missouri nursing home (NH) and hospitalization data from 2010, we identified NHs within the St. Louis area with good quality of care and survey history, with high hospitalization rates and that both admit/discharge to the high re-hospitalization hospitals in the St. Louis area. Sixteen NHs meeting these criteria were recruited for the project.

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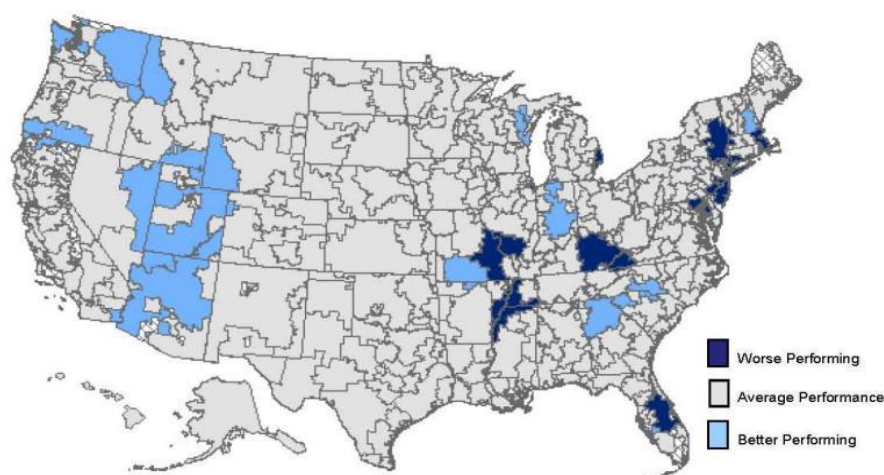


Figure 1. High Hospitalization Rates in Missouri, Especially in St. Louis area (2010 data).

MISSOURI QUALITY INITIATIVE (MOQI) PHASE 1 (OCTOBER 2012-2016)

\$14.8 Million grant awarded in 2012 from the CMS Innovations and Medicare-Medicaid Coordination Office to the Sinclair School of Nursing (Rantz, PI)

- Four-year research grant and at that time the largest in history for the University of Missouri
- Project aimed to reduce avoidable re-hospitalizations among NH home residents with the ultimate goal of producing a nationwide model of senior care
- Full time Advanced Practice Registered Nurses (APRNs) in sixteen (16) NHs to promote early interventions for residents with declining health conditions

Reduced potentially avoidable (PA) hospitalizations by 50% and all cause hospitalizations by 32%¹

Reduced Medicare expenditures for PA hospitalizations by 40.2% and all cause by 28.6%¹

If implemented throughout Missouri, potential \$53.9 million savings across the state² (pg.21)

SPECIFIC RESULTS MOQI PHASE 1 (2012-2016)

In the final report from RTI¹ for Phase 1 (2012-2016), fall 2017, for the 3 years of MOQI Intervention implementation there were *statistically significant results* across all outcome categories for the MOQI NHs using a comparison group selected by Research Triangle Institute (RTI) from across Missouri:

For hospitalizations per year (2014-2016) (Table 3-27)¹:

- 32% reduction in all-cause hospitalization,
- 49.9% reduction in potentially avoidable hospitalizations,
- 41.7% reduction in all-cause ED visits
- 56.0% reduction in potentially avoidable ED visits

For Medicare expenditures (2014–2016), per resident per year (Table 3-29)¹:

- \$1,241 reduction (6.3%) for total for all Medicare services
- \$1,153 reduction (28.6%) for all-cause hospitalizations
- \$514 reduction (40.2%) for potentially avoidable hospitalizations
- \$62 reduction (36.3%) spending for all-cause ED visits
- \$21 reduction (42.8%) for potentially avoidable ED visits

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MOQI Intervention Model. The MOQI intervention model (**Figure 2**) illustrates the multidisciplinary vision of transforming certified NHs with high hospitalization rates and populations of Medicare/Medicaid beneficiaries through the MOQI intervention into facilities with reduced rates of avoidable hospitalizations, improved health outcomes and transitions between hospitals and NHs, and reduced health care costs.³ The MOQI intervention model uses as its foundation evidence from INTERACT II processes and tools, QIPMO, advanced practice registered nurses (APRNs), focus on early recognition and management of health conditions, health information technology (HIT), end of life planning, quality improvement using feedback reports of outcome measures, and a multidisciplinary support team⁴ to accomplish the objectives of the Initiative.

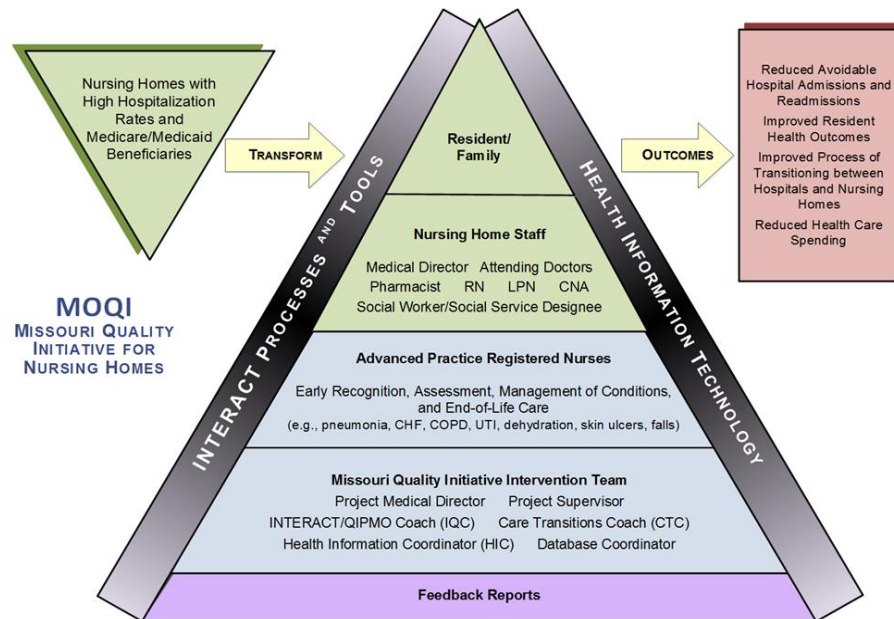


Figure 2. MOQI Intervention Model Phases 1 and 2 for the Group B Nursing Facilities

Missouri was one of Seven Sites in Phase 1. The *Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents* was funded by CMS Innovations and Medicare-Medicaid Coordination Office (<http://innovation.cms.gov/initiatives/rahnfr/>). Seven Initiatives in Phase 1:

- Alabama Quality Assurance Foundation – Alabama
- CHI/Alegent Creighton Health – Nebraska
- HealthInsight of Nevada – Nevada
- Indiana University – Indiana
- The Curators of the University of Missouri – Missouri
- The Greater New York Hospital Foundation, Inc. – New York City
- UPMC Community Provider Services - Pennsylvania

In the year 4 report comparing the results of the seven sites,⁵ **Figure 3** below illustrates that Missouri had the largest intervention effect of all the sites. ***The MOQI intervention was the most effective of the models tested in the CMS Initiative.***^{5, 6, 7}

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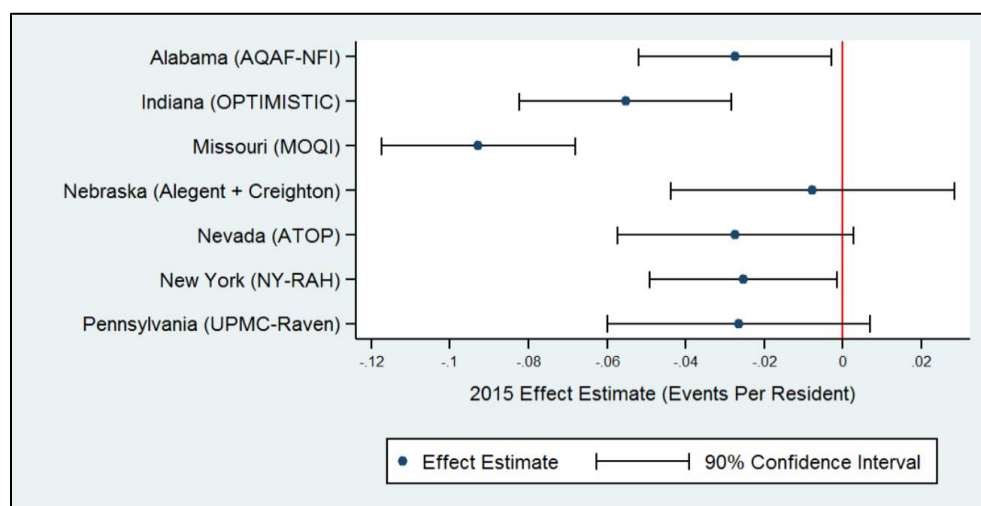


Figure 3. Effect of different state interventions on the count of all-cause hospitalizations, 2015⁵

WHY APRNs (ADVANCE PRACTICE REGISTERED NURSES) ARE EFFECTIVE IN NHs IN MOQI

- Major focus is not primary care, but improving illness recognition of all staff and improving care delivery systems to prevent dehydration, promote activity, nutrition, communication, and help residents, families, and staff agree on goals of care⁸
- Role model evidence-based care to NH staff for effective recognition, assessment, and communication about residents' change in condition to Primary Care Providers⁹
- APRNs support the use of INTERACT¹⁰ and quality improvement¹¹ to reduce unnecessary hospital transfers
- Promote medication review,¹² end-of-life planning,^{13, 14} communication, and HIT use^{15, 16}
- Supported by MOQI Multidisciplinary Team (HIT, QI, SW, Med Director) and feedback reports⁴

MISSOURI QUALITY INITIATIVE (MOQI) PHASE 2—PAYMENT REFORM (OCTOBER 2016-2020)

CMS selected six of the Phase 1 national sites, including Missouri, for Phase 2 to continue testing of the Phase 1 models and **testing a new payment model to encourage caring for acutely ill NH residents within the facilities.**

\$19.8 Million grant awarded in March 2016-October 2020 (Rantz, PI) from the U. S. Department of Health and Human Services **Centers for Medicare and Medicaid Services.**

Continuation of the **MOQI intervention with APRNs full time** in the **Phase 1 NHs (now designated in Phase 2 as Group B)** with addition of a payment intervention for treatment of acute conditions within the NH. Payment intervention had three parts:

- 1) Payments limited to six conditions (pneumonia, dehydration, congestive heart failure, urinary tract infection, skin ulcers or cellulitis, and chronic obstructive pulmonary disease or asthma),
- 2) Payment to practitioners (i.e., MD, NP, PA) to equalize the financial incentives that exist between treating beneficiaries in a NH vs hospital,
- 3) Incentive payment to increase practitioner engagement in care planning activities.

New Group A added with 24 NHs where the MOQI intervention was **not** implemented in order to evaluate the impact of the payment model only and to compare results with Group B.

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Phase 2 continued to be **aimed at reducing avoidable hospitalizations** among NH residents with the ultimate goal of producing a nationwide model of senior care

Group B (MOQI and Payment Intervention) had a *continuing trend* reducing hospital transfers while Group A did not.

Figure 4 below displays transfer rates during Phase 2 from October 2017-December 2019 for both Groups A and B; **no statistically significant changes for either group.**¹⁷ These dates provide 10 quarters for group comparison regarding transfers after full payment implementation was accomplished prior to the 2020 COVID pandemic.

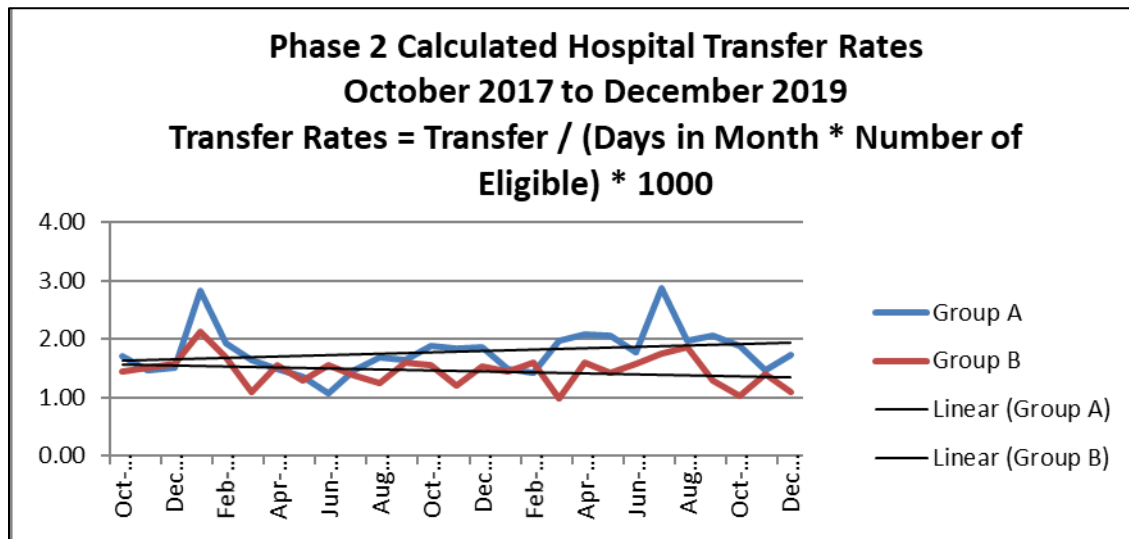


Figure 4. Calculated Hospital Transfer Rates, October 2017-December 2019

In a Group B (MOQI intervention with APRNs and support team) longitudinal analysis of six years of MOQI quarterly transfer data that crosses Phases 1 and 2 (2014-2019), the continuing decline in hospital transfer rates can be visualized (**Figure 5**).¹⁸

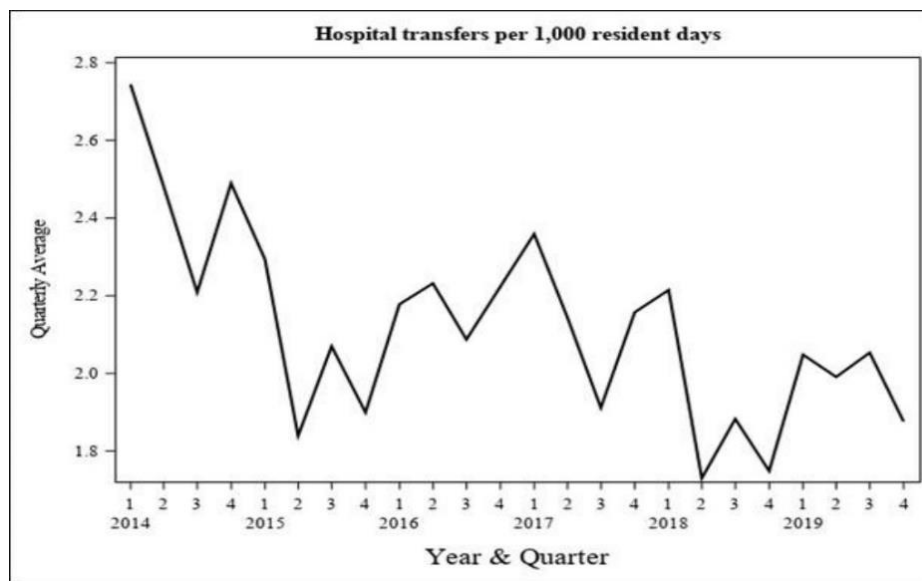


Figure 5. Hospital Transfers for Phases 1 and 2 (2014-2019) per Quarter per 1000 Resident Days, Group B

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The analysis conducted by Research Triangle Institute (RTI) for CMS found similar results using Medicare claims data. They compared Group B (Clinical + Payment), Group A (Payment Only), and the national comparison group selected by RTI (unknown to MOQI team). As Figure 6, from RTI,¹⁷ (pg. P-19) indicates, MOQI Group B continued the trend in reduction of hospitalizations from Phase 1 throughout Phase 2.

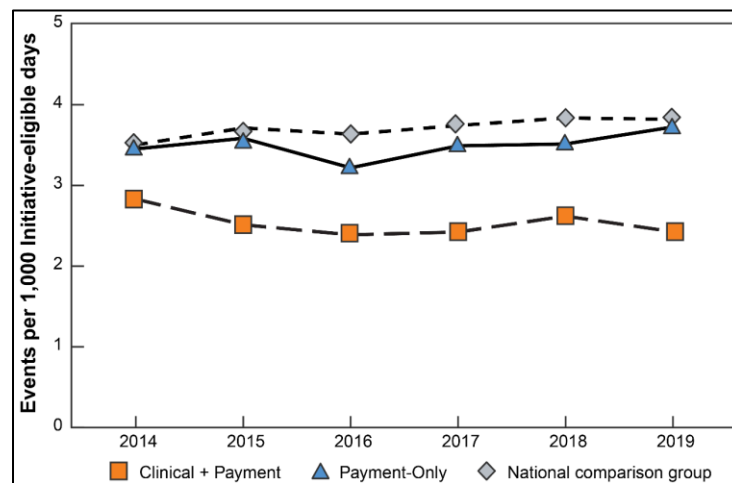


Figure 6. MOQI (Missouri): All-cause acute care transitions, FY 2014–FY 2019¹⁷ (pg. P-19)

Another view of Group B transfer rates, limited to Phase 2, (2016-2020) can be visualized in Figure 7. Rates declined from 2.35 in April 2016 to 1.98 in July 2020. This view is **helpful to discern what occurred as COVID impacted Missouri NHs.**¹⁹ Beginning in March of 2020, when COVID was detected in several of the MOQI NHs, nearly all Group B homes continued to reduce hospital transfers per 1000 resident days. Although not statistically significant reduction in transfers in Phase 2 compared to Phase I, **this continued reduction in hospital transfer rate is strong evidence of the sustained effectiveness of the APRNs,¹⁸ the MOQI support team,⁴ and MOQI methods operationalized within the MOQI intervention.**^{18, 20}

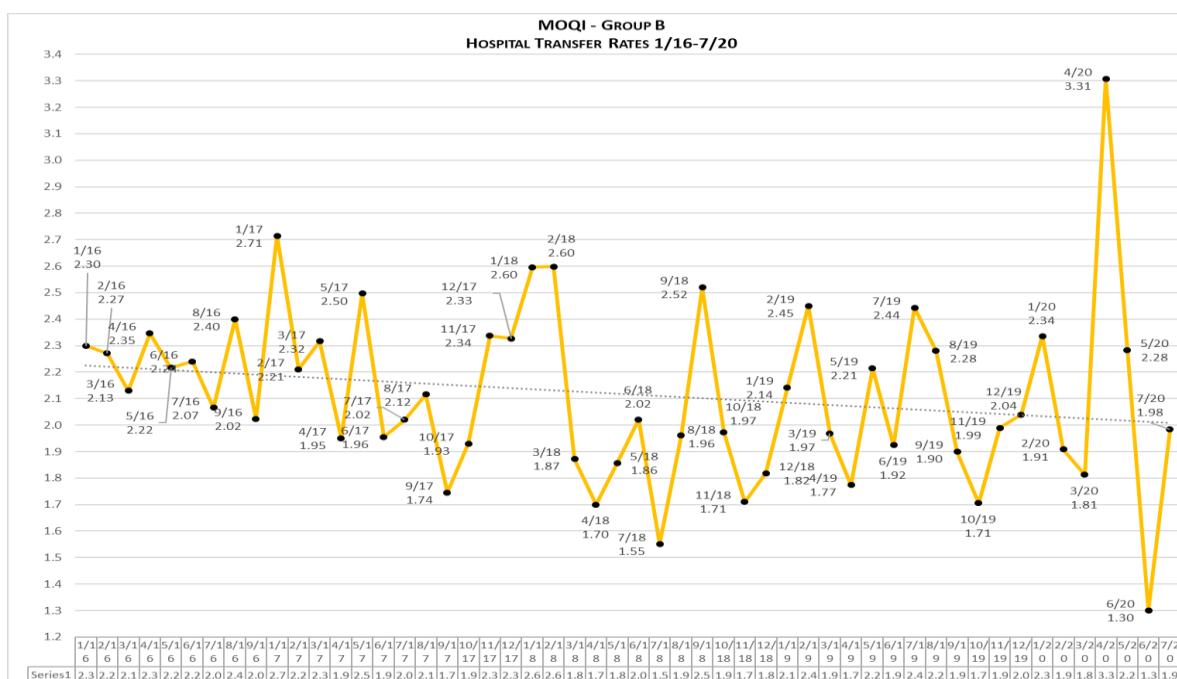


Figure 7. Primary MOQI Outcome: Group B hospital transfer rates per 1000 resident days, 2016-2020

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(**Figure 4 note:** The high spike in April 2020 is due to one NH home sending numerous residents to the hospital when a new administrator and DON became the leaders of that home at the same time when the home had a wide-spread COVID outbreak. With extensive assistance of the MOQI operations team to help them obtain personal protective equipment (PPE), the staff and APRN in the home were able to stabilize the situation by late May and June.)

Payment Reform—Payment Intervention of Phase 2 (2016-2020)

As can be seen in **Figure 8**, billing for the Payment Intervention started strong, then “stalled” after the **CMS letter of December 2017, that changed their non-recoupment policy in place when the Initiative began in 2016**. With fear of recoupment, most homes decided to stop or reduce billing for allowable payment to minimize financial risk. Figure 7 displays the start of the payment intervention, October 2016, through December 2019. As the COVID pandemic occurred in early 2020, billing declined further as NHs dealt with that overwhelming situation.

The payment support team and the MOQI operations team held educational sessions repeatedly, but to no avail, particularly the Group A homes could not be convinced. Leaders of the homes expressed frustration and comments about, “Bait and switch” were frequently heard. With the APRNs embedded into Group B NHs, they were able to work through the negative feelings of staff, keep them focused on submitting corrected information, and help them overcome some of the fears of recoupment.

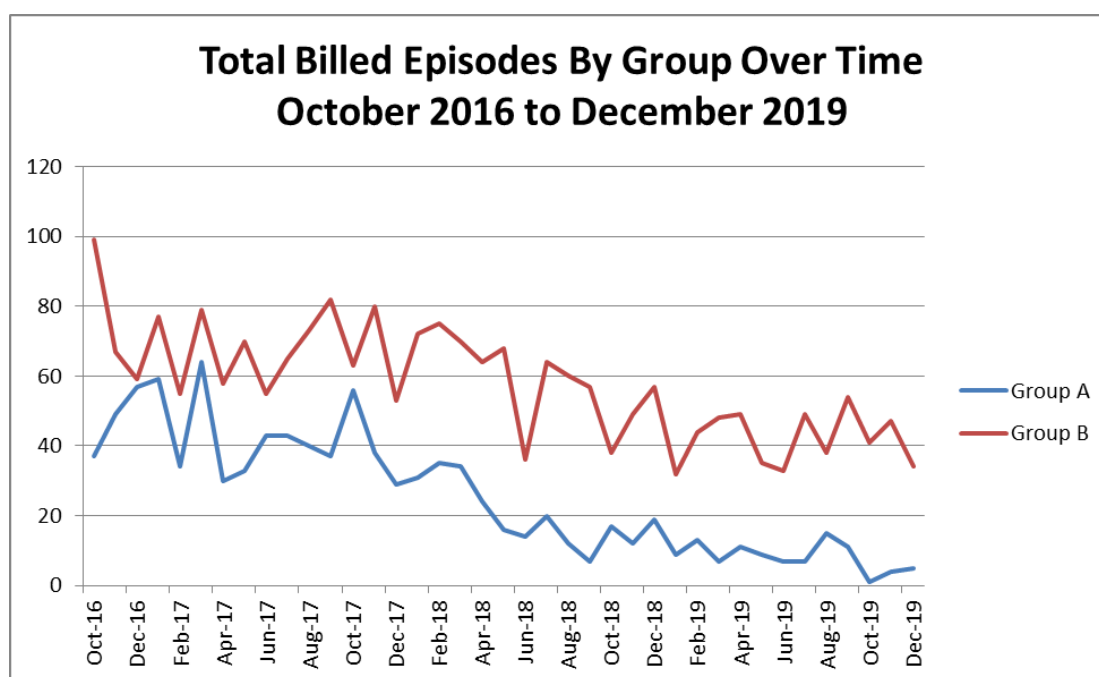


Figure 8. Total Billed Episodes by Group During Phase 2 (2016-2019)

The additional payments to providers (i.e., MD, NP, PA) to equalize financial incentives that exist between treating beneficiaries in a NH vs hospital were insufficient to increase provider visits to the NHs to confirm acute illnesses. Similarly, few practitioners used the incentive payment to increase practitioner engagement in care planning activities. Despite the MOQI medical director’s best efforts to engage practitioners, and the repeated efforts of MOQI payment support staff to engage them, too, efforts were consistently met with indifference and skepticism about the payment opportunities.

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The logistics of confirmation of the six billable acute conditions by the NHs also met with resistance. These confirmations needed to occur quickly, so that treatment could begin and billing for payment could proceed. Most of the providers in both Groups A and B were not interested in taking advantage of payment opportunities for themselves. Only in Group B were confirmations of the six conditions timely, because the embedded APRNs in Group B could complete these confirmations.

During the four years of Phase 2, total revenue received by NHs in Group A was \$1.37 million and for Group B was more than twice that amount \$3.07 million. Similarly, the average facility revenue per eligible was \$1,019 for Group A and more than twice that amount for Group B at \$2,821. The higher revenue for Group B was likely due to the engagement of the APRNs in early illness identification; they were permitted to do the confirmation for the billable illness. Few other providers in Group B homes did the required confirmations.

If payment for treating acute illnesses in the NHs is attempted in the future, it would be worthwhile to assure that APRNs are working in the NHs so a timely confirmation process can occur. Telehealth confirmations, regardless of urban or rural location as currently required, should also be considered. It will be necessary to couple telehealth with information technology (IT) support that most NHs do NOT have. The telehealth equipment will need to be simple, user friendly so that nursing staff find it easy to use and easy to connect to off-site providers.

There is revenue that every NH can “recapture” by reducing hospitalizations. This is revenue that is “lost” to the NH because they cannot charge Medicare, Medicaid, or some private insurances when a resident is hospitalized. Using commonly available financial data from 2014-2019 that most of the Group B NHs provided for analysis revealed ***annual lost revenue due to hospitalizations of both long stay and short stay NH residents is considerable. Participating Group B NHs each lost about \$500,000 each year per 200 beds, despite the considerable reduction in hospitalizations from working with MOQI.***²¹

CONCLUSIONS

The Phase 2 Payment Intervention did not have the intended effect in either Group. Hospitalizations nor costs were reduced as intended.¹⁷

Group B (16 NHs with APRNs and MOQI support team, Phase 1 and Phase 2 also with Payment Intervention). ***The MOQI Initiative was successful in sustaining improvements (reducing hospitalizations) gained in Phase 1 throughout Phase 2 in the participating 16 Group B NHs.***¹⁸ Embedding full time APRNs in NHs has clear advantages of improving quality¹¹ reducing avoidable hospitalizations by 55-60%^{1, 6, 7} and sustaining those reductions¹⁸ as measured throughout the duration of both Phases 1 and 2 of MOQI.

Additionally, in Group B, there were significant cost savings using the methods of MOQI. ***Although the 16 NHs had significantly reduced hospitalizations, there was additional revenue recapture opportunity due to reduced empty bed days valued at \$500,000 per year per 200 beds.***²⁰ The Payment Intervention of Phase 2 did not have an effect in Group B.¹⁷

Group A (24 NHs, Phase 2 Payment Intervention Only) For Phase 2, there were **no significant improvements in reducing hospitalizations in Group A**, the payment only intervention.¹⁷ However, much was learned about necessary efforts to sustain engagement in new payment opportunities for NHs and providers.

Group B NHs, with assistance of full-time APRNs, were able to do timely confirmation of acute changes in condition and provide treatment within the NHs, then bill for those additional treatments. However, the **additional payment did not further reduce hospitalizations** in Group B.²¹

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Without the MOQI intervention, despite much payment support team assistance and follow up, Group A homes were unable to bill as consistently as Group B. ***It is highly likely the changes made within the payment intervention while delivering the intervention after year 1 (recoupment and guideline changes) resulted in decline in billing for payment after strong initial performance. It is unknown if billing would have continued as strong in subsequent years, as it began in year 1, with an unchanged payment intervention.***

As the population of older people increases in the upcoming decades, good solutions are urgently needed to deal with the increasing costs of health care expenditures. The MOQI intervention tested and evaluated in these CMS Innovations Center grants for the *Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents* provides such an excellent solution. ***APRNs working with multidisciplinary support teams of social work, HIT, and INTERACT/QI coaches have the potential for large-scale implementation in NHs nationwide.***^{17, 21}

It is critical for older people living in NHs to have access to care provided by APRNs to help NH staff to implement and maintain systems of care delivery that can prevent avoidable changes in health status. When there are changes in health status, APRNs can help staff detect those quickly, get interventions in place to restore health, and help people be comfortable at end of life.^{7, 13} Analyses are clear: ***there are significant positive effects of APRNs on quality of care,¹¹ major cost savings to Medicare, and revenue recapture to NHs that implement the MOQI model.^{1, 5, 21} Federal regulations need minor adjustments to spread access to APRNs nationwide.²²*** It is time for all NHs to have full-time access to APRNs.

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Website: <https://nursinghomehelp.org/moqi-initiative/>

Excellent videos of the key clinical interventions on this site as well as all publications