Phase 1 Final Report

Section 1: Summary of the project (summary content from excerpts from "Initiative to Test a Multidisciplinary Model With Advanced Practice Nurses to Reduce Avoidable Hospitalizations Among Nursing Facility Residents," *J Nurs Care Qual.* 2014. Vol. 29, No. 1, pp. 1–8)

Overview/Goals: Faculty at the Sinclair School of Nursing at the University of Missouri, with its 20-year history of partnering with Missouri nursing homes to improve quality of care, have assembled an extraordinary team of organizations and interdisciplinary faculty to develop and implement the Missouri Quality Initiative for Nursing Homes (MOQI). This call to action was in response to the Centers for Medicare & Medicaid Services (CMS) funding opportunity announcement*: Initiative to Reduce Avoidable Hospitalizations Among Nursing Facility Residents*. The team includes the Quality Improvement Program for Missouri (QIPMO), Primaris (the Missouri Quality Improvement Organization), Leading-Age Missouri, Missouri Health Care Association, Missouri Hospital Association, Missouri Health Connection, Missouri Association of Long Term Care Physicians, Missouri Nurses Association, the Alzheimer's Association, and others. On the basis of research conducted at the University of Missouri in the 1990s,[1-3] QIPMO was designed and implemented to disseminate best practices and improve quality of care in nursing homes statewide. Dr Rantz at the Sinclair School of Nursing has directed the statewide program since its onset in 1999.[4] Currently, QIPMO comprises 4 nurses with graduate nursing education and gerontological nursing expertise and two nursing home administrators who provide expert consultation to nursing facilities across the state.

The development of the MOQI was based on the evidence base, expertise, and success of QIPMO and existing relationships with stakeholders, including nursing homes, hospitals, and others. MOQI was initiated early in 2013 as an intervention model that was developed and implemented over a 4-year evaluation period. While based on the success and lessons learned from the QIPMO, the new model offers some unique features that are described later in the MOQI intervention model. The goals of MOQI in Phase 1 were to (1) reduce the frequency of avoidable hospital admissions and readmissions by 35% or more, (2) improve nursing home residents' health outcomes, (3) improve the process of transitioning between inpatient hospitals and nursing facilities, and (4) reduce overall health care spending without restricting access to care or choice of providers.

Sample: Missouri, particularly the St Louis area, has been identified as a region of the country with the highest re-hospitalizations for key diagnoses of acute myocardial infarction, congestive heart failure, and pneumonia[5] and readmissions within 30 days of discharge for all medical or surgical conditions.[6] Examining Missouri nursing home and hospitalization data from 2010, nursing homes and hospitals were identified within the St Louis area that have some of the highest hospitalization rates in the state. A requirement was that the homes had to have evidence of good quality of care (from CMS publicly available survey and quality data) and be willing to engage in implementation of the MOQI intervention model. Also considered was that the nursing homes were transferring to and from the high readmission hospitals in the St Louis area. Sixteen facilities meeting these criteria were recruited with a total of more than 2500 residents. During the first 6 months of resident recruitment, more than 2000 residents who are Medicare/Medicaid beneficiaries agreed to participate in our MOQI intervention model and a total of 5173 participated through September 2016, the end of Phase 1. Inclusion criteria for residents require that residents are long stay—those who reside in a nursing facility for 100 days or more or are identified on the Minimum Data Set assessment as residents expected to remain in the facility, as defined by the

CMS. Exclusions include short stay because the focus of the evaluation is to affect the outcomes and costs of long-stay nursing home residents.

MOQI Intervention Model: The MOQI intervention model (Figure 1) illustrates the multidisciplinary vision of transforming certified nursing homes 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 nursing homes, and reduced health care costs. The MOQI intervention model uses as its basis evidence from INTERACT II processes and tools,[7] QIPMO,[2-4] advanced practice registered nurses (APRNs), and a multidisciplinary support team to accomplish the objectives of the initiative.

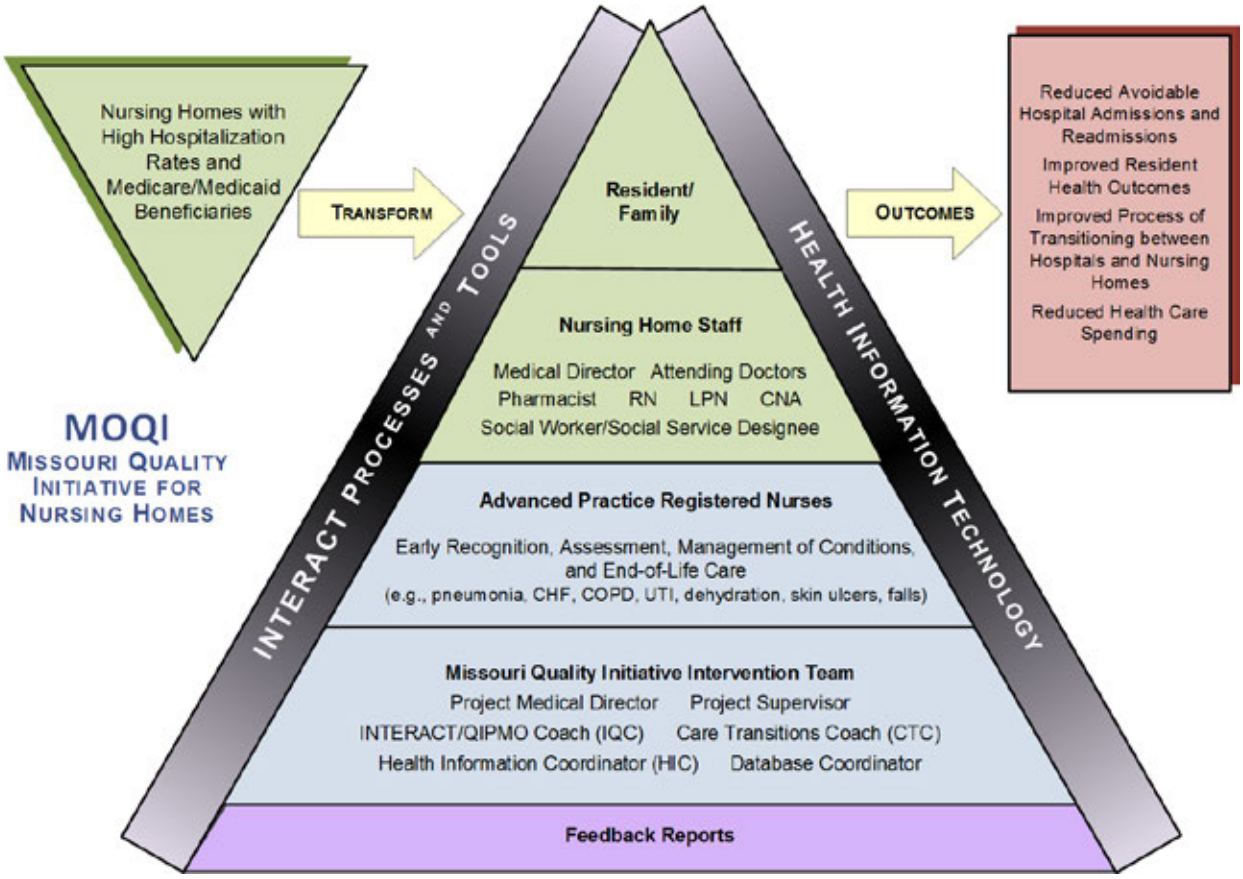

Figure 1 MOQI Intervention Model

As illustrated in the center of the Figure, participating nursing homes have the typical staff found in nursing homes nationwide. Two foundational levels were added to the current status of the facilities: APRNs working full-time within each home and an MOQI intervention team that supports each APRN and nursing home in the initiative. The MOQI intervention team is designed using lessons learned (clinical focus on the basics of care with the nursing staff by a nurse with graduate education in nursing and expertise in gerontological nursing) from the state's successful QIPMO team.[3,4] Added to QIPMO for the MOQI model are the project medical director, a licensed social work care transitions coach, a health information technology coordinator, and an RN INTERACT/QIPMO coach. The MOQI intervention model

is more intensive than the QIPMO, providing the multidisciplinary team that works closely with the APRNs (in Missouri, these nurses can be clinical nurse specialists or nurse practitioners) designated for each facility to support implementation of the intervention in each facility. More intensive coaching through the MOQI is designed to address the persistent problem of excessive health care costs related to unnecessary hospitalizations of nursing home residents. Also foundational to the model are feedback reports that are provided to the participating nursing facilities that display their hospital transfers each month to help the nursing home leadership, direct care staff, and APRN embedded full time in their facility to monitor their progress in reducing avoidable hospitalizations.

The left side of the triangle (Figure) illustrates the use of processes and tools from the validated INTERACT II program[7]; the INTERACT/QIPMO coach works with each facility's APRNs to educate all staff members about INTERACT II tools. This coach develops relationships with each facility's nursing staff and care delivery system to embed the processes of INTERACT II into their care delivery systems. The INTERACT/QIPMO coach works within each unique care delivery system and culture to facilitate implementation and sustainability of the MOQI initiative, taking into consideration uniqueness of delivery systems and staff communication patterns between and within systems.

The right side of the triangle illustrates the addition/enhancement of health information technology to accomplish the initiative goals. While nursing homes have collected resident assessment data since 1990 and transmitted it electronically since 1998,[8] most use electronic care planning and billing systems[9] and few use complete electronic health records.[10] For care transitions and management of older adults with complex problems to occur in the nursing homes, improvements in real-time electronic communication must be accomplished. This is a major focus of MOQI intervention in 2 ways: (1) the health information coordinator works directly with facility staff to improve communication workflow and the use of electronic communication, and (2) Missouri Health Connection, a federally designated Health Information Exchange service for Missouri, is supporting secure electronic communication among health care providers within and between health care agencies. This collaborative effort is electronically connecting hospitals and nursing homes in the initiative and is facilitated by the health information coordinator.

Proactive discussions about end-of-life decision making are essential in nursing homes and community-based care.[11] A key focus of the MOQI intervention is developing and implementing end-of-life decision-making and communication systems to honor residents' and family wishes. The social work care transitions coach, a key member of the MOQI intervention team in the foundation of the triangle (Figure), works with participating nursing homes so that he or she can develop working relationships with staff, residents, and families. The care transitions coach works closely with the staff of each nursing facility, such as the social worker/social service designee, primary care providers, nursing staff, and APRNs, to ensure that systems are in place for consistent communication of each resident's (or proxy's) decisions about advance care directives (including code status, hospitalization, and specific treatments such as antibiotics), while residing in the home and during care transitions.

The multidisciplinary support team of the MOQI model is designed to work with the APRNs to not only reduce hospitalizations but also improve hospital transitions, improve communication, and reduce polypharmacy. Specifically, the MOQI intervention team focuses on these processes at many levels. The care transitions coach builds relationships with hospital staff and nursing homes by implementing effective processes for transitions of care that occur when Medicare/Medicaid beneficiaries are

transferred between the facilities. The goal is that handoffs are smooth, with necessary information flowing accurately in both directions, which will be the primary focus of the health information technology coordinator. It is widely recognized that health information technology supports accurate information flow about health conditions and that *not* having systems in place may result in unnecessary health care procedures, medication errors, and other adverse events.[12] To improve accurate health information flow, the health information coordinator is focusing on medication reconciliation between agencies (nursing home, pharmacy, hospital, primary care). Similarly, the APRNs are working collaboratively with the project medical director and are role modeling review and assessment of residents' medication necessity to reduce both polypharmacy and the inappropriate prescribing of psychotropic medications with nursing staff. Additionally, about a year into Phase 1 we added a Data Support person to the team to provide needed support for accurate data collection on-site in each facility. This person also prepares the monthly feedback reports of the key outcomes of the project to the nursing home leadership staff and APRNs, particularly monitoring all hospital transfers, avoidable transfers, medication reviews, changes in condition, reasons for transfers and other key variables for the team and APRNs and nursing home staff to be informed of continued progress and changes in their resident populations. (**There are feedback reports for September 2016 in Appendix 1**)

The evidence base of the MOQI intervention model is grounded in research literature measuring the impact of APRNs in nursing homes to improve care and outcomes of older adults.[7,13-15] Major health care cost savings and reduced hospitalizations have been measured when APRNs work in nursing homes.14 This appears to be related to the expertise in clinical management of health conditions, early detection, and problem solving with nursing staff to provide the needed care to manage the conditions within the resident's "home" environment. Primary foundational evidence for the MOQI intervention model comes from process and outcome research about the QIPMO in Missouri.[2,3] Providing clinical consultation to nursing homes by nurses with graduate education in gerontological nursing has demonstrated improvements in resident outcomes and major cost savings.[4] For this initiative, we have enhanced the QIPMO model with the addition of a care transitions coach to focus on care transitions and coaching nursing home staff to enhance communication with families and residents. There is evidence for the effectiveness of interventions of social workers in long-term care to improve care decision making and resident and family satisfaction with care.[16-18]

Role of the APRN: A primary role of the APRN hired to work in each nursing home is to provide direct services to residents while mentoring, role modeling, and educating the nursing staff about early symptom/illness recognition, assessment, and management of health conditions commonly affecting nursing home residents. While the primary focus of the work is to provide services to dually eligible Medicare/Medicaid beneficiaries, it is anticipated that all residents living in the facility are benefiting from the work of APRNs, due to the diffusion of the intervention throughout each home. These APRNs are focusing on common reasons for rapid functional decline that also increase the risk of hospitalization, including pneumonia, congestive heart failure, chronic obstructive pulmonary disease and asthma, urinary tract infections, dehydration, skin ulcers, and falls.[5,19-21]

Early recognition, assessment, and management of residents' conditions, as well as developing positive, collaborative relationships with primary care providers of the residents in the facility, enable the APRNs to intervene early when changes in health status occur. Early intervention stabilizes conditions and makes sure approaches to care are in place so that the best management of conditions can occur within the long-term care setting, avoiding a hospitalization. Hospitalization, in many cases, may do more harm

with the trauma of relocation, as well as unintended consequences of skin, nutritional, and functional decline.[22-24] Faster recovery from acute changes is more likely if conditions are managed within the nursing facility proactively with early detection. Role modeling and education of nursing home staff have been creatively embraced by the APRNs. One APRN describes his success with focusing "drive-by" education on each nursing unit on priority topics that are determined by analyzing the INTERACT STOP and WATCH tools completed by the staff the prior weeks. On the basis of the clinical problems that the staff members are detecting, the APRN has focused discussions about subtle changes with early detection of congestive heart failure, urinary tract infection, or other frequent problem noted on the tools. This approach reinforces the assessment skills the staff members are developing and challenges them to learn and improve skills. Another APRN focuses her attention on developing staff awareness of clarifying advance directives during routine care conferences so that information is current and in line with each resident's health status and desire. Still another APRN spends key time with staff reviewing medications to improve clinical status and reduce the complications of polypharmacy. These approaches and successes are shared in monthly APRN meetings with their supervisor and support team so others can learn from successes or challenges that each person is facing in their specific nursing home.

Collaborations and Stakeholders: The MOQI initiative has a wide range of collaborators that include Primaris (the Missouri Quality Improvement Organization) and Missouri Health Connection. Both organizations have health information technology expertise relationships with health care providers in the state and specifically in the St Louis area. Other collaborators include Leading Age Missouri, Missouri Health Care Association, Missouri Hospital Association, Missouri Association of Long Term Care Physicians (Missouri Chapter of the American Medical Directors Association), Missouri Nurses Association, St Louis Alzheimer's Association, representatives from state certification and survey and Medicaid agencies, and residents' family members of participating nursing homes and the hospitals in the St Louis area that discharge/admit the nursing home residents from the facilities in the initiative. These collaborators are key members in the MOQI's active Stakeholder Advisory Board that meets quarterly to guide the initiative.

Sustainability of the MOQI intervention model is a central focus of this initiative. The value of APRNs in nursing homes is well documented, but adoption is not wide-spread across the country. Missouri has been a slow adopter due to the burdensome regulatory restrictions of the Missouri Nurse Practice Act. With this initiative and state efforts to revise, it is anticipated that regulations will change. It is the initiative's plan to develop a sustainable business model for APRNs hired for each facility to be able to bill for their services so that they can continue to provide care in the nursing homes after the grant ends. With 16 participating nursing facilities, it is anticipated that several different, sustainable business models will emerge. Differences are likely because nursing homes have highly individualized approaches to their businesses, and there is wide variation in corporate business practices that influence billing. By the end of the grant, it is intended that a plan will be in place to transition APRNs into fundable practice plans so that they can continue in their roles to enable the positive outcomes and cost savings to be sustained. It is our vision that other nursing homes in Missouri and other states will adopt a business model that works in their facility to fund APRNs to provide care and services for the nursing home residents, based on the measured success of the MOQI Initiative.

The MOQI intervention team and APRNs are working within existing relationships with health care providers and health plans of the residents' choice. The MOQI intervention does not require that

residents change providers or enroll in a health plan. Existing relationships between residents and health care providers are undisturbed.

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Section 2: Specific Goals and Objectives of Phase 1 (summary content from excerpts from Updated Narrative Proposal for CMS dated September 28, 2012; Sub projects aims and research questions updated September 4, 2013, by the MOQI operations team)

From the MOQI Narrative Proposal developed for CMS: Each of the three goals of the project – reducing avoidable hospitalizations, improving health outcomes and improving care transitions processes – will have its own unique process and outcome measures developed in conjunction with the MOQI team…

The MOQI team will prepare and distribute to the team and participating nursing facilities an overall project dashboard which provides an "at a glance" evaluation of each outcome and process measure.

Comparisons between homes within the project will help the MOQI team to identify the most successful interventions for replication/emphasis in other homes. Comparisons against other homes in the St. Louis area and statewide will help the project director and team determine if the project interventions are successfully changing behavior and processes as evidenced by improved outcomes. Our team will determine the comparisons for the state using publically available or other available statewide data sets.

From the MOQI Research Plan Team Initiated, September, 2013: (as our data base was finalized and all facilities had APRNs embedded full time);

MOQI Initiative Primary and Secondary Evaluations

Specific Aim	Method	Evaluation	Data Collection Activities and Timeline	Follow up needed
Primary				
Decrease avoidable hospitalizations, ER	APRN early illness recognition intervention; QI	Hospitalizations are reduced for all enrollees by 60%	1)Measure hospitalization rates, readmission rates,	Have baseline hospitalizations for each home,

visits, observation stays	analysis of each hospitalization; QI systems improvement with NF staff; feedback reports of progress	per year (as compared to baseline of 365 per 1000 residents per year) (updated narrative 10/12/12 page 51) Reduce the numbers of inappropriate family requests for hospitalization	emergency room visits and transfers resulting in observation stays using CMS required data collected 2)Monitor numbers of family requests for hospitalization (data element on tab in hosp. spreadsheet and INTERACT QI form) 3)Provide <u>feedback reports using data from data base</u> monthly and quarterly 3)Analyze and <u>summarize the QI hospitalization reports</u> from each home quarterly	but for complete facility, not just the long stay, so will have to develop new baselines from first 6 months of history in project, unless CFMC or RTI has a long stay baseline by each facility, mr follow up Jessica GRA input reports into N-5 for serial analysis (needs to be done) Marcia analyze
Establish sustainable INTERACT processes that use tools in each facility to facilitate NF staff detecting and managing changes in residents' condition within the NF	APRNs and IQC work with nursing home staff to integrate into care delivery systems; QI systems improvement with NF staff; family and resident (and NF staff) education about managing changes in condition within the NF	Track participation, deployment and utilization of INTERACT processes/tools Track nursing facility staff level of confidence in managing residents' changes in condition within the NF Conduct resident and family (and staff) education managing changes in condition within the NF; newsletter articles about this for NF newsletters; public news	1)Measure INTERACT use and diffusion in each nursing home <u>using Staff Survey</u> and staff confidence in managing changes in condition within the NF 2)Sample 2 units per month (6 surveys) per NF monthly <u>Analyze and summarize</u> the surveys from each home monthly and quarterly 2)<u>Staff attendance</u> in INTERACT training in each home <u>summarized</u> monthly and quarterly 3)Complete questions on BB about NF progress	Survey included in this document near the end includes 1-5 scale of confidence of the staff in managing conditions within NF IQC IQC/Marcia

		articles and press releases about managing changes in condition in the NF and avoiding hospital is better care	monthly 4)Provide change in condition feedback reports using data from data base monthly and quarterly 5)Prepare news briefs and press releases for NF use about MOQI and benefits of managing within the facility quarterly	Jessica MR organizing/and getting drafts MR with help from APRNs and MOQI ops team
Increase the numbers of Advanced Directives; increase the specificity of AD; reduce conflicting documentation of AD for participating residents	CTC provides staff, resident, family education about AD; CTC works with NF staff and APRNs to improve discussion process with residents and families; interdisciplinary team develops policies and procedures for facility's to adapt for QI process improvement	AD completion rates in NF are improved 15-20% each year (page 20 of updated narrative) Track AD rates and improvements in specificity and conflicting documentation News brief articles about ADs for NF newsletters; AD public news articles and press releases	1)Staff attendance in AD training in each home summarized monthly and quarterly 2)Analyze and summarize content of ADs in each NF during first 6 months then every 6 months thereafter 3)Provide advance directives feedback reports using data from data base monthly and quarterly 4)Complete questions on BB about NF progress monthly 5)Prepare news briefs and press releases for NF use about MOQI and benefits of managing within the facility quarterly	CTC/Colleen following up Julie Starr, doctoral student in July for baseline using spreadsheet from AD team; CTC/CT Lead thereafter Jessica CTC APRNs MOQI team
Increase the use of technology for the benefit of NF residents	Evaluate and implement software/components to be used in the technological solutions to communication problems among	Usage of HIT solutions, including CareMail will increase every six months in the NF by APRNs and NF staff.	1)Staff attendance in CareMail and other HIT training in each home summarized monthly and quarterly 2)Provide Care Mail usage for each NF	HIC

CAREMAIL AND DATA ABOUT USEAGE IS OF KEY INTEREST TO CMS ADDING TO QUARTERLY REPORTING TO CMS summaries from 1,2,3,4,5 in column 4	nursing homes, hospitals, health care providers, and other service providers in NFs; ensure integration and interoperability of all aspects of technology solutions. Train nursing home staff regarding use of technology and workflow; monitor usability of systems including efficiencies of clinical workflow, effectiveness of human computer interactions, and staff satisfaction with systems.	Improve accurate real time communication flow of health information between hospitals and NFs; Track # of connections per month using CARE mail, then clinical viewer; Track usability of HIT solutions implemented in NF and hospitals;	feedback reports using data base from MHC monthly and quarterly 3)Analyze and summarize the usability surveys from each home as conducted and quarterly 4)Summarize workflow improvements in each NF r/t technology on BB monthly and quarterly 5)Conduct and summarize workflow observations in facilities to observe HIT use and impact on communication within facility and with other care providers every 6 months	Greg following up MHC/HIT Lead HIC/HIT Lead Need BB question added for HIC HIC HIT Lead plan and oversee analysis/ HIC and MHC
Assure appropriate medication use in the NF residents	APRN and NF staff medication reviews with intent to reduce polypharmacy and optimum medication use to improve resident health status	Track medication reviews in each NF	1)Provide medication review feedback reports using data from data base monthly and quarterly	Jessica
Secondary				
Describe the impact of the MOQI Initiative on the QMs and NF costs each year of Initiative	Analysis of QMs and annual cost reports for the NF in Initiative	Track QMs and annual cost reports	Obtain the QMs for each NF quarterly from Primaris; obtain cost reports from Medicaid office; prepare data set for analysis; quarterly and annually	Jessica prepare data set; Greg Petroski analysis; MOQI leads and Marcia review analysis with Greg P remember Delmar's have many residents NOT in MDS datasets

Describe the role, transition, challenges, satisfiers, barriers, etc., of the APRNs in the MOQI Initiative.	Blackboard written descriptions to questions/topics and periodic focus groups (see below)*	Content analysis with trending of ideas, topics, insights	1)Weekly descriptions by APRNs of a success and a challenge in BB 2)Focus groups every 6 months 3)Answers to 3 key questions every 6 months in BB (see below)*	1)Amy and Lori monitor BB, provide examples for CMS reports 2)Marcia and other person conduct; Marcia analysis1,3)GRA enter data from BB into N-5 for on-going analysis;
Describe direct care staff perception of APRN role in their nursing home.	Paper/electronic copies of survey to direct care staff (see below)**	Summary of findings	1)confidential survey completed by NF direct care staff at 6 months post "go-live" and annually	1)doctoral student distributes, collects, enters data into data base, summarize
Describe the influence of hospital admission/discharge planning structure and processes on reducing the readmission rate of nursing home residents	Interviews/survey of hospital staff (see below)*** to collect qualitative and other descriptive data to compare with the literature about transition of care models	Content analysis	1)interviews with data transcription	GRA working with CTC and CT Lead

Sub-Evaluations—1) APRN Role and Intervention Progress; (using Blackboard narrative answers to questions posed to them by the MOQI team each month to monitor progress and management of situations that lead to hospitalizations and avoiding hospitalizations)
2) HIT Use, Workflow, Communication PHI; (observation of staff use, interviews of staff, and counts from the software)
3) Care Transitions, Hospital admission, discharge planning; (also using narrative notes in Blackboard of the APRNs and interviews of staff in nursing home)
4) Advance directive process and diffusion progress; (also using narrative notes in Blackboard of the APRNs and interviews of staff in nursing home)
5) INTERACT Use and Diffusion (developed instrument to measure use in interviewing a sample of staff, then developed rates for the use of STOP and Watch based on rates of changes in condition recorded in data collected each month)

Sample Feedback Reports: These are attached as Appendix 1. Nursing home leadership, APRNs, and MOQI team received them every month from data from our data base of data collected for CMS evaluation and some additional items our team collected in the data base. Early versions of feedback

reports were developed over several months by the MOQI team and made available to homes and APRNS in a Webinar in May 2014.

Section 3: Successes and Challenges (summary content from excerpts from "Reducing Avoidable Hospitalizations and Improving Quality in Nursing Homes With APRNs and Interdisciplinary Support Lessons Learned," *J Nurs Care Qual.* 2017. *33*(1), 5-9.)

Overall Success: The key components of the intervention include advanced practice registered nurses (APRNs) working full-time within each home with an interdisciplinary MOQI intervention team to support each APRN and nursing home in the initiative. Other key components include implementing INTERACT II (Interventions to Reduce Acute Care Transfers) processes and tools,[4] an emphasis on end-of-life care,[5] and health information technology (HIT).[6] Within the first 3 years of implementation, 2012-2015, MOQI experienced the most positive results of the 7 sites across the country participating in the CMS demonstration.[7,8] Specifically, MOQI resulted in statistically significant reductions in all key outcomes of the demonstration as analyzed and reported by an independent evaluation team.[7] After controlling for baseline differences, the 16 MOQI facilities achieved the following: (*a*) 40% reductions in all-cause hospitalizations ($P < .001$); (*b*) 57.7% reduction in avoidable hospitalizations ($P < .001$); (*c*) 54.1% reduction in all-cause emergency department (ED) visits ($P < .001$); and (*d*) 65.3% reduction in avoidable ED visits ($P < .001$). Medicare expenditures were significantly reduced in all categories for MOQI versus a comparison group that the evaluation team selected.[7] MOQI had significant reductions of the following: (*a*) 10.4% in total Medicare expenditures by −$2066 per resident ($P = .034$); (*b*) 33.6% reduction in spending on all-cause hospitalizations by −$1369 per resident ($P < .001$); (*c*) 45.2% reduction in avoidable hospitalizations by −$577 per resident ($P < .001$); (*d*) 50.2% reduction in all-cause ED visits by −$86 per resident ($P < .001$); and (*e*) 59.7% reduction in avoidable ED visits by −$29 per resident ($P < .001$). According to Ingber and colleagues,[8] the MOQI intervention was associated with "consistent and significant" reductions in outcome measures, as reductions were larger in 2015 than in 2014. These data support the substantial impact of MOQI and the value of adding a full-time APRN and an interdisciplinary support team to the facilities involved. Key findings of lessons learned from implementing the MOQI intervention are shared to help others as they consider strategies to reduce avoidable hospitalizations of long-stay nursing home residents.

APRN Full-time Presence: Each of the nursing facilities (n = 16; range in size = 120-321 beds) has an APRN who works full-time, and the largest facility has 2 working full-time. APRNs are fully integrated into the nursing facility. They work with the staff and residents each day, demonstrating advanced practice nursing skills, including assessment of resident status. They coach the staff to take action to better manage changes in health status, use quality improvement (QI) strategies to guide rebuilding care delivery systems to proactively address common health problems, and provide direct care using evidence-based practice. APRNs model good communication skills with residents, families, and staff, helping them decide on goals of care and decisions about planning for end of life.[9] There was a need to focus on improving the APRNs' comfort with communicating difficult information to all levels of the staff including nursing facility leadership. To address that need, an ongoing communication training program, *Crucial Conversations*,[10] is provided to APRNs and nursing facility leadership both to improve their capacity to effectively address difficult topics such as the need to redesign care systems to improve care, as well as encourage consistent use of positive communication with residents, families, staff, and leaders.

To learn more about role-modeling evidence-based care, the APRNs have periodic training using role-playing to help each other try out new approaches with peers and the MOQI support team before applying it to the staff in their nursing facility. APRNs primarily focus on geriatric clinical management of the residents. For there to be effective and long-lasting change, the APRNs had to emphasize changing ineffective or harmful care delivery systems by working with the staff to embed changes in their day-to-day care delivery. These care delivery systems include hydration, nutrition, mobility enhancement, fall prevention and management, continence maintenance and improvement, engagement with life, establishing clear goals of care with residents and families, and clarifying end-of-life decisions with residents, families, and staff. Not only were systems put in place for these important aspects of care but also the APRNs, along with leadership, hold the direct care staff accountable so that the care systems are consistently delivered as planned.

Another key component of MOQI is the consistent use of INTERACT II, particularly Stop and Watch and SBAR (Situation, Background, Assessment, recommendation).[11] Direct care staff, families, and other staff (eg, housekeeping) use Stop and Watch to report any resident changes to a nurse so that the nurse can assess the resident and start early treatment if needed. Using SBAR is key to prompt nurses to gather necessary information as they assess a resident with a change in health status. Systematically using SBAR markedly improves assessment, particularly for inexperienced nurses. Often, as an APRN is working with and coaching nurses as they use SBAR, the APRN can identify potential areas of weakness in physical assessment skills or clinical reasoning. These times provide teaching opportunities to improve the skills of staff nurses. We have found that consistent use of SBAR reduces unnecessary transfers to the ED and the hospital. INTERACT[4,11] also has useful lists of services that most nursing homes can tailor to their nursing facility and give as information to hospitals, families, and providers to clarify what services the nursing home can provide. This simple step has prevented some transfers simply because of lack of understanding about services available in the nursing facility. Also, this information helps families and other health care providers understand what diagnostic tests or clinician assessments can be done there. In most cases, care can be provided in the nursing facility so that the resident is best managed in his or her “home” rather than experiencing the stress of transfer to the unfamiliar staff and the hospital environment.

In addition, the presence and staff coaching of the APRN gives the physician a greater sense of confidence in the ability of the facility to care for the resident in place. When hospital transfers do occur, the APRN uses an INTERACT root-cause analysis (RCA) tool[12] to review each transfer and then share results of the review with the nursing facility clinical staff. By using the RCA for each transfer and tracking key data elements (such as why, when, and who decided the transfer should occur), trends can be identified and action plans developed to improve care systems to better manage patient conditions. APRNs routinely review each transfer and trend data with the leadership and direct care staff at monthly QI committee meetings. The MOQI intervention team also sends monthly summary feedback reports to each participating leader and APRN about their facility-specific transfer rates as well as key information about transfers identified from RCA tools. These initiative-wide and facility specific summary reports enable systematic problem-solving for nursing facilities to develop new approaches to the complex problem of reducing avoidable hospitalizations for long-stay nursing home residents.

MOQI Interdisciplinary Team: APRNs are supported by an MOQI intervention/support team that is designed to guide the intervention and assist the APRNs as they encounter challenges within their facility. The team is interdisciplinary, as the care in the nursing home is complex and provided by the

interdisciplinary staff. The team supervisor is an APRN prepared as a clinical nurse specialist and geriatric nurse practitioner. This nurse is responsible for hiring and coaching the 17 APRNs working in the 16 nursing facilities, conducting their orientation, coaching them on skill development for nursing home resident assessments, meeting monthly with the group to keep the intervention on track, and facilitating communication among the group so that they can learn from each other's experiences. Faculty members with the Sinclair School of Nursing and School of Social Work also provide evidence-based clinical guidance, education, and coaching for the APRNs as well as facility leadership. Other members of the MOQI support team include the MOQI medical director (physician with expertise in geriatrics and nursing home practices) who works part-time with the project and full-time in practice; a care transitions coach (MSW-prepared social worker with skills to facilitate end-of-life decision-making, QI activities around transitions, and psychosocial care); a nurse who is the INTERACT/QI coach (nurse with skills to facilitate use of INTERACT and QI); and an HIT coordinator (nurse with HIT skills) who focuses on improving secure health information exchange through technology.[5,13-15]

Challenges: We also believe there are changes to the Code of Federal Regulation (CFR 483.40) that are needed to improve patient access to care/and encourage the use of APRNs in nursing facilities nationwide. Currently, APRNs who are hired by nursing facilities cannot bill for required visits of Medicare beneficiaries (most residents of nursing facilities are Medicare beneficiaries), but APRNs not hired by nursing facilities may bill for these required visits. With a straightforward change that in either case billing could occur, nursing facilities could cover salary costs of APRNs, which would enable nationwide hiring of APRNs by nursing facilities to serve residents. There is precedent for this change, as currently nursing facility–employed physicians are authorized to conduct and bill for required visits for skilled and long-stay residents. Restricting visits by nursing facility–employed APRNs while allowing nursing facility–employed physicians is unnecessary regulation of an APRN's practice and unfairly restricts nursing facility residents from access to APRN care. There are many resident advantages to APRNs working full-time in nursing facilities. These include minimizing treatment delays: APRNs are able to directly observe residents promptly on admission and communicate concerns with the physician, often within the first day of admission. Timely treatment implementation is critical for cost-effective care, as is timely and accurate medication and treatment reconciliation.

In addition, APRNs' fulltime presence in the nursing facility facilitates role modeling and coaching of assessment and clinical problem-solving skills to nurses, which is critical for ongoing high-quality resident care. Details for recommended changes to Medicare regulations are available from the authors on request. It is time for the APRN full-time role to be embraced in nursing facilities nationwide. Outcomes, costs, unnecessary hospitalizations, and ultimately quality of care are improved. The MOQI Initiative has illuminated key strategies to guide nationwide implementation of APRNs working full-time in nursing facilities. We and many other leaders in long-term care are ready to assist with this change.

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Section 4: Phase I Elements Continuing into Phase II

In the final report from RTI, Nov 2017, for the 3 years of MOQI Intervention implementation there were ***statistically significant results*** across all outcome categories for the MOQI nursing homes, using a comparison group selected by 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

These results are similar to the preliminary results in the RTI preliminary final report in February 2017 that revealed within the first 3 years of implementation, 2012-2015, MOQI experienced the most positive results of the 7 sites across the country participating in the CMS demonstration.[2,3] Specifically, MOQI resulted in *statistically significant reductions in all key outcomes* of the demonstration as analyzed and reported by an independent evaluation team.[2] After controlling for baseline differences, the 16 MOQI facilities achieved the following in hospitalizations:
40% reductions in all-cause hospitalizations
57.7% reduction in avoidable hospitalizations
54.1% reduction in all cause ED visits
65.3% reduction in avoidable ED visits

Medicare expenditures were significantly reduced in all categories for MOQI versus a comparison group that the evaluation team selected.[2] MOQI had reductions in Medicare expenditures:
10.4% in total Medicare expenditures by −$2066 per resident
33.6% reduction in spending on all-cause hospitalizations by −$1369 per resident
45.2% reduction in avoidable hospitalizations by −$577 per resident
50.2% reduction in all-cause ED visits by −$86 per resident
59.7% reduction in avoidable ED visits by −$29 per resident

According to Ingber and colleagues,[3] the MOQI intervention was associated with "consistent and significant" reductions in outcome measures, as reductions were larger in 2015 than in 2014. These data support the substantial impact of MOQI and the value of adding a full-time APRN and an interdisciplinary support team to the facilities involved. These data from Phase 1 success support continuing key components of the MOQI Intervention during Phase 2.

In a separate analysis with a matched comparison group selected from the same counties as the MOQI intervention nursing homes by the MOQI research team, significant results were measured in the trajectory of QMs and a composite QM score.[4]

For the trajectory of QMs, six of the eight QMs (pressure ulcers, urinary tract infections, indwelling catheters, activities of daily living, weight loss, and antipsychotic medication use) for the MOQI homes had more improved trajectories than the comparison homes. Two did not (falls and restraints). All eight individual QM average differences were tested with nonparametric tests to examine for change in the desired direction between the two groups from baseline to 36 months. The activities of daily living QM was statistically significant (p=0.02) and the catheter QM (p=0.05) for the APRN intervention homes as compared to the comparison group; the others were not significantly different between groups.

The composite QM scores of the APRN intervention group were significantly better (p=0.025) than the comparison group. The repeated measures analysis identified statistically significant group by time interaction (p=0.012). Then group comparisons were made at each of the six month intervals and statistically significant differences were found at 24 months (p=0.042) and 36 months (p=0.002), and nearly significant at 30 months (p=0.11). These results clearly support the positive effect of APRNs on quality of care of nursing home residents using QMs as quality measures.[4]

The key components of the MOQI Intervention will be maintained during Phase 2

The MOQI intervention model is grounded in evidence from INTERACT II processes and tools, QIPMO, effectiveness and cost-effectiveness of advanced practice registered nurses (APRNs), and a

multidisciplinary support team for the nursing homes and APRNs to accomplish the objectives of the initiative.

Key components of the MOQI intervention include:

1. APRNs embedded on each nursing home, working full-time, focused on improving care delivery systems of care, early illness recognition, staff education/role modeling best evidence-based care, and communicating with primary care providers for early treatment and restorative/rehabilitation, clarifying goals of care and end of life care
2. MOQI intervention team that supports each APRN and nursing home that include,
    a. medical director, (evidence-based practice and best practice guidance, physician to physician communication to improve care within each nursing home)
    b. a licensed social work care transitions coach, (family communication, end of life care)
    c. a health information technology coordinator, (facilitate secure HIE communication across providers)
    d. an RN INTERACT/QIPMO coach,
    e. data support staff (help with data collection for outcomes and feedback reports to homes)
    f. an APRN Supervisor/Practice Coach.
3. The MOQI research team that guided the MOQI Intervention and now the billing intervention for Phase 2. (**Phase 2 Organizational Chart is Appendix 2**)
    a. Project Director and Project Coordinator, the HIT Lead, CTC Lead, Intervention/Practice Leads, Project Data Manager, Budget Specialist.
    b. Payment Support Lead, Payment Support Coordinator, and Payment Expert.

The multidisciplinary MOQI intervention team is designed to work with the APRNs to not only reduce hospitalizations but also improve hospital transitions, improve communication, and reduce polypharmacy. Systematic medication reviews are conducted at transition into the facility and every 3 months on all enrollees. The care transitions coach builds relationships with hospital staff and nursing homes by implementing effective processes for transitions of care that occur when Medicare/Medicaid beneficiaries are transferred between the facilities. The care transitions coach is a licensed social worker and helps residents, staff, and APRNs to clearly establish goals of care and clarifying end of life plans/decisions. The primary role of the health information coordinator is problem-solving electronic health information flow in both directions between the nursing home and hospital and primary care clinics.

Role of the APRN: A primary role of the APRN hired to work in each nursing home is to provide direct services to residents while mentoring, role modeling, and educating the nursing staff about early symptom/illness recognition, assessment, and management of health conditions commonly affecting nursing home residents. APRNs are focusing on common reasons for rapid functional decline that also increase the risk of hospitalization, including pneumonia, congestive heart failure, chronic obstructive pulmonary disease and asthma, urinary tract infections, dehydration, skin ulcers, and falls.

Early recognition, assessment, and management of residents' conditions, as well as developing positive, collaborative relationships with primary care providers of the residents in the facility, enable the APRNs to intervene early when changes in health status occur. Early intervention stabilizes conditions and makes sure approaches to care are in place so that the best management of conditions can occur within the long-term care setting, avoiding a hospitalization. Faster recovery from acute changes is more likely if conditions are managed within the nursing facility proactively with early detection.

Collaborations and Stakeholders: The MOQI initiative has a wide range of collaborators that include Primaris (the Missouri Quality Improvement Organization) and Missouri Health Connection. Both organizations have health information technology expertise relationships with health care providers in the state and specifically in the St Louis area. Other collaborators include Leading Age Missouri, Missouri Health Care Association, Missouri Hospital Association, Missouri Association of Long Term Care Physicians (Missouri Chapter of the American Medical Directors Association), Missouri Nurses Association, St Louis Alzheimer's Association, representatives from state certification and survey and Medicaid agencies, and residents' family members of participating nursing homes and the hospitals in the St Louis area that discharge/admit the nursing home residents from the facilities in the initiative. These collaborators are key members in the MOQI's active Stakeholder Advisory Board that meets quarterly to guide the initiative and continue involvement through Phase 2.

Game Plan for Implementation of MOQI Intervention in other States and Statewide throughout Missouri

What would that cost? Would it be affordable and could it reduce overall costs?

The MOQI research team that guided the MOQI Intervention in Phase 1 and now the billing intervention for Phase 2, has learned much since Phase 1 started in 2012. There are several things that have advanced in the past 5 years that would reduce the costs of the intervention and reduce the overhead of the intervention to make it even more effective and more cost-effective for Medicare. Our team has written many publications about the implementation process and results of effectiveness, we are preparing a "manual" for others to use as an implementation guide. This will be available in 2018.

In the meantime, **these are the Key Ideas**:

1. State-wide Coordination with a small implementation team to build the Stakeholder Collaboration to guide building of relationships throughout key organizations in the state and unique challenges. Responsibilities:
a. Build the Stakeholder Collaboration relationships,
b. Provide statewide education for feedback reports of acute care transfer data that would be doable by CMS **via current CASPER system or QMs that include all hospital transfers,**
c. Oversight and hiring of MOQI support teams to cover broad regions of the state (likely 1-4 per state will be needed),
d. Coordination of orientation and continuing education of the support teams, APRNs and nursing facility leadership.

2. Fund APRNs via Medicare billing as outlined in Nursing Outlook article[1]: Recommended changes to CFR §483.40 are ***bold and in italics*** as follows:

- CFR §483.40(c)(1) The resident must be seen by a physician ***or a nurse practitioner or clinical nurse specialist, including those employed by the facility***, at least every 30 days for the first 90 days after admission, and at least every 60 days thereafter.

- CFR §483.40(c)(3) ***At the option of the physician, required visits, other than the initial comprehensive visit in the SNF, may be conducted by the physician or a nurse practitioner or clinical nurse specialist, including those employed by the facility.***

- CFR §483.40(c)(4) At the option of the physician, required visits in SNFs after the initial visit may alternate between personal visits by the physician and visits by a nurse practitioner ***or*** clinical nurse specialist ***including those employed by the facility***, or physician assistant.
- CFR §483.40(f) At the option of the State, any required physician task in a NF (including tasks which the regulations specify must be performed personally by a physician, ***other than the initial comprehensive visit in the SNF***) may also be satisfied when performed by a nurse practitioner ***or*** clinical nurse specialist ***including those employed by the facility***, or physician assistant.

The recommended revisions would enable APRNs in SNFs and NFs, whether employed by the facility or not, to conduct required (other than the initial comprehensive visit in the SNF), and other visits, such as first or change in condition, (at the option of the physician), handle admissions, write admission orders, and write admission treatment orders. If APRNs employed by the LTC facility are present in the building on a full time basis, treatment delays can be minimized; they should be able to directly observe residents promptly upon admission and communicate with the physician, often within the first day of admission. Timely treatment implementation is crucial for cost-effective care, and timely medication and treatment reconciliation. Restricting visits by a LTC-employed APRN while allowing LTC-employed physicians is unnecessary regulation of an APRN's practice.

The goal of these recommended changes to CFR §483.40 is to authorize all APRNs, including those employed by the facility, the ability to conduct the same required visits within the SNF and NF as APRNs not employed by the facility. Because LTC-employed APRNs are more readily available to assess the resident, changes in these five areas can improve access to care, expedite treatment interventions, and improve outcomes, thus reducing cost of care for long stay nursing home residents. These changes can promote, encourage, and sustain the use of APRNs in nursing homes nationwide while improving care and reducing Medicare costs. In addition, these changes also offer physicians the flexibility to schedule his/her time to maximize their productivity.

CMS has existing safeguards in place to protect from exploitation or cost escalation which may potentially result from these revisions of CFR §483.40. The Federal False Claims Act, the Anti-Kickback Statute, and the Physician Self-Referral Law apply to all Medicare providers and are in place to prevent Medicare fraud (USDHSS, CMS, 2016a). In addition, CMS has the Recovery Audit Program in place to identify improper payments and collect on overpayments (USDHSS, CMS, 2016c). Once the changes in CFR §483.40 are in place, claims analysis and close monitoring of billing practices of LTC facilities are recommended to ensure proper billing procedures are in place. With the advent of value based medicine, cost escalation will be limited as it will only hurt the practitioner and the facility. Many commercial insurers now routinely employ APRNs to help manage both NF and SNF patients in a cost and quality controlled manner; some of these insurers use some the features that are similar to MOQI.

Because of the existing safeguards, the benefits of revising CFR §483.40, which increases resident access to care and expedites treatment interventions, far outweighs the risks of potential exploitation. It is expected that the prompt implementation of treatment interventions, especially in SNFs, will result in cost containment due to faster recovery and return to the community.

Budget Projections (based on Missouri budget numbers from 2016 used in the RTI final report and MOQI budget numbers for 2016 but NO SUBCONTRACTS. Subcontracts would NO LONGER be necessary to duplicate the project, as homes are implementing HIE at their own expense and the MOQI team)[1]

State-wide Coordination and Interdisciplinary Support Team (Project Director, Project Coordinator, the Project Data/Budget Coordinator) 3 FTE
Est cost: $400,000 (salary and benefits) + travel, other expenses = $500,000

MOQI support teams to cover broad regions of the state (likely 1-4 per state will be needed),
.3 FTE—medical director, (evidence-based practice and best practice guidance, physician to physician communication to improve care within each nursing home)
1 FTE—licensed social work care transitions coach, (family communication, end of life care)
1-FTE—health information technology coordinator, (facilitate secure HIE across providers)
1 FTE—RN INTERACT/QIPMO coach,
1 FTE—APRN Supervisor/Practice Coach.
Est cost per team: $550,000 (salary and benefits) + travel, other expenses = $700,000
If used 3 teams in Missouri (East, West, South) = $2,100,000

APRNs for each nursing home. At this time, recertification visits are being currently billed by someone, if a facility employed APRN could also bill for this function (as facility employed physicians currently can), the costs would be 15% less, if the current rate of 85% for APRNs as compared to physicians, continues. Those functions will not increase costs to Medicare, but shift to APRNs, better utilizing the short supply of primary care physicians.

APRNs could also bill for the visits they currently can bill in states with full practice licensure. In states requiring collaborative practice, they could bill for the changes in condition and other primary care visits as they currently can (except as employees of the nursing homes, as the regulations discussed above need to be changed).

The MOQI research team had originally proposed to test transitioning the APRNs to a private practice model by the end of Phase 1, but were unable to negotiate that change in our contract with CMS. We could propose to do that at some point in Phase 2 to test these ideas and get some exact costs of changing the regulations so APRNs could be in private practice and employed by nursing homes. We have detailed this private practice model in an article (Rantz, M.J., Birtley, N.M., Flesner, M., Crecelius, C., Murray, C. (2017). Call to Action: APRNs in US Nursing Homes to Improve Care and Reduce Costs. *Nursing Outlook*.)[5]

Using the model described in the article, nursing homes could employ an APRN, have the nurse provide quality improvement consultation and direct care to residents and pay a portion of their salary, as they do a medical director, or other service provider. The balance of the salary would be billed for direct services for residents. These direct service costs are already being billed to Medicare by other providers or result in hospital transfers because providers are unable to respond in a timely way on-site or unable to have the time to do so. For small facilities, an APRN could provide services to 2 facilities for them to share the costs and benefit from the APRN services for their resident.

One cost estimate would be to price the cost of APRNs at 25% the salary in MOQI (this was our original target in our first proposal submitted to CMS, based on projections of case load billing in 2012), the balance would be Medicare billing. This is a very doable percentage for facilities to pay, according to our discussion with facility administrators about potential benefits to the facilities for participation in ACO contracts and competitive edge. It is also possible that APRNs may be able to generate revenue in other ways to cover their complete salary costs, for purposes of this projection, the conservative approach of facilities covering 25% is used.

Statewide Program Cost Projection

For Missouri, there are 500 nursing homes participating in Medicare and Medicaid.
Est cost per nursing home: $130,000 (salary and benefits) + travel, other expenses = $160,000
If homes paid 25%, Medicare billing covered 75% (***at no additional cost to Medicare***, recall there is current billing for these services by non-facility based APRNs and facility-based physicians), remaining costs would be $32,500 per facility.
500 facilities X $32,500 = $16,250,000 for all the nursing homes in the state of Missouri annually.
55,176 licensed beds in these 500 facilities and 39,239 census in Nov, 2017

$1,376 reduction (7.1%) for total for all Medicare services per person (RTI final report Table 3-30, 2016, Missouri)[3]
$1,376 x 39,239 = $53,992,864 potential cost savings from reducing hospital transfers

Program Costs:
$16,250,000 (APRN costs not funded by Medicare billing that is already being paid + $2,600,000 (for the support team, on page 20) = $18,850,000 with net savings of ($35,142,864) a 65% net cost savings

The cost to the facilities could be absorbed in their facility staffing costs so Medicare would not reimburse them for the 25% salary. Or, the facilities' cost for the 25% APRN salary could be reimbursed in the Medicaid formula or Medicare billing to the facilities. It is feasible, affordable, and cost-saving to expand the MOQI Intervention throughout the state of Missouri and other states. Minor changes in Medicare regulations are long overdue and necessary to improve access to APRN care in Missouri and nationwide.

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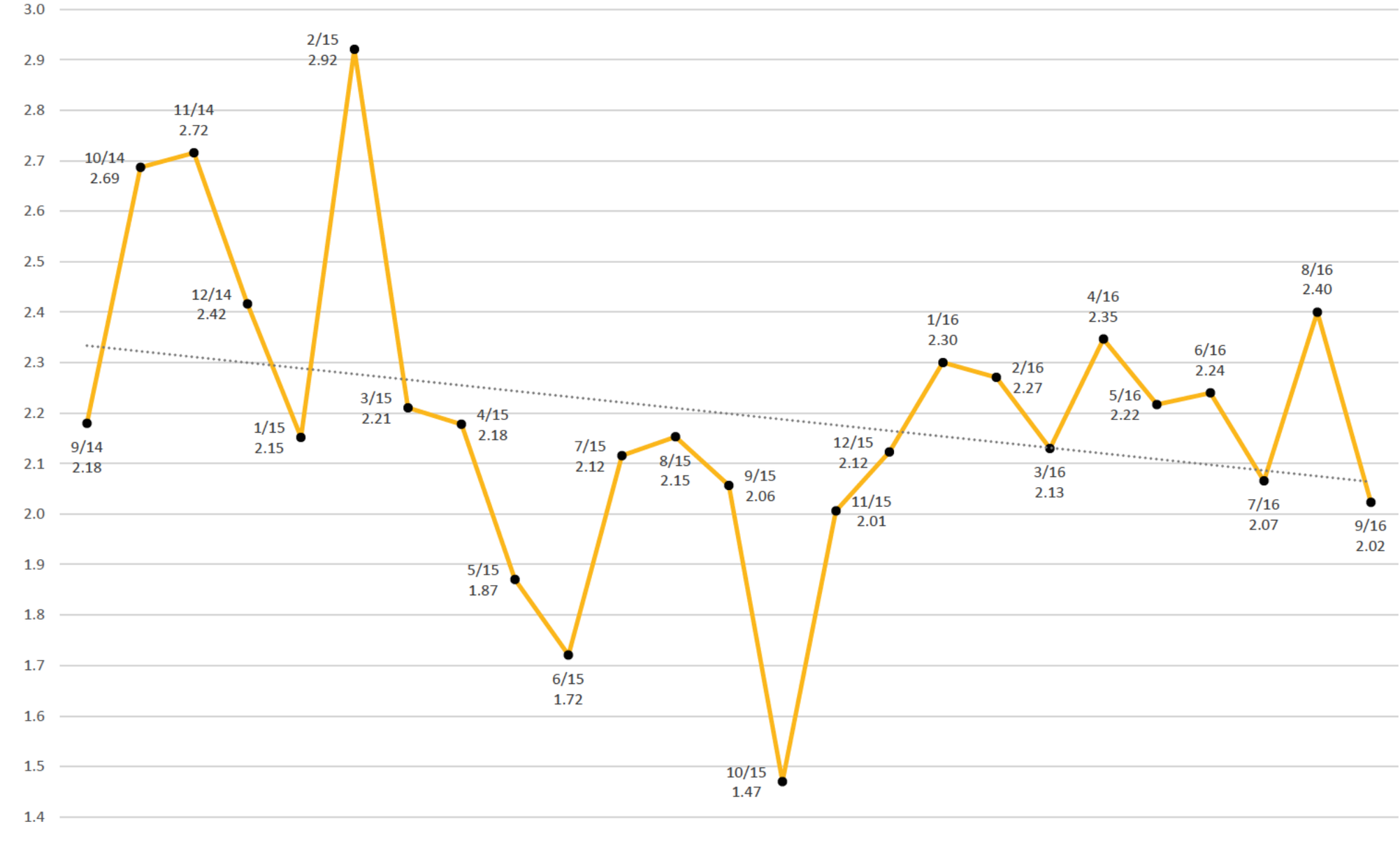
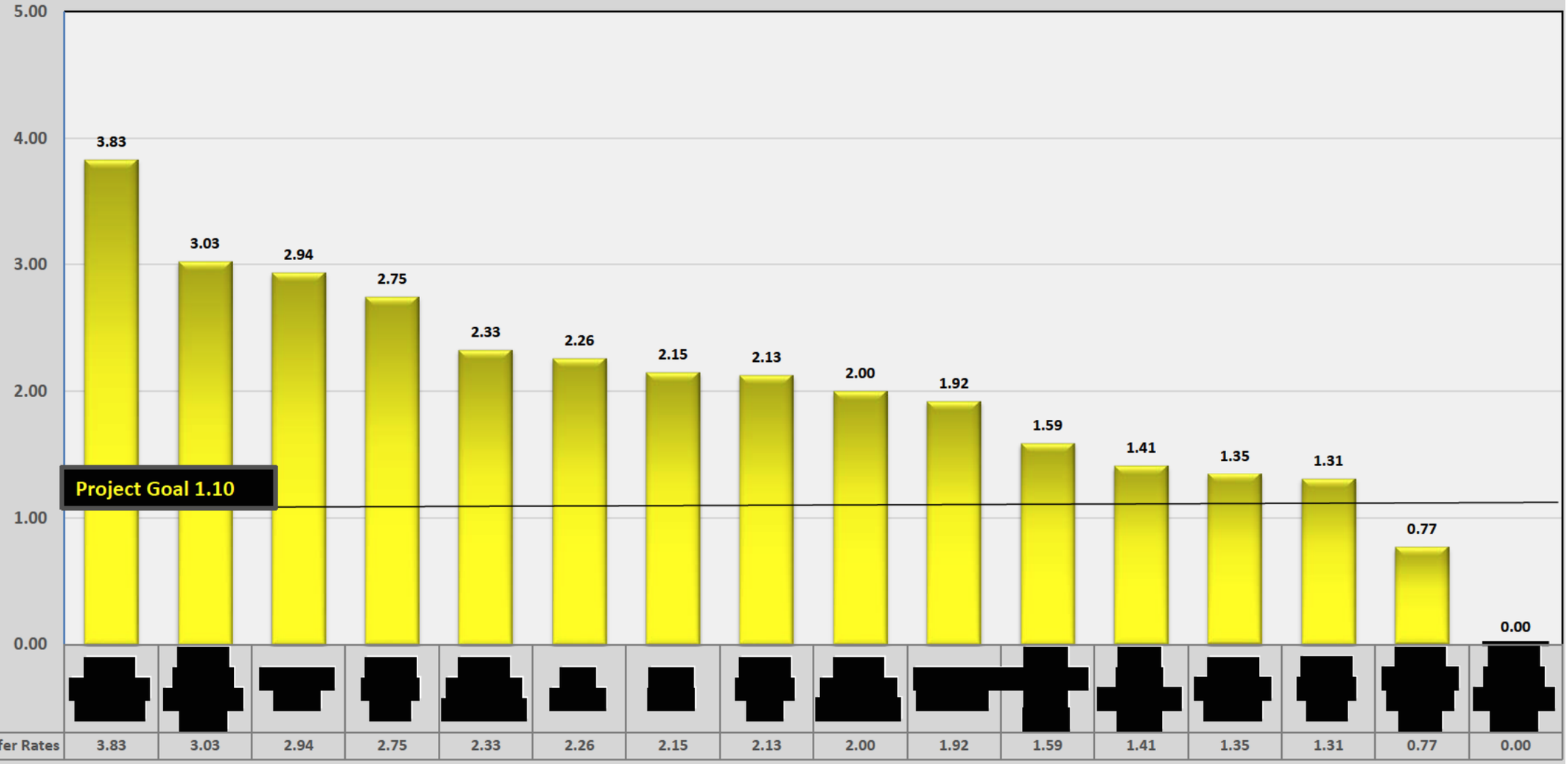
Appendix 1 Feedback Reports September 2016 and Phase 2 Organizational Chart is Appendix 2

Hospital Transfer Rates 9/14-9/16



	9/14	10/14	11/14	12/14	1/15	2/15	3/15	4/15	5/15	6/15	7/15	8/15	9/15	10/15	11/15	12/15	1/16	2/16	3/16	4/16	5/16	6/16	7/16	8/16	9/16
Tx Rate	2.18	2.69	2.72	2.42	2.15	2.92	2.21	2.18	1.87	1.72	2.12	2.15	2.06	1.47	2.01	2.12	2.30	2.27	2.13	2.35	2.22	2.24	2.07	2.40	2.02

Total Hospital Transfer Rates by Home - September 2016

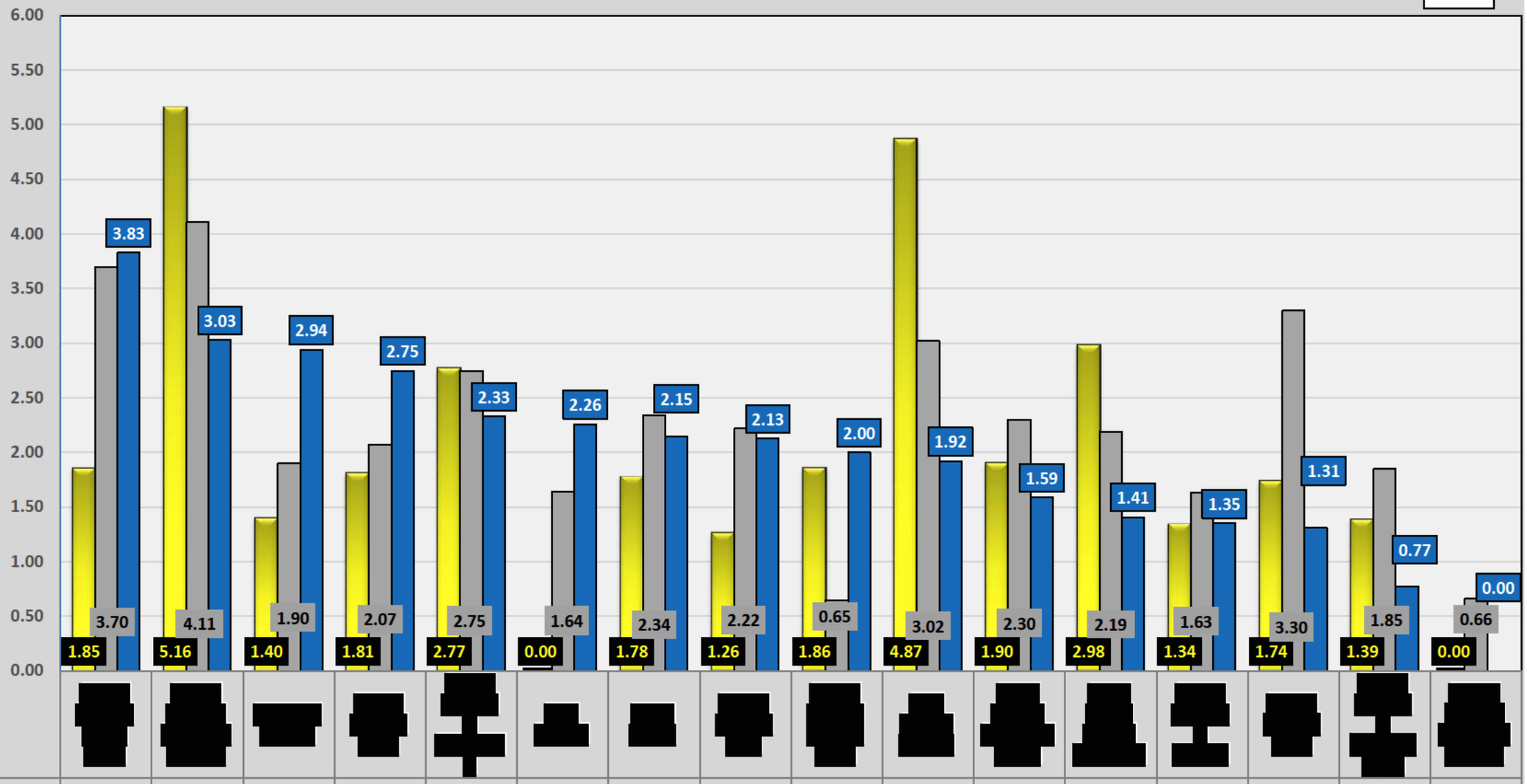


September Hospital Transfer Rates	3.83	3.03	2.94	2.75	2.33	2.26	2.15	2.13	2.00	1.92	1.59	1.41	1.35	1.31	0.77	0.00

2013-2014 Data

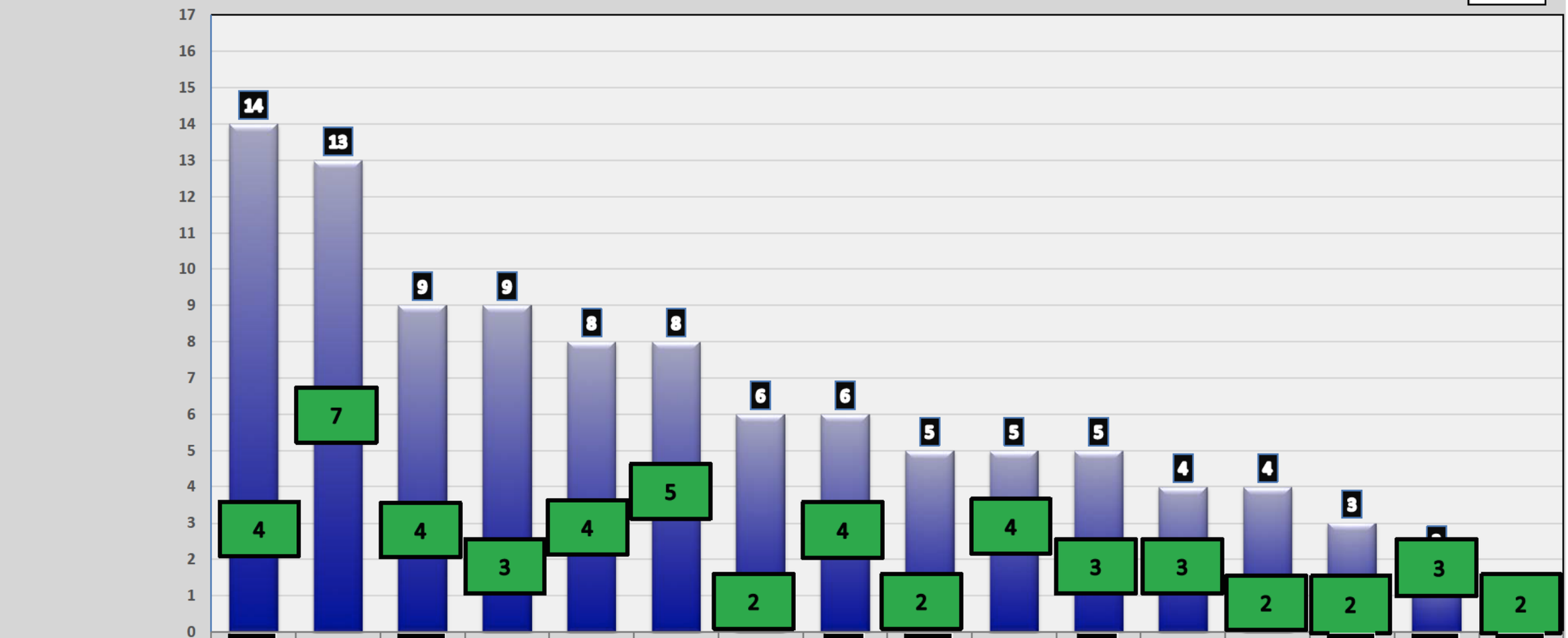
10/11/2016

Total Hospital Transfer Rates by Home - June 2016 - August 2016



July Hospital Transfer Rates	1.85	5.16	1.40	1.81	2.77	0.00	1.78	1.26	1.86	4.87	1.90	2.98	1.34	1.74	1.39	0.00
August Hospital Transfer Rates	3.70	4.11	1.90	2.07	2.75	1.64	2.34	2.22	0.65	3.02	2.30	2.19	1.63	3.30	1.85	0.66
September Hospital Transfer Rates	3.83	3.03	2.94	2.75	2.33	2.26	2.15	2.13	2.00	1.92	1.59	1.41	1.35	1.31	0.77	0.00

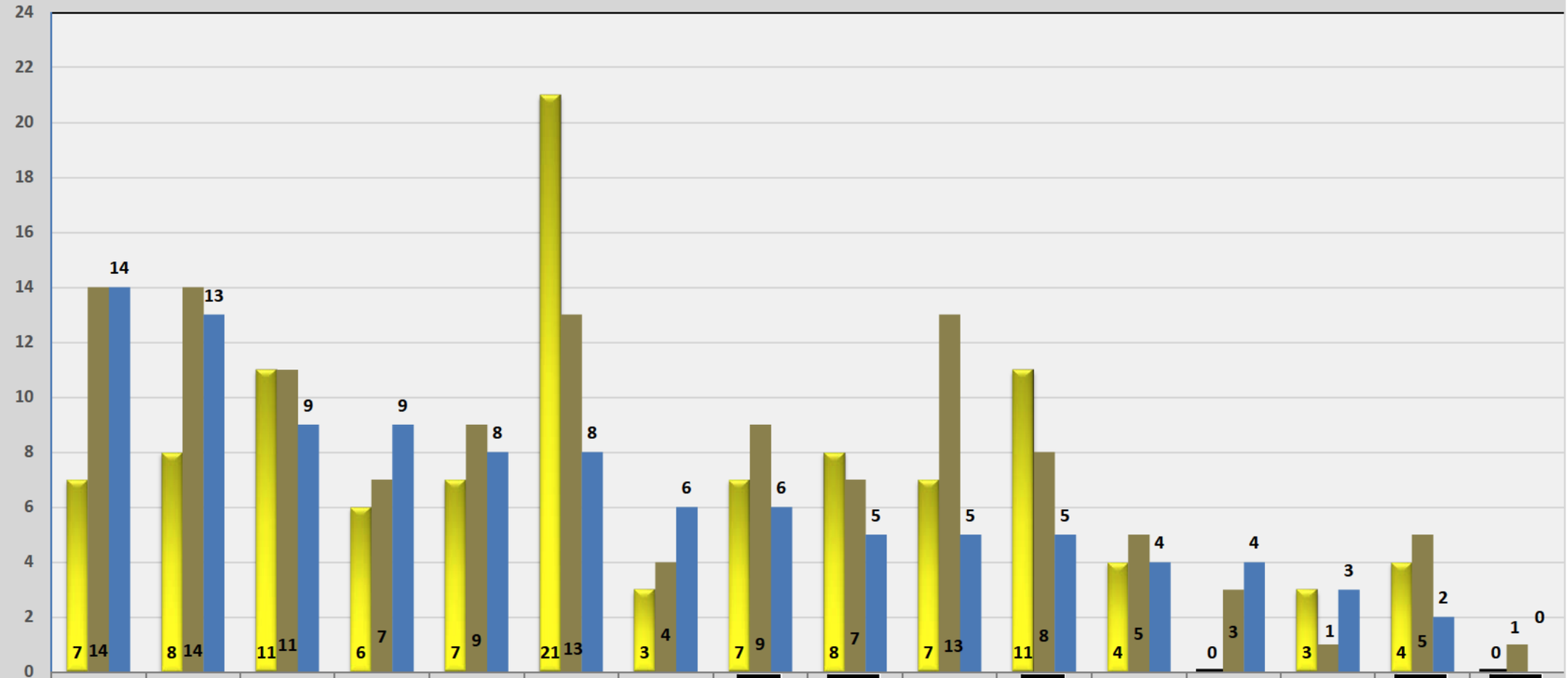
Total Hospitalizations by Home September 2016



Hospitalizations September 16	14	13	9	9	8	8	6	6	5	5	5	4	4	3	2	0
Curr Enr -September 16	123	205	127	115	126	135	75	121	56	127	106	101	59	48	91	46

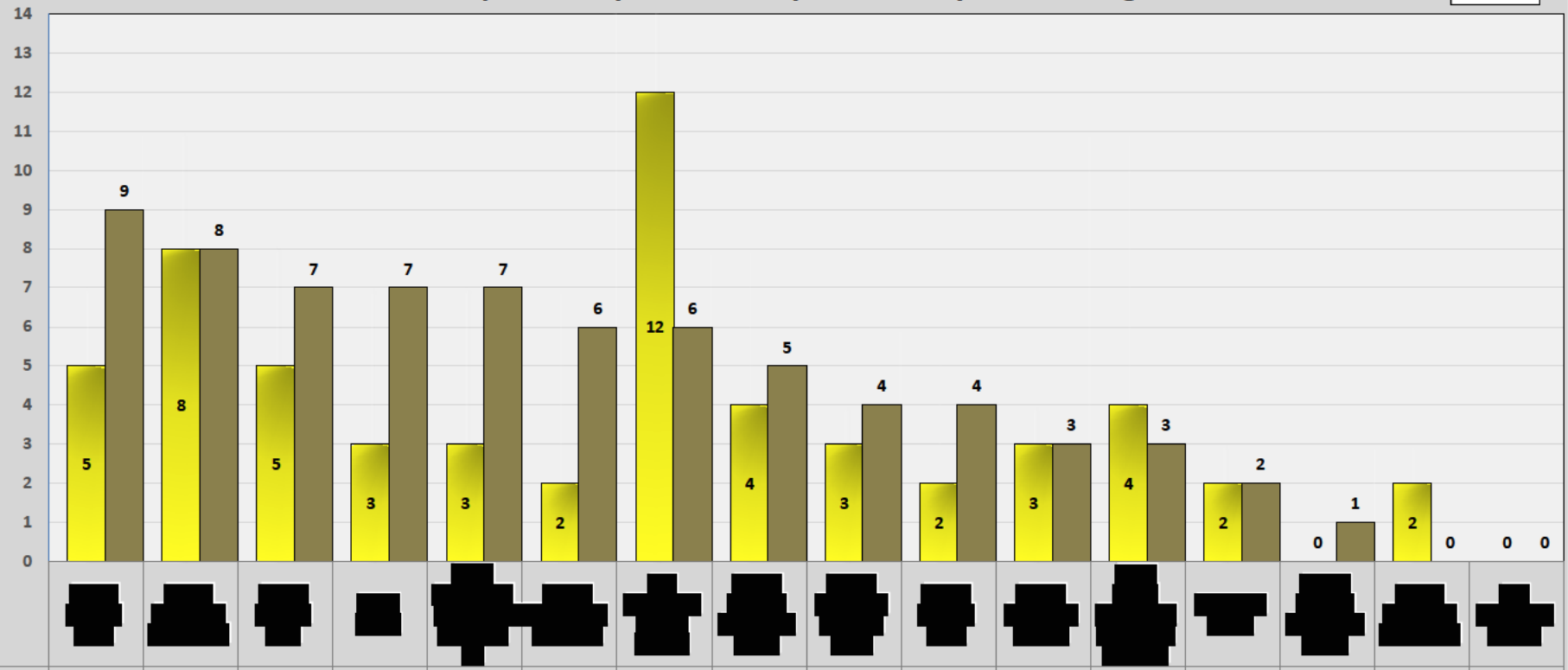
10/10/2016

Total Hospitalizations by Home - July 2016 to September 2016



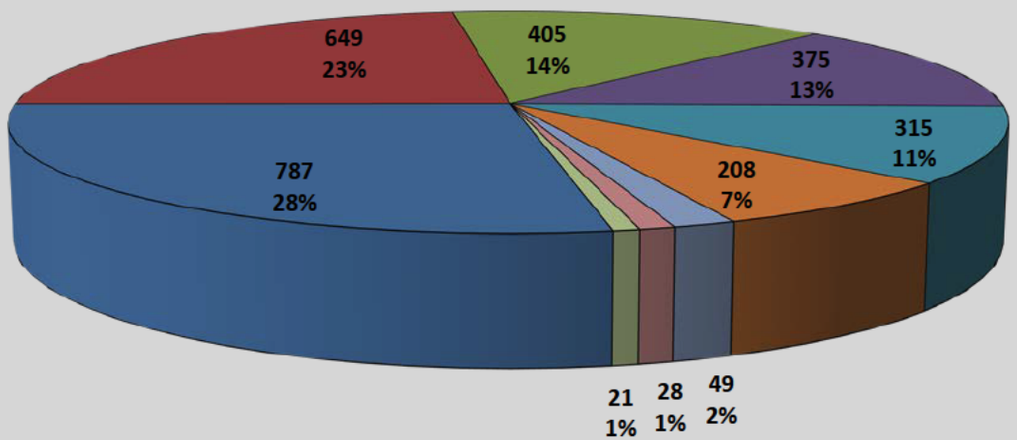
July Hospitalization	7	8	11	6	7	21	3	7	8	7	11	4	0	3	4	0
August Hospitalization	14	14	11	7	9	13	4	9	7	13	8	5	3	1	5	1
September Hospitalization	14	13	9	9	8	8	6	6	5	5	5	4	4	3	2	0

Total Transfers that are potentially avoidable by Home - July 2016 to August 2016



July Transfers	7	11	8	7	7	7	21	8	4	6	4	11	3	0	3	0
July Avoidable	5	8	5	3	3	2	12	4	3	2	3	4	2	0	2	0
August Transfers	13	11	14	9	9	14	13	7	5	7	5	8	4	1	1	3
August Avoidable	9	8	7	7	7	6	6	5	4	4	3	3	2	1	0	0

Conditions that Put the Resident at Risk for Hospital Admission or Readmission - All Homes - 2016

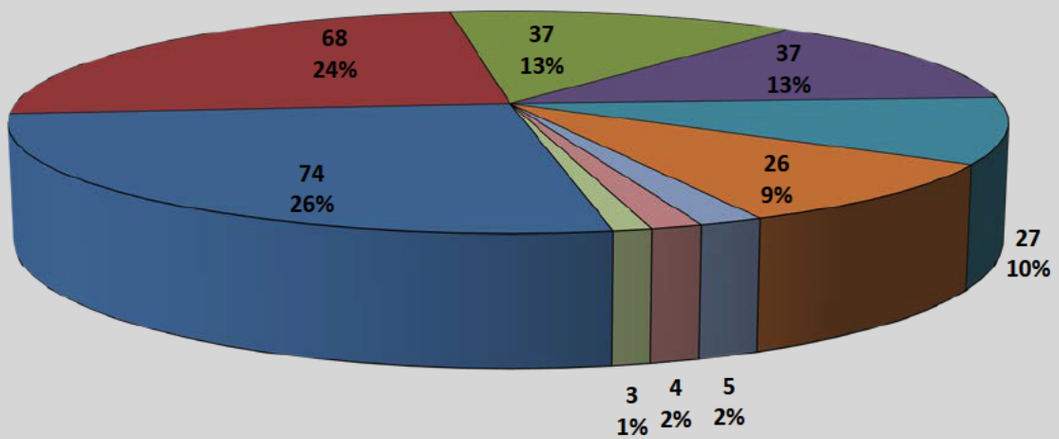


- Polypharmacy (e.g., 9 or more medications)
- Multiple co-morbidities (e.g., CHF, COPD and DM in the same)
- Dementia
- Other
- CHF
- COPD
- Fracture
- Cancer, on active chemo or radiation therapy
- Surgical complications

Data Source: Qualtrics Survey Question 9

10/10/2016

Conditions that Put the Resident at Risk for Hospital Admission or Readmission - All Homes - September 2016



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Data Source: Qualtrics Survey Question 9

10/10/2016

MOQI Phase 2

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December 31, 2017