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ADULT CARE HOME ACCREDITATION PILOT PROGRAM
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Public Interim Report

Prepared for

North Carolina Joint Legislative Oversight Committee on Health and Human Services
North Carolina Department of Health and Human Services

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1. GOAL

The goal of this two-year pilot project is to evaluate the effectiveness of an accreditation process for adult care homes (also referred to as assisted living [AL]) across the state of North Carolina. It is studying the effectiveness of accreditation through an evaluation of quality outcome measures to determine whether accreditation achieves compliance with licensure requirements and improves or maintains quality of care compared with a control group.

Methodologically, the goal of the project is to recruit up to 150 diverse AL communities; randomize one-half to an accreditation arm and one-half to a control arm, and obtain data on care and resident outcomes for two years (eight quarters). It is intended that the number of communities in both arms be equivalent, and that diversity be reflected in payor source, star rating, and related characteristics. Care and outcomes are evaluated in five categories: workforce, resident outcomes, care coordination and transitions, medication management, and person-centered care.

At the conclusion of the project, analyses will determine whether a sufficient number of AL communities participated and provided data over a sufficient period of time to enable a reliable evaluation, and whether accreditation has an impact on care and outcomes.

The Accreditation Commission for Health Care (ACHC) is overseeing all efforts related to accreditation. The Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill (UNC), is overseeing the evaluation.

This interim report includes recruitment and enrollment data for Quarter 1 (7/1/22-9/30/22) and Quarter 2 (10/1/22-12/31/22).

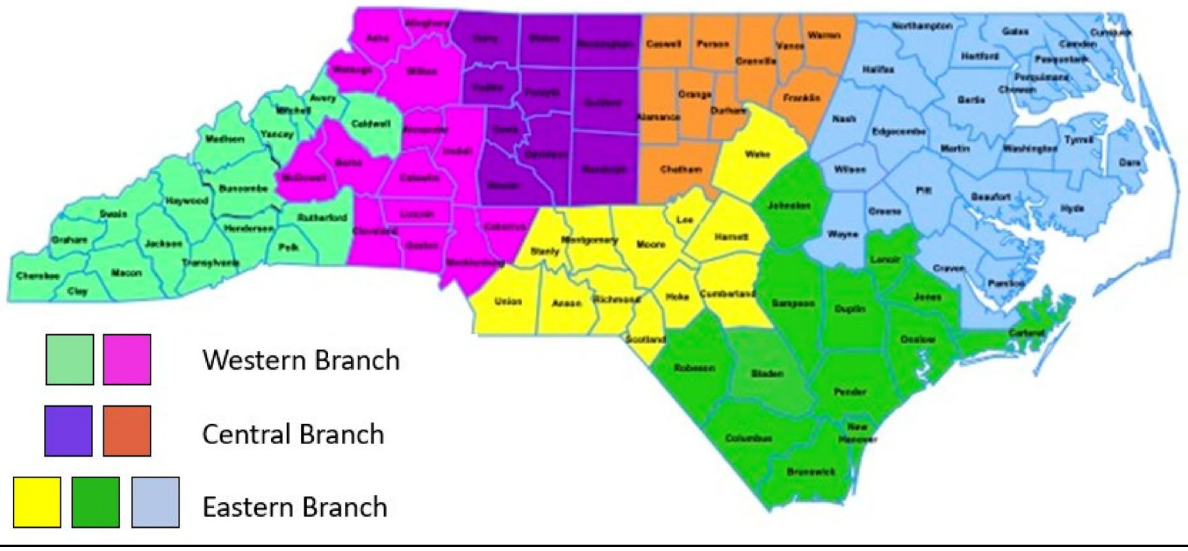
2. METHODS

Sample. The sampling frame for the project included 564 AL communities identified from the directory of the North Carolina Department of Health and Human Services (DHHS) that were operating and assigned a Star Rating as of May 2022.

To include a broad and representative sample, sampling was stratified based on both geographic region and state-assigned quality star rating.[1] First, the proportion of all communities as per their representation in the three adult care licensure branches was determined. The branches are shown in **Exhibit 1** (next page).

[1]NC Division of Health Service Regulation Adult Care Licensure Section. Star Rating Program. https://info.ncdhhs.gov/dhsr/acls/star/index.html#:~:text=The%20Star%20Rating%20program%20is,on%20facility%20inspections%20by%20DHSR.

Exhibit 1. Adult Care Licensure Branches



Second, within each region, AL communities were stratified based on two groups of star ratings: 0-2 (indicating lower quality) and 3-4 (indicating higher quality), resulting in six strata. Then, up to 150 communities were randomly selected for participation proportionate to (a) the number of communities represented by the branch, and (b) the number of communities represented by star rating stratum within the branch.

Exhibit 2 provides the number and proportion of communities across branches and by star rating, as well as the target number of communities within each branch and stratum. For example, the western region included 34% of all communities, and of those, 18% were of lower quality and 82% were of higher quality. Therefore, the study sought to enroll 51 communities from the western region (i.e., 34% of 150), 9 of lower quality (i.e., 18% of 51) and 42 of higher quality (i.e., 82% of 51). Recognizing the low representation of communities with 0-2 stars across the entire sample (N=35), recruitment allowed that the target number be exceeded in the three related strata.

Exhibit 2. North Carolina Assisted Living Communities, by Branch and Star Rating (N=564)[a]

Branch	Number and Percent of Communities, by Branch	Star Rating Stratum	Number and Percent of Communities Within Branch, by Stratum	Target Number of Communities (Overall N=150)	
				Target by Branch N (%)	Stratum Target N (%)
Western	192 (34.0%)	**Star 0-2**	34 (17.7%)	51 (34.0%)	9 (17.7%)
		Star 3-4	158 (82.3%)		42 (82.3%)
Central	157 (27.8%)	**Star 0-2**	28 (17.8%)	42 (27.8%)	7 (17.8%)
		Star 3-4	129 (82.2%)		35 (82.2%)
Eastern	215 (38.1%)	**Star 0-2**	72 (33.5%)	57 (38.1%)	19 (33.5%)
		Star 3-4	143 (66.5%)		38 (66.5%)

[a] Number of communities as of May 2022.

Eligibility. To be eligible for participation, an AL community had to be licensed by the state of North Carolina and have a star rating as of May 2022. Communities were not eligible for participation if they planned to close (or had already closed) at the time of recruitment, were currently accredited or were already participating in an accreditation program, were considering pursing accreditation through an alternative accrediting body during the two-year period of study, or did not agree to be randomized into the control or accreditation arm.

Recruitment. The North Carolina Senior Living Association (NCSLA) and the North Carolina Assisted Living Association (NCALA) sent material to their membership about the project, encouraging participation if communities were invited to participate; other stakeholder organizations and individuals did the same. Informational material included a one-page overview of the project, a more detailed two-page description, and a website that included a video presentation.[2] It was also made clear that communities would be provided $500/quarter in recognition of the time and effort to compile information for the evaluation.

The project analyst randomly numbered AL communities within each stratum to determine the order in which to solicit participation; once selected, an initial mailing was sent via postal mail, followed by a telephone call from a UNC research team member approximately five business days later. Within the ensuing four weeks, UNC research team members made up to eight follow-up contacts by telephone and email (no more than three contacts per week) to discuss the project and solicit participation.

Communities within each stratum were recruited on a rolling basis, allowing for an initial 50% refusal rate; therefore, 50% of the target number of communities were initially invited, allowing the research team to determine agreement, refusal, and non-response rates before soliciting remaining communities within each stratum. Based on the rates, additional invitations were sent to 25% of the remaining communities per stratum (excepting communities in the eastern branch, which were already reaching target numbers of participation). Once the target number of communities within a stratum was reached, active outreach was discontinued and an offer was made to non-responding communities to be included on a waitlist in the event any communities withdrew before the first data collection period. In total, 368 of the 564 communities across the state were invited to participate in the project (65%). Details of participation by stratum are provided in the Results section.

Communities were assigned to the control or accreditation group after all communities were recruited.

Measures. The items of interest relate to *resident outcomes* (physical function [falls with injury], and psychosocial well-being and satisfaction); *care coordination and transitions* (resident/family preferences and resident/family understanding, advance directives, discharge due to behaviors, emergency department visits, and hospitalization); *medication management* (medication errors); *workforce* (including staffing levels and staff turnover rates, consistent

[2] North Carolina Adult Care Home (Assisted Living) Accreditation Pilot Program. https://ncassistedlivingproject.org

assignment, quality of life [stress/burnout], and satisfaction); and *person-centered care* (including well-being and belonging, individualized care and services, social connectedness, and home-like atmosphere).

Measurement tools. Measures to assess the items were drawn from two types of sources.

- *Measures used to monitor quality in long-term care*, such as defining falls and emergency department visits consistent with definitions used in nursing home quality monitoring; deriving categories of staffing and medication errors consistent with North Carolina licensing regulations; and measuring satisfaction and staff turnover using the measure developed by the American Health Care Association/National Center for Assisted Living (AHCA/NCAL)
- *Measures used in research to assess long-term care and outcomes*, such as direct care worker job satisfaction, burnout, social activity, and person-centered care

Data source and frequency. Depending on the item, the data were obtained from the most appropriate data source -- resident chart/record review, observation, administrative records, or questionnaires -- and were obtained either quarterly or twice a year. AL staff compiled the information from charts and records, conducted the observations, and distributed the questionnaires; they were reimbursed $500/quarter for their time and effort.

Quarterly:

- *Resident chart/record review*: Resident charts/records were reviewed quarterly in relation to advance care planning discussions (for new residents), falls with injury, emergency department visits, hospitalization, rehospitalization, and discharge due to behaviors for residents with dementia.
- *Observation*: An observation of a medication pass for five residents randomly selected by the research team was conducted quarterly.

Twice a year:

- *Administrative records*: Administrative records were reviewed twice a year in relation to staffing levels, staff turnover, and consistent assignment.
- *Questionnaires*: Every six months, all direct care staff (including registered and licensed nurses) and 15 residents randomly selected by the research team (or a family member, if the resident was unable to reply) completed a questionnaire related to satisfaction and stress (staff), and satisfaction, psychosocial well-being, preferences, and person-centered care (residents/families). Administrators were asked to distribute a printed questionnaire or hyperlink/QR (Quick Response) code for electronic access to the questionnaires, encouraging electronic completion and submission for staff and families.

Exhibit 3 (next page) summarizes the information related to measurement.

Exhibit 3. Measures, by Domain and Topic

Category and Topic	Data Source, Frequency	Items/Tool/Source
Resident Outcomes		
Physical function (falls with injury)	Chart/record review; quarterly	Number of residents who had a fall that resulted in major injury during the quarter (bone fractures, joint dislocations, closed head injuries with altered consciousness, subdural hematoma) *(derived from Skilled Nursing Facility Quality Reporting Program Measure Calculations and Reporting User's Manual 3.0)*
Satisfaction	Resident/family questionnaire for 15 residents; twice/year	COREQ Satisfaction (4-item scale; sample item "overall, how do you rate the staff") *(AHCA/NCAL tool,* endorsed by *National Quality Forum*
Psychosocial well-being		Assisted Living Social Activity Scale (11-item scale of activities in last week; sample item "playing cards, bingo, games") and days visiting/speaking with family and friends *(Zimmerman et al. Soc Work Res, 2003;27:6-18)*
Care Coordination and Transitions		
Advance directives	Chart/record review; quarterly	Number of new admissions for whom an advance care planning discussion was held regarding health care decisions during the quarter
Emergency department visit		Number of residents having an emergency department visit that did not result in an outpatient observation stay or inpatient hospital stay during the quarter *(derived from Nursing Home Compare and AHCA/NCAL)*
Hospitalization		Number of residents who spent one or more nights in a hospital for either admitted or observation stays during the quarter *(derived from AHCA/NCAL)*
Rehospitalization		Number of residents sent back to the hospital within 30 days of admission/return to the community directly from the hospital in the last quarter; includes observation and admissions for any reason *(derived from AHCA/NCAL)*
Discharge due to behaviors		Residents with dementia discharged due to behaviors during the last quarter
Preferences, understanding	Resident/family questionnaire for 15 residents; twice/year	Care Transitions Measure (3-item scale) assessing preferences and understanding during transitions for residents who had an emergency department visit or hospitalization *(endorsed by National Quality Forum; Coleman et al. Med Care 2005;43:246-255)*
Medication Management		
Medication review/ errors	Observation of 5 residents; quarterly	Errors as per confirm resident identity; medication name, form/route, dose, time; medication administration record (MAR) initialed, accurate; medication omission; significant error (based on resident condition, drug category, and frequency of error) *(derived from North Carolina Licensing of Adult Care Home Regulations 10A NCAC 13G.1004 (a(13F.1001)*

Category and Topic	Data Source, Frequency	Items/Tool/Source
Workforce		
Staffing levels	Administrative records; twice/year	Number of hours worked per shift, within staffing categories, on a specified day, separated as to whether onsite, within 500 feet of building and immediately available, or on call but not within 500 feet of building (*derived from North Carolina Licensing of Adult Care Home Regulations 10A NCAC 13F)*
Staff turnover		Number of full- and part-time staff within staffing categories employed during a six-month period in relation to number employed on the last day of the period (*derived from AHCA/NCAL LTC TrendTracker)*
Consistent assignment		Number of direct care workers a resident had in specified week, including personal care aides, nursing assistants, and similar titles who work full shifts, partial shifts, have numerous care responsibilities, or provide select care such as bathing or at mealtime; licensed staff are included only if they are working in the capacity of an aide/assistant *(based on Advancing Excellence Consistent Assignment Tracking Tool)*
Satisfaction	Questionnaire; twice/year	Direct Care Worker Job Satisfaction Scale (16-item scale; sample item "satisfaction with the attention paid to suggestions you make") *(Farida et al. Gerontologist 2008;48:60-70)*
Quality of life (stress/burnout)		Burnout (1-item with five responses, ranging from "I enjoy my work; I have no symptoms of burnout" to "I feel completely burned out and often wonder if I can go on") *(Dolan et al. J Gen. Intern Med 2015;30:582-587)*
Person-Centered Care		
Well-being and belonging, individual care and services, social connectedness, homelike atmosphere	Resident/family questionnaire for 15 residents; twice/year	Person-Centered Climate Questionnaire (17-item scale; sample item "staff takes notice of what I say") *(Yoon et al. Arch Gerontol Geriatr 2015;61:81-87)*

Data collection and cleaning. A dedicated research team member was assigned to each community for all communication (other than financial reimbursement) and data collection. At the launch of the project and every quarter, the research team emailed the AL administrator a customized manual that included instructions and data collection forms.

Administrators were asked to return completed forms/have completed forms returned within eight weeks of the end of the quarter, by either postal mail, fax, or electronically (including completion of Qualtrics forms). Throughout that time, research staff had multiple contacts with administrators by telephone and email to provide reminders and respond to questions.

Because the staff, resident, and family questionnaire data were of a confidential nature, they were asked to provide the information directly to the UNC research office via Qualtrics, or to deposit

the questionnaire in a sealed envelope that would be sent to the UNC research office by the administrator. Completion of forms by Qualtrics was strongly encouraged for staff and families. In a few instances, administrators faxed completed questionnaires to the research office.

As data were submitted, the research team reviewed them for accuracy using a data cleaning protocol developed by the investigative team. If inaccuracies were detected (e.g., a value that was implausible, missing, or out of range), the research team conferred with the administrator and obtained updated information. An additional cycle of data cleaning was conducted before data entry, and at that point revisions were requested from administrators if necessary. Data (other than those submitted via Qualtrics) were double entered prior to analysis.

All methods and materials were approved by the University of North Carolina Institutional Review Board.

3. RESULTS: RECRUITMENT AND ENROLLMENT

Recruitment was conducted 6/20/22- 9/12/22. In total, 368 of the 564 communities across the state of North Carolina were solicited to participate in the project (65%). Of these, 13 (4%) were ineligible: 11 had closed or planned to close, and 2 were accredited or were participating in an accreditation program.

Enrollment and data collection. In total, 146 of the 355 eligible communities agreed to participate in the project at the time of recruitment (41% of those solicited, 97% of the number desired; see **Exhibit 4**). Of the 209 that did not enroll, 24 (11%) refused, 48 (23%) were no longer needed due to stratum quotas being filled, and 137 (66%) remained pending at the end of enrollment (i.e., had not agreed nor disagreed to participate). Per stratum, the percent of communities enrolled as per the targeted number ranged from 79% (stratum 5, eastern region, 0-2 stars, in which 15 of 19 targeted communities were enrolled) to 133% (stratum 1, western region, 0-2 stars, in which 12 of 9 targeted communities were enrolled, reflecting the decision to exceed targeted numbers in strata with lower stars).

Exhibit 4. Communities Enrolled, Providing Data, and Withdrawing, By Branch, Stratum, and Arm; Quarter 1, 7/1/22-9/30/22

Branch[a]	Stratum[a]	Number Targeted[b]	Number Enrolled[c]	Number (%) that Provided Data[d]		Number (%) that Did Not Provide Data		Number (%) of Withdrawals[e]	
Western	1 (0-2 stars)	9	12	7	58.3%	5	41.7%	1	8.3%
	2 (3-4 stars)	42	38	25	65.8%	13	34.2%	5	13.2%
Central	3 (0-2 stars)	7	6	4	66.7%	2	33.3%	2	33.3%
	4 (3-4 stars)	35	43	30	69.8%	13	30.2%	8	18.6%
Eastern	5 (0-2 stars)	19	15	12	80.0%	3	20.0%	3	20.0%
	6 (3-4 stars)	38	32	26	81.3%	6	18.8%	4	12.5%
	Total	**150**	**146**	**104**	**71.2%**	**42**	**28.8%**	**23**	**15.8%**

Arm	Number Targeted	Number Enrolled[c]	Number (%) that Provided Data[d]		Number (%) that Did Not Provide Data		Number (%) of Withdrawals[e]	
Control	75	73	49	67.1%	24	32.9%	9	12.3%
Accreditation	75	73	55	75.3%	18	24.7%	14	19.2%
Total	**150**	**146**	**104**	**71.2%**	**42**	**28.8%**	**23**	**15.8%**

[a]Branch refers to the adult care licensure branch; stratum is based on the North Carolina star rating scale (higher scores are favorable).

[b]The targeted number of communities per branch was proportionate to their representation across the state, and within branch by their star rating.

[c]Number that agreed to participate in the project at the time of original enrollment.

[d]Number that submitted some or all administrative data for the quarter, even if the community later withdrew.

[e]Of the 23 withdrawals during this quarter, 6 (26.1%) provided data.

Of the 146 communities that initially agreed to participate in the project, 104 communities (71%) provided data in Quarter 1, and 23 (16%) withdrew from the project during the quarter. By arm, more accreditation communities provided data (75% of accreditation and 67% of control communities), and more accreditation communities withdrew (19% of accreditation and 12% of control communities). In total, data were provided by 49 control and 55 accreditation communities, representing 47% and 53% of the data, respectively.

Of the 123 communities that remained enrolled in Quarter 2, a higher percent provided data than in Quarter 1 (N=106, 86%), and fewer withdrew during the quarter (N=2, 2%). In total, data were provided by 54 control and 52 accreditation communities, representing 51% and 49% of the data, respectively (see **Exhibit 5**).

Exhibit 5. Communities Enrolled, Providing Data, and Withdrawing, By Branch, Stratum, and Arm; Quarter 2, 10/1/22-12/31/22

Branch[a]	Stratum[a]	Number Targeted[b]	Number Enrolled[c]	Number (%) that Provided Data[d]		Number (%) that Did Not Provide Data		Number (%) of Withdrawals[e]	
Western	1 (0-2 stars)	9	11	10	90.9%	1	9.1%	0	0.0%
	2 (3-4 stars)	42	33	26	78.8%	7	21.2%	1	3.0%
Central	3 (0-2 stars)	7	4	3	75.0%	1	25.0%	0	0.0%
	4 (3-4 stars)	35	35	30	85.7%	5	14.3%	0	0.0%
Eastern	5 (0-2 stars)	19	12	12	100.0%	0	0.0%	0	0.0%
	6 (3-4 stars)	38	28	25	89.3%	3	10.7%	1	3.6%
	Total	**150**	**123**	**106**	**86.2%**	**17**	**13.8%**	**2**	**1.6%**

Arm	Number Targeted	Number Enrolled[c]	Number (%) that Provided Data[d]		Number (%) that Did Not Provide Data		Number (%) of Withdrawals[e]	
Control	75	64	54	84.4%	10	15.6%	1	1.6%
Accreditation	75	59	52	88.1%	7	11.9%	1	1.7%
Total	**150**	**123**	**106**	**86.2%**	**17**	**13.8%**	**2**	**1.6%**

[a]Branch refers to the adult care licensure branch; stratum is based on the North Carolina star rating scale (higher scores are favorable).

[b]The targeted number of communities per branch was proportionate to their representation across the state, and within branch by their star rating.

[c]Number enrolled at the beginning of the quarter.

[d]Number that submitted some or all administrative data for the quarter, even if the community later withdrew.

[e]Of the 2 withdrawals during this quarter, 0 provided data.

Community characteristics at initiation of the project. Data are available for 103 of the 104 participating communities at the initiation of the project.

Overall, the majority of communities were for-profit (96%), and affiliated with another AL community (73%); roughly half (53%) provided some memory care, and the majority contracted with a long-term care pharmacy or consultant pharmacist (100%) and had electronic medical records (88%). On average, participating communities had been licensed for 16 years (range 1-60 years, median 14 years). In terms of resident characteristics, on average one-third of residents were ages 85 years and older; two thirds were female, and three quarters were white; 44% had a diagnosis of dementia, 25% had a mental illness diagnosis, and 53% received state financial assistance or Medicaid. In terms of staffing, three quarters had a registered nurse on site (79%), and markedly fewer (8%) had a licensed practical nurse on site. Mean personal care aide staffing ratios ranged from 1:10 to 1:14 from the morning to the night shift. On average, 85% of residents had some health care provided on site (range 1-100%, median 94%).

Exhibit 6 displays these data, along with data separated by communities participating in the control versus accreditation arm.

Exhibit 6. Mean Community Characteristics at Initiation of Project (Select)

Characteristic	All Communities	Control Arm	Accreditation Arm
For profit	96%	94%	98%
Affiliated with another AL community	73%	63%	82%
Provide some memory care	53%	49%	57%
Contract with a LTC pharmacy or consultant pharmacist	100%	100%	100%
Have electronic medical records	88%	88%	89%
Residents age 85 and older	33%	30%	36%
Residents female	64%	63%	65%
Residents white	76%	76%	77%
Residents diagnosed with dementia	44%	46%	42%
Residents with mental illness diagnosis	25%	28%	23%
Residents receiving state financial assistance or Medicaid	53%	58%	48%
Registered nurse on site	79%	76%	82%
Licensed practical nurse on site	8%	8%	7%
Residents with some health care provided on site	85%	88%	83%
Mean years licensed	16	14	17
Mean personal care aide staffing ratio, morning	1:10	1:12	1:10
Mean personal care aide staffing ratio, night	1:14	1:15	1:13

LTC: Long-term care

4. DISCUSSION

This project aimed to recruit up to 150 AL communities. At the initiation of the project, 146 of 355 eligible communities agreed to participate, resulting in a 41% recruitment rate (with many communities remaining pending at the close of recruitment). In national survey studies, AL rates of participation range from 51%-55%, with individual state rates being as low as 33%-46%;[3] in this context, the participation rate in the accreditation project is not uncommon. The communities that refused to participate during initial recruitment, and that dropped out after agreeing to participate, largely did so in light of time demands (i.e., 79% refused and 64% dropped out for that reason); three communities that were in the accreditation arm dropped out due to concerns regarding potential unanticipated costs related to the accreditation process. Given that the communities that remain involved in the project at the end of Quarter 2 are familiar with the time demands and expectations of accreditation, the withdrawal rate is expected to be minimal going forward.

The diversity of the sample is evident based on numerous indicators, including that on average, 53% of residents received state financial assistance or Medicaid. In addition, communities included those across the entire state. As of Quarter 2, 36%, 32%, and 33% of the 123 enrolled

[3]Zimmerman S, Sloane PD. Making Pragmatic Trials Pragmatic in Post-acute and Long-term Care Settings. J Am Med Dir Assoc. 2019 Feb;20(2):107-109.

communities were participating from the western, central, and eastern branches of the state. Of these, 22% had a star rating of 0-2, and 78% had a star rating of 3-4; these figures are roughly consistent with proportions across the state. The participating communities were generally equally represented in the control and accreditation arms (52% and 48%, respectively).

The data represent some differences across arms; for example, compared to communities in the control arm, communities in the accreditation arm were more likely to be affiliated with another community (82% versus 63%), and had a somewhat lower percent of residents receiving state financial assistance or Medicaid (48% versus 58%). These and other baseline differences will be considered in analyses that compare the control communities to the accreditation communities in the final report.

The distributions of the data related to care and outcomes (not provided in this report) suggest that some of the measures are more likely to allow for statistically and clinically significant change over time than others. That is, the sample size may be insufficient to identify significant change in variables with little variation, infrequent incidence, or scoring at an extreme at baseline. For example, falls with significant injuries, medication errors, and staff stress/burnout were generally low, while satisfaction was generally high. Data at favorable extremes of a scale at baseline provide comparatively little room for beneficial increase or decrease; the amount of change possible, and its clinical significance, will be considered in analyses and interpretation in the final report.

Finally, because the data were reported by the AL communities, underreporting or overreporting may have occurred. Toward that end, the research team conferred with the AL staff to correct information that was clearly in error. Importantly, it should be noted that under- or over-reporting, if it occurs, is not necessarily an indicator of poor quality; there is evidence that on occasion, higher quality settings report more instances of adverse outcomes (e.g., fall rates, medication errors) because they are more diligent about detection and reporting.[4] As analyses continue, data validation will be conducted analytically, examining aberrations, outliers, and unexpected distributions. In addition, distributions of staff, resident, and family data provided confidentially (i.e., electronically), will be compared to those provided by the administrator.

[4] Institute of Medicine (US) Committee on Quality of Health Care in America. To Err is Human: Building a Safer Health System. Kohn LT, Corrigan JM, Donaldson MS, editors. Washington (DC): National Academies Press (US); 2000.