A Statewide Assessment of Quality of Care, Quality of Life and Consumer Satisfaction in Texas Medicaid Nursing Facilities

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1. Executive Summary

“Quality health care means doing the right thing, at the right time, in the right way, for the right person—and having the best possible results.”

Agency for Health Care Research and Quality (AHCPR)*

This report is based on an FY2000 on-site assessment of 1985 nursing facility residents and a desk review of medication management records from 10,163 additional residents. The study examines their quality of care, quality of life and level of satisfaction with nursing facility services. It focuses on the following resident outcomes:

- The appropriateness of toileting plans in residents with urinary incontinence,
- The appropriateness of indwelling bladder catheter use,
- The appropriateness of resident physical and social activity,
- The appropriateness of antipsychotic medication use, and
- Consumer satisfaction with various aspects of nursing facility service.

Statewide performance is examined in the context of resident attributes and facility attributes including staffing. Findings from independent on-site resident assessments are compared to findings reported in MDS assessments, and the performance measures in this study are also compared to statewide MDS-based quality indicators.

1.1 Salient Findings

1.1.1 Appropriateness of Toileting Plans and Indwelling Bladder Catheters

(a) 63% of all residents experienced occasional or more frequent urinary incontinence.
(b) The majority (81%) of incontinent residents would have potentially benefited from a toileting plan. This represents a significant quality improvement opportunity.
(c) Among mobile, less dependent residents, RN staff time per resident was positively associated with appropriate care planning for toileting, but no resident characteristic or facility attribute including staffing explained why most residents who needed a toileting plan didn’t have one.
(d) 7% percent of nursing facility residents had indwelling bladder catheters, and there was no clear clinical indication for 62% of them.
(e) At least 39% of all catheters were avoidable.

1.1.2 Appropriateness of Resident’s Social and Physical Activity

(a) 36% of all residents achieved adequate physical activity within the limits set by each resident’s highest practicable level of activity.
(b) 52% of all residents who could have engaged in social activity attained adequate levels of social activity.
(c) Residents with greater mobility appeared more likely to achieve adequate physical and social activity; greater dependency was associated with a lower likelihood of attaining the levels of physical and social activity that were possible, desirable and necessary.
(d) Among less dependent residents, direct care staff time per resident was positively associated with attaining appropriate levels of social but not physical activity.

1.1.3 Appropriateness of Antipsychotic Medication Use

(a) Significant under-reporting of both antipsychotic medication usage and residents’ psychiatric diagnoses created both false positives and false negatives for the MDS-based quality indicators concerning antipsychotic drug usage. This undermined the potential usefulness of these indicators as measures of inappropriate prescribing.
(b) 28.5% of all residents were found to be receiving antipsychotic medications.
(c) 42% of all residents on antipsychotics had no appropriate indication for such treatment noted in their medical records.
(d) 50% of all low-risk residents receiving antipsychotic medications had no valid clinical indication for these medications.
(e) Women, Hispanics and Medicaid recipients in various prescribing risk groups appeared more likely to receive antipsychotics in the absence of a valid clinical indication.

1.1.4 Consumer Satisfaction

(a) Statewide consumer satisfaction with nursing facility care was moderately high.
(b) Neither resident characteristics nor facility attributes appeared to be highly associated with reported satisfaction.
(c) Satisfaction did appear to vary by respondent (resident or surrogate), as well as by resident health status.
(d) The presence of appropriate toileting plans, social and physical activity was each related to higher levels of resident satisfaction.
(e) The presence of appropriate indications for antipsychotic prescribing was not related to consumer satisfaction.
1.1.5 Medicaid Occupancy and Staffing

(a) Compared to the variation in staffing levels seen nationally, there was very limited variation in staffing levels across Texas nursing facilities.
(b) Rider-32 staffing data showed that as Medicaid occupancy increased, Nurse Aide, RN, and total staff time per resident decreased. LVN and RN + LVN staff time per resident did not.

1.1.6 Staffing and Appropriateness of Care and Consumer Satisfaction

(a) There were associations between staffing levels for certain worker categories and some aspects of consumer satisfaction; not all of these categories involved direct care staff.
(b) Although the Rider-32 analyses did not account for case-mix effects on staffing levels, there were still some statistically significant associations between Rider-32 measures of appropriateness of care and staffing levels. These associations were most evident among more mobile residents.

1.1.7 MDS Data Items and MDS Quality Indicators

(a) While the MDS appeared to accurately depict some aspects of resident health status, MDS observations of pressure ulcers were discordant with on-site observations.
(b) MDS observations regarding diagnoses were often incomplete, and this masked the prevalence of important psychiatric conditions as well as the appropriateness of certain antipsychotic prescriptions.
(c) The accuracy of the MDS-based quality indicator for the prevalence of antipsychotic medication use among low-risk residents was poor due to frequent absence of residents' psychiatric diagnoses and significant under-reporting of antipsychotic drug usage.
(d) High statewide values for the quality indicators on incontinence without a toileting plan, indwelling bladder catheter use, and resident inactivity all appeared to be better markers of poor performance (low quality) than low values appeared to be markers of good performance (high quality).
(e) Statewide values of some MDS-based quality indicators that were directly related to the Rider-32 study (toileting plans and inactivity) showed dramatic improvement during FY2000.
(f) Less dramatic improvement was evident in other quality indicators including the following: presence of behavioral problems, symptoms of depression, depression without medication treatment, fecal impaction, prevalence of bedfast residents, and frequent use of hypnotic medications at bedtime.
The AHCQR definition of quality in health care quoted at the beginning of this summary explains quality as the result of a combination of key factors including the following:

- Relevant Knowledge (…doing the right thing),
- Timely Application of that Knowledge (…at the right time),
- Relevant Experience and Competence (…in the right way), and
- Proper Resident Evaluation and Care Planning (…for the right person).

Staffing can impact upon each of these factors; inadequate staff training (inadequate knowledge), inadequate number of staff (inadequate timeliness), and high staff turnover (inadequate experience) can all undermine quality. Staffing alone, however, did not explain all quality differences when the test of quality was doing the right thing at the right time in the right way for the right person.

This study identified some important opportunities for improving the quality of resident care. Some of these problems can be expected to yield to facility-driven quality improvement efforts, professional education efforts, performance incentives and statewide quality measurement efforts that target specific quality issues. In the last regard, the Rider-32 study itself appeared to serve as a catalyst for quality improvement in the areas of resident toileting care and activity.

### 1.2 Specific Recommendations

(a) Structured explicit quality review of DHS provider services should become a mainstream DHS activity in order to assess changing quality issues and promote quality improvement. Rider-32 was an example of such a review process. Structured explicit review of this type is narrowly focused and evidence-based, and it targets statewide rather than facility-specific issues.

(b) Nursing facilities must address the widespread lack of accuracy in their responses to particular MDS assessment items. These items include diagnoses and items needed to calculate reliable quality indicators and resource utilization groups. Because accurate and timely resident assessments are essential for optimal resident care, quality management, and reimbursement, the current lack of MDS accuracy constitutes not only a data quality problem but also a regulatory compliance issue.

(c) DHS Long Term Care Regulatory surveyors, consulting pharmacists, facility medical directors and prescribing physicians must address the apparent widespread use of antipsychotics in the absence of appropriate clinical indications.

(d) Texas should institute routine on-site audits of MDS assessment accuracy similar to those already performed for the state’s level of care instrument (DHS Form 3652). This is especially important if the Medicaid reimbursement methodology for nursing
facilities is to move from the 3652- to an MDS-based level of care determination such as that already used for Medicare reimbursement. Accurate and reliable resident assessments are a prerequisite for accurate determinations of level of care, resident outcomes and facility performance.

(e) To further promote specific quality improvements, the department should work with clinical professional and industry groups to develop a plan for educational programs that address the specific quality issues that become the focus of DHS explicit review.

(f) MDS data inaccuracies and limitations in the predictive value of MDS-based quality indicators identified in this study indicate that a broadly based approach to facility-level quality assessment, reporting and promotion efforts is warranted. Therefore, programs such as the Quality Reporting System and the Texas Performance-based Add-on Payment Program should continue to encompass both survey-based regulatory performance and MDS-based quality indicators.
2. Introduction

2.1 Purpose and Goals

Item 32 of the 76th Legislature’s General Appropriations Act, House Bill No. 1, (Rider-32) authorized The Texas Department of Human Services (DHS) to develop and use quality measurement tools that would enable the department to assess the quality of care, quality of life and consumer satisfaction in Texas nursing facilities. Rider-32 is related to the nursing facility Quality Pilot authorized in Item 26 of the 75th Legislature’s General Appropriations Act (Rider-26).

In order to accomplish the purposes of both the Rider-32 and Rider-26 projects, the department used one common set of quality measurement tools and a statistical sampling approach that would yield the greatest cost effectiveness. This report describes that activity, and it reports the findings and conclusions of the Rider-32 statewide assessment. The Rider-26 Quality Pilot is a two-year effort, and its evaluation must await the completion of the entire project.

The primary goal of the Rider-32 statewide quality assessment was to provide the State of Texas with performance benchmarks for quality of care and consumer satisfaction so that statewide progress in response to policy changes, revisions in reimbursement methodology, and other significant changes could be charted. These same performance measurements could also serve as an objective basis for setting statewide nursing facility performance targets. The quality measurement tools and processes that were developed for Rider-32 enabled the department to distinguish avoidable from unavoidable adverse resident outcomes permitting the department to identify specific opportunities for improvements in quality of care and consumer satisfaction.

The Rider-32 project had two additional, secondary goals. The first secondary goal was to compare facility-reported Minimum Data Set (MDS) resident assessment data to the findings of independently conducted on-site resident assessments. A related purpose was to compare MDS-based measurements of adverse resident outcomes to the department’s determination of avoidable adverse outcomes. The MDS consists of structured resident assessments mandated by the Health Care Financing Administration (HCFA). MDS assessments are performed and reported by all certified facilities on all residents at least quarterly. These assessments are used by HCFA and by DHS to calculate the prevalence and incidence of certain adverse resident outcomes.

These measurements of resident outcomes are the Center for Health Systems Research and Analysis (CHSRA) quality indicators (QI). Because neither HCFA nor DHS conduct independent audits of facilities’ MDS reports, there is reason for uncertainty concerning the reliability of MDS assessments as well as the reliability of the QI results that depend on those data. Furthermore, the CHSRA QIs do not reflect...
quality *per se*. They are simply epidemiological figures that depict how common various untoward resident outcomes are. They do not reveal how often such outcomes are preventable.

Another secondary goal was to test whether quality review itself could serve as a catalyst for actual quality improvement. The quality improvement adage is, “What is measured is what improves.” Through a provider letter issued in October 1999, the department notified all nursing facilities of the Rider-32 quality assessment process in order to stimulate providers to focus their quality improvement efforts on the Rider-32 quality improvement priority areas.

### 2.2 Selection of Quality of Care Improvement Priorities

In choosing the quality assessment issues for Rider-32, DHS sought to create a consensus among four diverse interest groups. These were the following: provider organizations, resident advocacy organizations, clinical disciplines, and academic interests. The basis for the discussion and consensus building process in February 1999 was an internal DHS report on the statewide incidence and prevalence of adverse resident outcomes identified by the CHSRA QIs.

The consensus group agreed to focus on three quality indicators, each from a separate care domain, with high statewide QI values. The care domains were urinary continence, activity and medication management. The CHSRA quality indicators selected were the prevalence of incontinence without a toileting plan, the prevalence of little or no activity, and the prevalence of antipsychotic medication use in low risk residents. The use of indwelling catheters, a quality indicator within the domain of urinary continence, was ultimately included because the Rider-32 resident assessment process for incontinence made it easy to do so.

### 2.3 Development of the Rider-32 Quality Assessment Process

For each of the quality of care areas identified, DHS convened a clinical expert panel. Each panel consisted of physicians (geriatricians and other specialists), nurses (nurse clinicians and nurse educators), and specialists from other disciplines as required by the care issue under consideration. In this latter capacity, pharmacists and pharmacy reviewers were part of the medication management panel; and exercise physiologists, activity directors and related educators were part of the activity panel. Each panel was designed so that no one discipline would have a majority voice.

Each clinical panel was charged with determining two things. Firstly, it was to define what vital information would need to be known about a resident’s clinical condition and care in order to determine whether a particular aspect of that resident’s care was appropriate. For example, what would need to be known about a resident in order to...
determine whether the absence of a toileting plan was appropriate? Secondly, the panel was to explain how this vital information would be used to reliably distinguish avoidable from unavoidable adverse outcomes.

As each panel completed its work, DHS Medical Quality Assurance (MQA) rendered the items of vital information identified by each panel as items in a nursing assessment instrument. MQA then rendered the panel’s use of these data as formal algorithms that would distinguish avoidable from unavoidable adverse outcomes. The analyses needed to define statewide performance measures were also provided by MQA. The members of each panel then reviewed, revised and finally approved the nursing assessment instrument, the algorithms and the related quality performance measures.

The clinical panel on medication management issues focused on the usage of antipsychotic medications in low risk residents. The panel proposed that Rider-32 focus on the appropriateness of prescribing antipsychotic medications by reviewing every instance of antipsychotic drug use in low risk residents as identified by MDS. The process chosen for this review involved obtaining copies of medication administration records, physician orders, diagnoses and laboratory data on each of approximately 12,000 residents. Pharmacists then reviewed these records in order to extract vital information needed to decide whether antipsychotic medications had, in fact, been prescribed and whether each such prescription had an appropriate clinical indication.

2.4 Sample Design and Study Methodology

The focus of Rider-32 was the quality of services in community-based, Medicaid-certified nursing facilities. The study was designed to provide a valid statistically sampled picture of statewide quality. A study that would provide a valid picture of facility-specific quality would have required tens of thousands of resident assessments and was beyond the Rider-32 scope and budget. Thus, the findings of Rider-32 depict statewide performance but not quality in individual nursing facilities.

Approximately 2000 nursing facility residents were randomly selected from a pool of all residents having MDS assessments recorded at any time during the six months (May 1, 1999 to November 1, 1999) preceding the onset of the Rider-32 study. Because the MDS database also included assessments on residents residing in hospital-based facilities, these were eliminated from the selection process by allowing only residents residing in facilities listed in the 1997 nursing facility Cost Report file to be considered. Further, because some facilities were not submitting MDS assessments regularly during 1999, all facilities whose MDS assessments identified fewer than 15 unique residents during the six months preceding the study were excluded from the facility sample. The final Rider-32 resident sample yielded 1985 residents drawn from 993 Medicaid-certified facilities.
Because the first of four waves of Rider-26 resident assessments was performed concurrently with the Rider-32 assessments, 570 additional resident assessments came from the 101 nursing facilities that were part of the Rider-26 study. These assessments were not included in the analyses for this report.

2.5 Implementation

NACES, a non-profit arm of the Texas Nursing Foundation that performs nurse-aide certification, was contracted through a competitive bid to perform the Rider-32 and Rider-26 resident assessments. NACES nurses received a one-day training seminar to familiarize them thoroughly with the assessment instrument (see Appendix A) and the quality review process. All resident assessments were performed during unannounced facility visits conducted during a 155-day interval from November 1999 through April 2000.

A contractor (STATCO) performed data entry for the completed assessments. The quality performance measure calculations and statistical analyses were performed by MQA and DHS’ Program Evaluation & Policy Analysis. A contracted team of pharmacists from the University of Texas at Austin performed the desk review of all medication records and related documents. With the supervision of University faculty in statistics, this team also performed the analyses of the pharmacy issue component according to the specifications of the medication management clinical panel and MQA.
3. Characteristics of the Statewide Sample

The residents included in the Rider-32 Random Sample were chosen from among all residents for whom MDS assessments had been submitted during the six months preceding the study and who resided in a facility that met two criteria. The facility had to have submitted a Medicaid Cost Report during FY1997, and the facility had to have submitted MDS assessments on at least 15 unique residents during the six month interval. These facility selection criteria automatically excluded hospital-based skilled nursing facilities since these facilities did not file Medicaid Cost Reports. The resulting set of facilities considered in Rider-32 numbered 1021. This set is subsequently called the Rider-32 Facilities.

All residents were assigned a random numeric identifier. A roster of resident names was created for each facility showing resident names listed in order of ascending randomly assigned identifier. The number of residents to be seen in each facility, N, was determined to be the target sample size (2000) times the fraction of residents in the entire state residing in the facility. In all Rider-32 Facilities, medication management records were obtained on residents identified by MDS as being treated with antipsychotics in the absence of psychotic or related conditions and at low risk for such treatment due to the absence of cognitive impairment with behavioral symptoms. In the 28 facilities where N was zero, no on-site resident assessments were performed. In the remaining 993 facilities, the nurse reviewer not only collected medication management records but also used the roster to select for assessment the first N residents who were physically present in the facility at the time of the on-site visit. The resulting group of randomly selected residents consisted of 1985 individuals. This group is subsequently called the Rider-32 Random Sample.

The following characteristics were recorded for each resident in the Rider-32 Random Sample:

- Gender (from the MDS)
- Ethnicity (from the MDS: Native American, Asian, Black non-Hispanic, Hispanic, White non-Hispanic)
- Age Category (<65, 65-75, 75-84, 85-99, >= 100 calculated from MDS birth year)
- Medicaid Eligibility (from the MDS: a resident was considered a Medicaid resident if there was an actual or pending Medicaid number)

The following characteristics were recorded for each Rider-32 Facility:

- Ownership Type (from 1997 Cost Reports)
- Ownership Model (a dichotomous variable that identified facilities as either for-profit or not for profit based on Ownership Type)
- MDS Census and Census Quartile (based on the number of unique residents reported by MDS in each facility during the six months preceding the study)
• Rural/Urban (from 1997 Cost Reports and based on facility location within a Metropolitan Statistical Area)

Reflecting the overall Texas nursing facility resident population, 66% of the residents in the sample resided in urban facilities and 72% of the residents were female. The sample also showed the following statistically significant (p < .05) associations:

• White non-Hispanic residents were over-represented in rural facilities
• Black and Hispanic residents were over-represented in urban facilities.
• The oldest old (>85 years) were over-represented in rural facilities
• Younger residents (<65 years) were over-represented in urban facilities.
• White non-Hispanic residents were over-represented in smaller facilities (lowest MDS census quartile).
• Black and Hispanic residents were over-represented in larger facilities (the upper two MDS census quartiles).
• Female residents were over-represented in non-profit facilities, and males were over-represented in for-profit facilities.
• The oldest old (>85 years) were over-represented in non-profit facilities
• Younger, non-geriatric residents (<65 years) were over-represented in for-profit facilities.
• Black and Hispanic residents were more likely to be eligible for Medicaid than were non-Hispanic Whites (90% vs. 74%).
• Medicaid eligible residents were younger (mean age 81 years vs. 85 years), and there was a decreasing rate of Medicaid eligibility for each age category as age increased.
• For-profit facilities had a higher rate of Medicaid eligible residents than did non-profit facilities (80% vs. 66%).

The following did not show statistically significant (p < .05) associations:

• Rural/Urban and Medicaid eligibility,
• Medicaid eligibility and MDS census quartile,
• Gender and MDS census quartile,
• Age category and MDS census quartile,
• Ethnicity and ownership model,
• Gender and Medicaid eligibility, and
• Gender and Rural/Urban.
4. Statewide Quality Measures

4.1 Incontinence without a Toileting Plan

4.1.1 Relationship to the Minimum Data Set

The CHSRA quality indicator (QI) for incontinence without a toileting plan measures the proportion of residents with occasional or frequent bowel or bladder incontinence who do not have a specific toileting plan included in their nursing care plan. Residents with multiple daily incontinence episodes are excluded from the QI calculation (Zimmerman, 1999).

Toileting plans refer to three specific nursing interventions that have been shown to have varying degrees of impact on continence promotion among nursing home residents. These behavioral techniques are scheduled voiding, prompted voiding, and bladder training. Behavioral techniques are properly viewed as continence promoting strategies rather than simply as a means for incontinence management. Typical incontinence management involves alternatives such as the use of absorbent materials (diapers) and is not considered toileting.

Toileting interventions, recommended by the Agency for Health Care Policy Research Clinical Practice Guideline on urinary incontinence, have been shown to reduce the frequency of incontinence episodes and can improve quality of life (Fantl, Newman, Colling, DeLancey, Keeyes, Loughery, McDowell, Norton, Ouslander, Schnelle, Staskin, Tries, Urich, Vitousek, Weiss & Whitmore, 1996). The optimal outcome from these interventions is assisted continence – the achievement of continence through external assistance. However, these interventions do not necessarily result in continuous urinary continence. Of the three interventions, prompted voiding has been shown to be beneficial in as many as 40% of cases (Ouslander, Schnelle, Ulman, Fingold, Nigam, Tuico & Bates-Jensen, 1995).

Not all residents experiencing urinary incontinence would potentially benefit from a toileting plan. That is, there are clinical situations in which toileting would not be feasible or in which the intervention would represent a burden to the resident. The CHSRA quality indicator for incontinence without a toileting plan does not distinguish between these unavoidable situations and avoidable failures to implement a necessary toileting plan. Unlike the Rider-32 toileting criterion, the CHSRA QI does not consider residents with multiple daily episodes of incontinence as candidates for toileting.
4.1.2 Related Adverse Resident Outcomes

Incontinence is a recognized risk factor for pressure sores (Schue & Langemo, 1999; Haalboom, den Boer & Buskens, 1999). Studies of urinary incontinence also show a relationship of incontinence to symptoms of depression (Dugan, Cohen, Bland, Preisser, Davis, Suggs, McGann, 2000) as well as to falls and fractures among residents with specific incontinence patterns such as nocturnal and/or urge incontinence (Brown, Vittinghoff, Wyman, Stone, Nevitt, Ensrud & Grady, 2000).

In specific clinical circumstances, absence of a toileting plan may be unavoidable. The remainder represents missed opportunities to achieve high quality care through appropriate care planning and intervention.

4.1.3 Criteria for Appropriateness of Care

The Rider-32 criterion for appropriate toileting examines the prevalence of avoidable failures to toilet those residents who would potentially benefit from this intervention. The Rider-32 clinical panel on incontinence defined the eligible population as all residents who met the MDS definition of occasional or more frequent urinary incontinence (Appendix A item 2.8). The criterion for unavoidable absence of a toileting plan in an otherwise eligible resident was the presence of at least one of the following (Appendix A items 2.2 – 2.7 and 2.9):

- The resident’s baseline level of consciousness was unresponsive,
- The resident required a mechanical lift to get out of bed,
- The resident was unable to ambulate or sit for any activity due to pain,
- The resident had a terminal condition that precluded toileting,
- The resident had advanced pressure sores that precluded toileting, or
- The resident had an indwelling bladder catheter.

4.1.4 Rider-32 Findings

Urinary incontinence in Texas long-term care facilities is common. Only 28% (556/1985) of the Rider-32 Random Sample was determined to be independently continent. 62.57% (1242/1985) of the residents were at least occasionally incontinent. This figure is in line with the MDS-based statewide QI that shows that ~57% of residents tend to be incontinent daily – more frequently than occasionally. It is also consistent with both national and international studies that show prevalence figures ranging 50%-60% among nursing home residents (Ouslander, Kane, & Abrass, 1982).
Of those residents with at least occasional urinary incontinence, 80.84% (1004/1242) would have potentially benefited from toileting. The remaining residents had clinical reasons for which the absence of toileting was unavoidable.

Of those residents who could have been considered for a toileting plan, only 12.45% (125/1004) had appropriate inclusion of toileting in their care plan. This figure did not appear to be the result of poorly targeted interventions; in fact, among those who would probably have not benefited from toileting, 93.48% (917/981) did not receive it. Instead, it reflected the lack of toileting plans among those who would most benefit from them.

Thus, among those for whom toileting would be desirable and likely beneficial, 87.55% did not receive it, a finding that reflected the under-utilization of an effective intervention in situations in which it was indicated.

All residents in the study had an unannounced wetness check. This revealed that 33.9% (673/1985) of all randomly selected residents had evidence of wetness at the time of assessment. Although 48.69% (428/879) of residents who needed a toileting plan but did not have one had evidence of wetness at the time of assessment, there was no significant relationship between the presence or absence of a toileting plan and wetness at the time of assessment.

In practical terms this meant that due to the prevalence of urinary incontinence and the manner in which it was managed, one was likely to find evidence of wetness among one third of all residents at any time in any randomly selected nursing facility. Further, the presence of wetness alone did not appear to be a reliable indicator of whether a toileting plan had been provided.

Of the 28% who were reported to be independently continent, 97.84% (544/556) were dry. Thus, a history of independent continence appeared to be strongly predictive of dryness.

The Rider-32 clinical panel on incontinence requested that patient preference be studied, and that facility staff be given the opportunity to state in narrative form any explanation for not providing a toileting plan that was not already included in the study (Appendix A items 2.2 – 2.7 and 2.9). Resident refusal of toileting (Appendix A item 2.10) occurred in 4.18% (42/1004) of the residents who would have potentially benefited from toileting.

Staff provided narrative explanations for omitting toileting from the resident care plan in 20.72% (208/1004) of the cases in which toileting was potentially beneficial. Two of 18 general categories of explanations, cognitive impairment and Alzheimer’s disease, accounted for 32.69% (68/208) of the reasons offered for not toileting. Another 10% of
the residents potentially benefiting from toileting but not having a toileting plan were judged by staff to be *independent* in toileting despite evidence to the contrary. Only 1% (2/208) of the staff comments indicated that inadequate staffing accounted for the absence of toileting plan. Another 1% indicated that a trial of toileting had failed. The remaining narratives were descriptions of resident conditions (including patterns of incontinence) that did not yield a clear explanation for absence of a toileting plan.

4.1.5 Appropriateness by Resident and Facility Characteristics

Among those who would have potentially benefited from toileting, there was no statistically significant association between appropriateness of care judged by the presence of a toileting plan and resident gender, ethnicity, age category or Medicaid eligibility. Despite the absence of a statistically significant relationship between age and incontinence care, there was a general trend with greater age favoring appropriate toileting.

A similar relationship was visible between the resident’s highest practicable level of activity (a proxy for physical independence) and likelihood of having a needed toileting plan. The highest practicable level of physical activity was captured in item 4.4 (Appendix A) of the resident assessment. The chart below shows its relationship to the likelihood of having an appropriate toileting plan.
Together, age and level of physical independence accounted for a very small amount of the variance in the appropriateness of toileting plans. That is, despite their statistical association with or relationship to the toileting outcome, these resident characteristics did not appear to have practical significance as explanations of why most residents who needed toileting plans did not have them.

There was no statistically significant association between the appropriateness of toileting plans and facility ownership type, ownership model or MDS census quartile. Although rural facilities showed a slightly greater number of appropriate toileting plans than expected, that increase did not achieve statistical significance.

4.1.6 Conclusions

Urinary incontinence is a widespread clinical problem; it affects the majority of nursing home residents – 63% in this study. The majority of residents affected would potentially benefit from toileting – 81% in this study. Although most incontinent residents might not achieve assisted continence with appropriate toileting plans, clinical studies suggest that in as many as half, continence would improve. Reflecting an established life-long behavior pattern, residents accept toileting and seldom refuse it.

No facility or resident characteristic including level of physical dependence appears to explain the absence of toileting plans among the majority of residents who need them.

Toileting plans, despite their proven effectiveness and benefit, were under-utilized in Texas nursing homes. The types of explanations that nursing facility staff offered for not toileting incontinent residents suggested that toileting plans were often viewed as futile. This appeared to be particularly true among residents who had cognitive impairment and those who had particular patterns of incontinence such as nocturnal incontinence and urge incontinence. A significant percentage of incontinent residents were incorrectly judged by staff to be independent in toileting.

Previous studies have shown that as many as 83% of incontinent residents have some degree of cognitive impairment (Ouslander, Palmer, Rovner & German, 1993). Cognitive impairment does affect the choice of toileting strategy, but it does not eliminate the possibility of effective toileting. The fact that inadequate staffing was rarely mentioned by individual nursing facility staff in the Rider-32 study as the reason for absence of a toileting plan suggested that staff expected residents to be incontinent. It would thus appear that on-going staff education and training are needed to address erroneous beliefs and fatalistic attitudes concerning the potential for continence promotion in nursing homes - particularly among the cognitively impaired. Moreover,
studies suggest that there must be an incentive for facilities to provide on-going toileting; otherwise, initial improvements in toileting care are not maintained (Burgio, Engel, Hawkins, McCormick, Scheve, Jones 1990; Schnelle, Newman & Fogarty; 1990). The literature attributes a marginal increase of $3-6 per day per patient to the cost of treating incontinence rather than simply providing incontinence care (McCormick, Cella, Scheve, Engel, 1990; Schnelle, Keller, Hays, Simmons, Ouslander, Stu, 1995). This cost represents additional labor required for adequate toileting. Nurse Aides are viewed as the key figures in effective toileting (Hu, Kaltreider, Igoou, Yu & Rohner, 1990). The additional costs stem from one additional hour of Nurse Aide time per resident per day required for effective toileting.

Discussions concerning costs must also address benefit and overall cost-effectiveness. Incontinence care such as diaper changes is not therapeutically equivalent to continence promotion though toileting. In one analysis of residents with severe mobility-impairments, there was an estimated $13.38 saving per patient per day in avoidable healthcare costs associated with urinary tract infections and pressure ulcers that were preventable through appropriate toileting (McCormick, Cella, Scheve, Engel, 1990).

The literature shows that the apparent lower cost of routine incontinence care in nursing facilities comes from the lower labor cost of diaper changes that are less frequent than residents' incontinent episodes (Schnelle, Sowell, Hu & Traughber, 1988). The finding that one-third of all incontinent residents were wet in the Rider-32 study is consistent with this routine incontinence management approach.

**4.2 Indwelling Bladder Catheters**

4.2.1 Relationship to the Minimum Data Set

The CHSRA quality indicator for the use of indwelling bladder catheters measures the prevalence of indwelling bladder catheters among all residents in each nursing facility (Zimmerman, 1999). The CHSRA QI does not distinguish between avoidable and unavoidable catheterization.

4.2.2 Related Adverse Resident Outcomes

The use of indwelling catheters for residents with urinary incontinence is associated with morbidity from urinary tract and systemic infections as well as overall mortality (Williams, Meuleman, Shaw, 1999). In some clinical situations, the use of indwelling catheters is unavoidable. That is, either the clinical benefit clearly outweighs the risks of adverse effects or there is no clinical intervention that is a realistic alternative to an indwelling catheter.
4.2.3 Criteria for Appropriateness of Care

The Rider-32 criterion for appropriate catheterization examines the prevalence of avoidable use of indwelling bladder catheters. The Rider-32 clinical panel on incontinence classified catheter use into two categories. Short-term catheterization was defined as use of a catheter for less than six weeks. Catheters used for a longer time were classified as chronic (Appendix A item 3.2). The criterion for unavoidable catheterization was the presence of one or more of the following (Appendix A items 3.3–3.5 or 3.7–3.9):

- Medical therapy requiring the recording of accurate intake and output
- Completion of a specific diagnostic evaluation that requires a catheter,
- Administration of a prescribed medication (not a simple bladder irrigant solution),
- A specific functional or anatomic diagnosis for which catheterization is a medically recognized indication,
- Evidence of two or more post-voiding residual volumes (PVR) greater than 200 cubic centimeters (cc), or
- The presence of advanced pressure sores vulnerable to urinary moisture.

In addition to these indications, the use of short-term catheters among residents who had been recently admitted (less than six weeks) was deemed appropriate. Such residents are usually admitted from an acute care setting, and the clinical panel decided that six weeks was a sufficient period for the clinical evaluation needed in order to determine whether discontinuation of the catheter was feasible.

4.2.4 Rider-32 Findings

The Rider-32 Random Sample showed a prevalence of indwelling bladder catheters of 7.0% (138/1985) - virtually the same as the statewide MDS QI-reported prevalence for indwelling catheters of 7.14%.

Overall, only 37.68% of catheter use appeared to be appropriate on the basis of the Rider-32 clinical panel’s criteria. Short-term catheterization was avoidable in 30% (6/20) of the cases. Chronic catheterization was avoidable in 67.8% (80/118) of cases.

As in the study of toileting plans, the clinical panel requested that resident preference as well a facility staff narrative justification for catheter use be recorded if the criteria for unavoidable catheterization were not met. Of twelve general categories of narrative explanation, four accounted for 57% of the responses. These were non-infectious bladder disorders (28%), urinary tract infection (9.84%), active skin problems such as rashes or early stage pressure ulcers (9.84%), and renal diseases (9.84%). At least some of these catheters, with better documentation, would have been deemed appropriate. Of those justifications least likely to have met criteria for clinical
appropriateness, the following were notable: patient or family preference (3.28%), cognitive impairment (6.56%), and urinary incontinence (3.28%).

For the purposes of helping to establish an estimate of appropriate care with inadequate documentation, each narrative explanation was classified as either probably inappropriate or possibly appropriate. 52% of the catheters supported by a narrative explanation but not meeting Rider-32 criteria for unavoidable appeared to be possibly appropriate had there been better documentation. Measurement of post-voiding residual urine volume (PVR) appeared to be a frequently missed opportunity to show that catheter use was unavoidable. PVR is a safe, simple and low-cost way to assess incontinence in residents who have a variety of bladder-emptying problems that are appropriately managed with catheterization.

4.2.5 Appropriateness by Resident and Facility Characteristics

Because the actual number of catheterized residents in the sample was small, no conclusions were possible regarding the relationship between the appropriateness of short or long-term catheter use and resident gender, ethnicity, age category, facility ownership type or facility ownership model. There was no discernable association between the appropriateness of care and facility MDS census quartile or rural/urban category.

4.2.6 Conclusions

The use of indwelling bladder catheters in Texas nursing facilities presents a significant opportunity for quality improvement. While only 7% of all nursing facility residents are affected, 62% of those do not appear to be receiving care that is appropriate by the strictest standard. If all residents whose narrative justifications suggest possibly appropriate but inadequately documented indications for catheterization are counted as receiving appropriate care, then the number of avoidable instances of catheter use decreases from 62% to 39%.

Thus, even the most optimistic appraisal suggests that over a third of indwelling bladder catheters represent avoidable negative outcomes. Many of these instances are properly viewed as inappropriate management of urinary incontinence.

Resident or family preferences rarely appeared to be the sole reason for catheter use. The findings here suggested that essential evaluative steps were often omitted or not documented. A trial of voiding with appropriate documentation of PVR volumes
appeared to be frequently overlooked. Lastly, on-going staff education concerning appropriate indications for chronic indwelling bladder catheter use seems warranted.

4.3 Inactivity

4.3.1 Relationship to the Minimum Data Set

The CHSRA quality indicator for inactivity measures the proportion of residents who are not engaged in some activity other than treatments or activities of daily living (ADLs include dressing, eating, bathing and toileting) for more than a third of their waking hours. This QI excludes residents who are comatose (Zimmerman, 1999). While this particular indicator does not distinguish between avoidable and unavoidable inactivity, one can argue that such severe inactivity should always be avoidable.

4.3.2 Related Adverse Resident Outcomes

The clinical literature concerning physical activity in the elderly shows that increased activity plays an important role in:

- Decreasing symptoms of depression (McNeil, LeBlanc, Joyner, 1991),
- Lowering use of sleeping medicines (King, Oman, Brassington, Bliwise, Haskell, 1997), and
- Decreasing behavioral problems (Alessi, Yoon, Schnelle, Al-Samarrai, Cruise, 1999).

Specific exercise programs have shown benefits such as:

- Improved balance (Judge, Lindsey, Underwood, Winsemissius, 1993),
- Fewer falls (Gregg, Cauley, Seeley, Ensrud, Bauer, 1998)
- Lower risk of fall-related fractures among elders with no ADL impairments (Stevens, J., Powell, Wingo, Sattin, 1997), and
- Increased muscular strength (Fisher, Pendergast, Calkins, 1991).

The literature on social activity shows that improved longevity, lower rates of disability in ADLs, and increased likelihood of recovery from disability (Mendes de Leon, Glass, Beckett, Seeman, Evans, Berkman, 1999; Unger, McAvay, Bruce, Berkman, Seeman, 1999) are benefits associated with social networks. Emotional well being (positive affect or mental health) has also been shown to be a strong predictor of functional independence and longevity (Ostir, Markides, Black, Goodwin, 2000; Ljungquist, Sundstrom, 1996).
4.3.3 Criteria for Appropriateness of Care

The Rider-32 criteria for appropriate activity were designed to assess physical and social activity separately.

The criterion for adequate physical activity was the achievement of 30 minutes or more of structured physical activity at the resident’s highest practicable level of activity on at least five of the last seven days. All residents were considered candidates for activity since even comatose residents require passive range of motion exercises to prevent complications such as contractures.

The criterion for appropriate social activity was the presence of six or more social contacts during each of the last seven days. Social contacts could be either active (e.g. conversation) or passive (e.g. receiving a letter from family) and involve anyone (including pets) except nursing facility staff. Only residents whose baseline mental status was not unresponsive were counted in the social activity analyses.

4.3.4 Rider-32 Findings

Only 35.82% of the Rider-32 Random Sample (711/1985) met the criterion for adequate physical activity. 51.87% (984/1897) met the criterion for adequate social activity. 65.87% (1235/1985) had either adequate social or adequate physical activity, but only 24.25% (460/1897) had both.

4.3.5 Appropriateness by Resident and Facility Characteristics

Although gender, ethnicity, and age category did not show a statistically significant association with the appropriateness of either social or physical activity, other resident characteristics did show significant associations. Among these were each resident’s continence status and highest practicable level of activity.

With respect to continence status, the following associations were statistically significant:

- A finding of wetness on resident assessment was associated with lack of appropriate levels of social and physical activity,
- Incontinence (without regard to toileting) was associated with lack of appropriate levels of physical activity, and
- Residents who were found to be independently continent were more likely to have appropriate levels of physical and social activity.
Unresponsive mental status showed a statistically significant association with lack of physical activity that would be necessary and appropriate for such residents. Moreover, the highest practicable level of physical activity appeared to be strongly associated with actual social and physical activity. The accompanying charts show the relationships between highest practicable level of activity and adequate social and physical activity.
There was a statistically significant association between Medicaid eligibility and adequate social activity but not physical activity. Medicaid eligible residents were less likely to achieve adequate social activity (51% versus 56%, p < .05). Given the small size of the performance difference, this result was not pursued further to test whether health status (continence and highest practicable level of activity) was a confounding factor.

4.3.6 Conclusions

Most residents were not engaged in the level of social and physical activity that would be adequate for the highest quality of life, for increasing or even maintaining their current level of physical functioning, or for promoting optimal health. The strong association between a resident’s highest practicable level of physical activity and the adequacy of social and physical activity suggested that those with the greatest need for activity were also the least likely to have it.

Regardless of the underlying basis for these findings, the likely result is the same. The loss of independent locomotion marks the beginning of a downward spiral in which residents are less likely to get sufficient physical activity to maintain their level of physical functioning and sufficient social activity to maintain their level of emotional well-being.

At every stage of increased resident need/dependency, there was a corresponding decline in the likelihood that residents would receive the levels of physical and social activity needed to simply maintain their current level of need/dependency.

It is equally important to recognize that the highest practicable level of physical activity explains only 5-7% of the variance in appropriateness of physical and social activity among nursing facility residents. The availability of appropriate activities, the manner in which these are presented, individual residents’ interests, as well as other factors not addressed in this study must play a large role in explaining why most residents did not achieve adequate levels of physical and social activity.

4.4 Medication Management

4.4.1 Relationship to the Minimum Data Set

The definition for the CHSRA quality indicator associated with antipsychotic use (QI19) assesses the prevalence of antipsychotic use in the absence of psychotic and related conditions (Zimmerman, 1999). QI19 is reported as an overall figure without regard to
risk as well as stratified according to defined risk status. The QI for high-risk residents (Hi19) is based only on residents who have no psychotic or related condition and whose most recent MDS assessment indicates the presence of cognitive impairment and behavioral symptoms. The QI for low-risk residents (Lo19) is based on those residents who have no psychotic or related condition and whose most recent MDS assessment indicates the absence of either cognitive impairment or behavioral symptoms or both. Thus, no resident considered in QI19, Lo19 or Hi19 may have a psychotic or related condition.

The QI numerators count those residents in the risk group who are on antipsychotics, and the denominators count all residents in the risk group. Hence, the QI formulas are:

\[
\begin{align*}
\text{Lo19} &= \frac{\text{low-risk residents on antipsychotics}}{\text{all low-risk residents}}, \\
\text{Hi19} &= \frac{\text{high-risk residents on antipsychotics}}{\text{all high-risk residents}}, \\
\text{QI19} &= \frac{\text{low and high-risk residents on antipsychotics}}{\text{all low and high-risk residents}}.
\end{align*}
\]

While these quality indicators report the MDS-based prevalence of potentially inappropriate antipsychotic usage, they do not distinguish avoidable from unavoidable prescribing. If all instances of Lo19 or Hi19 represented inappropriate prescribing, then these quality indicators would be viable measures of the appropriateness (quality) of antipsychotic drug usage in nursing facilities. However, without a direct audit of individual resident records, it is not possible to determine any of the following:

- Whether MDS assessments accurately report residents taking antipsychotic medications,
- Whether MDS assessments accurately depict resident risk status, and
- Whether every instance of antipsychotic prescribing among residents without psychotic or related conditions indeed represents inappropriate prescribing.

The purpose of this aspect of Rider-32 was to address these three issues. The first two of these issues addressed MDS data quality: whether nursing facilities under-reported or over-reported the use of antipsychotics and whether resident diagnoses, cognitive impairment and behavioral symptoms were properly reported. The third issue addressed whether specific instances of antipsychotic drug use in low risk residents were avoidable.

### 4.4.2 Related Adverse Resident Outcomes

Several researchers, policy makers, and practitioners have acknowledged and reported problems in prescribing medications for elderly residents of nursing facilities (Beers, Avorn, Soumerai et al., 1988; Ray, 1980; Nolan, O’Malley, 1988). These include
increased health care costs resulting from drug-related problems in nursing facilities such as the costs incurred from additional physician visits, hospital admissions, emergency room visits, laboratory monitoring tests, and prescriptions for additional or alternate medications.

Antipsychotic use in nursing home residents has been the subject of criticism since the 1980’s. These medications often show a small benefit to risk ratio, and pose special risks in the elderly (Beers, Ouslander, 1989). The elderly are especially susceptible to adverse drug reactions (ADRs). They are two to three times as likely to experience ADRs as young adults (Nolan, O’Malley, 1988). Some cost-of-illness research has suggested that the yearly costs of preventable morbidity and mortality associated with medication misuse exceed $76 billion (Johnson, Bootman, 1995).

Lindley et al. completed a study that examined the relationship between ADRs and appropriateness of prescribing among elderly patients admitted to the hospital. The results revealed that drugs that were either unnecessary or absolutely contraindicated were important sources of ADRs. The admission rate associated with inappropriately prescribed drugs was significantly higher than for appropriately prescribed drugs (Lindley et al., 1992).

Adverse effects of antipsychotic medication usage can range from mild to serious. Severe and potentially irreversible adverse effects include tardive dyskinesia and neuroleptic malignant syndrome (Zaleon, Guthrie, 1994; Avorn, Gurwitz, 1995). Other serious complications include falls, fractures, and death. Less dramatic but troublesome adverse effects among the elderly range from sedation, cognitive impairment, and orthostatic hypotension to dizziness, urinary retention or incontinence, and constipation. These effects can impair routine self-care as well as an individual’s ability to participate in decision-making and to enjoy daily activities.

In a one-year case-control study of nursing home residents, the use of antipsychotics was an important risk factor for falls (Yip & Cumming, 1994). No other class of medications in that study was significantly associated with falls. That study is supported by similar findings in other studies that found a significantly increased rate of falls among residents taking antipsychotic medications. (Myers et al., 1991; Wells et al., 1985; Lorenzo, 1998). Other studies have found significant associations between falls and other medications including benzodiazepines, antihypertensives, analgesics, and tricyclic antidepressants.

In summary, the prescribing of antipsychotics in nursing facilities requires special oversight due to their low benefit/risk ratio and the increased adverse effect susceptibility among the elderly.
4.4.3 Criteria for Appropriateness of Care

Since 1990, federal legislation has required documentation of specific conditions that serve as medical justifications for the use of antipsychotic medications in nursing facility residents (OBRA, 1987 & 1990). Indications and contraindications for antipsychotic drug use, dosage reduction requirements, and maximum daily dosage recommendations are HCFA guideline components that address antipsychotic drug use. Each of these elements must be appropriately documented in the patient’s medical record.

The Rider-32 study collected and analyzed data from the medical charts of two resident populations. The first population consisted of all residents in Rider-32 Facilities whose most recent MDS assessment indicated the use of antipsychotic medications and low risk (Lo19). This group is subsequently called the Lo19 Group. The second population consisted of all residents from the Rider-32 Random Sample.

Pharmacy reviewers audited the following records that nurse reviewers were instructed to obtain from residents’ charts:

- Most recent 90-day Medication Administration Records,
- Physician order sheets, and
- Any other documents, as determined by the nursing facility and nurse reviewer, that provided information regarding resident diagnoses or indications for use of antipsychotic medications.

The following information was then extracted from these documents:

- Determination of whether an antipsychotic medication was prescribed,
- Determination of whether an antipsychotic medication was actually administered,
- Identification of an indication or diagnosis whenever an antipsychotic medication was prescribed or administered,
- Name(s) of antipsychotic medication(s) prescribed or administered, and
- Dose and frequency of antipsychotic medication(s).

HCFA guidelines state that antipsychotic drugs should not be used unless the clinical record documents that the resident has one or more of the specific conditions listed in Table 4.4.3.1 (Appendix C). These guidelines also stipulate that antipsychotics should not be used when one or more of the conditions in Table 4.4.3.2 (Appendix C) are the only indications. These conditions are:

- Wandering,
- Poor self-care,
- Restlessness,
- Impaired memory,
• Anxiety,
• Depression (without psychotic features),
• Insomnia,
• Un sociability,
• Indifference to surroundings,
• Fidgeting,
• Nervousness,
• Uncooperativeness, and
• Agitated behaviors, which do not represent danger to the resident or others.

Furthermore, current geriatric literature supports the position that conditions or diseases such as dementia, senile dementia, or Alzheimer’s disease, in the absence of clinical symptoms amenable to antipsychotics, are not valid indications for the use of antipsychotic medications.

In addition to the HCFA indications, the pharmacy reviewers ascertained whether specific non-HCFA indications were present in the medical record to justify the use of an antipsychotic. A non-HCFA indication was determined to be valid based on criteria generally accepted by the medical community; these included off-label or non-FDA approved uses of antipsychotic medications. Drug manufacturers provide off-label medication use(s) in their drug information packages. Examples of valid non-HCFA indications found in this study include the following specific neurological and psychiatric conditions: obsessive compulsive disorder, facial grimaces caused by affective psychosis, hemiballism, and explosive behavior.

4.4.4 Rider-32 Findings

Adequate medication data was obtained from 11,710 residents in 1021 nursing facilities. This number included residents in the Rider-32 Facilities whose MDS assessments triggered the Lo19 quality indicator plus 1809 Rider-32 Random Sample residents for whom medication data were available. Based on their MDS assessments, the residents fell into the following groups:

• Lo19 Group: 10,163 residents
• Hi19: 78 residents, all of whom came from the Rider-32 Random Sample
• Non-QI19: 1469 residents whose MDS did not identify them being on antipsychotics and in either Lo19 or Hi19 groups; all of these residents came from the Rider-32 Random Sample.

There was some overlap between the Lo19 residents and Rider-32 Random Sample. Of the 1809 residents in the Rider-32 Random Sample, 262 were also identified as belonging to the Lo19 Group. These 262 residents are included in the analyses of both samples.
4.4.4.1 Lo19 Group

In order to address the MDS data quality issues, it was necessary to address errors of over-reporting, under-reporting and erroneous risk status. Over-reporting occurred when residents were erroneously identified by their MDS assessments as taking antipsychotics. It also occurred when residents' psychotic or related conditions were not reported. When MDS assessments failed to identify residents who were taking antipsychotics, under-reporting occurred. Erroneous risk status occurred when MDS assessments did not accurately reflect the presence or absence of cognitive impairment and/or behavioral symptoms as documented in the medical record. The following evaluation was based on review of actual resident records rather than review of MDS assessments.

Because the Lo19 Group included only residents whose MDS assessments reported antipsychotic medication use, it was not possible to address potential under-reporting on the basis of Lo19 Group data alone. However, using the Rider-32 Random Sample it was possible to estimate the extent of Lo19 under-reporting (see section 4.4.4.2).

Similarly, risk status errors could not be reliably identified in this sample. However, because this group was comprised of all residents identified by MDS as Lo19 for whom medication management records were obtainable, it was possible to determine over-reporting very accurately. This involved a comparison of the statewide prevalence of antipsychotic prescribing among low risk residents as determined from MDS assessments (Lo19$_{MDS}$) to the prevalence as determined by chart review (Lo19$_{RVW}$).

In order to determine Lo19$_{RVW}$, it was necessary to adjust for the following:

1) Residents identified in the MDS as being prescribed antipsychotics but who were not on antipsychotics: These residents should have been excluded from the numerator of the Lo19$_{MDS}$ prevalence.

2) Residents who had a valid HCFA indication for an antipsychotic medication: These residents should have been excluded from both the numerator and denominator of the Lo19$_{MDS}$ prevalence.

3) Residents who had behavior symptoms and cognitive impairment: These individuals should have been categorized as Hi19 residents.

From the last quarter of 1999 through the first quarter of 2000, Texas statewide Lo19$_{MDS}$ was 16.56%. During the last quarter of 1999, Lo19$_{MDS}$ was 16.5% (10049/60670). Calculated on a four-month baseline using the MDS assessments of individuals residing in each facility at the time of its Rider-32 visit, Lo19$_{MDS}$ was 16.49% (11233/68130). The Texas Lo19$_{MDS}$ prevalence in Table 4.4.4.1 (Appendix C) was greater than the mean of...
12.0% for sixteen other states. The Lo19 QI values reported in these states ranged from 9.3% to 18.2%.

The actual number of resident records in the Lo19 Group was 10,163 – 10% less than the expected number (11,233) of Lo19 residents. The 10% difference stems from a variety of causes including the following:

- The HCFA MDS Analytical reporting system was used to identify Lo19 residents in order to obtain their medication records. This system reported residents who moved between facilities twice; the same resident appeared as a Lo19 resident in each of the two different facilities. The Rider-32 medical management records identified only 56 such duplicates; there were probably more cases in which medication management records were available from only one of the two facilities.

- The MDS Analytical reports also included residents who had either died or left the nursing facility by the time that the on-site visit occurred. Records for such residents were not always available.

- Some Lo19 residents and their medical records were temporarily absent from the facility at the time that the on-site visit occurred.

- Some facilities were not able to provide all of the records requested.

Because it was not practical to identify individually each Lo19 resident for whom medical records were not obtained, for the purposes of estimating true prevalence, the denominator population was considered to be 0.9 x 68130 = 61317.

Review of medical records of the 10,163 Lo19 Group residents revealed the following:

- 87.6% (8904/10163) either had medical documentation that an antipsychotic medication had been prescribed for them or had no medication administration documentation (304 residents). All but 0.2% had documentation to confirm that they actually received their medication.

- 12.4% (1259/10163) of the residents identified by the MDS as Lo19 were not prescribed an antipsychotic medication during the assessment period.

As part of the Rider-32 study design, facilities were informed that Lo19 residents whose medical record abstracts were incomplete or illegible would be treated as if their MDS were accurate with respect to antipsychotic prescribing. Hence incomplete medication management records would imply that a Lo19 resident had indeed received antipsychotics. Among the 8904 Lo19 residents who were counted as being on antipsychotics, there were only 304 such residents.
Of the 8904 Lo19 residents who were prescribed an antipsychotic medication, 47.2% (4202/8904), had a recognized HCFA indication for this class of medication. These individuals resided in 85.3% (871/1021) of the Rider-32 Facilities. Thus, over-reporting of Lo19 residents as a consequence of inadequate MDS diagnostic information appeared to be a widespread problem.

Approximately 1% (92/8904) of the residents counted as being prescribed antipsychotics had a valid non-HCFA indication for their medication.

Eliminating those residents who had a valid HCFA indication and who were thus incorrectly classified by their MDS assessments as Lo19 yields the Lo19$_{\text{RVW}}$ prevalence. The Lo19$_{\text{RVW}}$ prevalence requires a denominator of 61317 – 4202 = 57115 and a numerator of 4702. While the calculated Lo19$_{\text{RVW}}$ statewide prevalence thus appears be 8.2% (4702/57115), this figure is conservative because it does not include residents given antipsychotics not reported on their MDS assessments.

Due to the intermittent nature of MDS reporting, it is possible that high-risk residents are not identified as having behavioral symptoms and cognitive impairment until the quarter following the initiation of antipsychotic medications. Based on the most recent related MDS data items, it appeared that in this sample 2.2% (105/4702) of the Lo19 residents who had no HCFA-approved indication at the time that they were prescribed antipsychotics were identified on their subsequent MDS assessment as having both behavioral symptoms and cognitive impairment. Because subsequent MDS assessments could be identified for only 62% of the 4702 Lo19 residents, the 2.2% figure represents a lower limit for the frequency with which Lo19s are subsequently reclassified as Hi19s. Thus, after correcting for other types of misclassifications, the Lo19 prevalence might still be somewhat over-estimated and the Hi19 prevalence under-estimated simply as a result of this reclassification phenomenon.

After accounting for the 92 residents who had a valid non-HCFA indication for antipsychotic medications, 51.8% (4610/8904) residents were either missing a diagnosis or had no valid indication for antipsychotic medication. Of these 4610 residents, 15.6% (719/4610) had either a clearly documented indication that was not a valid indication for antipsychotics or a diagnosis that did not warrant an antipsychotic medication. These individuals resided in 30.3% (309/1021) of the Rider-32 Facilities. Thus, the most optimistic assessment was that residents in nearly a third of all Texas facilities were prescribed antipsychotics for indications that were clearly inappropriate. Figure 4.4.4.1 (Appendix C) summarizes the breakdown of the Lo19$_{\text{RVW}}$ residents on antipsychotics by prescribing indication.

The remaining 3891 residents were found to reside in 79.7% (814/1021) of the Rider-32 Facilities. For these 3891 residents, further analysis was done in order to distinguish the residents who may have had an inappropriate diagnosis from those who were
completely missing a diagnosis. A sub-category analysis was performed on Lo19\textsubscript{RVW} residents on antipsychotics with a missing diagnosis. This analysis was done to determine the number of residents for whom one of the following five diagnoses was documented in the clinical record but not clearly stated as the prescribing indication for the antipsychotic medication:

- Dementia,
- Senile Dementia,
- Alzheimer’s Disease,
- Organic Brain Syndrome, and
- Bipolar Disorder.

According to HCFA guidelines, the use of antipsychotic medications in residents who have one or more of these diagnoses is valid only if there are associated features of psychosis and/or agitation as given in Table 4.4.3. For example, senile dementia with psychotic features is a valid HCFA indication, whereas senile dementia alone is not. These features or behaviors must be clearly defined, documented, and monitored by the nursing facility.

There were 2841 Lo19\textsubscript{RVW} residents who had at least one of these five diagnoses and for whom there was no documentation of an associated psychotic feature and/or agitated behavior. These individuals were found to reside in 69.8% (713/1021) of the Rider-32 Facilities. In the absence of adequate documentation, it was only possible to establish lower and upper limits for the prevalence of antipsychotic prescribing with inappropriate diagnoses.

The most optimistic assumption was that all 2841 residents had an associated psychotic or agitated behavior that was not adequately documented. This assumption established the lower limit prevalence of inappropriate prescribing indications among Lo19\textsubscript{RVW} residents at 15.6% involving 30.3% of all Rider-32 facilities. The most pessimistic assumption was that none of these residents had an associated psychotic or agitated behavior, and the antipsychotic medication was given solely for one of the five diagnoses named. This assumption established the upper limit prevalence of prescribing antipsychotics without an appropriate indication among Lo19\textsubscript{RVW} at 77.2% (3560/4610) involving 77.1% (787/1021) of Rider-32 facilities.

In fairness, it is possible that at least some of the 2841 residents had a psychotic feature or agitated behavior that justified the use of an antipsychotic and the facility failed to show this by either providing a complete diagnosis or a behavior monitoring sheet. It is also possible that there was a valid diagnosis for the use of an antipsychotic medication and that it was simply missing from the documentation. However, even in such instances the absence of adequate documentation with respect to the specific indications for antipsychotic medication is significant evidence of less than optimal care. Without documented indications for treatment, facility staff and physicians have little...
rational basis for either monitoring symptoms or making crucial therapeutic decisions such as dosage adjustments, changes of antipsychotic agent, or discontinuation of treatment that fails to produce clinical improvement. Current HCFA regulations require not only that symptoms be monitored, but also that the toxic effects of antipsychotic therapy be continuously reassessed and attempts be made to reduce antipsychotic doses to the minimum effective level. None of these requirements can be satisfied in the absence of the basic diagnostic information that was lacking in these 2841 cases. Therefore, the upper limit of 77% is the value that best characterizes the true rate of inappropriate antipsychotic management among the Lo19 Group.

The results of the Lo19 Group analysis indicated that approximately 8.2% of all residents identified by the MDS as low risk residents actually received antipsychotic medications. 77.2% of these residents were receiving antipsychotic medications in the absence of properly documented, clinically appropriate indications.

Both a lack of essential diagnostic information in MDS assessments as well as a presence of demonstrably inappropriate prescribing for antipsychotics were found to be widespread problems among Rider-32 Facilities.

4.4.4.2 Rider-32 Random Sample Residents

There were 1809 residents in the Rider-32 Random Sample for whom medication management data was collected. MDS assessments identified 262 of them as Lo19 residents, 78 as Hi19 residents, and 1469 as non-QI19 residents. The non-QI19 group included residents whose medical records showed that they were not prescribed antipsychotics as well as residents whose records showed that they were taking antipsychotics not reported in their MDS assessments. Thus, the MDS QI had not identified these latter residents as being in either the Lo19 or Hi19 groups.

Non-QI19: Residents not identified by MDS as Lo19 or Hi19

Medication record review revealed that of the 1469 residents in the Rider-32 Random Sample who were non-QI19 residents, 15.2% (224/1469) were receiving an antipsychotic medication. Among these 224 residents,

- 64.3% (144/224) residents had a valid indication and would have been appropriately excluded from QI19.
- 35.7% (80/224) should have been included in QI19 and had not been. Of these 80,
23.7% (19/80) had a documented indication that was not valid or a diagnosis that did not warrant an antipsychotic medication.

26.3% (21/80) of them were missing a diagnosis.

50% (40/80) residents had at least one of the five previously discussed diagnoses and no documentation of an associated psychotic feature or agitated behavior.

Adding the 40 residents in the last subcategory to the 19 that had a documented inappropriate indication yields the number of residents treated without inappropriate indications among these 80. Thus, 73.8% (59/80) of the residents who were not identified as QI19 residents and who were receiving antipsychotics received them without an appropriate indication. Accurate MDS assessments would have classified all 80 residents as low-risk.

**Hi19: Residents identified by MDS as Hi19**

Medication record review revealed that of the 78 residents in the Rider-32 Random Sample identified by MDS as Hi19, 91% (71/78) were receiving an antipsychotic medication. Of the 71 on medication,

- 67.6% (48/71) had a HCFA-recognized indication and should have been excluded from the QI19 numerator and denominator but were not.

- 32.3% (23/71) did not have a HCFA-recognized indication and may have been properly classified as Hi19. Of these 23,

  - 17.4% (4/23) had a documented indication that was not valid or a diagnosis that did not warrant an antipsychotic medication.
  - Of the remaining 19 residents, who were receiving an antipsychotic, 94.7% (18/19) had at least one of the five previously discussed diagnoses and no documentation of an associated psychotic feature or agitated behavior.

In the Rider-32 Random Sample there were no Hi19 residents who had a valid non-HCFA indication for antipsychotic therapy.

Thus, among residents whose medical records confirmed them to be Hi19, 95.6% (22/23) were clearly receiving antipsychotics without an appropriate indication. The remaining resident either had no valid indication or had a valid indication and documentation inadequate to demonstrate it.

Overall, the Hi19 QI did not appear to present a particularly reliable picture of the actual prevalence of antipsychotic prescribing in the high-risk group. Of the residents that it reported, 67.6% should not have been included due to the presence of a psychotic or related condition and another 9% were not on antipsychotic medications.

December 15, 2000  Texas Department of Human Services
Long Term Care Office of Programs
Medical Quality Assurance
**Lo19: Residents identified by MDS as Lo19**

Medication record reviews revealed that of the 262 Lo19 residents in the Rider-32 Random Sample, 84.7% (222/262) were receiving an antipsychotic medication. Among these 222 residents,

- 45.5% (101/222) had a HCFA-recognized indication and should have been excluded from the QI19 numerator and denominator but were not.

- 2.2% (5/222) had a valid non-HCFA indication for antipsychotics.

- None of the remaining (116 /222) had a HCFA-recognized or other valid indication for antipsychotics. Of these 116,
  - 12.1% (14/116) had a documented indication that was not valid or a diagnosis that did not warrant an antipsychotic medication.
  - 74.1% of them (86/116) had at least one of the five previously discussed diagnoses but no documentation of an associated psychotic and/or agitated behavior.
  - 13.8% (16/116) were missing a diagnosis.

In summary, among residents whose medical records confirmed them to be Lo19, 86.2% (100/116) were receiving antipsychotics without an appropriate indication. Thus, the lower limit for inappropriate prescribing indications in this group was 12.1% (documented inappropriate indications), and the upper limit was 86.2%.

Table 4.4.4.2 (Appendix C) provides a description of these Rider-32 Random Sample subgroups. Figure 4.4.4.3 depicts the entire sample according to appropriateness of prescribing indications.

The Rider-32 Random Sample appeared to be a reasonable proxy for the entire population of nursing facility residents reported in the MDS. For example, the entire Lo19 Group showed that 48.2% had a valid diagnosis for antipsychotic usage. The Lo19 residents from the Rider-32 Random Sample showed that 45.5% had a valid diagnosis. The possible range for inappropriate diagnoses for the Lo19 Group was 8.2% to 77.2%. The Rider-32 Random Sample yielded a possible range of 12.1% to 86.2%.
Using the Rider-32 sample as a proxy for the entire Texas nursing facility resident population, it was possible to estimate the true statewide prevalence of antipsychotic drug use as well as the true proportion of residents treated without an inappropriate indication.

Prevalence of antipsychotic drug use = (confirmed use) / (sample size) = 28.5%

Proportion of treated residents lacking an appropriate indication = 42.2%

As a proxy for the Texas nursing facility resident population, the Rider-32 Random Sample also permitted determining a rate for MDS under-reporting of residents on antipsychotic medications. Of the 1809 residents in the complete sample, MDS failed to identify 4.4% (80/1809) whose medical record reviews showed them to be on antipsychotics without a HCFA-recognized indication. This observed rate for Lo19 under-reporting can be used to estimate the extent to which Lo19_{RVW} (8.2%) based on the Lo19 Group underestimates the true prevalence of antipsychotic prescribing in the absence of a HCFA-approved indication.

Based on an MDS census of 89700 calculated on the same four-month baseline used for the QI determinations, the expected number of unreported low risk residents on antipsychotics is 3966. Adjusting the Lo19_{RVW} (4610/57023) numerator and denominator for this amount yields a revised Lo19_{RVW} value of 14.1% (8576/60989).

The observed Lo19 prevalence among residents whose MDS assessments identified them as Lo19 was 8.2% rather than the MDS-reported 16.5%. This appeared to be due to under-reported psychiatric diagnoses. However, antipsychotic usage itself appeared to be under-reported. Accounting for the extent of this under-reporting yielded an estimated true value of QI Lo19 of 14.1%.

The magnitudes of the corrections for over- and under-reporting in comparison to the magnitude of the MDS reported QI Lo19 itself call the practical value of this QI into question.

4.4.5 Appropriateness by Resident and Facility Characteristics

The statistical associations of facility and resident characteristics with appropriateness of antipsychotic medication prescribing by risk group were examined. The risk groups were determined by performing direct chart reviews rather than using the MDS.
4.4.5.1 Facility Characteristics

While there were some statistically significant associations between appropriate and inappropriate prescribing and facility characteristics, these were only small differences and accounted for no more than 1.5% of the variance. The following showed statistically significant (p < .05) associations:

- Low-risk residents residing in urban facilities were more likely than rural facility residents to receive antipsychotic medication in the absence of valid indications.
- Among residents whose antipsychotics were not reported in MDS, those in for-profit facilities were more likely to receive an antipsychotic in the absence of valid indications than were residents in non-profit facilities.
- Low-risk residents who resided in facilities with a census of more than 138 residents were more likely to receive antipsychotics in the absence of valid indications than were Lo19 residents in facilities with a census of fewer than 45 residents.
- Among residents whose antipsychotics were not reported in MDS, those who resided in facilities with a census of more than 138 were more likely to receive antipsychotics in the absence of valid indications than were residents in facilities with a census of between 46 to 91 residents.
- For residents whose antipsychotics were not reported in MDS, a small but statistically significant association was found between the number of residents who were receiving antipsychotics in the absence of a valid indication and LVN staffing per resident. Lower staffing was associated with a higher rate of receiving antipsychotics in the absence of a valid indication.

There was no statistically significant association between facility ownership types and the presence or absence of inappropriate antipsychotic drug prescribing.

4.4.5.2 Resident Characteristics

There were some statistically significant associations between appropriate and inappropriate prescribing and resident characteristics. Resident characteristics explained a greater amount of variance in appropriateness of prescribing than did facility characteristics. The range was from 2.2% to 12.3%.

The following showed statistically significant (p < .05) associations:
• Among residents whose antipsychotics were not reported in MDS, those residents in the oldest old age group (>85) were more likely to have appropriate antipsychotic prescribing indications than were residents in the younger age groups.

• Hispanic residents at low-risk as well as those whose antipsychotic medications were not reported in the MDS were more likely to receive antipsychotics without appropriate indications than were non-Hispanic residents.

• High-risk Medicaid residents were more likely to receive antipsychotics without an appropriate indication than were high-risk non-Medicaid residents.

• Among residents whose antipsychotics were not reported in MDS, those residents who had a history of mental illness reported in their MDS assessments were more likely to receive antipsychotics in the absence of an appropriate indication than were those without such a history.

• High-risk female residents were more likely to receive antipsychotics in the absence of an appropriate indication than were high-risk male residents.

• Low-risk residents who did not respond to the consumer satisfaction questionnaire themselves were more likely to receive antipsychotics in the absence of an appropriate indication than those who did respond.

• Among incontinent residents who would have benefited from toileting and who were receiving antipsychotics, appropriate toileting plans were associated with the finding of appropriate indications for antipsychotics.

4.4.6 Conclusions

There has been little data in the literature regarding the prevalence of antipsychotic medications and their appropriate use in nursing facility residents since the OBRA 1987 mandated changes in nursing home care. A small number of studies have looked at the appropriate use of all psychotropic medications in community-dwelling geriatric patients, with antipsychotic medications as one subclass of psychotropic medications (Wilcox, et al. 1994, Stuck, et al. 1994).

A study by Gerrard et al. found that if OBRA regulation changes had been in effect from 1976 and 1985, an estimated 50% of antipsychotic medication use in nursing home residents would have been considered inappropriate. In 1998, a study by Llorente et al. looked at the use of antipsychotic drugs in nursing home residents and the prevalence of compliance with OBRA regulations. The results showed that 30% of the residents receiving an antipsychotic had an inappropriate diagnosis or indication.
Random Sample suggests that as many as 42% of Texas nursing facility residents receiving antipsychotics have an inappropriate diagnosis or indication.

In 1997, a medication usage study performed by Tobias and Pulliam reviewed the medication records of 82,758 residents from 878 nursing home facilities nationwide to determine the prevalence of psychotherapeutic medications. The results of the study found that 14.2% (S.D. 8.3%) of the nursing home residents were receiving routine antipsychotic medications. In 2000, a preliminary update of the study shows that the rate has increased to 16.9% (S.D. 7.2%) for the first two quarters in 2000. This national survey study served as a benchmark to help determine how effectively Texas nursing facilities are monitoring the appropriate prescribing of antipsychotic medications for their residents. Since the Rider-32 Random Sample showed that the prevalence of antipsychotic drug use in Texas nursing facilities is 28.5%, it appears likely that as many as 14.3% of Texas nursing home residents are inappropriately receiving antipsychotic medications. The Rider-32 findings themselves show that 42% of the 28.5% receiving antipsychotics (11.7% of all residents) are receiving them without appropriate indications. The two figures, 14.3% and 11.7%, derived by different methods, offer a consistent picture of the extent of this quality problem.

Both the Lo19 Group and the Rider-32 Random Sample findings identify significant opportunities for quality improvement. The finding that as many as 77.2% of all prescriptions for antipsychotics among low-risk residents have no appropriate indication represents a significant opportunity for quality improvement in medication management. Similarly, the findings that 42% of all residents on antipsychotic medications have no documented clinical indication for them and that as many as 14.3% of all Texas residents may be receiving antipsychotics without needing them also warrant pharmacy review and quality improvement efforts in every nursing facility. The extent of inappropriate prescribing also suggests that the guidelines developed by HCFA to limit antipsychotic drug use to specific indications and to require explicit documentation in the medical record to justify such therapy are not being adequately followed in Texas nursing facilities. This is a regulatory compliance issue as well as a quality of care issue.

Other findings from the Lo19 Group and Rider-32 Random Sample identified opportunities to improve the validity of MDS-based assessments. First, 12.4% of the Lo19 residents whose MDS assessments indicated antipsychotic use were not receiving antipsychotic medication, and at least 5.5% of the residents from the Rider-32 Random Sample were not identified by MDS as being on antipsychotics and were receiving them. Second, in the Lo19 Group, 48.2% of the residents who were on antipsychotic medications had a recognized HCFA or other valid indication. Because diagnoses are reported in the MDS only on complete assessments such as admission and annual reassessments, failure to report resident diagnoses on these assessments affects all QI19 determinations for an entire year.
Rider-32 pharmacy reviewers also observed that several classes of drugs were commonly misreported as antipsychotics by nursing facilities. The most common misclassifications involved antidepressants and medications used in the treatment of Alzheimer’s disease. These misclassifications help to explain a small amount of the discrepancy between the higher number of Lo19 residents (10163) who were identified by MDS assessments as being on antipsychotics and the lower number (8904) determined by the on-site assessments. These types of drug misclassifications must be eliminated in order to improve the validity of MDS assessments.

To improve the validity of resident MDS assessments and the accuracy of the quality indicators for antipsychotic drug usage, facilities need to focus on four specific issues:

(a) Correctly identifying antipsychotic medications,
(b) Reporting on the MDS all residents who are given these medications,
(c) Reporting all resident diagnoses using the International Classification of Diseases (ICD9-CM coding), and
(d) Accurately reporting the presence or absence of cognitive impairment and behavioral symptoms.

Most of the studies of antipsychotic medication use in nursing homes have focused on descriptive and comparative statistics of prevalence. The high number of residents in the Lo19 Group and Rider-32 Random Sample who had no clinically appropriate indication for antipsychotic therapy illustrates a need for further study in order to assess the effects of inappropriate prescribing on clinical outcomes and their associated costs. Few published reports have examined the relationship between drug prescribing and economic and clinical outcomes. The authors of one study that examined inappropriate prescribing and related outcomes among elderly Medicaid nursing home residents concluded that minimizing the number of inappropriately prescribed medications may reduce pharmaceutical costs, health care costs per resident, and the economic burden on limited health care resources (Gupta, et al., 1996).
5. Consumer Satisfaction

5.1 Content of the Survey

The Rider-32 Consumer Satisfaction Survey was designed to address general issues concerning nursing facility service. Key consumer satisfaction issues previously identified by the American Health Care Association were included (The Gallup Organization, 1996). In addition, specific items that would permit DHS to relate the appropriateness of care provided to individual residents to their own perceptions of satisfaction were included. The survey instrument was shared with industry groups, refined with the assistance of University of Texas faculty and researchers, and field-tested to establish its validity (Fouladi, Yockey, Leiferman & Allen, 1999). In a separate, pre-deployment study, the instrument underwent testing for inter-rater reliability (Fouladi, 1999). The complete instrument appears as Part 5 of the Nursing Facility Performance Monitoring Data Instrument (Appendix A).

5.2 Characteristics of Respondents and Nonrespondents

The responses of the 1985 residents sampled for the current study were sought on the Consumer Satisfaction Survey. In 1465 of these cases, either the resident could and did answer the survey or a family member did so for the resident. There are no consumer satisfaction responses for the remaining 520 cases. These cases were similar to those with responses, in terms of gender distribution, likelihood of having a toileting plan when indicated, likelihood of having adequate social activity if alert, and likelihood of a valid justification in the presence of chronic catheterization.

However, there was some evidence that the population represented by those with no survey respondent was different from the population for whom someone could answer the survey. On observation, forty percent of nonrespondents were found to be wet on inspection, whereas only 32% of respondents were found wet. Comatose or vegetative residents comprised 7.3% of the nonrespondents, but only 3.4% of the cases for which either the resident or a family member responded to the survey. Also, only 43% of the nonrespondents were capable of assisted or independent locomotion, whereas 62% of the responding cases had this physical capability.

In a related finding, only 31% of nonrespondents received adequate physical activity, as compared with 38% of respondents. Additionally, 31% of the residents for whom there are no survey results were minorities, while 22% of residents with survey responses were minorities. These differences in proportion were all found to be statistically significant in chi-square analysis. Results of the Consumer Satisfaction Survey should be interpreted carefully in the light of these identified differences in the demographic and physical make-up of the nonrespondents and respondents, as evidence of
relationships between health, health care, and satisfaction will be demonstrated in the remainder of this section.

The remaining results reported in this section are for cases in which someone was able to answer the Consumer Satisfaction Survey. Unless otherwise noted, results provided are for all respondents combined, including both resident-completed and family-completed responses. Where significant differences in satisfaction were found between these two respondent groups, these are reported separately as well as in the aggregate.

In the absence of random assignment to a respondent group (resident-completed vs. family-completed), it is not possible to distinguish with certainty whether identified differences in satisfaction between groups are an artifact of which person responded (resident or family member) or if the identified differences reflect real disparities in two populations’ levels of satisfaction. However, the residents whose family members responded for them were, overall, less healthy than those residents who replied for themselves. Insofar as health and satisfaction are related, there is reason to believe that the group differences may represent real differences in satisfaction that are associated with health status.

5.3 General Satisfaction

The Rider-32 Consumer Satisfaction Survey contained twelve items. The survey provided seven response options for each item indicating level of satisfaction. Numbered one to seven, these options were labeled in ascending order Very Dissatisfied, Dissatisfied, Somewhat Dissatisfied, Neither Satisfied Nor Dissatisfied, Somewhat Satisfied, Satisfied, and Very Satisfied. Additionally, the various items also provided one or more of the following response options that did not assess satisfaction: No Response, Resident Does Not Participate, and Family Member Does Not Know. (See Appendix A items 5.4 - 5.15 for response options and the content of individual items). The latter responses were not included in the calculation of such indices of satisfaction as item means.

Respondents reported satisfaction more frequently than dissatisfaction on each aspect of the nursing facility experience included in the survey. While individual scores ranged across the entire one-to-seven range of responses for each item, the mean response was between 5 (Somewhat Satisfied) and 6 (Satisfied) on each item. A strong majority of respondents reported being either satisfied or very satisfied on every item, with the lowest proportion satisfied found for food service (65%) and the highest proportion of satisfied respondents found for the items regarding avoidance of undesirable medication effects (81%) and meeting social needs (81%).

The following table provides more detail on individual items. The most common response for each item was a score of 6 (Satisfied).
On six of the twelve satisfaction items, there were no significant differences in mean score by respondent group (resident-completed vs. family-completed). On one item, food service, family members answering on behalf of residents reported greater mean satisfaction than did residents who answered on their own. For the remaining five items, residents reported greater mean satisfaction than did family members reporting on behalf of residents. These items included maintenance of mental alertness, meeting emotional needs, meeting spiritual needs, meeting toileting needs, and meeting social needs.

<table>
<thead>
<tr>
<th>Item</th>
<th>Issue</th>
<th>Valid n</th>
<th>Mean</th>
<th>s.d</th>
<th>Percent Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.4</td>
<td>Food Service</td>
<td>1423</td>
<td>5.36</td>
<td>1.51</td>
<td>65%</td>
</tr>
<tr>
<td>5.5</td>
<td>Provision of Enjoyable Activities</td>
<td>1164</td>
<td>5.61</td>
<td>1.28</td>
<td>75%</td>
</tr>
<tr>
<td>5.6</td>
<td>Maintenance of Physical Activity</td>
<td>1169</td>
<td>5.50</td>
<td>1.36</td>
<td>72%</td>
</tr>
<tr>
<td>5.7</td>
<td>Maintenance of Mental Alertness</td>
<td>1331</td>
<td>5.49</td>
<td>1.27</td>
<td>70%</td>
</tr>
<tr>
<td>5.8</td>
<td>Meeting Emotional Needs</td>
<td>1366</td>
<td>5.57</td>
<td>1.24</td>
<td>74%</td>
</tr>
<tr>
<td>5.9</td>
<td>Meeting Spiritual Needs</td>
<td>1365</td>
<td>5.69</td>
<td>1.13</td>
<td>77%</td>
</tr>
<tr>
<td>5.10</td>
<td>Response to Requests for Assistance</td>
<td>1396</td>
<td>5.39</td>
<td>1.47</td>
<td>67%</td>
</tr>
<tr>
<td>5.11</td>
<td>Avoiding Chemical Restraints</td>
<td>1269</td>
<td>5.67</td>
<td>1.01</td>
<td>78%</td>
</tr>
<tr>
<td>5.12</td>
<td>Avoiding Undesirable Medication Effects</td>
<td>1286</td>
<td>5.70</td>
<td>1.07</td>
<td>81%</td>
</tr>
<tr>
<td>5.13</td>
<td>Meeting Toileting Needs</td>
<td>1385</td>
<td>5.53</td>
<td>1.31</td>
<td>73%</td>
</tr>
<tr>
<td>5.14</td>
<td>Meeting Social Needs</td>
<td>1379</td>
<td>5.77</td>
<td>1.05</td>
<td>81%</td>
</tr>
<tr>
<td>5.15</td>
<td>Overall Satisfaction</td>
<td>1457</td>
<td>5.80</td>
<td>1.22</td>
<td>79%</td>
</tr>
</tbody>
</table>

*Significant difference, p < .05

These differences, while statistically significant, when interpreted in the context of the seven-point scale, may have less practical significance. For every item on which there was a significant difference, the various means all clustered between 5 (Somewhat Satisfied) and 6 (Satisfied), regardless of whether the resident or a surrogate responded. The small differences that do exist may be related to the fact that residents who required a family member to respond to the survey were, on average, in worse health than residents who were able to respond for themselves.
### 5.4 Satisfaction by Resident and Facility Characteristics

In general, reported satisfaction had little to no relationship with a number of demographic characteristics of residents. Satisfaction did not differ significantly by the ethnicity or the age of the resident, regardless of respondent group. In aggregate, gender appeared to be related to satisfaction on only two of the twelve survey items — the facility's ability to meet emotional needs and the facility's ability to meet spiritual needs. Means for female residents were slightly higher than means for male residents on these items (male means 5.47 and 5.53, female means 5.62 and 5.77, respectively). Respondent group interacted with gender on maintenance of physical activity only. On this item, female residents who responded for themselves reported a higher mean satisfaction (5.63) than did male residents who responded for themselves (5.37); however, where family members responded, the mean satisfaction for female residents (5.34) was lower than that for male residents (5.51).

Resident length of stay (Appendix A item 5.3) bore no relation to any satisfaction variable when survey responses were aggregated across respondent groups.

Respondent group interacted with length of stay on items 5.6 (maintenance of physical activity) and 5.9 (meeting spiritual needs). On item 5.6, there were not differences in satisfaction related to respondent group for most categories of length of stay, but there was such a difference when the length of stay was one to two years. On item 5.9, there were not differences in satisfaction related to respondent group for three of the six categories of length of stay. However, mean resident-reported satisfaction was higher than mean family-reported satisfaction when the length of stay was 6-9 months, 1-2 years, or greater than 2 years.

<table>
<thead>
<tr>
<th>Item</th>
<th>Issue</th>
<th>0-3 mos.</th>
<th>3-6 mos.</th>
<th>6-9 mos.</th>
<th>9-12 mos.</th>
<th>1-2 yrs.</th>
<th>2+ yrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.6*</td>
<td>Maintenance of Physical Activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resident-Completed</td>
<td>5.85</td>
<td>4.95</td>
<td>5.67</td>
<td>5.37</td>
<td>5.73</td>
<td>5.49</td>
</tr>
<tr>
<td></td>
<td>Family Member-Completed</td>
<td>5.00</td>
<td>5.73</td>
<td>5.83</td>
<td>5.31</td>
<td>4.84</td>
<td>5.58</td>
</tr>
<tr>
<td>5.9*</td>
<td>Meeting Spiritual Needs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resident-Completed</td>
<td>5.87</td>
<td>5.41</td>
<td>5.82</td>
<td>5.63</td>
<td>5.78</td>
<td>5.80</td>
</tr>
<tr>
<td></td>
<td>Family Member-Completed</td>
<td>5.50</td>
<td>6.00</td>
<td>5.20</td>
<td>5.68</td>
<td>5.35</td>
<td>5.57</td>
</tr>
</tbody>
</table>

*Significant length of stay/respondent interaction, p < .05

= significant pairwise post hoc difference
Attributes of the facilities in which they were residing were examined in relation to consumer satisfaction. These attributes included whether or not the facility operated for profit, the size of the facility, and the population density of its geographic location.

Data that allowed the classification of facilities into profit/non-profit categories were obtained from the 1997 Cost Report. Seven of twelve satisfaction items were found to be unrelated to facility type of ownership. On the remaining five items, nonprofit mean satisfaction was significantly higher than profit mean satisfaction. No interaction with respondent group was found for any item.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Profit</th>
<th>Non-Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Service</td>
<td>5.33</td>
<td>5.65</td>
</tr>
<tr>
<td>Provision of Enjoyable Activities</td>
<td>5.60</td>
<td>5.73</td>
</tr>
<tr>
<td>Maintenance of Physical Activity</td>
<td>5.45</td>
<td>5.71</td>
</tr>
<tr>
<td>Maintenance of Mental Alertness</td>
<td>5.46</td>
<td>5.62</td>
</tr>
<tr>
<td>Meeting Emotional Needs</td>
<td>5.54</td>
<td>5.68</td>
</tr>
<tr>
<td>Meeting Spiritual Needs</td>
<td>5.67</td>
<td>5.84</td>
</tr>
<tr>
<td>Response to Requests for Assistance</td>
<td>5.36</td>
<td>5.62</td>
</tr>
<tr>
<td>Avoidance of Chemical Restraints</td>
<td>5.66</td>
<td>5.69</td>
</tr>
<tr>
<td>Avoidance of Undesirable Medication Effects</td>
<td>5.68</td>
<td>5.68</td>
</tr>
<tr>
<td>Meeting Toileting Needs</td>
<td>5.51</td>
<td>5.54</td>
</tr>
<tr>
<td>Meeting Social Needs</td>
<td>5.75</td>
<td>5.90</td>
</tr>
<tr>
<td>Overall Satisfaction</td>
<td>5.76</td>
<td>6.06</td>
</tr>
</tbody>
</table>

The facility census figure calculated from MDS assessments submitted in the six months of 1999 prior to the Rider-32 study was utilized to classify facilities by size, based on quartiles. Taken across all respondents, there were no differences in satisfaction associated with the size of facility in which residents lived. On three items, the relationship of satisfaction with facility size varied by respondent as illustrated in the following table.
Classification of facilities into rural/urban categories was derived from county codes reported in the 1997 Cost Report. Seven of twelve satisfaction items were found to be unrelated to whether the facility was located in a rural or an urban area. Among the remaining five items, the direction of the difference varied. For provision of enjoyable activities, maintenance of physical activity and overall satisfaction, rural satisfaction means were greater than urban. For the two items concerning medical care, urban satisfaction means were greater than rural.

<table>
<thead>
<tr>
<th>Item</th>
<th>Issue</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.4</td>
<td>Food Service</td>
<td>5.33</td>
<td>5.42</td>
</tr>
<tr>
<td>5.5*</td>
<td>Provision of Enjoyable Activities</td>
<td>5.53</td>
<td>5.76</td>
</tr>
<tr>
<td>5.6*</td>
<td>Maintenance of Physical Activity</td>
<td>5.41</td>
<td>5.66</td>
</tr>
<tr>
<td>5.7</td>
<td>Maintenance of Mental Alertness</td>
<td>5.46</td>
<td>5.54</td>
</tr>
<tr>
<td>5.8</td>
<td>Meeting Emotional Needs</td>
<td>5.52</td>
<td>5.66</td>
</tr>
<tr>
<td>5.9</td>
<td>Meeting Spiritual Needs</td>
<td>5.66</td>
<td>5.75</td>
</tr>
<tr>
<td>5.10</td>
<td>Response to Requests for Assistance</td>
<td>5.38</td>
<td>5.41</td>
</tr>
<tr>
<td>5.11*</td>
<td>Avoidance of Chemical Restraints</td>
<td>5.73</td>
<td>5.53</td>
</tr>
<tr>
<td>5.12*</td>
<td>Avoidance of Undesirable Medication Effects</td>
<td>5.76</td>
<td>5.56</td>
</tr>
<tr>
<td>5.13</td>
<td>Meeting Toileting Needs</td>
<td>5.48</td>
<td>5.59</td>
</tr>
<tr>
<td>5.14</td>
<td>Meeting Social Needs</td>
<td>5.73</td>
<td>5.84</td>
</tr>
<tr>
<td>5.15*</td>
<td>Overall Satisfaction</td>
<td>5.74</td>
<td>5.92</td>
</tr>
</tbody>
</table>

*Significant difference, p < .05

On four items, the relationship of satisfaction with urban/rural location varied by respondent group. As illustrated in the following table, satisfaction on these four items was lowest among urban residents for whom a family member completed the survey. The overall urban vs. rural difference identified above in satisfaction with maintenance

<table>
<thead>
<tr>
<th>Item</th>
<th>Issue</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.6*</td>
<td>Maintenance of Physical Activity</td>
<td>5.50</td>
<td>5.42</td>
<td>5.63</td>
<td>5.64</td>
</tr>
<tr>
<td></td>
<td>Resident-Completed</td>
<td>5.60</td>
<td>5.59</td>
<td>5.08</td>
<td>5.26</td>
</tr>
<tr>
<td></td>
<td>Family Member-Completed</td>
<td>5.52</td>
<td>5.71</td>
<td>5.68</td>
<td>5.73</td>
</tr>
<tr>
<td></td>
<td>Resident-Completed</td>
<td>5.81</td>
<td>5.57</td>
<td>5.90</td>
<td>5.58</td>
</tr>
<tr>
<td>5.11*</td>
<td>Avoidance of Chemical Restraints</td>
<td>5.91</td>
<td>5.69</td>
<td>5.85</td>
<td>5.83</td>
</tr>
<tr>
<td></td>
<td>Resident-Completed</td>
<td>5.85</td>
<td>5.97</td>
<td>5.53</td>
<td>5.72</td>
</tr>
</tbody>
</table>

*Significant size/respondent interaction, p < .05

= significant pairwise post hoc difference

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December 15, 2000

Texas Department of Human Services
Long Term Care Office of Programs
Medical Quality Assurance
of physical activity was attributable in large part to those cases in which a family member completed the survey.

<table>
<thead>
<tr>
<th>Item</th>
<th>Issue</th>
<th>Mean Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Urban</td>
</tr>
<tr>
<td>5.6*</td>
<td>Maintenance of Physical Activity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resident-Completed</td>
<td>5.49</td>
</tr>
<tr>
<td></td>
<td>Family Member-Completed</td>
<td>5.20</td>
</tr>
<tr>
<td>5.8*</td>
<td>Meeting Emotional Needs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resident-Completed</td>
<td>5.60</td>
</tr>
<tr>
<td></td>
<td>Family Member-Completed</td>
<td>5.37</td>
</tr>
<tr>
<td>5.13*</td>
<td>Meeting Toileting Needs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resident-Completed</td>
<td>5.63</td>
</tr>
<tr>
<td></td>
<td>Family Member-Completed</td>
<td>5.21</td>
</tr>
<tr>
<td>5.14*</td>
<td>Meeting Social Needs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resident-Completed</td>
<td>5.81</td>
</tr>
<tr>
<td></td>
<td>Family Member-Completed</td>
<td>5.57</td>
</tr>
</tbody>
</table>

*Significant location/respondent interaction, p < .05

= significant pairwise post hoc difference

Investigation of the relationships between facility characteristics and satisfaction suggested that profit/non-profit and rural/urban differences might provide a focus for future research and analysis. For example, case mix differences may underlie identified differences in satisfaction defined by profit/non-profit and rural/urban parameters, which further exploration of the interactions among resident and facility characteristics and consumer satisfaction might clarify.

### 5.5 Satisfaction, Urinary Incontinence, and Quality Measurement

Item 5.13 provided an opportunity for a respondent to indicate the extent of their satisfaction with their facility's ability to provide toileting that met their (or their family member's) needs. Seventy-three percent of the responses to item 5.13 were either Satisfied or Very Satisfied, yielding an overall mean satisfaction score of 5.53 on a scale of 1 to 7. As previously noted, satisfaction with the meeting of toileting needs was higher among those residents who responded to the survey for themselves (5.62) than for residents whose family members responded (5.33).

Satisfaction in this area was related to the residents' continence. Significantly greater mean satisfaction with the facility's ability to provide toileting care was reported for...
residents rated independently continent on item 2.7 (5.79) than for those who were not rated independently continent (5.39). Also, residents rated independently continent had significantly greater mean overall satisfaction (5.89) than did those who were not rated independently continent (5.75).

Rider-32 introduced a quality of care measurement that examined avoidable failures to toilet residents who would potentially benefit from toileting. Of the 1465 Rider-32 residents for whom it was indicated that someone could answer the survey, 56.4% (826/1465) were at least occasionally incontinent. This was a somewhat lower prevalence of occasional incontinence than was found for the entire Rider-32 sample (62.6%). However, the proportion of the occasionally incontinent in the respondent subset which would potentially benefit from toileting (80.3% [663/826]) was nearly identical to the proportion of the occasionally incontinent in the entire sample that would potentially benefit from toileting (80.8% [1004/1242]). Additionally, the proportion of those potentially benefiting from toileting who had appropriate inclusion of toileting in their care plan was 13.6% of survey respondents (90/663), similar to the 12.5% proportion for the entire Rider-32 sample.

Among those residents who would have potentially benefited from a toileting plan, those who had appropriate inclusion of toileting in their care plans had significantly greater mean satisfaction with the facility’s ability to provide toileting care (5.69) than do those who did not have appropriate inclusion of toileting in their care plans (5.28).

Also, among those residents who would potentially benefit from a toileting plan, those who had appropriate inclusion of toileting in their care plan had greater mean overall satisfaction than did those who did not have appropriate inclusion of toileting in their care plan (6.00 vs. 5.74). But, the difference in the means was not statistically significant at p < .05.

Thus, consumer satisfaction with toileting varied not only with the continence of the resident, but also in relation to the Rider-32 quality of care measurement that reflected avoidable failures to toilet residents who would potentially benefit from toileting. The presence of toileting plans where they were appropriate was related to higher consumer satisfaction with a facility’s ability to meet residents’ toileting needs.

5.6 Satisfaction, Social Activity, and Quality Measurement

The preceding section on satisfaction, urinary incontinence, and quality measurement began with a reiteration of the aggregated satisfaction results for the survey item most closely tied logically with the toileting quality measurement. Similarly, this section begins with a review of the aggregated satisfaction results for three activity-related survey
items that were hypothesized to be related to quality of care in providing social activity. These three items addressed satisfaction with the facility's ability to provide activities that the resident enjoys (item 5.5), that keep the resident as physically active as possible (item 5.6), and that keep the resident as mentally alert as possible (item 5.7). As previously noted, satisfaction with the maintenance of mental alertness was higher among those residents who responded to the survey for themselves (5.59) than for residents whose family members responded (5.26).

<table>
<thead>
<tr>
<th>Item</th>
<th>Issue</th>
<th>Mean</th>
<th>Percent Satisfied or Very Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5</td>
<td>Provision of Enjoyable Activities</td>
<td>5.61</td>
<td>75%</td>
</tr>
<tr>
<td>5.6</td>
<td>Maintenance of Physical Activity</td>
<td>5.50</td>
<td>72%</td>
</tr>
<tr>
<td>5.7</td>
<td>Maintenance of Mental Alertness</td>
<td>5.49</td>
<td>70%</td>
</tr>
</tbody>
</table>

Rider-32 introduced a quality of care measurement that examined the adequacy of social activity among residents whose baseline mental status was not unresponsive. Of the 1465 Rider-32 residents for whom it was indicated that someone could answer the survey, 1415 were sufficiently alert to be classified as not unresponsive. Of these 1415, 53.1% (751/1415) had six or more social contacts during each of the last seven days, the Rider-32 criterion for quality of care in social activity. Thus, residents with a survey response enjoyed adequate social activity in approximately the same proportion, as did the entire Rider-32 sample (51.9%).

Among alert residents, those who had adequate social activity had significantly greater mean satisfaction with the facility's ability to provide enjoyed activities (5.82) than did those who did not have adequate social activity (5.35).

Also, among alert residents, those who had adequate social activity reported significantly greater mean satisfaction with the facility's ability to provide activities that keep the resident as physically active as possible (5.73) than did those who did not have adequate social activity (5.19).

In addition, among alert residents, those who had adequate social activity had significantly greater mean satisfaction with the facility's ability to provide activities that keep the resident as mentally alert as possible (5.80) than did those who did not have adequate social activity (5.15).

Differences in quality of care as measured by the Rider-32 criterion for social activity were reflected in the reports provided by residents and their family members of their satisfaction with facility activities. The presence of adequate social activity was related to higher consumer satisfaction with a facility's ability to provide activities that the resident enjoys, that keep the resident as physically active as possible, and that keep the resident as mentally alert as possible.
5.7 Satisfaction, Physical Activity and Quality Measurement

As they were for social activity, the three items that were hypothesized to be related to quality of care in providing physical activity were the items that addressed satisfaction with the facility's ability to provide activities that the resident enjoys (item 5.5), that keep the resident as physically active as possible (item 5.6), and that keep the resident as mentally alert as possible (item 5.7). See the previous section for the aggregated satisfaction results on these three items.

Rider-32 introduced a quality of care measurement that examined the adequacy of physical activity among residents, using a criterion of 30 minutes or more of structured physical activity at the resident's highest practicable level of activity on at least five of the last seven days. Of the 1465 Rider-32 residents for whom it was indicated that someone could answer the survey, 37.5% (550/1465) met the Rider-32 criterion for quality of care in physical activity. Thus, residents with a survey response enjoyed adequate physical activity in approximately the same proportion as did the entire Rider-32 sample (35.8%).

Those who had adequate physical activity had significantly greater mean satisfaction with the facility’s ability to provide enjoyed activity (5.84) than did those who did not have adequate physical activity (5.45).

Also, those who had adequate physical activity had significantly greater mean satisfaction with the facility's ability to provide activities that keep the resident as physically active as possible (5.81) than did those who did not have adequate physical activity (5.27).

In addition, those who had adequate physical activity had significantly greater mean satisfaction with the facility's ability to provide activities that keep the resident as mentally alert as possible (5.74) than did those who did not have adequate physical activity (5.34).

As was the case for social activity, differences in quality of care as measured by the Rider-32 criterion for physical activity were reflected in the reports provided by residents and their family members of their satisfaction with facility activities. The presence of adequate physical activity was related to higher consumer satisfaction with a facility’s ability to provide activities that the resident enjoys, that keep the resident as physically active as possible, and that keep the resident as mentally alert as possible.
5.8 Satisfaction and Medication Management

Three satisfaction items were hypothesized to be related to quality of care in providing medication management. These were the items that addressed satisfaction with the facility’s ability to avoid using sleeping medicines or chemical restraints solely for the convenience of the staff (item 5.11), satisfaction with the facility’s ability to assure that the doctor is not prescribing medicines for the resident that are causing undesirable side effects (item 5.12), and overall satisfaction with the nursing facility experience (item 5.15).

<table>
<thead>
<tr>
<th>Item</th>
<th>Issue</th>
<th>Mean</th>
<th>Percent Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.11</td>
<td>Avoiding Chemical Restraints</td>
<td>5.67</td>
<td>78%</td>
</tr>
<tr>
<td>5.12</td>
<td>Avoiding Undesirable Medication Effects</td>
<td>5.70</td>
<td>81%</td>
</tr>
<tr>
<td>5.15</td>
<td>Overall Satisfaction</td>
<td>5.80</td>
<td>79%</td>
</tr>
</tbody>
</table>

One-way analysis of variance comparing resident satisfaction responses on items 5.11, 5.12 and 5.15 between the satisfaction results of residents receiving antipsychotics with or without appropriate indications revealed no significant differences. This absence of a significant relationship between appropriateness of prescribing and item satisfaction held for all antipsychotic treatment subgroups (Lo19, Hi19 and non-QI19) in the Rider-32 Random Sample. Moreover, no significant differences in item satisfaction were found between those on antipsychotics and the rest of the Rider-32 population.

While multiple interpretations of these findings are possible, the clinical hypothesis preceding this analysis was that no significant relationship between appropriateness of prescribing and consumer satisfaction would be found. The premise for that hypothesis was that unlike appropriateness of toileting and activity, the appropriateness of medical decision-making would be obscure to non-clinicians. Hence, satisfaction would likely be based on the confidence that the resident and family had in the prescribing clinician rather than on their independent evaluation of the appropriateness of the clinician’s prescriptions.
6. Staffing and Rider-32 Performance Measures

6.1 Purpose

It has been hypothesized that some differences in quality between nursing homes may be attributed to the influence of staffing. That is, facilities that provide more direct care staff time per resident may achieve better performance on resident outcomes that are particularly sensitive to staffing. The recently published Health Care Finance Administration study (Feuerberg, 2000) examined several important outcomes, including hospitalization and falls, and found a significant relationship between care outcomes and staffing.

The Rider-32 study considered selected MDS-based outcomes measures that corresponded closely to the CHSRA quality indicators such as the appropriateness of toileting plans and physical and social activity. Based on the notion of appropriateness of care, these measures reflected both process and outcome. These measures could be more sensitive to staffing than the HCFA outcome measures. The HCFA outcome measures have a strong focus on adverse clinical events that may be sensitive to the severity of resident illness. The Rider-32 measures more clearly reflect how often the care provided by the facility staff meets the performance expectation of doing the right thing at the right time in the right way for the right person in order achieve the best possible result.

The following analysis has significant limitations, and its conclusions should be viewed as tentative. These limitations stem from the absence of case-mix adjustments and the reliability of the staffing data itself. Case-mix adjustment is an approach that is used to account for illness and impairment severity differences between resident groups. The HCFA study examined staffing in the context of case-mix as well as the effect of case-mix on outcomes. Failure to address how case-mix mediates the relationship between staffing and outcome can obscure significant relationships and possibly even lead to erroneous conclusions. For example, facilities with low staffing and a mix of relatively healthier residents may appear to perform better than facilities with high staffing and a mix of relatively more infirm residents when, in fact, there is no real performance difference after adjusting for actual resident needs. Similarly, there may be striking performance differences in similarly staffed facilities that have strikingly different case mixes.

Two distinct sources of staffing data were used in these analyses. The first was staffing data collected during the Rider-32 nursing facility visits. This data was self-reported and not subjected to independent audits. The second was staffing data reported in the 1998 Cost Reports. At the time that these analyses were undertaken, 1999 Cost Report data were not yet available.
When 1999 Cost Report data become available in FY2001, a reanalysis will be undertaken; that analysis will also consider case-mix differences.

### 6.2 Variability of Staffing in Texas Nursing Facilities

Because Rider-32 examined only Texas facilities, it was quite different from the HCFA study that sampled nursing homes in three states: Texas, Ohio, and New York. In general, the staffing levels in the HCFA study were higher than those found in the Rider-32 study. Based on data reported in the 1998 Cost Reports, the average daily time that Nurse Aides spent per resident in Texas facilities was 1.77 hours while in all states in the HCFA study it was 1.99 hours. The RN time in Texas was .18 hours, while in all HCFA study states it was .36 hours.

The range of per resident staffing across the facilities in the HCFA study was also much greater than in the Rider-32 Facilities. Since Texas had, on average, lower per resident staffing, the Rider-32 sample showed much less variability than the HCFA sample. Facilities with high per resident staffing were so few that they did not comprise a large comparison group. These differences between Rider-32 and the HCFA study samples are relevant to understanding the differences in the findings of the two studies. The following graphs illustrate the limited variability in the Rider-32 staffing data.
The Rider-32 staffing analysis examined two issues. It addressed the association between Medicaid occupancy and staffing in order to investigate whether facilities having higher Medicaid occupancy and hence being more dependent on Medicaid funding were less adequately staffed than facilities having lower Medicaid occupancy. It also addressed the relationship between staffing and certain care outcomes in order to determine whether lower staffing was associated with lower performance on specific quality measures.

### 6.3 The Relationship between Medicaid Occupancy and Staffing

Two different sources of staffing data were used to examine the relationship between Medicaid funding and staffing:

- 1998 Cost Reports, an audited account of two weeks of facility staffing information used in the HCFA staffing study, and
- Rider-32 staffing data, a non-audited account of 30 days of staffing information from the period immediately preceding the Rider-32 on-site visit.

While the Cost Report data may be considered to be the more accurate of the two data sources, this data was not contemporaneous with the Rider-32 study.

Staff hours per resident per day for each staff category examined in the HCFA study were calculated for this analysis. As in the HCFA study, only direct-care staff was analyzed with respect to the selected Rider-32 outcome measures. Administrative nurses and directors of nursing (DON) were not included in these analyses. Staff was
separated into the categories of Nurse Aide, RN, LVN, LVN+RN following HCFA’s definitions, and total nursing staff. The LVN+RN variable was created following the HCFA suggestion that different facilities may use LVN and RN staff interchangeably. That is, a low LVN per resident ratio could compensate for by a high RN per resident ratio or vice versa.

The following table shows the descriptive statistics for the Rider-32 direct care staff data.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse Aide hrs per Person</td>
<td>1985</td>
<td>0.1</td>
<td>5.8</td>
<td>1.633</td>
<td>.543</td>
</tr>
<tr>
<td>LVN/LPN hrs per Person</td>
<td>1985</td>
<td>0.0</td>
<td>3.0</td>
<td>0.677</td>
<td>.270</td>
</tr>
<tr>
<td>RN hrs per Person</td>
<td>1985</td>
<td>0.0</td>
<td>1.4</td>
<td>0.126</td>
<td>.125</td>
</tr>
<tr>
<td>LVN/ LPN + RN hrs per Person</td>
<td>1985</td>
<td>0.02</td>
<td>3.2</td>
<td>0.803</td>
<td>.290</td>
</tr>
</tbody>
</table>

Total staff hours for each staff category were divided by the resident census figure reported in the Rider-32 staffing instrument, and then divided by 30 to adjust for a 30-day reporting period. In cases where more than 300 residents were reported, it was assumed that facilities had misreported data since no Texas homes have more than 300 residents. In these cases of misreported data, the Rider-32 MDS census figures were used as a proxy for actual facility census.

To calculate staff hours per resident per day based on Cost Report data, the days of service during the cost reporting period were converted to a resident count by dividing by the length of the reporting period. The total hours in each staffing category were then divided by this resident count, and then divided by 14 to adjust for a 14-day staffing report period.

Medicaid occupancy was determined by dividing total Medicaid residents by total residents. The staffing variables were then regressed on the dependent variable of Medicaid occupancy. The Cost Report data showed a significant linear relationship for RN, LVN+RN, and total staff, such that as percent Medicaid occupancy increased, staffing decreased. The relationship of LVN to Medicaid occupancy staffing was marginally significant (p < .08) such that facilities with higher Medicaid occupancy had less LVN staff time per resident. The Cost Report data showed no linear relationship between Medicaid occupancy and Nurse Aide hours per resident.

The Rider-32 staffing data showed a linear relationship in staffing for nurse aides, RN’s, and total staff such that as Medicaid occupancy increased, direct care staff time per resident decreased. There was no linear relationship between Medicaid occupancy and the staffing categories of LVN+RN and LVN.
A significant limitation in this analysis was the poor agreement between the Rider-32 and 1998 Cost Report staffing data sets. Correlations between Rider-32 and Cost Report staffing categories ranged from .003 (for nurse aide time per patient) to .21 (for R.N. time per patient). The low level of agreement suggested several possibilities. The first was that the 1998 Cost Report data was a poor proxy for actual 1999 staffing levels. The second was that Rider-32 staffing data might not have accurately depicted actual staffing levels.

If the 1998 Cost Report staffing data is simply a poor proxy and large changes in staffing time per resident did occur between 1998 and the time of the Rider-32 study, then such changes might or might not be due to changes in Medicaid occupancy. They could reflect changes in economic conditions (i.e. low unemployment), changes of ownership, or changes in case-mix rather than direct effects of Medicaid occupancy on staffing. Such changes would tend to obscure the relationship between Medicaid occupancy and staffing. In addition, the lack of significance in some Rider-32 staffing data analyses could be due to reporting errors in the Rider-32 staffing data itself. Since the Rider-32 staffing data was not audited, the only records that were identified as inaccurate were those with obvious mistakes such as reporting no Nurse Aide hours, or having 5 hours per resident of RN staff. Other records that had less drastic errors could not be detected.

The following charts illustrate the variability among facilities with respect to Medicaid occupancy. In both the 1998 Cost Report and Rider-32 staffing data there were few facilities that had less than 50% Medicaid occupancy. Most of the facilities grouped around 70-90% Medicaid occupancy. This relative lack of variability contributes to a relative lack of significant differences among facilities with respect to staffing according to Medicaid occupancy simply because most facilities have about the same percentage of Medicaid occupancy.
6.4 Quality and Staffing - Rider-32 Staffing Data

The first data set used in the analysis of quality outcomes was the Rider-32 staffing data that was collected at the same time as the resident assessments. The quality issues considered were toileting, social activity, and physical activity.

The direct care staff categories considered were Nurse Aide, LVN, RN, LVN+RN, and total direct care staff. Given that each staff category has distinct job functions, it is reasonable to anticipate that different types of staff will impact various outcomes differently.

Other facility staff that was considered included occupational and physical therapy staff, activities staff (including activities directors), and food services staff. The data were collapsed across each of these staff categories, since the time per resident was small for any given category. For example, for occupational and physical therapists, staffing times for all levels of therapists were included in a single variable: aides, assistants, and full therapists.

6.4.1 Appropriateness of Care and Level of Staffing

The outcome performance data were analyzed with respect to each staff category in order to examine the associations between outcomes and each staff type. The significance of differences in direct care staff were considered for appropriate toileting plans, adequate physical activity, and adequate social activity. With respect to appropriate toileting, only those residents that would have potentially benefited from toileting were considered in the analysis. With respect to adequate social activity, only non-comatose residents were considered in the analysis.

One way analyses of variance were performed to test for significant differences in staffing with respect to care outcomes. First, the relationship between direct care staff time per resident and appropriateness of toileting plans was analyzed. This approach tested whether the group of residents having appropriate toileting plans had more direct care staff time per resident (for any direct care staff category) than the group of residents without needed toileting plans. There were no significant associations between direct care staff time per resident and appropriateness of toileting plans.

Examining the physical and social activity outcomes showed a marginally significant relationship between RN staff time per resident and adequate physical activity. In facilities with higher levels of RN staffing, fewer residents had adequate physical activity (p < .06). It is possible that this was the result of case-mix mediating the relationship between RN staffing and levels of resident mobility. This would occur if facilities routinely addressed heavier care needs with higher levels of RN staffing. Further
analysis demonstrated that less mobile residents from the Rider-32 Sample were more likely to reside in facilities with greater RN staff (p < .001). Less mobile residents were also shown less likely to attain adequate physical activity (p < .001). There was no significant relationship between appropriateness of social activity and the level of any direct care staff category time per resident.

This finding suggested the hypothesis that possibly, less mobile residents were also the least likely to receive needed attention. Thus, determining the variables that predicted when bedridden or comatose residents received adequate toileting or activity would be difficult because it occurred so infrequently. Finding that differences in appropriateness of care depended on level of mobility also suggested that the relationship between staffing and care outcomes could be mediated not only by case-mix but also by resident-specific factors. Resident-specific factors including some that might not alter case-mix might nonetheless predict the appropriateness of care of an individual. For instance, resident factors including particular impairments or functional limitations such as cognitive impairment or limited mobility might be more commonly associated with lack of appropriate toileting plans regardless of the availability of resources for providing them.

The data was reanalyzed restricting the sample to only those residents with independent or assisted (cane, walker, etc.) mobility. That analysis showed a clear relationship between RN staffing and appropriate toileting plans (p < .01), such that residents who had appropriate toileting plans were in facilities with higher RN staffing time per resident. That is, those residents who had no toileting plan despite needing one had an average of 7.2 RN minutes per day while those that had appropriate toileting plans had an average of 10.2 RN minutes per day. This relationship was strongest for residents whose highest practicable level of activity was assisted mobility.

Focusing on the more mobile residents, other relationships also changed in significance. The relationship between appropriate social activity and the RN and LVN+RN nursing staff categories became moderately significant (p = .07 and .08 respectively). Residents in facilities that had more nursing staff time per resident were more likely to receive appropriate social activity.

The staffing thresholds recently studied by HCFA were also examined to see whether there was a relationship between those thresholds and Rider-32 care outcomes. These HCFA thresholds are:

- 2 hours per resident per day for Nurse Aides,
- 12 minutes per resident per day for RNs, and
- 45 minutes per resident per day for RN + LVN.
It is relevant to note that while some facilities met some of the HCFA staffing thresholds, few Texas nursing homes met them all:

- 16% of facilities provided at least 2 hours per resident of Nurse Aide time,
- 19% of facilities provided at least 12 minutes per resident for RNs,
- 57% of facilities provided at least 45 minutes per resident for RN + LVN, and
- Only 3.5% facilities met all the HCFA staffing thresholds.

Implementing the HCFA thresholds in Texas would require major changes in staffing practices and (most likely) significant increases in funding.

Lastly, the impact of other facility staff was considered in relation to the Rider-32 performance outcomes. These staffing categories included activities staff (including activities directors), food service workers, and physical and occupational therapist hours.

The following staff categories showed a statistically significant (p < .05) positive association with appropriateness of social activity:

- Food service worker time per resident,
- Activity staff time per resident, and
- Occupational and Physical Therapy staff time per resident.

The following staff categories showed a statistically significant (p < .05) positive association with appropriateness of physical activity:

- Activities staff time per resident and
- Food service worker time per resident.

There was no significant relationship between other facility staff time and the appropriate inclusion of toileting in resident care plans.

There was no association between staffing above or below the HCFA thresholds and the appropriateness of toileting plans or social activity. When the resident sample was restricted to residents who were either independent or had assisted mobility, the relationship between minimum Nurse Aide time per resident and adequate social activity became significant.

Residents in facilities that had a minimum of 2 Nurse Aide hours per resident per day had a significantly greater likelihood of achieving appropriate social activity.
These analyses show little support for a relationship between direct care staff time and resident outcomes as reflected by the appropriateness of toileting, social activity or physical activity. Among other facility staff, greater activities staff time per resident was associated with more social activity among residents, while food service staff, activities staff, and OT and PT staff were associated with more physical activity among residents. The variance in appropriateness of care explained by these variables was quite small (less than 1%).

6.4.2 Consumer Satisfaction and Level of Staffing

The hypothesis that more direct care staff time per resident would be related to appropriate toileting as well as adequate physical activity and social interaction was not fully confirmed in this study. However, other findings suggested the importance of direct care staff time to consumer satisfaction.

Staff time per resident was examined in relationship to the consumer satisfaction items. These items were first examined with a correlational analysis to determine potential significant associations. Those staffing variables with significant associations to consumer satisfaction items were analyzed using multiple regression analyses. These variables included the physician time per resident, RN time per resident, and LVN/LPN time per resident.

More time per resident for both physicians and RNs was significantly related ($p < .05$) to greater consumer satisfaction with regard to medication management items. However, greater LVN/LPN time predicted less consumer satisfaction ($p < .05$) with regard to medication management items. This finding may reflect the fact that LVN/LPN and RN hours were significantly negatively related, such that facilities with greater LVN/LPN hours were more likely to have lesser RN hours.

Other facility staffing patterns were also related to consumer satisfaction. Greater activity staff time per resident was significantly related to greater consumer satisfaction in providing activities (3 items), in meeting emotional and spiritual needs, in meeting requests for assistance, and in overall satisfaction. Food service worker time per resident was significantly related to greater satisfaction with providing activities (3 items), meeting requests for assistance, meeting toileting needs, meeting social needs, as well as overall satisfaction.
While some relationships between consumer satisfaction items and staffing patterns were statistically significant, the variance explained by staffing patterns is quite small. Most correlation values were in the range of .06-.10. Thus, staffing patterns tended to explain between 0.4 and 1% of the variance in consumer satisfaction items. Other unmeasured variables account for most of the variation in consumer satisfaction.

6.5 Staffing and Appropriateness of Care – 1998 Cost Report Staffing Data

6.5.1 Relevance of the Cost Report Data

The general lack of significant associations between Rider-32 staffing data and appropriateness of care stands in contrast to HCFA’s 2000 report that found significant associations between staffing threshold levels and residents’ outcomes. The HCFA study was based on different outcome measures and addressed case-mix differences, and it found that when direct care staff time per resident fell below threshold levels, there was a significant impact on resident outcomes.

The Rider-32 staffing analysis results did not confirm a strong relationship between direct care staffing and appropriateness of resident care. Because the Rider-32 staffing data were not subjected to independent audit, there is reason for uncertainty regarding the conclusions of analyses based on those data. Since HCFA’s data evaluation identified the 1998 Cost Reports as the most reliable source of staffing information, the outcome analyses that were performed using Rider-32 staffing data were repeated using 1998 Cost Report data as a proxy for 1999-2000 staffing patterns.

Since the Cost Report staffing data reported 1998 patterns, and not the 1999-2000 patterns that existed when Rider-32 study was conducted, it was informative to examine how much Texas nursing facility staffing levels changed from 1997 to 1998. To look at the consistency of staffing patterns across time, the relationship between 1997 Cost Report and 1998 Cost Report staffing was examined. It was found that in 80% of the facilities, the total direct care staff time per resident changed 20% or less from 1997 to 1998. Given the degree of change in staffing levels, it was decided that staffing patterns were sufficiently consistent from year to year to permit using 1998 Cost Report staffing data as a proxy for 1999 staffing data until 1999 Cost Report data become available in 2001.
6.5.2 Appropriateness of Care and Level of Staffing

Analysis of the data was performed using one-way analysis of variance that considered the staffing variables in relationship to appropriateness of care. However, due to the constraints of Cost Report data, only direct care staff was considered (Nurse Aide, LVN, RN, LVN+RN, and total). The analyses showed significant relationships between staffing patterns and appropriateness of care measures similar to those seen in Rider-32 staffing data.

1998 Cost Report data showed a moderately significant relationship between the LVN and LVN+RN staff time per resident and adequate physical activity. Residents in those facilities that had less LVN and LVN+RN staff time per resident were more likely to achieve adequate physical activity. The analyses also found relationships similar to those found with Rider-32 data between staffing patterns and consumer satisfaction items. Greater staff time per resident was associated with greater satisfaction for certain items.

The association between HCFA thresholds and appropriateness of care was also considered using Cost Report data. There were significant relationships between several staffing categories and Rider-32 performance outcomes. The relationship between the HCFA threshold for Nurse Aide time per resident and appropriateness of toileting plans was moderately significant (p = .09). In those facilities that did not meet the threshold, only 11% of the eligible residents had toileting plans, while in facilities that met or exceeded the threshold, 14% of eligible residents had toileting plans.

In facilities that did not meet the HCFA threshold for RN time per resident (12 minutes), 37% of residents achieved adequate physical activity verses 32% in those that did. In facilities that didn’t meet the LVN+RN threshold (.75 hours), 40% of the residents achieved adequate physical activity, while in those that did meet HCFA thresholds, 34% achieved adequate physical activity. It is likely that this unexpected relationship is spurious, and stems from other factors causing high LVN and LVN+RN hours. For example, facilities with higher numbers of mobility-impaired residents appeared more likely to have higher levels of nursing staff time per resident. Less mobile residents were also more likely to have inadequate physical activity; hence the finding that higher levels of nursing staff were associated with fewer residents achieving adequate levels of physical activity.

6.6 Conclusions

Within the potential limitations imposed by the absence of case-mix adjustment and the questionable reliability and validity of the staffing data, analyses showed few significant relationships between direct care staff time and appropriateness of care (p < .05). There are multiple factors that could contribute to this finding, including the limitations of the data and the potential for confounding variables. Further research is needed to better understand the relationship between staffing and care appropriateness.
were some significant relationships between staffing patterns and consumer satisfaction. Residents in facilities with more staffing per resident tended to be more satisfied with certain aspects of resident care. However, the magnitude of these relationships did not resemble HCFA’s staffing analysis that found strong relationships between staffing and outcomes.

These findings do not refute HCFA’s findings of important relationships between staffing and outcomes. Studies such as Rider-32 that are based on data from a single state with little variability in staff time per resident tend to emphasize the effects of whatever factors show the greatest range of variability. Even if the absolute amount of staff time per resident were the principal determinant of favorable resident outcomes, the fact that actual staffing levels vary little across the state would itself tend to minimize the visible impact of staff time per resident on outcomes. Thus, the variations in quality that remain after staff time per resident is held relatively constant tend to emphasize the effects of other variables.

The findings in the Rider-32 study indicate that the relationship between staffing and appropriateness of care is complex and involves more than what is revealed by staff time per resident. Case-mix and resident-specific factors may mediate the relationship between staffing and appropriateness of care. Other factors that potentially influence appropriateness of care include staff education, experience, personality, turnover, leadership, care planning practices, and the use of guidelines and protocols. Together such factors may account for significant differences in the appropriateness of care beyond what is accounted for by variability in staffing levels.
7. Comparison of Rider-32 to MDS Data and Quality Indicators

7.1 Purpose

The Rider-32 quality assessment process provides an opportunity to compare an independent quality review process to the facility-reported MDS-based quality assessment process. There are two bases for this comparison. The first is the resident assessment data itself. Rider-32 resident assessment items can be compared with similar data items from the MDS to determine the extent to which self-reported MDS data predict the observed condition of the resident. The second is the CHSRA quality indicators. Comparisons between QI values and the corresponding Rider-32 determinations of avoidable/unavoidable outcomes show the extent to which statewide QI values depict actual quality.

A gauge of the validity of MDS data, the first type of comparison serves two purposes. It ascertains the added value of on-site quality review, and it helps determine whether MDS data audits are warranted. As a gauge of the power of specific MDS-based quality indicators to serve as quality measurements, the second type of comparison reveals the target efficiency of individual quality indicators. Knowing the target efficiency, the extent to which individual quality indicators reflect actual quality, adds valuable understanding to changes in statewide as well as facility-level quality indicator results.

In these comparisons, the Rider-32 assessment process was treated as the gold standard for the following reasons:

- The Rider-32 data items were chosen as the gold standard against which MDS assessment data are compared because in Rider-32,
  - All residents assessments were performed by DHS contracted nurse reviewers rather than nursing facility staff.
  - There were only 50 nurse reviewers for the entire state, and they all received formal DHS training on the Rider-32 assessment process.
  - All of the reviewers were RNs with an average of 20 years of clinical experience.
  - The reviewers’ average clinical experience in long-term care was 10 years.
  - The assessment, consisting of 28 observational items, was more succinct and direct than the MDS which has ~ 350 items.

- The Rider-32 quality measurements were chosen as the gold standard against which quality indicator results are compared because,
  - The decision trees for determining the appropriateness of care represented the consensus of clinical experts with relevant long-term care experience.
• The criteria for unavoidable adverse outcomes were based on rigorously derived national guidelines and current clinical literature.

7.2 Comparison of Rider-32 and MDS Data

As was demonstrated in the analysis of quality indicator Lo19, significant over-reporting or under-reporting of certain key MDS data items can undermine the utility of quality indicators in tracking changes in quality. This section examines the reliability of selected MDS data items that can influence some of the quality indicators examined in Rider-32. MDS data items are compared against Rider-32 nurse reviewers’ observations of the same residents.

7.2.1 MDS Reporting of Coma

_MDS item B1 (coma) versus Rider-32 item 2.2 (unresponsive mental status)_

The term _unresponsive_, as used in Rider-32, included not only coma but also higher levels of awareness that are not associated with voluntary actions. Therefore, the _a priori_ expectation for high quality MDS data was that all individuals identified as comatose by MDS B1 would be included in Rider-32 item 2.2. It was also expected that some individuals identified as unresponsive in Rider-32 would not be identified in MDS as comatose. Further, virtually every resident not identified as unresponsive in Rider-32 was expected to be identified _as not comatose_ in MDS.

The sensitivity of MDS B1 in predicting Rider-32 item 2.2 was 4.43%. 79 residents classified as unresponsive in the Rider-32 sample were not identified as comatose on their most recent MDS assessments. In contrast, MDS item B1 had very high specificity (99.95%). Virtually all residents judged as responsive by Rider-32 were classified as not comatose by the MDS.

<table>
<thead>
<tr>
<th>Unresponsive by Rider-32 Determination</th>
<th>Yes</th>
<th>No</th>
<th>Row Total</th>
</tr>
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<td>1837</td>
</tr>
<tr>
<td>Column Total</td>
<td>5</td>
<td>1915</td>
<td>1920</td>
</tr>
</tbody>
</table>

R-32 Prevalence of baseline unresponsive mental status = 4.43%
MDS Prevalence of coma (persistent vegetative state) = 0.26%
  Sensitivity of MDS Coma Item = 4.82%
  Specificity of MDS Coma Item = 99.95%
  Positive Predictive Value of MDS = 80.00%
  Negative Predictive Value of MDS = 95.87%
7.2.2 MDS Reporting of Incontinence

MDS item H1b (urinary continence) versus Rider-32 item 2.8 (occasional or more frequent incontinence)

Of the residents determined by Rider-32 to be at least occasionally incontinent, 85% were also identified by MDS as at least occasionally incontinent. Of the residents found by Rider-32 be continent, 94% were also identified by MDS be continent. The negative predictive value of H1b for item 2.8 is 58%, and this may reflect the true incidence of transient incontinence – a common geriatric syndrome. That is, the most recent MDS assessment could have factually reported the absence of incontinence, and subsequent on-site assessment could then reveal the presence of recent-onset transient incontinence. Given the relatively small number of continent residents, the true incidence of transient incontinence could account for the low negative predictive value.

<table>
<thead>
<tr>
<th>At least occasional Incontinence by Rider-32?</th>
<th>Yes</th>
<th>No</th>
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<tr>
<td>Yes</td>
<td>1032</td>
<td>177</td>
<td>1209</td>
</tr>
<tr>
<td>No</td>
<td>71</td>
<td>240</td>
<td>311</td>
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<tr>
<td>Col. Total</td>
<td>1103</td>
<td>417</td>
<td>1520</td>
</tr>
</tbody>
</table>

Sensitivity of H1b = 85.36%
Specificity of H1b = 77.17%
Positive Predictive Value of H1b = 93.56%
Negative Predictive Value of H1b = 57.55%

Within the limits of uncertainty imposed by the changing clinical conditions of residents, MDS item H1b appeared to reliably depict each resident’s clinical condition. There did not appear to be significant under-reporting of incontinence.
7.2.3 MDS Reporting of Indwelling Bladder Catheters

*MDS item H3d versus Rider-32 item 3.1 (presence of an indwelling catheter)*

The sensitivity and specificity of MDS H3d in predicting the observed presence of an indwelling catheter were 77% and 98% respectively. The positive and negative predictive values were also 77% and 98% respectively. The MDS-reported prevalence of catheterization was 7.00% and the observed prevalence in Rider-32 was 7.04%. A reasonable interpretation of the lower sensitivity and positive predictive value of MDS H3d is that they resulted from actual changes in resident status that occurred between the time of the most recent MDS assessment and the on-site Rider-32 assessment.

<table>
<thead>
<tr>
<th>Has a catheter according to Rider-32?</th>
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<th>Row Total</th>
</tr>
</thead>
<tbody>
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<td>Yes</td>
<td>105</td>
<td>31</td>
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</tr>
<tr>
<td>No</td>
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</tr>
<tr>
<td>Column Total</td>
<td>137</td>
<td>1795</td>
<td>1932</td>
</tr>
</tbody>
</table>

Sensitivity of MDS = 77.21%
Specificity of MDS = 98.22%
Positive Predictive Value of MDS = 76.64%
Negative Predictive Value of MDS = 98.27%
MDS-based Prevalence = 7.00%
Rider-32-based Prevalence = 7.04%

MDS item H3d appeared to reliably depict each resident’s clinical condition. Indwelling bladder catheters did not appear to be under-reported.

7.2.4 MDS Reporting of Pressure Ulcers

*MDS item M2a (pressure ulcer) versus Rider-32 item 2.9 (advanced pressure ulcer that would interfere with toileting)*

MDS item M2a failed to identify the majority of residents who were found by Rider-32 assessment to have pressure ulcers that would interfere with toileting. Only 16% of such ulcers were identified by MDS. This finding may be the result of some or all of the following:

- The pressure ulcers developed during the interval between the most recent MDS assessment and the on-site Rider-32 assessment,
• Pressure ulcers in these body sites were either unrecognized or inaccurately assessed by facility staff, or
• Rider-32 nurse reviewers often judged the same ulcers to be at a more advanced stage than was reported in residents’ MDS assessments.

99% of residents who were identified by Rider-32 assessment as having no Stage III or IV pressure sores that would interfere with toileting had no advanced pressure sores noted in MDS. The number of pressure sores reported in MDS and not found at the time of the Rider-32 assessment may have been due to sores that healed during the time that elapsed between the most recent MDS assessment and on-site assessment or that did not appear as advanced at on-site assessment.

<table>
<thead>
<tr>
<th>Any Stage III or IV Pressure Ulcer by MDS M2a?</th>
<th>Yes</th>
<th>No</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific UI Stage III or IV Pressure Ulcer?</td>
<td></td>
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</tr>
<tr>
<td>Yes</td>
<td>5</td>
<td>27</td>
<td>32</td>
</tr>
<tr>
<td>No</td>
<td>17</td>
<td>1313</td>
<td>1330</td>
</tr>
<tr>
<td>Column Total</td>
<td>22</td>
<td>1340</td>
<td>1362</td>
</tr>
</tbody>
</table>

Sensitivity of M2a for identifying excluded Rider-32 residents = 15.63%
Specificity of M2a for identifying excluded Rider-32 residents = 98.72%
Positive Predictive value of M2a for specific UI Pressure Sores = 22.73%
Negative Predictive value of M2a for specific UI Pressure Sores = 97.99%
% R-32 residents excluded from Toileting for specific Pressure Sores = 2.35%
Percent of R-32 residents reported by MDS to have Pressure Sores = 8.73%

Because MDS item M2a did not reliably predict each resident’s condition at the time of the Rider-32 assessment, it was difficult to know whether it reliably depicted the condition of each resident at the time of MDS assessment.

The true incidence of pressure ulcers as well as the rates of clinical progression and resolution of these lesions may explain the low sensitivity and positive predictive value of MDS item M2a. However, actual under-reporting of pressure ulcers may also be responsible for this finding.

7.2.5 Summary of Comparison of MDS Items and Rider-32 Findings

It was shown that while some MDS items appeared to agree well with Rider-32 nurse reviewer assessments, others did not. The presence or absence of specific conditions that could be easily determined by inspection such as the presence or absence of coma or a catheter showed a high level of agreement with Rider-32 nurse reviewer findings. More difficult assessments such as pressure ulcer staging as well as assessments for...
conditions that may not remain constant such as pressure ulcers showed much less agreement with Rider-32 findings. These observations as well as the extent and types of MDS reporting errors found in the pharmacy review suggested that the more technically complex the MDS assessment item, the more likely it was to be factually inaccurate or omitted entirely. Similarly, the more dynamic the nature of the condition reported, the more likely that Rider-32 findings would reflect a clinical status different from that reported in the MDS.

7.3 Comparison of Rider-32 Quality Measurements and MDS Quality Indicators

DHS relies on the CHSRA quality indicators to identify statewide quality improvement priorities, to help focus the nursing home survey process, and to determine each facility’s potential advantages and disadvantages in order to report these in the DHS Quality Reporting System. To the extent that these quality indicators are both sensitive to and specific for poor quality of care, they may serve as inexpensive and effective alternatives to on-site quality measurement.

The attributes of sensitivity and specificity characterize the target efficiency of each indicator. If individual quality indicators are not sensitive, then facilities with actual quality problems go undetected. If the same indicators are not specific then facilities appear to have quality problems when, in fact, there are none. The target efficiencies of selected quality indicators are discussed below in light of the Rider-32 quality measurements.

In the following discussion, it must be understood that the conclusions address the target efficiency of statewide quality indicator values. Extrapolation of those conclusions to specific facilities may not be valid. So, if a particular indicator appears to be highly predictive of statewide quality (observed appropriateness of care), it need not follow that the same indicator is equally predictive of quality in each and every facility.

7.3.1 QI: Prevalence of Urinary Incontinence without a Toileting Plan

The quality indicator had a sensitivity of only 21% and a specificity of 89%. This appeared to be largely the result of how the eligible population for toileting was defined. In the CHSRA quality indicator, residents who had multiple daily episodes of incontinence were not considered as eligible for toileting; 32% of the Rider-32 residents were so classified by their MDS assessments. In the Rider-32 study, all such residents would be considered candidates for toileting provided that they did not meet the criteria for unavoidable lack of toileting.
<table>
<thead>
<tr>
<th>Potential Benefit from Toileting but not toileted?</th>
<th>Yes</th>
<th>No</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
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</tr>
<tr>
<td>No</td>
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<tr>
<td><strong>Column Total</strong></td>
<td>286</td>
<td>1524</td>
<td>1810</td>
</tr>
</tbody>
</table>

Sensitivity of QI 9 = 21.24%
Specificity of QI 9 = 89.09%
Positive Predictive Value of QI 9 = 63.64%
Negative Predictive Value of QI 9 = 55.71%

In the table above, 609 residents who were considered candidates for toileting by Rider-32 criteria did not trigger the QI because they are excluded due to their severe incontinence. If these residents had not been excluded in the quality indicator’s definition, then the sensitivity of the QI would have been 92% and the specificity would have remained unchanged.

Within the context of its definitions, the CHSRA quality indicator appears to be both sensitive and specific for quality problems. It also does not appear that instances of unavoidable lack of toileting account for a significant number of residents triggering the quality indicator.

Compared to the Rider-32 toileting performance measure, the CHSRA toileting QI was much less stringent. The QI overlooked the potential benefit of toileting a very large number of individuals who have multiple daily episodes of incontinence.

7.3.2 QI: Prevalence of Indwelling Bladder Catheters

The analyses of Rider-32 appropriateness of indwelling bladder catheter use showed that a large percentage of catheters lacked adequate justification. The analysis of MDS item H3d showed that catheters were reliably reported. Therefore, it is not surprising that the prevalence of indwelling catheters is sensitive for detecting avoidable catheterization. The QI’s low specificity for avoidable catheterization reflects the number of appropriate catheters (32) reported on MDS and a small number of appropriate catheters found by Rider-32 review but not present at the time of MDS reporting (20).
Thus, largely as a result of a relatively high proportion of avoidable catheters, statewide QI values above 5% appear indicative of low quality.

7.3.3 QI: Prevalence of Little or No Activity

The quality indicator for little or no activity had a sensitivity of 34-38%. That is, the majority of residents found by Rider-32 criteria to have inadequate social and physical activity were not identified by the QI as having little or no activity.

From the perspective of specificity, this indicator appeared to have 79-80% specificity for social and physical inactivity. That is, most residents identified by Rider-32 as having adequate activity were also identified by the QI as having adequate activity.
<table>
<thead>
<tr>
<th>Inadequate Physical Activity?</th>
<th>Little or No Activity by MDS?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Col. Total</td>
<td></td>
</tr>
</tbody>
</table>

Sensitivity of Activity QI = 33.68%
Specificity of Activity QI = 78.91%
Positive Predictive Value of QI = 73.89%
Negative Predictive Value of QI = 40.18%

Because of the low QI sensitivity for inadequate activity, a high statewide value for that indicator appeared to serve better as a marker of quality problems than a low statewide value appeared to serve as a marker of quality achievement.

The low QI sensitivity appeared to be the result of the MDS data items for activity that were not sufficiently informative with respect to adequacy of activity.

7.3.4 Summary of Comparison of QIs and Rider-32 Performance Measures

A comparison between MDS-based quality indicators and Rider-32 performance measures was difficult. The difficulties stemmed from differences in the content of the MDS and Rider-32 assessment instruments as well as from differences between the definitions of the quality indicators and those of the Rider-32 performance measures.

The first type of difficulty was most evident in the arena of resident activity where the MDS items revealed much less detail than did comparable Rider-32 assessment items; the low sensitivity and specificity of the activity QI resulted, in part, from this lack of MDS detail. The second type of difficulty was most clearly seen in the toileting plan QI; the definition of that QI excluded as potential candidates for toileting those residents with multiple daily episodes of incontinence whereas the Rider-32 performance measure included them. This latter type of difficulty was addressed mathematically, and the toileting plan QI was found to be both sensitive and specific for appropriateness of care only if the definition of the Rider-32 performance measure was changed to fit the definition of the QI itself.

For the remaining QIs considered in this analysis, high statewide values appeared to be better indicators of poor performance (as would be judged based on Rider-32 criteria for appropriateness of care) than low statewide values appeared to be indicators of good performance.

8.1 Relationship to Rider-32 Study

CHSRA’s MDS-based quality indicators provide a tool for following the prevalence or incidence of 24 distinct adverse resident outcomes (Appendix B). The Rider-32 project created a statewide priority for quality improvement in four of these outcomes.

Open discussions with provider organizations and advocates concerning the Rider-32 study began in February 1999. Facilities were formally notified of the department’s quality initiative in October 1999. Thus, examining the prevalence of all quality indicators across time beginning with the start of the Rider-32 project may provide some insight into whether there was an experimental effect caused by the study itself. To demonstrate such an effect convincingly would require showing actual performance differences across time and also controlling all other influences that could affect performance. While the first part can be achieved, the latter is impossible since crucial variables such as economic conditions cannot be held constant with respect to time.

The analyses in this section examine the quality indicator results from August 31, 1999 through August 31, 2000 as well as the Rider-32 data itself. In the analysis of quality indicator results, QI results for a particular date were calculated based on resident assessments with dates between that reference date and four months (~120 days) earlier. In the analyses of the Rider-32 data, facilities were grouped based on the date of the on-site visit such that facilities visited during the first half of the study (early group) were compared to facilities visited during the last half (late group).

Two hypotheses were considered. The first was that there was an experimental effect. That is, by creating a statewide focus on four of the 24 quality indicator conditions, greater quality improvement was expected in those priority areas. The second hypothesis was that because the adverse outcomes measured by the quality indicators were interrelated, significant changes in the prevalence of any one of the four Rider-32 outcomes was likely to be associated with measurable changes in at least some of the other indicators. Improvement in the priority outcomes might be associated with improvement or worsening in other resident outcomes. For example, statewide improvement in continence promotion through toileting might be associated with a statewide decrease in the prevalence of bedfast residents or in the prevalence of behavioral symptoms.

8.2 Findings

Twelve sets of statewide quality indicator data representing each of the twelve months were analyzed by computing the Pearson correlation of each QI against all others.
Coefficient of variation (R-squared) was computed, and all instances in which variation in one QI accounted for 90% of the variation in another QI were identified.

There were only two dramatic changes in QI values during this twelve-month period. These were a decline in the prevalence of incontinence without a toileting plan and in the prevalence of little or no activity (two of the four priority areas). Figure 8.1 (Appendix B) shows the 12-month trends for all quality indicators.

**Decreases in the prevalence of the following conditions were strongly associated with decreasing prevalence of incontinence without a toileting plan:**

(a) Behavioral symptoms (high risk, low risk and overall),
(b) Depression with no medication treatment,
(c) Fecal impaction,
(d) Bedfast residents,
(e) Frequent use of hypnotics at bedtime, and
(f) Little or no activity.

During the observation period, there was an increase in the reported prevalence of incontinence. The absence of a reduction in incontinence paralleling the increase in reported toileting plans suggests the following possibilities:

- Additional incontinent residents, not previously reported in the MDS as incontinent, were reported (an apparent increase in prevalence due solely to reporting),
- There was an actual increase in the prevalence of incontinence,
- The inclusion of toileting in a resident’s care plan was not a reliable proxy for actual toileting (documentation without a change in actual resident care), and
- While toileting may have reduced incontinent episodes and improved quality of life, it did not often result in the achievement of assisted continence.

**Decreases in the prevalence of the following conditions were strongly associated with the decreasing prevalence of inactivity:**

(a) Behavioral symptoms (high risk, low risk and overall),
(b) Symptoms of depression,
(c) Depression with no medication treatment,
(d) Incontinence without a toileting plan,
(e) Fecal impaction,
(f) Bedfast residents, and
(g) Frequent use of hypnotics at bedtime.
The QI for prevalence of antipsychotic medication use in low risk residents increased steadily from 16.4% to 17.21% during the period of observation. This increase in the prevalence of antipsychotic medication use in low risk residents was also strongly associated with an increase in the QI for the use of 9 or more medications.

In addition, the QI for use of 9 or more medications showed a strong association with the QI for symptoms of depression without treatment such that as untreated depression became less prevalent, the use of 9 or more medications increased.

The Rider-32 data analysis of facility performance consisted of one-way analyses of variance. For social activity, there appeared to be significant improvement across time. 46% of residents from facilities in the early group achieved adequate levels of social activity whereas 54% of residents from facilities in the late group did (p = .003).

Facilities in the two groups (early and late) were compared on the basis of resident and facility characteristics. The only characteristic that showed a statistically significant effect was rural/urban designation. Urban facilities were more likely to have been visited earlier in the study, and rural facilities were more likely to have been visited later. The absence of a statistically significant rural/urban effect on appropriateness of social activity suggested that the significant performance difference between groups was related to the timing of the on-site visits rather than to an urban/rural effect.

Analyses of the early and late group data showed no statistically significant performance effect with respect to toileting plans, physical activity or appropriateness of antipsychotic prescribing. Because of the small number of catheterized residents, it was not possible to study performance differences between early and late groups with respect to appropriateness of indwelling catheter use.

8.3 Conclusions

Finding that large improvement in some quality indicators is highly associated with smaller improvement or worsening in other indicators does not itself demonstrate a causal connection. Still, it does suggest that the significant improvement seen in two of the priority areas represents some actual improvement in patient care practices rather than simply a change in documentation practices – a paper compliance effect. Further, the finding of actual performance improvement in one of the four focus areas during the Rider-32 study supports the existence of an experimental effect. However, a more thorough and longer-term evaluation of changes in statewide performance must await a second round of Rider-32 resident assessments that will be conducted in FY2001.

It is reasonable to expect that the department’s scrutiny of specific quality issues will lead providers to be more diligent in their MDS assessments. Better documentation of actual facility practices might therefore appear as quality improvement when, in fact, it is...
only better documentation. It is possible that such changes in documentation practices will affect the reporting of conditions other than those identified in the priority quality improvement areas, but this does not seem very likely. Specifically, the finding that documentation problems affecting the quality indicator for antipsychotic drug use among low risk residents exist and have not resulted in better provider documentation practices tends to contradict a paper compliance-only hypothesis.

It appeared likely that the small but highly significant improvements in non-priority quality improvement areas such as decrease in resident behavior problems and symptoms of depression were related to actual improvements in toileting care and resident activity.
9. References


OBRA—Health Care Financing Administration. (February 2, 1989), Medicare and Medicaid: requirements for long-term care facilities: final rule with request for comments. Federal Register, 54, 5316-5373.


December 15, 2000  Texas Department of Human Services
Long Term Care Office of Programs
Medical Quality Assurance


QI Version #: 6.3 (Online) http://www.chsra.wisc.edu/CHSRA/QIs/QI630Q__.PDF
Appendix A

Nursing Facility Performance Monitoring Data Instrument
Texas Department of Human Services
Nursing Facility Performance Monitoring Data Instrument

CHOOSE ONLY ONE ANSWER FOR EACH QUESTION that offers a choice of responses. Questions marked with an asterisk (*) MUST be answered.

Part 1. Identifying Information – EVERY question in this section MUST BE ANSWERED.

1.1* Date of Assessment ______________________

1.2* Facility's Texas Vendor Number ______________________

1.3* Quality Review Nurse’s Identifier Number ______________________

1.4* Purpose of Data Collection

☐ 1 Rider-26 Wave 1 ☐ 2 Rider-26 Wave 2 ☐ 3 Rider-26 Wave 3
☐ 4 Rider-26 Wave 4 ☐ 5 Rider-32 alone ☐ 6 Rider-32 & Wave 1

1.5* Resident’s TDHSmdsID ______________________

1.6* Resident's Name ________________________ ________________________
First Name               MI         Last Name

Part 2. Assessment of Urinary Continence – Questions 2.1 through 2.7 MUST BE ANSWERED. Questions 2.8 through 2.10 MUST BE ANSWERED when the answer to 2.7 is NO. Question 2.11 is answered ONLY when the facility gives a reason for not toileting the resident and that reason does not appear in this section.

NOTE: Perform a continence check (ITEM 2.1) on every resident in the sample prior to collecting the remaining data items for any resident. Are there signs of current or recent wetness?

2.1* Did you find (see, smell, or feel) evidence of urinary incontinence?

☐ 1 Yes ☐ 2 No
2.2* Is the resident unresponsive (usual baseline level of responsiveness is comatose, semi-comatose, stuporous, persistent vegetative state, unarousable, etc.)? (This does NOT mean, "Is the resident cognitively impaired as in Alzheimer’s type disease processes.")

☐ 1 Yes  ☐ 2 No

2.3* In your professional opinion, does this resident require a mechanical lift to get out of bed?

☐ 1 Yes  ☐ 2 No

2.4* Is the resident unable to ambulate or sit for ANY routine daily activity due to pain?

☐ 1 Yes  ☐ 2 No

2.5* Does the resident have a terminal condition that precludes toileting?

☐ 1 Yes  ☐ 2 No

2.6* Is a toileting plan (prompted voiding, scheduled voiding or bladder retraining) specifically documented as part of the resident’s care plan?

☐ 1 Yes  ☐ 2 No

2.7* Is the resident ALWAYS continent without needing a toileting plan, incontinence products or a catheter? (If you answer YES, then skip to Part 3.)

☐ 1 Yes  ☐ 2 No

2.8 Have there been two or more episodes of urinary incontinence each week in the last two weeks? (If you answer NO, then skip to Part 3.)

☐ 1 Yes  ☐ 2 No

2.9 Are there active, Stage III or IV pressure sores involving the sacrum, trochanters or buttocks? (Those pressure sores that due to LOCATION would prevent toileting, bedpan use, and bedside commode use.)

☐ 1 Yes  ☐ 2 No
2.10 Does the resident refuse to use the toilet and all toileting devices (e.g. BSC, urinal, bedpan)?

☐ 1 Yes  ☐ 2 No

2.11 If there is another reason other than having a catheter for not toileting the resident, enter it here. (Answer this question only if the facility gives a reason for not toileting the resident that is not 2.2 Coma, 2.3 Requiring a mechanical lift, 2.4 Inability to do ANY activity due to pain, 2.5 A terminal condition that precludes toileting, 2.9 Active Stage III or IV pressure sores on the sacrum, trochanters or buttocks, or 2.10 The resident refuses to use the toilet and all toileting devices.)

____________________________________________________________

Part 3. Use of Indwelling Bladder Catheter – Question 3.1 MUST BE ANSWERED. If the answer is YES, then questions 3.1 through 3.9 must be answered. Question 3.10 is answered only when the facility gives a reason for indwelling catheter use other than those reasons identified in the explanation of 3.10.

3.1* Does the resident have an indwelling bladder catheter? (If you answer NO, then skip to Part 4.)

☐ 1 Yes  ☐ 2 No

3.2 Has the resident had a catheter longer than 6 weeks?

☐ 1 Yes  ☐ 2 No

3.3 Does the resident's medical therapy prescribed by a physician require an indwelling catheter for an accurate intake and output?

☐ 1 Yes  ☐ 2 No

3.4 Does the resident have an indwelling catheter for the purpose of completing a specific diagnostic evaluation?

☐ 1 Yes  ☐ 2 No

3.5 Does the resident have an indwelling catheter that is being used to administer a prescribed medication? (Do not count routine GU irrigant solutions.)

☐ 1 Yes  ☐ 2 No

3.6 Was the resident admitted or transferred into the facility within the last 6 weeks?

☐ 1 Yes  ☐ 2 No

December 15, 2000
3.7 Does this resident have a MEDICAL DIAGNOSIS of obstructive uropathy, bladder outlet obstruction, hydronephrosis, detrusor areflexia, detrusor hypo- or hyperreflexia, detrusor-sphincter dyssynergia, vesicoureteral reflux, or infravesicle obstruction due to stricture or prostate pathology? (Answer Yes only if there is documentation that urological, urodynamic, or imaging evaluation has shown one or more of the diagnoses in 3.7)

☐ 1 Yes ☐ 2 No

3.8 Does the medical record report two or more post-voiding residual (PVR) urine volumes greater than 200cc?

☐ 1 Yes ☐ 2 No

3.9 Does the resident have active, Stage III or IV pressure sores that would be vulnerable to urinary moisture? (Count pressure sores regardless of location if urine would contaminate the sores, e.g. fetal position.)

☐ 1 Yes ☐ 2 No

3.10 If there is SOME OTHER REASON for the bladder catheter, enter it here. (Answer this question only if the facility gives a reason for not toileting the resident that is not 2.2 Coma, 2.3 Requiring a mechanical lift, 2.4 Inability to do ANY activity due to pain, 2.5 A terminal condition that would preclude toileting, 2.9 Active Stage III or IV pressure sores on the sacrum, trochanters, or buttocks, 3.3 MEDICAL therapy warrants a catheter to do accurate I&O, 3.4 Catheter required to complete a diagnostic test, 3.5 Catheter required to administer prescribed medication, 3.6 Resident admitted or transferred within last 6 weeks, 3.7 A MEDICAL diagnosis as noted above, 3.8 Medical record reports two PVRs > 200cc, or 3.9 Any active Stage III or IV pressure sore that would be vulnerable to urinary moisture.)

Part 4. Activity Review – ALL questions in this section MUST BE ANSWERED. Base your assessment for each of these items on the last SEVEN days. Use all available resources such as interview with resident, family, staff, record review, and/or observation to help you make this professional judgement. DO NOT rely only on record review.

4.1* On how many days of the last week did the resident have six or more active or passive social interactions? Count friends, family, other residents and pets but NOT STAFF.

DAYS ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7
4.2* During the last seven days did the resident appear to have ANY support (e.g. visits, phone calls, letters, or other evidence of caring) of family, friends and/or fellow residents? (Ask about family, friends and fellow residents separately. If the answer to ANY component is YES, then answer YES to this question.)

☐ 1 Yes ☐ 2 No ☐ 3 Don’t know

4.3* During the last seven days did the resident appear to have DIVERSE social ties such as family, friends, church, group activities, pets, or volunteers? (Ask about each contact separately. If there are two or fewer YES answers, code as NO. If there are three or more YES answers, code as YES.)

☐ 1 Yes ☐ 2 No ☐ 3 Don’t know

4.4* What was this resident's highest practicable level of physical activity during the last seven days?

☐ 1 a. Passive movement only – this applies to those who are comatose, quadriplegic, or who for whatever reason have little or no voluntary movement.

☐ 2 b. Active flexibility or sitting exercises – this applies to those residents who have voluntary movement but who may not be ambulatory.

☐ 3 c. Assisted locomotion – this applies to those residents, regardless of cognitive ability, who manage to get around with assistance from another person or equipment, e.g. cane, walker, crutch.

☐ 4 d. Independent locomotion – this applies to those residents who are capable of continuous independent unassisted ambulation.

4.5* Using the definitions listed above determine on HOW MANY DAYS of the last seven days the resident achieved this level of STRUCTURED physical activity for an accumulated daily total of 30 or more minutes?

DAYS ☐ 0 0 ☐ 1 1 ☐ 2 2 ☐ 3 3 ☐ 4 4 ☐ 5 5 ☐ 6 6 ☐ 7 7

4.6* On how many days during the last seven days did the resident perform ANY structured physical activity? (Answer this based on the four levels of activity listed in 4.5)

DAYS ☐ 0 0 ☐ 1 1 ☐ 2 2 ☐ 3 3 ☐ 4 4 ☐ 5 5 ☐ 6 6 ☐ 7 7
4.7* On the days noted in 4.6, on average, how many minutes of ANY structured physical activity did the resident accumulate per day? (Answer this based on the four levels of activity listed in 4.4. To find the average minutes total the times doing ANY structured activity, and divide by the number of days listed in 4.5)

1 10 minutes or less
2 11-19 minutes
3 20-29 minutes
4 30 minutes or more

Part 5. Consumer Satisfaction – Question 5.1 MUST BE ANSWERED. If the resident is unable to answer, then a family member or guardian may answer. No other individual may answer for the resident. If ANY question from 5.2 to 5.15 is answered, then EVERY question in this section must be answered.

5.1* Who is answering this consumer satisfaction survey?

1 Resident
2 Family member or Guardian
3 Neither the resident nor family is able to answer (Do not continue further if you choose this answer)

5.2 Was a translator used for the Consumer Satisfaction survey?

1 Yes 2 No

5.3 How long has the resident resided in this facility?

Time 1 0-3 months 2 3-6 months 3 6-9 months
4 9-12 months 5 1-2 years 6 2+ years

5.4 How satisfied are you (your family member) with the facility's food service? (e.g. providing foods that you like, served the way you prefer them, etc.)

1 - Very Dissatisfied 2 - Dissatisfied
3 - Somewhat Dissatisfied 4 - Neither Satisfied nor Dissatisfied
5 - Somewhat satisfied 6 - Satisfied
7 - Very Satisfied 8 - No Response
5.5 ... the facility's ability to provide activities that you (your family member) enjoy(s)? (e.g. recreational activities, arts and crafts, outings, events, pets, etc. that you used to do and enjoy)

- 1 - Very Dissatisfied
- 2 - Dissatisfied
- 3 - Somewhat Dissatisfied
- 4 - Neither Satisfied nor Dissatisfied
- 5 - Somewhat satisfied
- 6 - Satisfied
- 7 - Very Satisfied
- 8 - Resident Does Not Participate
- 9 - Family Member Does Not Know

5.6 ... the facility's ability to provide activities that keep you (your family member) as physically active as possible? (e.g. exercises, physical games, opportunities for walks, stretching, passive exercise including passive Range of Motion etc. appropriate to your needs)

- 1 - Very Dissatisfied
- 2 - Dissatisfied
- 3 - Somewhat Dissatisfied
- 4 - Neither Satisfied nor Dissatisfied
- 5 - Somewhat satisfied
- 6 - Satisfied
- 7 - Very Satisfied
- 8 - Resident Does Not Participate
- 9 - Family Member Does Not Know

5.7 How satisfied are you (your family member) with the facility's ability to provide activities that keep you (your family member) as mentally alert as possible? (e.g. puzzles, crossword puzzles, card and board games, bingo, reading, writing, discussion, drama, art, etc. appropriate to your needs)

- 1 - Very Dissatisfied
- 2 - Dissatisfied
- 3 - Somewhat Dissatisfied
- 4 - Neither Satisfied nor Dissatisfied
- 5 - Somewhat satisfied
- 6 - Satisfied
- 7 - Very Satisfied
- 8 - No Response
- 9 - Family Member Does Not Know

5.8 ... the facility's ability to meet your (your family member's) emotional needs? (e.g. providing a supportive environment in which you can express your feelings, providing comfort or listening when you need it, or helping you to obtain family, social worker or other support when you need it)

- 1 – Very Dissatisfied
- 2 - Dissatisfied
- 3 - Somewhat Dissatisfied
- 4 - Neither Satisfied nor Dissatisfied
- 5 - Somewhat satisfied
- 6 - Satisfied
- 7 - Very Satisfied
- 8 - No Response
5.9 ... the facility's ability to meet your (your family member's) spiritual needs? (e.g. respecting your religious practices, providing you with spiritual counseling or whatever spiritual support and comfort you are accustomed to having)

1 – Very Dissatisfied  
2 - Dissatisfied  
3 - Somewhat Dissatisfied  
4 - Neither Satisfied nor Dissatisfied  
5 - Somewhat satisfied  
6 - Satisfied  
7 - Very Satisfied  
8 - No Response

5.10 ... the facility's ability to respond to your (your family member's) requests for assistance? (e.g. answering call lights, getting help to the dining room, etc.)

1 – Very Dissatisfied  
2 - Dissatisfied  
3 - Somewhat Dissatisfied  
4 - Neither Satisfied nor Dissatisfied  
5 - Somewhat satisfied  
6 - Satisfied  
7 - Very Satisfied  
8 - No Response

5.11 ... the facility's ability to not use sleeping medicines or chemical restraints solely for the convenience of the staff? (e.g. not prescribing sleeping medicines, sedatives or behavior control drugs when the facility is short staffed or the staff is not adequately trained)

1 – Very Dissatisfied  
2 - Dissatisfied  
3 - Somewhat Dissatisfied  
4 - Neither Satisfied nor Dissatisfied  
5 - Somewhat satisfied  
6 - Satisfied  
7 - Very Satisfied  
8 - No Response

5.12 ... the facility's ability to assure that the doctor is not prescribing medicines for you (your family member) that are causing undesirable side effects? (e.g. discontinuing medicines when they cause dizziness, confusion, falls, and other problems)

1 – Very Dissatisfied  
2 - Dissatisfied  
3 - Somewhat Dissatisfied  
4 - Neither Satisfied nor Dissatisfied  
5 - Somewhat satisfied  
6 - Satisfied  
7 - Very Satisfied  
8 - No Response
5.13 How satisfied are you (your family member) with the facility’s ability to provide toileting care that meets your (your family member’s) needs? (e.g. assistance to the toilet, assistance with personal hygiene, not using diapers just because it is more convenient for the facility)

- 1 – Very Dissatisfied
- 2 - Dissatisfied
- 3 - Somewhat Dissatisfied
- 4 - Neither Satisfied nor Dissatisfied
- 5 - Somewhat satisfied
- 6 - Satisfied
- 7 - Very Satisfied
- 8 - No Response

5.14 ... the facility’s ability to meet your (your family member’s) social needs? (e.g. having visitors come in to visit with you, helping residents sit next to one another so they can talk, etc.)

- 1 – Very Dissatisfied
- 2 - Dissatisfied
- 3 - Somewhat Dissatisfied
- 4 - Neither Satisfied nor Dissatisfied
- 5 - Somewhat satisfied
- 6 - Satisfied
- 7 - Very Satisfied
- 8 - No Response

5.15 Overall, how satisfied are you with your (your family member's) experience in this nursing facility?

- 1 – Very Dissatisfied
- 2 - Dissatisfied
- 3 - Somewhat Dissatisfied
- 4 - Neither Satisfied nor Dissatisfied
- 5 - Somewhat satisfied
- 6 - Satisfied
- 7 - Very Satisfied
- 8 - No Response

I certify by my signature below that the TDHSmdsID number of the resident has been double-checked for accuracy, and that the information contained in this document is an accurate assessment of the resident.

QR Nurse
Signature___________________________________________Date__________
Appendix B

MDS-based Quality Indicators
### Center for Health Systems Research and Analysis Quality Indicators

| QI 1 | Incidence of New Fractures |
| QI 2 | Prevalence of Falls |
| QI 3 Hi | Prevalence of Behavioral Symptoms - High Risk |
| QI 3 Lo | Prevalence of Behavioral Symptoms - Low Risk |
| QI 3 | Prevalence of Behavioral Symptoms - Overall |
| QI 4 | Prevalence of Symptoms of Depression |
| QI 5 | Prevalence of Symptoms of Depression with no Antidepressant Therapy |
| QI 6 | Prevalence of Use of 9 or more Different Medications |
| QI 7 | Incidence of (New Onset) Cognitive Impairment |
| QI 8 Hi | Prevalence of Incontinence - High Risk |
| QI 8 Lo | Prevalence of Incontinence - Low Risk |
| QI 8 | Prevalence of Incontinence - Overall |
| QI 9 | Prevalence of Occasional or Frequent Bladder or Bowel Incontinence with No Toileting Plan |
| QI 10 | Prevalence of Indwelling Catheters |
| QI 11 | Prevalence of Fecal Impaction |
| QI 12 | Prevalence of Urinary Tract Infections |
| QI 13 | Prevalence of Weight Loss |
| QI 14 | Prevalence of Tube Feeding |
| QI 15 | Prevalence of Dehydration |
| QI 16 | Prevalence of Bedfast Residents |
| QI 17 | Incidence of Decline in Late Loss Activities of Daily Living (ADLs) |
| QI 18 | Incidence of Decline in Range of Motion (ROM) |
| QI 19 Hi | Prevalence of Antipsychotic Use - High Risk |
| QI 19 Lo | Prevalence of Antipsychotic Use - Low Risk |
| QI 19 | Prevalence of Antipsychotic Use - Overall |
| QI 20 | Prevalence of Anti-Anxiety/Hypnotic Use |
| QI 21 | Prevalence of Hypnotics Use > 2 times in the Last Week |
| QI 22 | Prevalence of Daily Physical Restraints |
| QI 23 | Prevalence of Little or No Daily Activity |
| QI 24 Hi | Prevalence of Pressure Ulcers - High Risk Residents |
| QI 24 Lo | Prevalence of Pressure Ulcers - Low Risk Residents |
| QI 24 | Prevalence of Pressure Ulcers - Overall |

Identifies Rider-32 Quality Issues


QI Version #: 6.3 (Online) [http://www.chsra.wisc.edu/CHSRA/QIs/QI630Q__.PDF](http://www.chsra.wisc.edu/CHSRA/QIs/QI630Q__.PDF)
Figure 8.1 Statewide Quality Indicator Results - 1999 to 2000
Appendix C

Medication Management Analysis Tables and Figures
Table 4.4.3.1  HCFA-Approved Indications for Antipsychotic Drug Use

<table>
<thead>
<tr>
<th>HCFA-approved indications for antipsychotic drug use in Long Term Care residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenia</td>
</tr>
<tr>
<td>Schizo-affective disorder</td>
</tr>
<tr>
<td>Delusional disorder</td>
</tr>
<tr>
<td>Psychotic mood disorders (including mania and depression with psychotic features)</td>
</tr>
<tr>
<td>Acute psychotic episodes</td>
</tr>
<tr>
<td>Brief reactive psychosis</td>
</tr>
<tr>
<td>Schizophreniform disorder</td>
</tr>
<tr>
<td>Atypical psychosis</td>
</tr>
<tr>
<td>Tourette’s disorder</td>
</tr>
<tr>
<td>Huntingtons’ disease</td>
</tr>
<tr>
<td>Organic mental syndromes (including dementia and organic brain syndrome) with associated psychotic and/or agitated features as defined by:</td>
</tr>
<tr>
<td>A) Specific behaviors as quantitatively and objectively documented by the facility which causes the resident to: present a danger to themselves, or present a danger to others (including staff) or</td>
</tr>
<tr>
<td>B) Continuous crying out, screaming, yelling or pacing if these specific behaviors cause an impairment in functional capacity and if they are quantitatively documented by the facility, or</td>
</tr>
<tr>
<td>C) Psychotic symptoms (hallucinations, paranoia, delusions) not exhibited as specific behaviors listed in A or B above if these behaviors cause an impairment in functional capacity.</td>
</tr>
<tr>
<td>Short term (7 days) symptomatic treatment of hiccups, nausea, vomiting or pruritus</td>
</tr>
</tbody>
</table>

Source: OBRA 90, Rev. 274, 06-95, page PP-126
**Table 4.4.3.2 Inappropriate Indications for Antipsychotic Drug Use**

<table>
<thead>
<tr>
<th>HCFA stipulations for inappropriate antipsychotic drug use in Long Term Care residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antipsychotics should not be used if one or more of the following is/are the ONLY indications:</td>
</tr>
<tr>
<td>1. Wandering</td>
</tr>
<tr>
<td>2. Poor self-care</td>
</tr>
<tr>
<td>3. Restlessness</td>
</tr>
<tr>
<td>4. Impaired memory</td>
</tr>
<tr>
<td>5. Anxiety</td>
</tr>
<tr>
<td>6. Depression (without psychotic features)</td>
</tr>
<tr>
<td>7. Insomnia</td>
</tr>
<tr>
<td>8. Unsociability</td>
</tr>
<tr>
<td>9. Indifference to surroundings</td>
</tr>
<tr>
<td>10. Fidgeting</td>
</tr>
<tr>
<td>11. Nervousness</td>
</tr>
<tr>
<td>12. Uncooperativeness, or</td>
</tr>
<tr>
<td>13. Agitated behaviors which do not represent danger to the resident or others</td>
</tr>
</tbody>
</table>

Source: OBRA 90, Rev. 274, 06-95, page PP-126
Table 4.4.4.1 1999 Values for QI19 in 16 Other States

<table>
<thead>
<tr>
<th>State</th>
<th>QI Reporting Periods for 1999</th>
<th>QI 19 Lo</th>
<th>QI 19 Hi</th>
<th>QI 19 Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas</td>
<td>5/1 – 11/14</td>
<td>16.3</td>
<td>39.8</td>
<td>19.8</td>
</tr>
<tr>
<td>Alabama</td>
<td>9/1 – 11/29</td>
<td>10.6</td>
<td>30.5</td>
<td>13.3</td>
</tr>
<tr>
<td>California</td>
<td>5/1 – 10/31</td>
<td>11.7</td>
<td>36.4</td>
<td>15.5</td>
</tr>
<tr>
<td>Illinois</td>
<td>6/1 – 11/30</td>
<td>13.9</td>
<td>32.5</td>
<td>17.6</td>
</tr>
<tr>
<td>Louisiana</td>
<td>7/1 – 9/30</td>
<td>18.2</td>
<td>43.6</td>
<td>20.9</td>
</tr>
<tr>
<td>Maryland</td>
<td>5/1 – 11/29</td>
<td>14.3</td>
<td>40.7</td>
<td>18.0</td>
</tr>
<tr>
<td>Michigan</td>
<td>3/1 – 8/31</td>
<td>9.3</td>
<td>32.8</td>
<td>13.2</td>
</tr>
<tr>
<td>Missouri</td>
<td>Unknown</td>
<td>11.9</td>
<td>35.0</td>
<td>16.0</td>
</tr>
<tr>
<td>Montana</td>
<td>9/1 – 11/30</td>
<td>8.7</td>
<td>24.8</td>
<td>10.9</td>
</tr>
<tr>
<td>Nebraska</td>
<td>10/1 – 10/31</td>
<td>8.8</td>
<td>25.5</td>
<td>12.4</td>
</tr>
<tr>
<td>New Mexico</td>
<td>5/1 – 11/17</td>
<td>10.3</td>
<td>29.3</td>
<td>13.3</td>
</tr>
<tr>
<td>New York</td>
<td>7/1 – 9/30</td>
<td>12.2</td>
<td>40.3</td>
<td>16.4</td>
</tr>
<tr>
<td>North Dakota</td>
<td>5/1 – 11/28</td>
<td>10.9</td>
<td>27.8</td>
<td>14.4</td>
</tr>
<tr>
<td>Oregon</td>
<td>6/1 – 11/30</td>
<td>13.1</td>
<td>32.1</td>
<td>16.7</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>7/1 – 9/30</td>
<td>11.2</td>
<td>34.2</td>
<td>14.9</td>
</tr>
<tr>
<td>Virginia</td>
<td>6/1 – 11/30</td>
<td>12.1</td>
<td>34.9</td>
<td>16.6</td>
</tr>
<tr>
<td>Vermont</td>
<td>7/1 – 9/30</td>
<td>11.1</td>
<td>37.1</td>
<td>16.9</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>12.0</td>
<td>34.0</td>
<td>15.7</td>
</tr>
</tbody>
</table>

QI 19 Lo is the prevalence of antipsychotic use, in the absence of psychotic or related conditions among Low-Risk residents.

QI 19 Hi is the prevalence of antipsychotic use, in the absence of psychotic or related conditions among High-Risk residents.

QI 19 Overall is the prevalence of antipsychotic use, in the absence of psychotic or related conditions among all residents.

Source: This information is an unofficial QI tabulation obtained from the Texas Health Care Association from QI information volunteered by member facilities of the American Health Care Association. At this time there is no official HCFA tabulation at state-level QI data.
Figure 4.4.4.1 Appropriateness of Prescribing Indications in the Lo19 Group

Medical Indications for Antipsychotic Therapy among Residents Identified by MDS and Confirmed by Medical Records as Lo19 (n=8904)

Table 4.4.4.2 Breakdown of Medication Management Resident Samples

<table>
<thead>
<tr>
<th>Resident Sample</th>
<th>Total Count</th>
<th>Antipsychotic Prescribed</th>
<th>Valid Indication</th>
<th>Inappropriate Diagnosis</th>
<th>Missing Diagnosis</th>
<th>Range for Inappropriate Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lo19 Group</td>
<td>10163</td>
<td>8904</td>
<td>4294</td>
<td>3560</td>
<td>1050</td>
<td>15.6 – 77.2%</td>
</tr>
<tr>
<td>Rider-32 Random Sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lo19*</td>
<td>262</td>
<td>222</td>
<td>106</td>
<td>100</td>
<td>16</td>
<td>12.1 – 86.2%</td>
</tr>
<tr>
<td>Hi19</td>
<td>78</td>
<td>71</td>
<td>48</td>
<td>22</td>
<td>1</td>
<td>17.4 – 95.6%</td>
</tr>
<tr>
<td>Non-QI19</td>
<td>1469</td>
<td>224</td>
<td>144</td>
<td>59</td>
<td>21</td>
<td>23.7 – 73.8%</td>
</tr>
<tr>
<td>Lo19 Group + Rider-32</td>
<td>11710</td>
<td>9199</td>
<td>4486</td>
<td>3641</td>
<td>1072</td>
<td>15.7 – 77.2%</td>
</tr>
</tbody>
</table>

* Excluded from total calculations for Lo19 Group + Rider-32
Figure 4.4.4.3 Appropriateness of Antipsychotic Drug Use in the Rider-32 Sample

Appropriateness of Indications for Antipsychotics as % of Entire Rider-32 Random Sample (n = 1809)

- No antipsychotic medication: 72%
- Non19 - appropriate indication: 8%
- Non19 - no appropriate indication: 4%
- Lo19 - appropriate indication: 6%
- Lo19 - no appropriate indication: 6%
- Hi19 - appropriate indication: 3%
- Hi19 - no appropriate indication: 1%
- Non19 - appropriate indication: 8%
- Non19 - no appropriate indication: 4%