

Maine Residential Care Time Study

Background

During the early 1990's, Maine implemented several long-term care initiatives to provide more choice for consumers and reduce reliance on institutional care for long-term care services. In 1993 Maine changed the way it reimburses nursing facilities moving away from facility specific rates that were based on historical costs and adopting a case mix adjusted (acuity) based payment methodology. Dual certification of nursing facilities to participate in both Medicare and Medicaid programs was also mandated. In 1994, the Medicaid program established stricter nursing home eligibility criteria. Residents already residing in nursing facilities and those seeking long term care services were assessed using a common eligibility-screening tool. Assessments are performed at prescribed intervals by an independent agency. Individuals seeking long term care, regardless of source of payment are assessed and provided with the array of long term care services they are eligible to receive. The Maine legislature also allocated additional funding to expand home and community based care services.

These changes in long term care prompted rapid growth in assisted living facilities. In 1998, for purposes of state licensing, Maine redefined assisted living facilities. Assisted living was defined as the provision by a single entity of housing and assistance with activities of living (ADLs) and independent activities of living (IADLs). Services are provided directly by the provider of housing or indirectly through contracts or agencies. Services are divided into three types, congregate housing, residential care, and adult foster care homes. Assisted living services include:

1. Personal Supervision – Awareness of the resident's general whereabouts;
2. Protection from environmental hazards including observation and assessment of residents functioning and behavior;
3. ADL and IADL assistance;
4. Medication Administration including observation, assistance with set-up and maintaining record;
5. Provision of activities that stimulate self-esteem and social interaction;
6. Assuring dietary requirements are met; and
7. Provision of nursing services by or under supervision of a registered nurse.

Funding for these services is provided by multiple sources including Medicaid, Corrections and Mental Health, Mental Retardation and Substance Abuse. Maine is one of about 32 states that pay for services in assisted living and board-and-care facilities. Maine reimburses these services in facilities licensed as assisted living or designated as assisted living by Medicaid. States may fund services in assisted living or board-and-care settings through Home and Community Based Services (HCBS) waivers or as a regular state plan service. Maine funds assisted living facilities through both funding approaches and because the state licenses several categories of assisted living facilities, covers services in residential care facilities under its state plan.

Since 1994, Maine's assisted living industry has grown over 64%. Growth in assisted living, accommodating aging in place, and the stricter eligibility requirements for nursing facility level of care has resulted in more complex residents in assisted living. To recognize the variation in resident complexity existing in these facilities and to adequately reimburse facilities for their care, the development of a classification system to identify residents based on resource needs is desirable.

In the fall of 1995, Maine conducted a time study to create a classification system to predict resource use in residential care homes. These facilities were classified as Level I and Level II residential care facilities under the 1998 licensing changes. Both levels of facilities were included. Twenty-five facilities participated in the study representing 37% of all facilities and 28% of the beds in 1995. Small facilities and those that served individuals with Alzheimer's disease, head injuries, mental illness and the elderly were over sampled.

This classification system was to be used to establish a case mix reimbursement system. A classification model, weights and payment methodology were developed and proposed in rule in 1998. Given the dramatic change in the industry, concern was raised from many stakeholders as to the appropriateness of the 1995 time study and the use of a 1996 base year period for costs. The state agreed to postpone payment under the case mix methodology and conduct a new time study in the fall of 1999.

Methodology

The development of a classification system requires information and input from a number of sources. Generally those sources include:

1. A reliable uniform assessment instrument that identifies the characteristics, strengths and preferences of residents;
2. Measurement of staff time spent with residents and the relative costliness of that time; and
3. Clinical and other input from those who work with or in residential care facilities.

In the spring and fall of 1995, a resident assessment instrument for residential care facilities was developed and field-tested in Maine. The assessment instrument, called the Minimum Data Set for Residential Care (MDS-RCA), includes key items from the Minimum Data Set (Version 2.0) developed for use in nursing homes. Additionally items were added appropriate for service planning including independent activities of daily living, skill training, activities and special programs designed for the residential care population. This form continued to be refined over time. In 1999 additional form revisions were made to better reflect mental health problems, monitoring of conditions and pain. This revised form was field tested as part of the 1999 time study. Results of this reliability test will be presented in a subsequent report. The results of the reliability test were good with an overall average agreement found on items of 84%.

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Beginning in 1996, the Maine Department of Human Services convened a group of residential care facility staff, directors and other industry representatives to provide input into the development of the case mix system. This group has been meeting regularly since that time. They have been instrumental in all work including MDS-RCA form modification, time study protocol, development of the case mix model and quality indicator development.

For the fall of 1999, time study Level II residential care facilities that are cost reimbursed under Medicaid were selected. A Level II residential care facility provides assisted living services in a facility of 7 or more beds with 24 hour supervision and depending on size, up to 8 hours of RN coverage per day. Of the 186 Level II facilities, 117 meet the criteria for inclusion in this study. Currently, these facilities are reimbursed by the state of Maine at about \$73.26 per resident day. Medicaid pays fifty percent of this rate, \$36.50, under the Private Non-Medical Institution (PN MI) category of service. The rest is paid out of state funds.

The purpose of this report is to present, findings from the time study and the development of the resident classification system.

Sample Selection

The sample of facilities was drawn to reflect the diverse types and needs of residents in residential care. Facilities were also selected based on the quality of service they provided. Thirty-two (32) residential care facilities (RCFs) with 792 residents participated in the time study. This represented 27 % of the facilities and 26% of the beds and residents. As Table 1 shows, the sample facilities closely resembled the statewide facilities with some over sampling of behavioral, cognitive and elderly facilities.

Table 1
Sample and Statewide Facilities by Population Served (Self-Designated): 1999

Self –Designation Population	Sample Facilities				RCF Level II			
	(N)	%	Beds	% Beds	(N)	%	Beds	% Beds
Behavioral	1	3%	34	4%	4	3%	83	2%
Cognitive	4	13%	66	7%	7	6%	179	5%
Elderly	9	28%	209	23%	29	25%	907	26%
Mixed	10	31%	414	45%	38	32%	1249	36%
Other	8	26%	191	20%	39	34%	1086	31%
Total	32	100%	914	100%	117	100%	3504	100%

Medium to small size facilities was slightly over sampled. Table 2 compares the distribution by size of sample facilities with that of residential care facilities. Medium/small facilities represent 54% of the sample as compared to 39% of the population.

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Table 2
Sample and Statewide Facilities by Bed Size: 1999

Bed Size	Sample RCFs			Statewide RCFs		
	(N)	Residents	% Residents	(N)	Residents	% Residents
19 or less	9	132	17%	41	388	17%
20-30	12	293	37%	33	470	22%
31+	11	367	46%	43	1325	61%
<i>Total</i>	<i>32</i>	<i>792</i>	<i>100%</i>	<i>117</i>	<i>2183</i>	<i>100%</i>

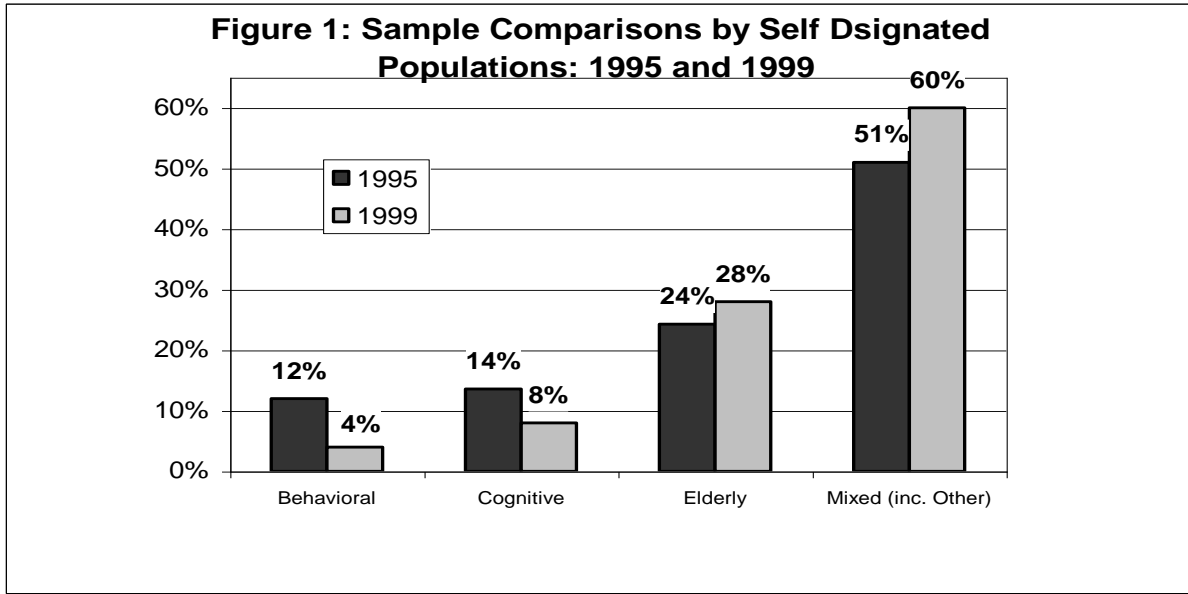
As table 3 shows, sample facilities were more likely to be multi-level than were statewide facilities (47% vs. 32%). Multi-level facilities represent the largest area of development in Maine residential care. Since 1995, over 500 nursing facility beds have been converted to residential care.

Table 3
Sample and Statewide Facilities by Type of Facility: 1999

Multilevel	Sample RCFs			Statewide RCFs		
	(N)	Residents	% Residents	(N)	Residents	% Residents
No	15	421	53%	70	1485	68%
Yes	17	371	47%	44	698	32%
<i>Total</i>	<i>32</i>	<i>792</i>	<i>100%</i>	<i>117</i>	<i>2183</i>	<i>100%</i>

Sample Comparisons: 1999 to 1995

- As shown in Figure 1 below, the 1999 sample proportionally represented fewer residents with behavioral and cognitive problems than the 1995 sample. The absolute number of these residents in the 1999 sample is larger, however the overall number of residents has increased dramatically from 1995 to 1999. This increase has been in facilities that serve either a mixed population or the elderly.
- The 1999 sample did not include facilities with less than 7 beds. Both samples however over sampled for smaller facilities. The 1999 sample included more larger-sized facilities. There were no multi-level facilities in the 1995 sample.



Staff Time Data

The Battelle methodology was used to collect staff time data. This process was similar to that in the nursing home time studies. These studies were used to develop a case mix classification for nursing homes implemented by Medicare nationally and some states for Medicaid payment. In this process time greater than 30 seconds spent with or for a resident was attributed to the resident. Other time not attributable to a resident is also recorded. All staff on all shifts was required to record their time on a log over a 3-day period. This included direct care staff such as RNs, LPNs, aides, medication technicians, register mental health technicians, resident care directors, administrators, dietary staff, social workers, laundry, housekeeping and other staff employed by the facility. Non-staff professionals and volunteers were also asked to track the time they spent with residents when they visited the facility.

Staff reported all time spent as either:

- **Resident specific time (RST)** which included direct time spent either with or on behalf of a resident including one-on-one time spent in activities; or
- **Resident non-specific time (RNST)** which included *other direct care* activities such as general supervision, charting, general maintenance of the area, preparing for activities, conducting group activities and non-direct care activities such as billing, housekeeping, laundry, meals and breaks.

It is important to note that time was not capture for specific tasks. For example, if 30 minutes was spent bathing Mrs. Jones, then the 30 minutes was attributed as RST for Mrs. Jones, not 30 minutes for bathing.

During the time study, project staff were on site to assist the facility in data collection and assure the accuracy and completeness of the information. Project staff checked in with each shift and were reachable via phone at all times during the data collection. Data collected during a shift was tallied and reviewed for accuracy and completeness at the end of each shift. To the extent possible, problems identified were resolved with staff on their next shift.

Given the mobility of this population, time out of the facility was captured on all residents. Many residents participate in off-site training, programs or work. Capturing of this time was important to be able to adjust staff time for analytic purposes.

Due to the presence of multi-level facilities, we required staff that may not have been directly on site to capture time spent for residents of the facility. Generally, dietary, laundry and business office staffs were located at another site. Each staff was given a staff time log with the list of residents participating in the time study. Resident specific time was to be attributed to the individual residents. Even though staff was not on site resident specific time did occur. For example, business office staff may have spent time managing finances for a resident, billing or discussing a bill with a payor. Dietary staff may have spent time preparing a special diet for a resident. This time would be recorded as RST. All other time spent by these staff was recorded as RNST. The RNST time was then prorated based on the cost allocation used on the cost reports. Costs are generally allocated on a per foot or per day basis for the various cost centers between the different care levels (e.g., Nursing facility and residential care).

Resident Assessment Data

Assessment data on all residents in the sample facilities were collected using a revised version of the MDS-RCA (Version 8/99). This version included the additional and changed items described above. Participating facilities were asked to complete the assessments starting the week prior to the time study and up to 3 weeks after the study was completed. Facilities have 30 days to complete an assessment. Facilities were encouraged to complete the assessments in as timely a manner as possible. It is important to have an assessment that reflects the condition of the resident as near to the time data collection as possible.

The following sections describe characteristics of the residents relative to both the earlier time study period (1995) and a profile of the current population of RCF residents (profiled at 10/31/99).

A. 1995 time study population vs. 1999 time study population

The two populations differed in several respects supporting the rationale for conducting this time study. First of all, the 1999 residents were more likely to have been admitted from a nursing facility but less likely to be admitted from a private home. Furthermore, the 1999 sample proportionally noted fewer residents with a history of

mental health problems, however, current diagnosis reflects a higher prevalence of mental health conditions including depression, anxiety disorders, manic depression and other psychiatric diagnosis. Schizophrenia was less prevalent in the 1999 sample. Following this pattern, resident's were more likely to be on antidepressants, but less likely to require antipsychotics, antianxiety and hypnotics.

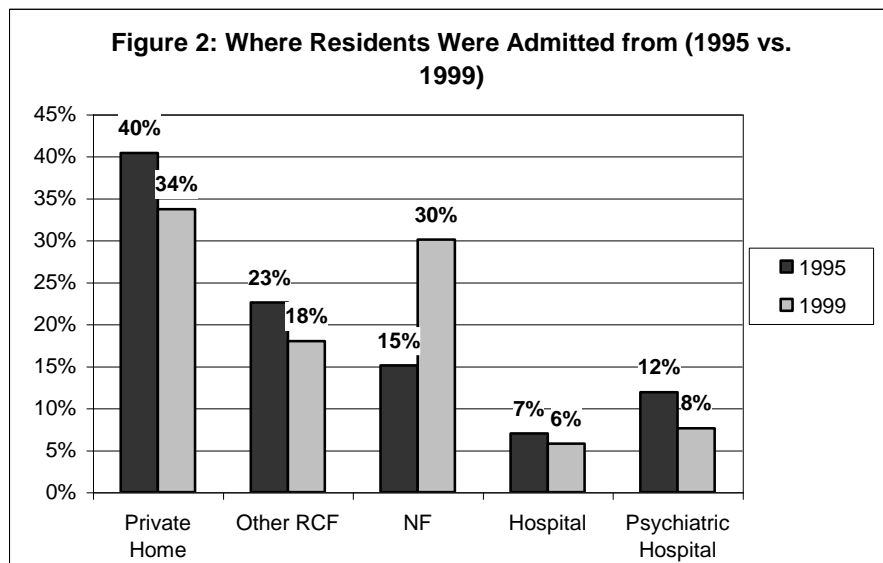
Cognitive impairment was more prevalent in the 1999 sample including Alzheimer's disease and other dementia. Short-term memory problem was comparable in both groups. However, long-term memory problem was less frequently identified in the 1999 sample. Problem behaviors and moods were more prevalent in the 1999 sample.

Residents in 1999 were more likely to need assistance with ADLs and IADLs. Residents had similar levels of incontinence in both samples, however the 1999 sample was less able to manage their incontinence.

Both the 1995 and 1999 populations were demographically similar and were both as likely to have needed new medications during the three month period preceding the assessment. Appendix A contains a complete comparison of the 1995 and 1999 samples. Below are selected highlights from these comparisons.

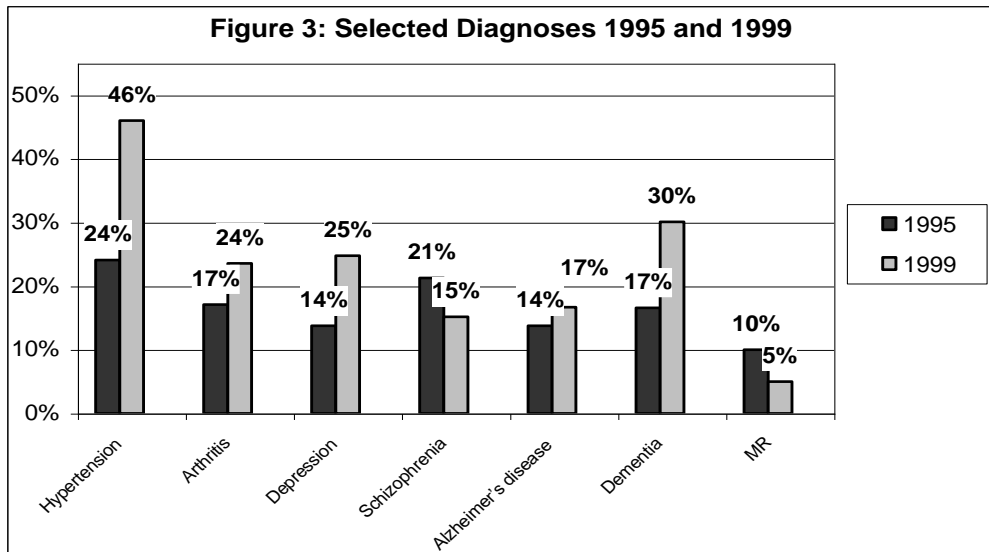
Demographic Data

- In 1995 and 1999 approximately two thirds of the residents were female.
- In 1999 the average age for a resident was 78 while in 1995 the average age was 73. (In 1999 73% of residents were 75 years and older compared to 60% in 1995).
- In 1999 the average length of residence was 4.1 while in 1995 it was 4.3 years.
- In 1999 residents were less likely to be admitted from a private home than in 1995 (34% vs. 40%) but were more likely to be admitted from a nursing facility than in 1995 (30% vs. 15% *see figure 2 below*).



Key Physical Characteristics

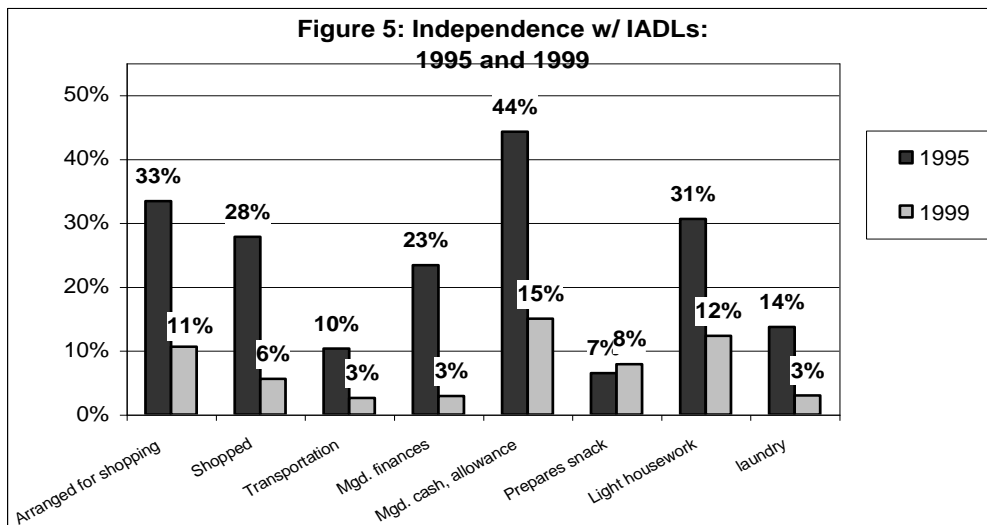
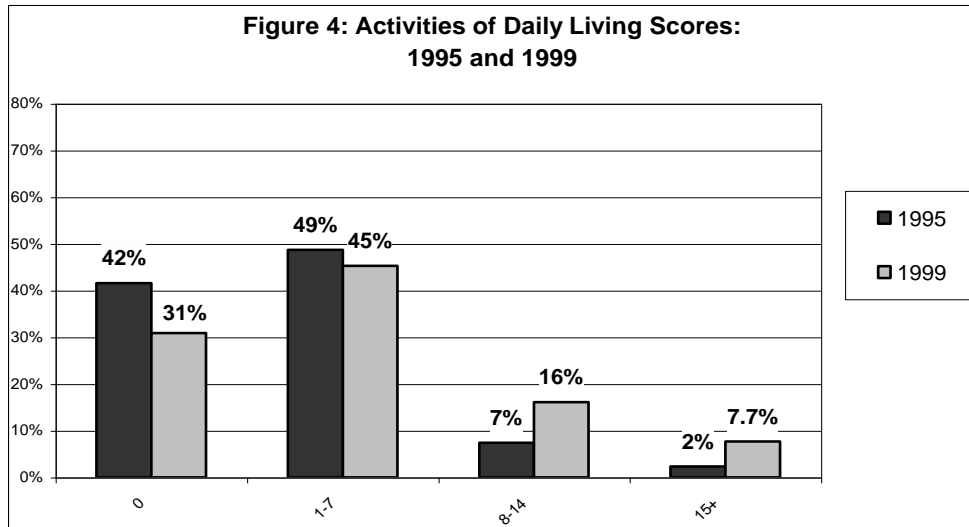
- In 1999 residents were less likely to have had a history of MR, MI or other developmental disability than in 1995 (20% vs. 42%).
- In 1999 residents were less likely than in 1995 to have been diagnosed with mental retardation (5% vs. 10%) and to have schizophrenia (15% vs. 21%).
- As shown in Figure 3, in 1999 residents were more likely than in 1995 to be diagnosed with the following: hypertension (46% vs. 24%); Alzheimer’s (17% vs. 14%); dementia other than Alzheimer’s (30% vs. 17%); and depression (25% vs. 14%) In 1999 residents were more likely to receive antidepressants on a daily basis than in 1995 (38% vs. 23%);



- In 1999 residents were more likely to have had some physical limitation requiring assistance with ADLs than in 1995 (69% vs. 58%). In 1999, residents had an average ADL score of 4.7. See Figure 4 below for further details.
- In 1999 residents were twice as likely to have fallen in the three month period leading up to the assessment than in 1995 (31% vs. 13%).

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- In 1999 residents were less likely to be independent with IADLs than in 1995 (see Figure 5 below).



- Approximately one third of the 1999 and 1995 residents (34% vs. 33%) had some level of problem with incontinence of the bladder. Almost one third (27.5%) of 1999 residents were incontinent and receiving assistance with supplies (vs. 16% in 1995)

while another 9% were incontinent but able to manage supplies on their own (vs. 12% in 1995).

- In 1999 residents were less likely to have had a problem with long term memory than in 1995 (45% vs. 62%), however, 1999 residents were just as likely to have had short-term memory problems as in 1995 (58% vs. 59%).
- In 1999 residents were twice as likely to experience a change in mood than in 1995 (31% vs. 15%) and as a result were more likely to experience both a decline in mood (18% vs. 7%) and an improvement in mood than in 1995 (13% vs. 8%).
- Approximately 40% of residents in both 1995 and 1999 required new medications during the three month period leading up to the assessment.
- In 1999 residents were more likely to have a mild to severe cognitive impairment as measured by the cognitive performance scale than in 1995 (64% vs. 50%).

B. 1999 Overall Population Compared with 1999 Time Study Population

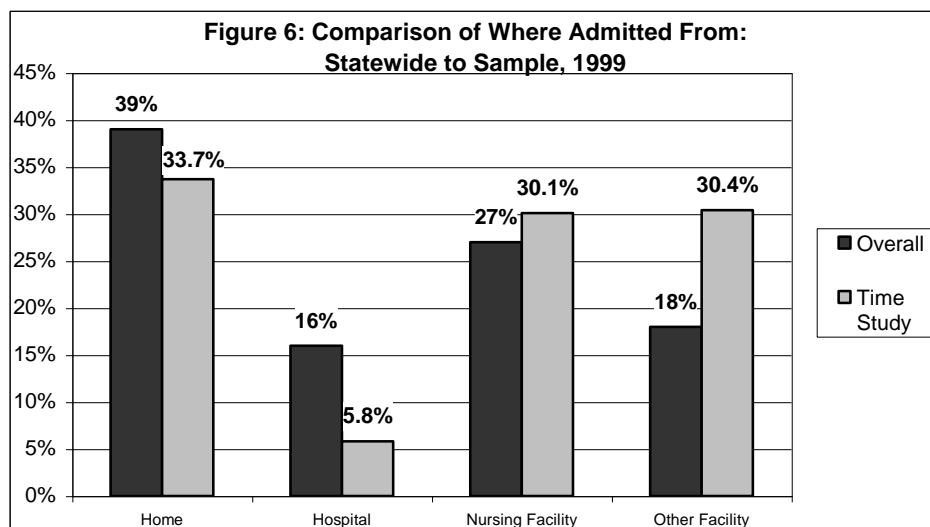
The overall population and the time study population were demographically similar in terms of gender and age and shared similar rates for selected diagnoses. Furthermore, both populations had similar needs for medications, as well as needs for certain treatments and procedures.

Our sampling intent was to over-represent residents with more of the complex conditions reflected in the residential care population. These conditions include mental health conditions, Alzheimer's Disease and dementia, frail elderly and medical conditions that require monitoring by licensed staff. The two populations differ in respect to this sampling strategy. First of all, the overall population was more likely to have been admitted from a private home or a hospital but was less likely to have been admitted from a nursing facility. Furthermore, the overall population was more likely to be able to perform ADLs and IADLs independently. Surprisingly, the sample population was less likely to have had a history of mental health problems.

Appendix B contains a complete listing of comparison of the RCF population as of October 15, 1999 and the time study sample. The following is a summary of statistics on demographics, key physical characteristics, and treatments and procedures for the two populations (see appendix for more detailed information).

Demographic Data

- Approximately two thirds of the residents in both populations were female (*overall: 71% vs. time study: 68%*).
- The average age for the overall population was 79 while for the time study population it was 78.
- The average length of residence for the overall population was 3.5 years while for the time study population it was 4.1 years.



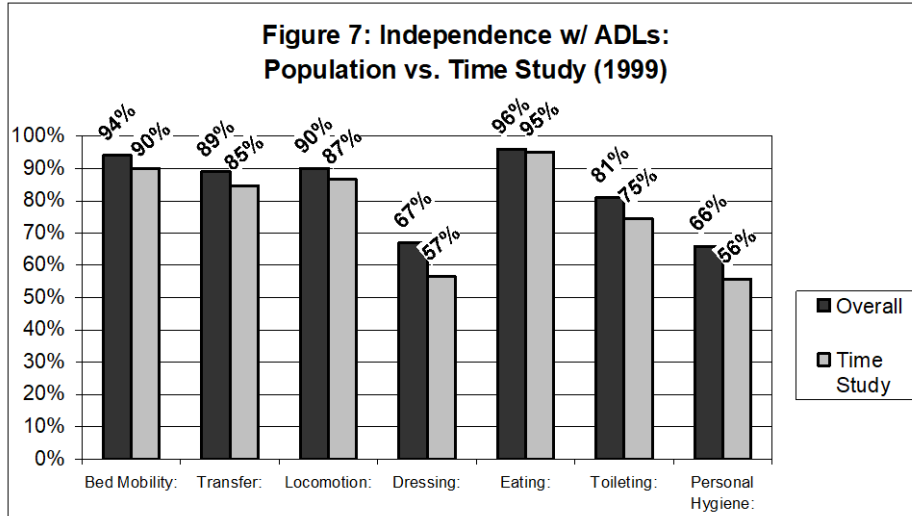
- As shown in Figure 6, the overall population was more likely to be admitted from home and a hospital than the time study population but was less likely to be admitted from a nursing facility or some other facility.

Key Physical Characteristics

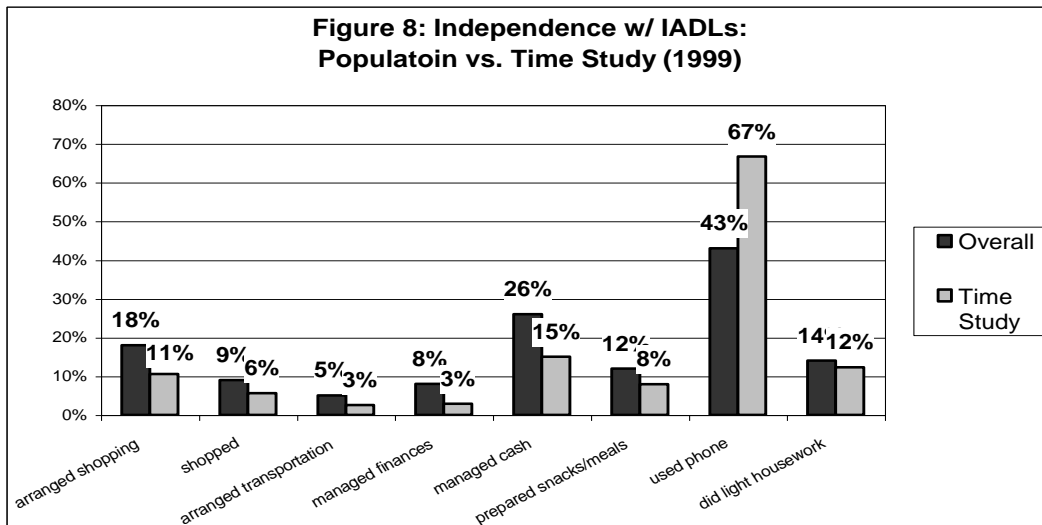
- Generally speaking, the overall population was more likely than the time study population to have had a history of mental retardation (8% vs. 3.4%), mental illness (24% vs. 20.5%) and other developmental disabilities (3% vs. .06%).
- Both populations were using an average of eight medications. Similar proportions of both populations received antipsychotic, antianxiety, antidepressant, hypnotic, and diuretic medications and both populations had similar rates of compliance with medications (*overall*: 86% vs. *time study*: 81%).
- The families or residents in the overall population were less likely to indicate a preference for the resident to return to the community than the time study population (8% vs. 19%).
- During the week preceding the assessment similar proportions of both populations had been verbally abusive, physically abusive, exhibited socially inappropriate behavior, had resisted care, and exhibited intimidating behavior. During this week, however, the overall population was less likely to be prone to wandering than the time study population (11% vs. 17%).
- The overall population was more likely to have made visits to the emergency room than the time study population (20% vs. 16%).

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- The overall population was more likely to have been independent or requiring supervision with ADLs than the time study population (see Figure 7).
- With the exception of resident phone use, the overall population was more likely (in some cases as much as twice as likely) to perform an IADL independently than the

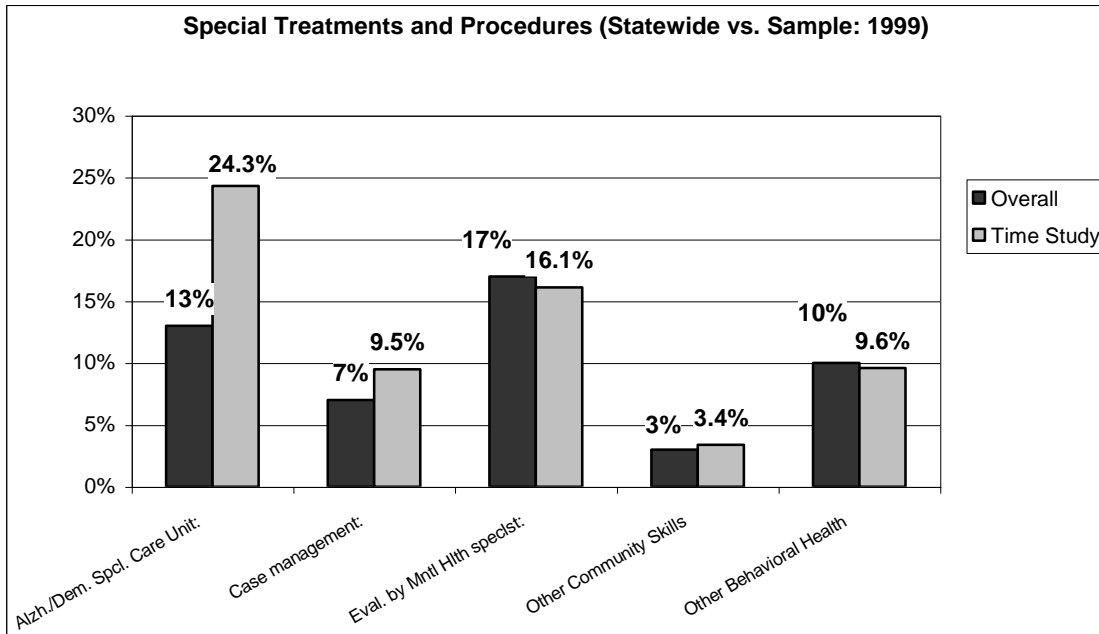


time study population (see Figure 8).



Special Treatments and Procedures

- The overall population and the time study population had similar levels of needs for special treatments and procedures. However, the time study population was almost twice as likely as the overall population to be in an Alzheimer's/Dementia/Special Care unit (24% vs. 13%).



1. Resident Time Data

Staff spent an average of 79 minutes in resident specific time. As indicated in the chart below, aides of various types including MHRT1s, CRMAs, CNAs and personal care assistants (PCA, RCA) spent the greatest amount of time with residents. All staff spent time in resident specific activities, however, this was not true at all facilities. The overall average amount of resident specific time increased 30 percent from 61 minutes in 1995 to 79 in 1999. The data collection from 1999 included a more intense and greater variety of staff positions. To the extent possible we have compared like staff types across the two studies, however the positions may not be totally comparable. In general, staff time has increased from the earlier time period for several positions. However, CRMAs and PCAs spend less time in resident specific activity in 1999. Nurse-time both RN and LPN has significantly increased.

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Table 4: Resident Specific Time by Staff Position, 1999 and 1995

Position Description	Residents	Mean per Day	Percent Resident Specific	1995 RST Minutes	1995 Percent
Activities Director	460	4.82	18%		
Activities Staff	194	4.96	9%	2.93	23%
Administrative Staff	145	2.19	2%	1.17	8%
Administrator	221	3.92	7%		
CAN	397	11.96	36%	8.23	37%
CNA/CRMA	497	19.23	41%		
CRMA	383	14.92	35%	21.47	34%
CRMA/RCS1	384	15.78	37%		
Dietary	229	3.79	2%		
LPN	370	9.19	31%	4.75	29%
Maintenance, Housekeeping, Laundry	439	7.80	8%	3.22	11%
MHRT1	54	23.06	48%		
Other	168	12.58	17%	2.79	34%
Other Direct Care Staff	22	4.35	37%		
PCA	181	18.27	34%	22.29	39%
RCA	318	18.05	38%		
RCS1	281	14.00	27%		
Resident Care Director	301	8.09	27%	5.23	32%
RN	325	8.06	24%	3.26	38%
RN Consultant	113	4.37	17%		
Social Svcs. Designee	326	6.78	26%	5.54	51%
Overall	792	79.10		61.26	26%

Facilities collected resident specific time (RST) spent by non-staff members over the three-day period on 228 individuals (29% of sample). A total of 241 visits were captured with an average length of 33 minutes. Most visits fell into the other category and were commonly related to hair dressing and grooming activities. The most frequent professional visits were from physicians' (21) and home health nurses' (19).

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Table 5: Non-Staff Visit Time, 1999

Discipline	Residents	Average Time per Visit	Minimum	Maximum
Dietician	2	47.50	45	50
Ministry	1	90.00	90	90
Nursing	19	56.32	2	540
Occupational Therapy	4	36.25	10	50
Other	163	30.56	1	390
Physical Therapy	9	63.78	20	170
Physician	21	11.71	1	24
Podiatry	13	8.38	8	11
Social Work	9	75.56	10	270
Total Visits	241	33.00	1	540

One hundred seventy volunteer logs were collected on 118 residents over the three-day period. Volunteers had an average visit length of 61 minutes. Out of facility time was captured on 179 residents (21%). These residents averaged 314 minutes out of the facility. Activity logs were recorded for 148 participants with a total of 1620 minutes over the three-day period. RST spent during an activity was attributed to the resident and adjusted out from the total activity time.

Table 6 shows the variation in RST by selected resident characteristics. The workgroup identified these characteristics as requiring more staff time. The “With” column in the table indicates time spent for residents with that characteristic. “Without” indicates time spent for residents who do not have that characteristic.

For most of these characteristics, those with the condition required significantly more time by staff. While some were not statistically significant, they still indicated more time required. Exceptions to this include the mental health items. Surprisingly, residents’ with these conditions often required less time.

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Table 6: Resident Specific Time (RST) by Selected Resident Characteristics

Resident Characteristics	Average Direct Resident Specific Time (Minutes)		Average Activity Time (Minutes)	
	<i>WITH</i>	<i>WITHOUT</i>	<i>WITH</i>	<i>WITHOUT</i>
Dementia	65.8*	49.6	12.1*	10.7
Behavior Not Easily Altered	62.6*	58.0	11.1	11.8
Resident with Behavior Problems	68.1*	56.7	11.8	11.4
Resident in Danger of Falls	68.9*	49.4	11.8	11.5
Non-Compliant with Drugs	68.0	58.8	8.3*	11.8
Resident exhibits Drug Effects	74.2*	58.3	14.7	11.4
History of Mental Illness	53.6	60.3	13.3	10.7
Resident with Health Problems (Section J)	64.9*	53.9	12.8*	10.4
Resident Involved in Facility Activities	58.9	63.2	11.9*	4.1
Resident Experienced a Significant Life Event	59.8	58.9	11.1	11.9
Resident has Unsettled Relationship	59.6	58.8	11.1	12.0
Resident has Mental Health Problem	58.6	59.7	12.4*	10.0
Resident Required Monitoring of Condition	61.6*	53.8	11.2	12.8
Resident has Nutritional Problems	69.7*	55.2	9.5*	12.4
Resident has Pain	70.2*	59.1	11.9	14.1
Resident Resists Care (Not Easily Altered)	67.1	57.9	7.3*	12.3
Resident has Skin Problem	72.3*	56.0	10.6	11.9

□ Indicates time is significantly different at the .05 level based on T-test results.

Resident Classification System (RCS) Development

The resident classification system (RCS) considered the actual resources used to care for residents. No attempt was made to estimate what care ought to have been provided. The workgroup sought to have a model with the following characteristics:

- 1.) Understood by those who provide care;
- 2.) Able to explain variation in care time;
- 3.) Able to differentiate intensity of care between groups;
- 4.) To extent possible, considers the social model philosophy; and
- 5.) Can be used for payment.

Development of the RCS requires matching resident characteristics with the amount of care time required for the resident. Information from the 1999 time study and assessment information was combined into a single analytic file at the resident level. In this way, the analysis focused on the amount of time spent caring for residents with certain characteristics. Resident specific time (RST) was aggregated by type of staff and combinations of staff to evaluate the models predictive ability. RST includes time spent for or with a resident by caregivers. For example, an Aide spent 30 minutes assisting Mrs. Jones with a bath while a nurse spent 30 minutes reviewing and discussing Mrs. Jones service plan with the PCA and Activity Director. In both examples, 30 minutes of time is attributed to Mrs. Jones, although the Aide was directly in contact with her and the nurse was not. Although all staff spent some resident specific time, combinations of selected staff (e.g., those that spend most of their time in resident care) produced better explanatory models.

Similarly, resident specific time (RST) in combination with non-resident specific times (NRST) were examined. Allocation of NRST can occur in proportion to the number of residents in the study, *direct* allocation or in proportion to the amount of RST, *proportional* allocation. A combination of the two can also occur. For example, NRST that is related to resident care could be allocated proportionately, with the rest allocated directly. Proportional allocation of NRST simply changes the average time, but does not affect the relative time spent caring for different residents. Direct allocation tends to reduce the differences among residents reducing the predictive power of the models. The main purpose of the classification is to differentiate among residents based on relative amount of care time they receive. The final models performed best predicting “direct” care type staff RST. This included RN, LPN, Aides, PCA and RCS types, MHRTs and other direct care staff. NRST was not included in the modeling.

The principal statistical technique used was Automatic Interactions Detection (AID) in an interactive application developed for microcomputers by Stepwise Systems, Inc. called PC-Group. Regression techniques in testing alternative models for the classification also were examined.

As shown in the previous section, some combination of ADL needs, cognitive status, problem behaviors and various acute conditions explain the bulk of the variation in care

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time. These items were similar to those identified in the 1995 time study and classification development. The classification work group to identify items that support their clinical beliefs of the characteristics of residents that require greater time reviewed the listing. Also a classification model similar to the RUG-III model used by Medicare and many states for Medicaid reimbursement was examined.

Based on the clinical and statistical input a series of models were developed. ADL scores constructed in a variety of ways including a total ADL, early and late loss, and score based on the nursing home RUG-III model were examined. The ADL scores, cognitive performance scale (CPS), complex clinical conditions and behavioral health indicator identify the key component of the classification. After much iteration with the work group a final model was agreed to.

RCS HIERARCHY

The RCS first groups residents into one of four categories: (1) Severely Impaired Cognition, (2) Clinically Complex, (3) Behavioral Health, and (4) Reduced Physical Function. These categories are then expanded into fourteen classification groups based on the activities of daily living score (ADL score). Impaired Cognition and Behavioral Health split into three groups, while the others split into four groups. Table 7 identifies the items from the MDS-RCA that qualify a resident for inclusion in a category.

Table 7: Maine Resident Classification System for Residential Care Facilities MDS-RCA Qualifiers for Major Categories		
Group	ADL Splits	MDS-RCA Item
Impaired Cognition	0-11; 12-14; 15-28	Severely Impaired Decision Making [B3=3]
Clinically Complex	0-1; 2-6; 7-11; 12-28	Any of the following conditions: <ul style="list-style-type: none"> • Ulcers due to any cause ([M2a,b,c, or d >0]) • Quadriplegia [I1z=checked] • Burns [M1b=checked] • MS [I1w=checked] • Radiation/ Chemotherapy [P1aa=checked] • Hemiplegia/hemiparesis [I1v=checked] • 4 or more physician order changes [P10>=4] • Aphasia [I1r=checked] • Explicit Terminal Prognosis [I1ww=checked] • Monitoring for Acute Conditions [P3a=1 or P3a=2 or P3a=3 or P3b=1 or P3b=2 or P3b=3] • Oxygen [P1ab=checked] • RT 5 or more days a week [P1bda >= 5] • CP [I1s] • Diabetics receiving daily injections [I1a=1 and O4ag=7]
Behavioral Health	0-4; 5-15; 16-28	Two or more indicators of depression, anxiety or sad mood [count of the number of items E1a-E1r exhibited at all (>0)] OR Three or more interventions or programs for mood, behavior, or cognitive loss [three or more items in

Table 7: Maine Resident Classification System for Residential Care Facilities MDS-RCA Qualifiers for Major Categories		
Group	ADL Splits	MDS-RCA Item
		P2a-P2j checked] OR Delusions (J1e) or Hallucinations (J1f)
Physical	0-3; 4-7; 8-10; 11- 28	
Not Classifiable		MDS-RCA Assessment RUG items contains invalid or missing data.

Severely Impaired cognition is equivalent to a Cognitive Performance Scale (CPS)¹ of 5 to 6. Comatose is not a qualifier for the CPS calculation because the assessment does not contain this item. The remaining qualifier for the 5 to 6 CPS score includes residents who rarely make a decision regarding tasks of daily life. The eating ADL is used to distinguish between the 5 and 6 level, however both are included in this group.

Clinically complex includes a variety of complex medical conditions that require medical diagnosis or assistance. These items often require monitoring or treatment by the facility staff. To the extent possible, this category uses similar items as the Medicare RUG-III clinically complex category.

Behavioral health includes two or more indicators of depression, anxiety or mood. These items had to have been exhibited in the last 30 days and include such things as self-deprecation, crying tearfulness, negative statements, repetitive verbalizations or questions and reduced social interaction. Residents with hallucinations or delusions also qualify for this group. Finally residents that have 3 or more interventions or programs for mood, behavior or cognitive loss would qualify for this group.

Resident that do not qualify into one of the above groups are categorized into reduce physical function. No clinical variables are used for this classification. Should a resident have missing or inaccurate information on any of the items used to classify a resident, they are placed in the “not classifiable” group.

ADL Index Score

The ADL index score is used as a final split on all the RCS categories. For each group, PC-Group was used to establish the appropriate splits between ADL scores. The recommended groupings were used. The ADL score is calculated based on all activities of daily living with the exception of climbing stairs. ADLs included are: bed mobility, eating, transfer, toileting, dressing, grooming, locomotion and personal hygiene. The ADL score is a simple summative score of the resident self-performance. Items coded as not occurring were re-coded to total dependence. The score ranges from “0” independent to “28” totally dependent.

¹ Morris, JN, Fries, BF et al MDS Performance Scale. J. Gerontology 1994; 49,m174-m182.

Several ADL scores were examined including early loss, late loss and the ADL score used in the RUG-III system. Each score performed was equally predictive of care time. The work group advocated for the summative score based on all ADLs, as this was the simplest to understand. There is some concern for the game-ability of such a score and how a one-point change can account for a large change in the index value used for payment. This will be monitored as the system is implemented. Currently over 40 percent of residents are totally independent or have a score of zero.

Figure 1 below shows the final RCS. The model predicts 43.68% of the resident specific time (RST) for all direct care staff. Overall residents (N=735) an average of 190.2 minutes were spent in RST over the three day time study. Each box on the left of the figure represents a major category and displays the number of time study residents that fall into that category as well as the average number of RST minutes. The major category mean times range from 284.5 for the impaired cognition group to 147.7 for the physical group. Boxes on the right of the diagram represent the final group based on ADL splits. Similarly these boxes display the number of residents and average time. For the ADL split groups time ranges from a high of 468.7 to a low of 105.9.

Forty-one percent of the residents qualified for the reduced physical function group. While this number appears high, the physical group also is the largest group in the nursing home system for residents reimbursed by Medicaid. Clinically complex is the next largest group with 30%, followed by behavior with 22.3% and impaired cognition with 6.7%. The largest ADL split group (26%) is the physical function with an ADL score of 0-3.

Also shown in this box are the final case mix weight assigned to the group for purpose of payment by Maine Medicaid. To calculate the weight or "relative value" all staff RST was weighted by a salary ratio. The salary ratio was constructed from third quarter 1999 staff wages collected during the time study. Salary information excluded benefits. All ratios were constructed relative to the CAN salary. The wage weighted average salary minutes were normalized to the resident population as of September 15, 1998. 1998 was chosen as the base year for purposes of matching case to costs in developing the payment methodology.

Maine Residential Care Time Study

