Measuring Worker Turnover in Long-Term Care: Lessons From the Better Jobs Better Care Demonstration

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Purpose: Turnover among direct-care workers (DCWs) continues to be a challenge in long-term care. Both policymakers and provider organizations recognize this issue as a major concern and are designing efforts to reduce turnover among these workers. However, there is currently no standardized method of measuring turnover to define the scope of the problem or to assess the effectiveness of interventions. This article draws on our experience of the Better Jobs Better Care Demonstration (BJBC) to explicate some important issues in measuring and interpreting turnover related to interventions designed to improve DCW jobs.

Design and Methods: We used turnover data from a selected group of BJBC providers (N = 9) to demonstrate some of the measurement issues we uncovered in developing a turnover tracking system for BJBC. We also illustrate how the data elements collected in the tracking system make it possible to construct measures that are useful at both policy and practice levels.

Results: Differences in definitions of turnover and the data elements used to construct the measure can have large effects on turnover rates, how they are used, and what they mean. Implications: Policy makers, researchers, and managers who need comparative turnover information to address the impending demand for DCWs should be aware that turnover measures differ, and they should take steps to ensure that measures they use have common definitions and data elements.

Key Words: Direct-care workers, Long-term care, Measurement, Turnover

Direct-care worker (DCW) turnover and retention issues are at the center of many policy and practice initiatives aimed at improving the quality of long-term care, with the contention that the quality of DCW jobs and consequently DCW turnover are linked to quality of care (Stone, Dawson, & Harahan, 2003). The current and projected shortage of DCWs has gained the attention of policymakers; many recent workforce initiatives and research endeavors aimed at improving DCW retention have been implemented at both the state and federal levels (Harmuth & Dyson, 2005; Harris-Kojetin, Lipson, Fielding, Kiefer, & Stone, 2004). Having consistent and reliable turnover data is an important component for assessing the supply of these workers and evaluating the effectiveness of policy-level interventions.

Similarly, long-term care provider organizations across the continuum are actively engaged in addressing the direct-care workforce crisis through efforts at increasing the retention of and decreasing the turnover of DCWs. Staff turnover can be costly to the provider in terms of...
Inconsistency in Turnover Measurement

Turnover is a ratio of the number of separations during a specified period of time to the total number of workers employed. However, the methods used to define and measure turnover among DCWs have been inconsistent. In testimony to Congress on long-term-care staffing issues, the U.S. Government Accountability Office (2001) found that comprehensive national data on DCW turnover did not exist and cautioned the comparison of turnover rates from different studies because the measurement of turnover is largely inconsistent. Similarly, a more recent report from the Health Resources and Services Administration (HRSA; 2004) recognizes the need for more data on turnover among DCWs in long-term care. The report outlines the need for more uniform approaches to measurement in addressing the lack of good national data on the direct-care workforce.

Reported turnover rates vary widely both within and across the various types of long-term-care providers (nursing homes, home care, and assisted living) and by geographic region. For example, recent estimates of nursing-home turnover rates range from 25% in Hawaii (American Health Care Association, 2002) to 127% in Wisconsin (Dresser, Lange, & Sirkus, 1999), with a reported national average of approximately 78% (American Health Care Association, 2002). Home-care turnover studies report rates ranging from 12% to 76% (HRSA, 2004). Although fewer statistics are available for assisted living facilities, reported rates include annual estimates of 35% and 40% (American Association of Homes and Services for the Aging, 2002; Kraditor, 2001) in addition to a recent semiannual estimate of 33% (Konetzka, Stearns, Konrad, Magaziner, & Zimmerman, 2005). Reported state-level rates have been as high as 164% (Dresser et al.).

In their recent report of the results of a 2005 survey of state initiatives on the long-term-care direct care workforce, Harmuth and Dyson reported that 11 out of 38 states collected and analyzed turnover data. Turnover rates in nursing facilities ranged from 38% in Florida to 105% in North Carolina. Although these differences may reflect differences in labor markets or state-level policy, they are also likely to result in part from inconsistent methods in measuring turnover. For example, Florida reported measuring turnover as the cumulative sum of quarterly rates, calculated as the total number of separations during the quarter (not including a 3-month probationary period) divided by the total number of employees at the end of the quarter. North Carolina’s method included the total number of full-time and part-time separations divided by the total number of DCWs for a fully staffed nursing facility. Florida’s lower turnover rate likely is due to the exclusion of turnover during the first 3 months of employment, when turnover is typically the highest. Other states’ measures of turnover also differ, making it difficult to ascertain whether differences among turnover rates reflect true differences or are due to differences in definition or measurement.

Variation among DCW turnover measures is also evident in the academic literature. A recent study by Castle (2006) highlights the differences among turnover measures in nursing homes and concludes that the definition of turnover used can affect reported rates. Table 1 lists a recent sample of the many published studies on DCW turnover and describes the methods used to measure turnover. We chose these studies because of their recency and variation in measuring turnover among DCWs. As Table 1 illustrates, there are differences among the definitions used for the numerator and denominator of this ratio; there is also variation in the source of information, time frame of measurement, and, as we expected, turnover rates.
system (MIS) as part of BJBC. Because BJBC is a multistate demonstration that includes long-term-care organizations across the continuum (skilled nursing facilities, home care, assisted living, and adult day services), we needed to develop a system that allowed for comparable measures across states and types of providers. The MIS is an Internet-based data system that explicitly defines and collects data elements that can be used to create comparable turnover rates among different long-term-care organizations. The data elements listed in Table 2 are collected initially for DCWs in organizations participating in BJBC and updated each pay period, which typically is biweekly.

To design the MIS, we consulted initially with several trade associations and providers not participating in the demonstration, and later the first providers to enroll in the demonstration, to determine the feasibility of collecting the data elements on a regular basis. We explored what was maintained, whether it was maintained in electronic form, who in the organization had the information, and whether that person had a computer and Internet access. In addition to obtaining that information, we also learned of the need for training and ongoing support from the Survey Research Center.

On the basis of what we learned, we designed a Web-based system with a paper-and-pencil option, a manual for it, and a process for training. To maintain consistency in data entry, we appointed an individual at each participating organization to be the data liaison; we maintained regular communication with these individuals or their replacements to troubleshoot problems and address possible data-entry errors. Submitted data were immediately fed back to the data liaisons for data checks, and outliers were identified regularly by the MIS project staff and investigated and corrected as appropriate.

As part of the MIS, each provider receives a manual that details data-element definitions and procedures for data entry and submission. The time period for each employment status update is relatively short and coincides with the organizations' payroll periods. This enhances the validity of the data and aids in capturing short-stay employees in the turnover measure. The system is relatively simple to navigate. To update the system, organizations are presented with a list of their current employees and their status based on the provider's previous submission; they are asked to update only those records for employees who have changes and to add new hires. Although this minimizes provider burden, the time investment varies according to organization size and the number of changes to employees' statuses. Most importantly, by using consistent definitions of employment status and collecting them in the same way, the MIS can be used to construct consistent measures of turnover that allow for comparisons across long-term-care providers in BJBC.

### Issues in Defining Turnover Rates

As indicated, the generally accepted measure of turnover is a ratio of the number of separations during a specified period of time to the total number of DCWs who are employed during that time. This measure is often referred to as the "average turnover rate" and is calculated as follows:

\[
\text{Average Turnover Rate} = \frac{\text{No. of DCWs who separated from the facility}}{\text{Total no. of DCWs on staff for the year}}
\]

However, the numerator and denominator can be calculated in different ways, leading to variations in the measure. Some of these variations are illustrated in Table 1.

Table 1. Illustration of Variation Among Turnover Measures in the Published Literature

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Numerator</th>
<th>Denominator</th>
<th>Source</th>
<th>Time Frame</th>
<th>Average Turnover Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castle (2006)</td>
<td>No. of DCWs (FTEs) who left employment</td>
<td>Total no. of DCWs (FTEs) employed</td>
<td>Administrator survey</td>
<td>6 months</td>
<td>119</td>
</tr>
<tr>
<td>Burgio et al. (2004)</td>
<td>No. of DCWs who ceased employment</td>
<td>Total no. of DCWs working at facility during the time period</td>
<td>Not specified</td>
<td>10 days</td>
<td>7.4</td>
</tr>
<tr>
<td>Anderson et al. (2004)</td>
<td>No. of DCWs hired during the year – no. of DCWs employed at the end of the year</td>
<td>No. of DCWs employed at the end of the year</td>
<td>Medicaid cost reports</td>
<td>6 months</td>
<td>170</td>
</tr>
<tr>
<td>Castle (2005)</td>
<td>No. of DCWs who separated from the facility</td>
<td>No. of established DCW positions</td>
<td>Administrator survey</td>
<td>12 months</td>
<td>58</td>
</tr>
<tr>
<td>Konetzka et al. (2005)</td>
<td>No. of DCWs who separated from the facility</td>
<td>Total no. of DCWs on staff, with PT DCWs weighted by one half</td>
<td>Employee records</td>
<td>6 months</td>
<td>33</td>
</tr>
<tr>
<td>Barry et al. (2005)</td>
<td>No. of DCWs who separated from the facility</td>
<td>Total no. of DCWs employed</td>
<td>Director of Nursing survey</td>
<td>6 months</td>
<td>56</td>
</tr>
<tr>
<td>Castle &amp; Engberg (2005)</td>
<td>No. of DCWs who separated for the year</td>
<td>Average monthly no. of DCWs employed for the year</td>
<td>Administrator survey</td>
<td>12 months</td>
<td>99</td>
</tr>
</tbody>
</table>

Note: DCW = direct-care worker; FTE = full-time employee; PT = part time.
workers employed. Although this seems unambiguous, there are several aspects to consider when defining the numerator and denominator of the measure. As Castle (2006) found, turnover rates are affected by the components used to define the measure.

### Number of DCWs Employed

It is important to first identify the DCW population of interest, which will determine the denominator of the turnover measure. For example, does the measure include all DCWs in an organization (including subcontracted employees), or is it limited to full-time and part-time employees? Does it include “on call” employees who do not work regularly? It is also important to decide when an employee is “hired.” For instance, once hired, a DCW may not show up for work and therefore would not receive a paycheck. The MIS included full-time, part-time, and on-call workers who were paid by the organization.

The population depends on the purpose behind the turnover measure. For managers of an organization, it may be important to focus on regular employees to determine the costs associated with turnover. Some managers may want to track the number of DCWs who did not report to their first day of work, suggesting the inclusion of workers who were hired but did not receive a paycheck. In contrast, policy makers may be interested in all DCWs in an organization (including on-call and subcontracted employees), to determine more general indications of turnover in long-term-care organizations.

### Separations

The numerator of the turnover measure is the number of employees that separated from an organization during the time period specified. Though seemingly obvious, defining separations is not straightforward: Leaves of absence, rehires, termination of on-call staff, and promotions should be considered when one is defining the numerator in a turnover calculation.

Long-term-care organizations increasingly offer benefits to DCWs, including leaves of absence in which an employee can temporarily separate from the organization for a specified amount of time without the threat of termination. Although including these individuals in the numerator would create a comprehensive measure of turnover, it would inflate the turnover rate of those organizations offering this benefit relative to those that do not offer it. When a DCW on a leave of absence chooses not to return to work after the time frame for the leave of absence has expired, the individual should then be included in the numerator as a termination. To avoid overstating the length of employment, in the MIS, we consider employees on leaves of absence who do not return to work within an arbitrary 3-month period to be separated from the organization at the time when they were last paid. We chose 3 months as a cutoff because our consultations with providers indicated this would capture these workers.

Many long-term-care organizations employ on-call or “per diem” DCWs who work when there is a shift available. Although these individuals remain on the employee rolls whether or not they worked, there may be instances in which the workers do not accept shifts offered over a long period of time, in essence, voluntarily quitting while remaining as an employee. Ignoring these departures deflates the turnover rate in an organization. The MIS treats them like workers not returning from leave, terminating them after 3 months as of the last paid work day.

One must also consider rehires and promotions in an organization when defining turnover. In an industry with historically low pay and hard labor, DCWs may leave one organization for another if a better work environment or pay seems promising, only to return to the previous employer within a very short period of time. Although costs associated with this individual’s turnover and rehire may be less than an entirely new hire, we nevertheless included these voluntary terminations in the numerator of the turnover calculation.

Some long-term-care organizations have implemented career ladders for DCWs to provide opportunity for advancement within the organization, for example, advancing to a supervisory licensed practical nurse position. If a DCW gets promoted to a non-DCW job within the same organization and is included in the turnover calculation, the organization’s turnover rate will be inflated and will not reflect the effort made to enhance the work environment. In reports, they are excluded from the turnover rate in the quarter promoted and then excluded from the denominator in the subsequent quarter.

It is also important to capture the population of DCWs that stay with an organization for a very short period of time. In many instances, DCWs quit shortly after orientation or the first few days on the job. These employees may be missed if hired and terminated...
before the time period of measurement. The MIS is designed to be updated every pay period to decrease the likelihood of missing these short-stay workers; however, if a provider misses an update, it is possible to enter new hires and terminations and the dates they occurred in a subsequent update.

Finally, voluntary and involuntary separations were distinguished in the MIS. Although gross measures of turnover that include both voluntary and involuntary separations may be useful in some situations, they are less useful in others. For example, precipitants of terminations vary between voluntary and involuntary conditions (Shaw, Delery, Jenkins, & Gupta, 1998); thus, gross measures are not very informative when one is trying to find solutions to the turnover problem.

**Time Period**

In calculating turnover, the numerator measures the number of DCWs (as already defined) in an organization that separated over a specified period of time. As indicated in Table 1, time references range from 10 days to 12 months; the most commonly used time periods for measuring turnover are 6 and 12 months. However, extrapolating a 6-month turnover rate into an annual rate can be inaccurate, and the implications for choosing 6-month versus 12-month intervals will be discussed later.

**Number of Employees**

Often, information on turnover is taken from employee payroll records, where an average number of employees is calculated for the 6- and 12-month time periods. An average number of workers employed during a time period is preferable to measuring the number at a point in time because of possible changes in staffing ratios and vacancies over time. This is particularly important if the organization is expanding or downsizing. Using the BJBC data, we calculated daily, monthly, semiannual, and annual average numbers of employees over a 12-month period. We found the averages to be relatively stable regardless of the interval used (data not shown). In the following illustrations, we chose to use the daily average number of employees because the data were readily available and are the most accurate of the measures we calculated. However, the stability of this number suggests that the average number of employees can be calculated annually or semiannually without much variation.

### Illustrative Applications

In many instances, long-term-care policy makers and managers use turnover data in different ways. For example, policy makers are interested in more global measures of turnover in order to determine trends, whereas providers track turnover of their direct-care staff to identify retention strategies that are more specific to their organization. The data elements collected in the MIS make it possible to construct measures that are useful at both policy and practice levels.

### Policy: Specifying the Time Period

Many annual turnover rates reported are a doubling of a rate calculated from data tracked for a period of 6 months. This method of calculating turnover can also be imprecise, as evidenced by Castle (2006); additionally, some organizations experience seasonal variability that may not be reflected if the turnover data are collected during a 6-month period that is not representative of the organization’s true turnover trends. Turnover data extracted from the Better Jobs, Better Care MIS (Table 3) reveal the inaccuracy of extrapolating a 6-month rate into an annual turnover rate, suggesting the importance of collecting data for a longer time period. We selected nine illustrative providers with 1 year of MIS data and calculated turnover rates for July through December, 2004 and January through June, 2005. These organizations were early adopters of the MIS system and include skilled nursing facilities, home care organizations, and assisted living facilities in two states; we also selected them to illustrate the wide variety in number of DCWs. Those with a higher daily average of DCWs represent larger organizations. The numerator consists of the number of voluntary and involuntary DCW separations, whereas the denominator

### Table 3. Annual and 6-Month Turnover Rates for Selected BJBC Providers

<table>
<thead>
<tr>
<th>Provider</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily average no. of DCWs</td>
<td>17</td>
<td>75</td>
<td>82</td>
<td>34</td>
<td>72</td>
<td>25</td>
<td>208</td>
<td>6</td>
<td>84</td>
</tr>
<tr>
<td>July–Dec. separations</td>
<td>3</td>
<td>11</td>
<td>29</td>
<td>12</td>
<td>27</td>
<td>5</td>
<td>78</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>Jan.–June separations</td>
<td>4</td>
<td>19</td>
<td>41</td>
<td>27</td>
<td>44</td>
<td>2</td>
<td>91</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>July–Dec. turnover rate</td>
<td>17.6</td>
<td>14.7</td>
<td>35.4</td>
<td>35.3</td>
<td>37.5</td>
<td>20.0</td>
<td>37.5</td>
<td>0</td>
<td>47.6</td>
</tr>
<tr>
<td>Jan.–June turnover rate</td>
<td>23.5</td>
<td>25.3</td>
<td>50.0</td>
<td>79.4</td>
<td>61.1</td>
<td>8.0</td>
<td>43.8</td>
<td>33.3</td>
<td>21.4</td>
</tr>
<tr>
<td>Doubling July–Dec. turnover rate</td>
<td>35.2</td>
<td>29.4</td>
<td>70.8</td>
<td>70.6</td>
<td>75.0</td>
<td>40.0</td>
<td>75.0</td>
<td>0</td>
<td>95.2</td>
</tr>
<tr>
<td>Doubling Jan.–June turnover rate</td>
<td>47.0</td>
<td>50.6</td>
<td>100.0</td>
<td>158.8</td>
<td>122.2</td>
<td>16.0</td>
<td>87.6</td>
<td>66.6</td>
<td>42.8</td>
</tr>
<tr>
<td>Annual turnover rate</td>
<td>41.2</td>
<td>40.0</td>
<td>85.4</td>
<td>114.7%</td>
<td>98.6</td>
<td>28.0</td>
<td>81.3</td>
<td>33.3</td>
<td>69.0</td>
</tr>
</tbody>
</table>

*Note: BJBC = Better Jobs Better Care Demonstration. Rates are shown as percentages.*
is the daily average number of DCWs at the provider over the time period.

The extent to which an organization’s turnover rate is either overestimated or underestimated depends on the months of the year selected for data collection. Shorter time periods of measurement result in more volatile rates that may not be reflective of the overall activity within an organization. Thus, data collected over an entire calendar year produce a less variable measure that is not influenced by seasonal variation. This is contrary to Castle’s (2006) suggestion of using semiannual rates; however, Castle’s recommendation was motivated by concerns about accuracy of responses to a survey based on administrators’ recollections rather than more objective payroll data. Additionally, one should consider the size of the organization when comparing annual or semiannual turnover rates. Their variance in smaller organizations will be higher than that in larger ones, because random fluctuations in the number of separations have a bigger effect when the denominator (the number of workers) is small.

### Practice: Analyzing Separation Data to Identify Potential Problems

Turnover rates can also be useful to provider organizations, though their application differs from that of policy makers. Overall turnover rates can best be used as an indication of successful hiring and retention practices if there are appropriate norms for comparison. For example, if all provider organizations within a market area use the same method of collecting and reporting turnover data, then one can use average rates for analyzing performance benchmarks at individual provider organizations.

In addition to monitoring overall rates, disaggregated turnover measures can be useful to an organization; these measures can tell different stories about hiring and termination patterns within the organization and help managers diagnose problems. More specific information on turnover patterns can lead to different changes in management practices to reduce turnover.

Table 4 illustrates the distribution of separations obtained from the MIS for Provider 3 and Provider 7. Both of these organizations are nursing facilities. Although Provider 7 is larger than Provider 3, they have similar overall 12-month turnover rates, as already shown in Table 3. However, an examination of separations by type of turnover and length of employment shows very different patterns.

Although voluntary separations predominate at both organizations, Provider 7 has a substantially higher percentage of involuntary separations, or terminations. As most DCW separations tend to be voluntary as a result of low wages and high workloads (HRSA, 2004), the higher proportion of involuntary separations in Provider 7 suggests that something out of the ordinary may be going on at the organization. For example, DCWs may need more training in order to perform their jobs successfully or the organization may inadequately screen applicants, which can result in inappropriate hires.

Similarly, the distribution of separations by length of employment illustrates different patterns. Though both organizations have relatively high turnover rates, Provider 3 experienced more separations in short-stay employees while Provider 7 lost more employees with longer tenure over the 12 months of measurement. From a provider perspective, different patterns of turnover call for different strategies to address the problem. For example, Provider 3 may adopt more discerning methods for recruitment and hiring, whereas Provider 7 may try to identify possible changes in management or supervisory practices that may have led to turnover among longer tenured DCWs.

### Implications

When measuring turnover, the “devil is in the details.” That is the lesson learned from designing and implementing a system for measuring turnover at providers participating in BJBC. This applies to the definition of the population of interest to be included in the denominator of turnover rates and to the definition of the numerator, or what constitutes turnover. Differences in these definitions can have large effects on measured turnover rates and what they mean.

For anyone interested in comparing turnover rates across organizations, industries, geographic areas, or over time, consistency in the details of these definitions and how they are measured is essential for meaningful comparisons. For researchers, this means investing in consistent turnover measures across organizations. Surveys of managers, for example, will not elicit comparable measures unless very specific instructions concerning definitions are part of the data-collection process (Castle, 2006). It also means that the comparison of turnover rates across studies is a risky enterprise: Differences in the measures used may account for reported differences in turnover, and the measurement differences may not be apparent from what is reported in published studies.

Policy makers too should be cautious in comparing turnover rates, whether they are comparing rates across
industries or with those reported in other states. More important, states using a provider’s turnover rate as one criterion for receiving higher reimbursement as part of a pay-for-performance policy must carefully prescribe the calculation of turnover and subject it to audit. Otherwise, that component of the payment, which is subject to gaming, may lead to inequities across providers.

Anecdotal evidence from our site visits and consultations with trade associations suggests that many managers of long-term-care providers track their own organization’s aggregate turnover rates. As the illustration in this article indicates, looking beyond the aggregate rate can be useful in identifying where turnover is occurring and suggest where to focus efforts in reducing it. The specific breakdowns relevant to a particular organization may depend on the types of employees it has, its use of contract staff, and its particular history and context. This makes generalization about what disaggregations are most useful or how to analyze them difficult beyond noting the potential value of analyzing disaggregated turnover information.

Provider payroll records typically contain the data elements needed for measuring turnover and creating the disaggregated information to do so. There may be opportunities for developing standard turnover reports using information from commercial payroll systems. Such reports ultimately could lead to greater standardization in turnover measures across providers and allow researchers to continue to monitor turnover data after an intervention has been implemented. Having a uniform measure of turnover among providers in an industry or market would allow for the establishment of norms that would provide managers a context for interpreting their own turnover information.

For policy, a simpler approach might be taken by using information on the number of W-2 forms issued. An annual turnover rate can be calculated as the ratio of the number of completed W-2 forms divided by the employees at the beginning and end of the year. Although this doesn’t provide the detail useful for managers, it may be sufficient for tracking turnover trends by provider type and for pay-for-performance criteria, and the measure is subject to audit.

The impending demand for DCWs over the next several decades means that turnover among them is a problem that will continue and may even grow. Policy makers, researchers, and managers who need comparative turnover information to address the problem should be aware that turnover measures differ, and they should take steps to ensure that measures they use have common definitions and data elements across providers.

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