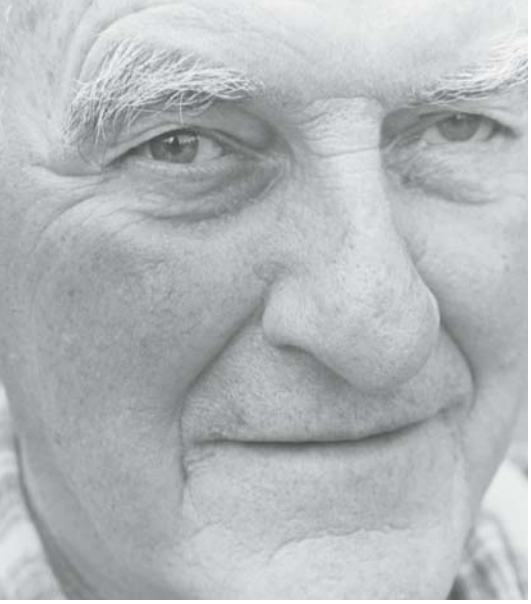
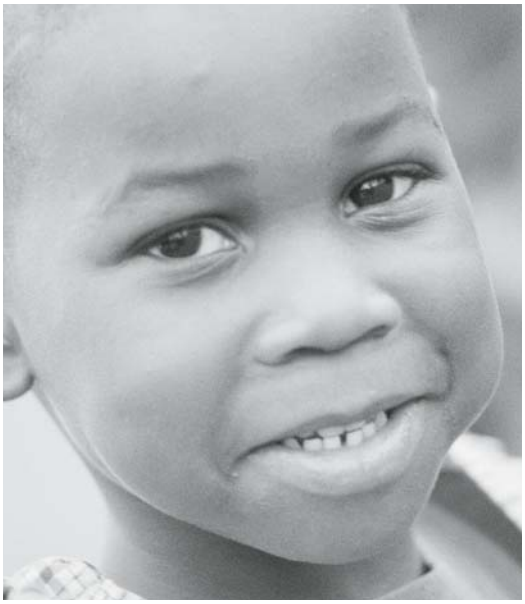


Correlation of the Personal Care Attendant Hour Allotment Worksheet (PCA-HAW) with the Functional Independence Measure (FIM): A Statistical Analysis

prepared for

Shepherd Spinal Center in Support of the Shepherd Care Medicaid Demonstration Waiver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Introduction

The Georgia Health Policy Center at the Andrew Young School of Policy Studies, Georgia State University, was engaged by the Shepherd Spinal Center in Atlanta, Georgia to assist in validating an assessment instrument (the Personal Care Attendant Hour Allotment Worksheet or PCA-HAW) designed to predict the number of hours of paid direct care required by patients enrolled in Shepherd Care - the Georgia Medicaid community-based demonstration waiver program designed to assist individuals with brain and spinal cord injuries.

Georgia has never had available an assessment instrument that is both highly predictive of the care required by home bound brain and spinal cord injured patients and that is easily administered by care coordination staff. Shepherd Care staff hypothesized that if the PCA-HAW was proven to be a reliable predicator of paid direct care hours, its use could be adopted for approximately 800 Independent Care Waiver Program (ICWP) patients statewide. This paper describes the methods and results of this validation study.

Background

The Shepherd Care program was created from the ICWP in 1997 and incorporates enhanced care management through the use of advanced practice nurses to coordinate medical care for severely disabled clients. Its objectives include reducing emergency room use or hospitalizations and nursing facility placement while providing appropriate medical and supported living services in the community. The program currently serves approximately 100 clients throughout Georgia. The differences in the programs offered by Shepherd Care and ICWP are outlined in Table 1.

Table 1: ICWP and Shepherd Care Program Differences

	ICWP	Shepherd Care
Case Managers	No Formalized Training	RN / Professional Certification
Reimbursement for Case Management	Fee for Service	Capitated Fee
Intake Process	Performed by Subcontractors	Performed by Shepherd Care RN
Utilization Review	Performed by Subcontractor	Computer Assisted Outcome Monitoring by Shepherd Care Staff

A 2004 study by the Georgia Health Policy Center demonstrated that Shepherd Care participants had risk scores[1] that significantly exceeded those of participants in ICWP - 6.51 versus 5.65 in

[1] Risk scores were calculated using the Diagnostic Cost Grouping (DCG) system, using both Medicare and Medicaid data.

FY01 and 7.3 versus 5.39 in FY02. In spite of those differences, adjusted cost[2] for Shepherd Care clients in FY02 was $3,867 per month, while ICWP client cost was $4,008 per month. The study's authors theorized that management practices were exerted on the Shepherd Care population to effect lower adjusted costs and similar outcomes compared with the ICTF population and in spite of higher risk scores. Program managers speculated that if the PCA-HAW played a role in effective cost management, then perhaps the same controls could be put into place with a larger population (ICWP).

All Shepherd Care clients are assessed with at least two instruments - the PCA-HAW and the Functional Independence Measure (FIM). The FIM is widely used to assess disabled individuals and has been validated in the peer-reviewed literature as a reliable estimate of the caregiver support needed by clients (Heinemann, et al. 1997, Hamilton, et al. 1999, Forrest, et al. 2002). Forrest found that total FIM-18[3] scores explained 31 percent of the variance in hours of help. Hamilton found that FIM-18 scores explained 85 percent of the variance in minutes of assistance per day, and Heinemann supported the validity of the FIM by demonstrating strong relationships (*r* values between .40 and .60) between FIM motor scores and burden of care. Heinemann did not show a strong relationship between FIM cognitive scores and total contact time. It should be noted that Forrest's sample included diagnoses ranging from orthopedic to cardiac, while Hamilton studied those with spinal cord injuries, and Heinemann examined those with traumatic brain and spinal cord injuries.

Ideally, correlation between PCA-HAW predicted hours of paid attendant care would be established in comparison with actual hours of care consumed. However, due to operational constraints, it was decided that because the FIM is established as a strong predictor of attendant care need, FIM would serve as a proxy in establishing a relationship between PCA-HAW predicted paid hours of paid attendant care and actual hours of attendant care.

Methods and Results

In the spring of 2004, Shepherd Care staff collected FIM scores from 95 patients enrolled in the Shepherd Care program. PCA-HAW scores had been previously collected on all participants as part of their enrollment into the Shepherd Care program. Forty-one individuals were diagnosed with spinal cord injury, 21 were diagnosed with multiple sclerosis, 11 were diagnosed as "dual", three were diagnosed as ABI, and 19 were diagnosed as "other". Twenty-four clients lived alone and 71 did not.

Statistical analyses were performed using the Pearson Correlation Coefficient test to measure relationships between FIM measures and paid hours of attendant care need as measured by the PCA-HAW. An "assessor" variable was also added to test for inter-rater reliability. The results of that test are shown in Table 2.

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[2] Costs were adjusted using DCG scores, race, rural or urban status, rehabilitation status, dual eligibility, and mortality status in a regression equation. Unadjusted costs were $4,227 and $4,045 respectively for Shepherd Care and ICWP.

[3] The Functional Independence Measure is an 18-point instrument designed to measure severity of disability and is divided into Motor and Cognitive dimensions. FIM-18 refers to a comparison to the full instrument.

Table 2: Correlations between PCA-HAW Hours and FIM Measures

Measure	*r* Value
FIM Total	-.1716
FIM Motor	-.1768
FIM Cognitive	-.0451

The correlations observed here are not as strong as those reported in previous studies, although the FIM cognitive correlation is within the bounds of those previously reported by Heinemann in patients with spinal cord injuries. The variable most highly correlated with PCA-HAW scores is "assessor".

In September 2004, Shepherd Care staff obtained estimates of unpaid care provided by family members and other caregivers from Shepherd Care clients and their caregivers. Those estimates were added to the PCA-HAW scores and analyzed again with the same methods as before. The results are presented in Table 3.

Table 3: Correlations between Total PCA-HAW/Unpaid Hours and FIM Measures

Measure	*r* Value
FIM Total	-.2343
FIM Motor	-.1962
FIM Cognitive	-.1386

As expected, the correlation between Total PCA-HAW/Unpaid Hours and FIM Total is stronger than PCA-HAW alone and is significant at the .05 level; however, the correlation is still not as strong as the lowest correlation found by Heinemann (.40). Interestingly, the addition of unpaid caregiver hours increases the correlation to the FIM Cognitive from -.0451 to -.1386; however, at .1804, the measure is not statistically significant.

Limitations and Recommendations

This analysis is limited by the small number of observations. Ideally, an analysis of this kind would be based on a minimum of 350 observations to ensure robust results. Because these observations are not available, results should be interpreted with caution.

The increase in values of correlation coefficients with the addition of estimates of unpaid caregiver hours is encouraging. One possible strategy might be to pursue funding to repeat the same study with the ICWP population, which would provide an ample number of observations. FIM and PCA-HAW scores, as well as estimates of unpaid caregiver hours, would again need to be collected from an adequate sample of ICWP participants.

The best method of validating the PCA-HAW, as mentioned previously, would be to collect PCA-HAW and FIM scores independently of each other and collect directly observed hours of unpaid care on an adequate size population to compare the correlation between FIM and Total PCA-HAW/Unpaid Hours. This method, however, would be costly.

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