Investigating the Predictive Value of the Boston University AM-PAC “6-Clicks” on Discharge Destination Following Elective Total Joint Replacement

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Changing healthcare environment and push for limited hospital length of stay have placed great emphasis on physical therapy evaluations in the acute care environment.

Few outcome measures exist that are specific to the acute care environment and discharge destination (i.e. Acute Care Index of Function, The RAPT for Hip or Knee Arthroscopy) and those that are available are condition specific.

The AM-PAC “6 Clicks” Inpatient Daily Activity and Basic Mobility Short Forms are not condition specific, and can provide therapists with objective information in a quick and easy to interpret manner.
Boston University AM-PAC Short Forms

- Activity limitations instrument developed by researchers at Boston University
- International Classification of Functioning, Disability, and Health (ICF) conceptual framework
- Designed for use across patient diagnoses, conditions, and settings
- 3 domains – Basic Mobility, Daily Activity, Applied Cognitive
- Basic Mobility “6 Clicks”
  - How much difficulty does patient currently have... turning over in bed, sitting on and standing up from a chair with arms, moving from lying on back to sitting on side of bed
  - How much help from another person does the patient currently need...moving from a bed to a chair, to walk in hospital room, climbing 3-5 steps with railing
- Scoring – Unable (1), A Lot (2), A Little (3), None (4)
- Based on raw score, therapist can figure out degree of functional impairment and ultimately assign G-code
Prior research established validity, and inter-rater reliability of the AM-PAC “6 Clicks” Basic Mobility and Daily Activity Short Forms².³

AM-PAC “6 Clicks” scores obtained during initial assessment demonstrated fair to good accuracy predicting discharge destination⁴:

- Cut-off scores Basic Mobility Short Form - 42.9 (Raw score 17/24)
- Cut-off score Daily Activity Short Form - 39.4 (Raw score 18/24)

Limitations: discharge destination impacted by many factors, rater reliability not established.
Purpose

- Analyze “6 Clicks” data from individuals who underwent elective total joint replacement surgery to determine if the scores on initial evaluation and at discharge predicted appropriate discharge disposition.

- Simultaneous collection of psychosocial data to determine whether these factors impacted the recommendation of discharge destination.
Younger age, commercial insurance coverage, independent mobility without assistive device, support at home, single-story home set-up, and higher initial “6 Clicks” score at initial evaluation would be associated with the ability to predict discharge directly to home from the acute care setting following elective total joint replacement.
Methods

- Approval from University of Scranton Physical Therapy and Occupational Therapy Department Review Board
- Approval from hospital administration at Regional Hospital of Scranton, Scranton, Pennsylvania
  - Joint Commission Accredited Total Shoulder Replacement facility
  - Joint Commission Advanced Certification Total Hip and Knee Replacement facility
- Retrospective review of 327 randomized charts of patients having elective total joint replacements between June 2013 and February 2015
- After removal of incomplete records final sample = 315
- Data collected and analyzed using SPSS with help from statistician on campus
Methods – Data Collection

- Age
- Gender (male, female)
- Health insurance (commercial, Medicare)
- Type of surgery (THR, TKR, TSR)
- Prior level of function (independent, assistance)
- Prior assistive device use (no device, device prn, device all the time)
- Support at home (alone, someone)
- Home set-up (one story, two stories)
- Initial Evaluation “6 Clicks” scores for PT and OT
- Discharge “6 Clicks” scores for PT and OT
- Discharge destination (rehab/SNF, home with home health, home)
Results

Table 1. Comparison of Psychosocial Variable Percentages Based on Discharge Destination

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>SUBCATEGORY</th>
<th>HOME/HOME HEALTH</th>
<th>REHAB/SNF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Female</td>
<td>27.2%</td>
<td>36.1%</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>19.3%</td>
<td>17.4%</td>
</tr>
<tr>
<td>Insurance*</td>
<td>Medicare</td>
<td>12.5%</td>
<td>31.2%</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>33.6%</td>
<td>22.3%</td>
</tr>
<tr>
<td>Assistive Device</td>
<td>No Device</td>
<td>33.0%</td>
<td>30.9%</td>
</tr>
<tr>
<td></td>
<td>Any Device</td>
<td>13.4%</td>
<td>22.6%</td>
</tr>
<tr>
<td>Support at Home</td>
<td>Lives Alone</td>
<td>7.4%</td>
<td>16.0%</td>
</tr>
<tr>
<td></td>
<td>Someone</td>
<td>39.4%</td>
<td>36.0%</td>
</tr>
</tbody>
</table>

* 1 recorded not coded
### Table 2. Descriptive Statistics Information for Age and “6 Clicks” Scores

<table>
<thead>
<tr>
<th>Category</th>
<th>Discharge Destination</th>
<th>N</th>
<th>$\bar{x}$</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Home/Home Health</td>
<td>146</td>
<td>61.63</td>
<td>10.935</td>
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<tr>
<td></td>
<td>Rehab/SNF</td>
<td>169</td>
<td>69.50</td>
<td>9.548</td>
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<tr>
<td>IE “6 Clicks” PT</td>
<td>Home/Home Health</td>
<td>146</td>
<td>14.21</td>
<td>2.004</td>
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<tr>
<td></td>
<td>Rehab/SNF</td>
<td>169</td>
<td>12.87</td>
<td>1.996</td>
</tr>
<tr>
<td>DC “6 Clicks” PT</td>
<td>Home/Home Health</td>
<td>146</td>
<td>21.98</td>
<td>2.026</td>
</tr>
<tr>
<td></td>
<td>Rehab/SNF</td>
<td>169</td>
<td>17.53</td>
<td>2.596</td>
</tr>
</tbody>
</table>
Results – Statistical Summary

- Very robust correlations between discharge PT (r=.688, p<.001) and OT (r=.712, p<.001) “6 Clicks” scores and discharge destination [defined as Home/Home health or Rehab/SNF]

- Low to moderate correlations between initial PT (r=.318, p<.001) and OT (r=.195, p<.001) “6 Clicks” scores, where PT was somewhat more predictive of discharge destination

- Age was moderately correlated (r=.370, p<.001) with discharge destination and, therefore, used as a covariate in other analyses

- Crosstabs analysis revealed statistically significant correlations between discharge destination and insurance [Medicare, Commercial, Medicaid, Worker’s Compensation] ($\chi^2=33.776$, p<.001), support at home [Alone, Someone, Facility] ($\chi^2=13.509$, p=.001), and assistive device use prior to surgery [No device, Device all of the time, Device as needed] ($\chi^2=7.164$, p=.028)
Results - Statistical Summary

- Type of surgery [THR, TKR, TSR] ($\chi^2=4.878, p=.087$), home set-up [1-story, 2-story, 3-story, 4-story] ($\chi^2=6.598, p=.159$), and gender [Male, Female] ($\chi^2=2.759, p=0.97$) were not statistically significant.

- The series of one-way ANOVAs, with age as a covariate, revealed the following statistically significant relations between “6 Clicks” scores and discharge destination:
  - Initial Eval (IE) “6 Clicks” PT ($F(1,315)=33.700, p<.001$, Partial $\eta^2=.174$)
  - Discharge (DC) “6 Clicks” PT ($F(1,315)=122.788, p<.001$, Partial $\eta^2=.441$)
  - Initial Eval (IE) “6 Clicks” OT ($F(1,315)=8.630, p<.00$, Partial $\eta^2=.051$)
  - Discharge (DC) “6 Clicks” OT ($F(1,315)=157.657,p<.001$, Partial $\eta^2=.496$)
Figures 1 and 2: Range of 6 Clicks scores between discharge destination variables at initial evaluation (left) and at time of discharge from the acute care setting (right)
Discussion

- There are limited, evidence-based standardized measures available to assist therapists in the acute care setting for objective assessment of patient performance to guide decision making regarding discharge.

- In recent years, Jette, et al.\textsuperscript{2,3,4} have published several studies establishing the reliability and validity of the “6 Clicks” and the utility of using it to determine discharge destination.

- Previous research did not analyze psychosocial factors that often play a role in discharge planning, such as support at home and use of an assistive device prior to surgery.

- Our findings demonstrated value of using this tool to help predict discharge destination as well as identifying those variables that contribute to determining discharge destination.

- From a clinical application standpoint, by understanding which psychosocial variables are most influential, in addition to initial evaluation “6 Clicks” scores, therapists can more confidently make discharge recommendations early in the patient care episode.
Limitations

- Patients included were undergoing elective total joint replacement and were otherwise healthy and independent prior to surgery.
- Limited generalizability for the general acute care population who have a more complex medical history or lower mobility level prior to hospital admission.
- All patients underwent surgery at the same hospital by a group of four surgeons.
- Recent research by Dewhirst et al\(^5\) found that more research needs to be done to gain support for use of the AM-PAC “6 Clicks”, including more education for therapists when implementing it in the acute care setting.
Future Research

- Further analysis of existing subgroup data and intragroup data may also demonstrate elements contributing to discharge destination.
- Comparison of the findings of this study with findings involving patients who undergo surgical repair following hip fracture.
- Comparison of the findings of this study with findings involving patients having general medical diagnoses.
Conclusions

- “6 Clicks” scores, including those obtained at initial evaluation may be predictive of appropriate discharge destination for patients undergoing elective total joint replacement


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