Association of Student Outcomes and School-based Interventions

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CSM February 2015

Disclosure Information

Disclosure of Relevant Financial Relationships
We have no financial relationships to disclose.

Disclosure of Off-Label and/or investigational uses:
We will not discuss off label use and/or investigational use in the presentation.

This project was funded by:
US Department of Education, Institute of Education Sciences, R324A110204

Objectives

Upon completion of this session, the learner will:
1. Identify the school-based physical therapy interventions associated with positive student outcomes on standardized and individualized measures.
2. Describe how the SFA and GAS can be used to monitor progress in school settings.
3. Engage in a self-analysis of the value of both services to the student and services on behalf of the student.
4. Create solutions to implement successful interventions to achieve student goals in school-based practice.

Participants

- PTs:
  - Licensed PTs with > 1 year experience in school-based practice
  - Recruited from school districts having at least 2 therapists (did not focus on rural areas and large cities)
  - Had to complete ethics training (CITI), SFA, GAS, and S-PTIP training

Want to thank the participants in PT COUNTS for assisting in helping to advance our knowledge of school-based physical therapy and the students we serve.
**Students:**

- **Inclusion criteria:**
  - Kindergarten - 6 grade, age 5-12 yrs
  - Receive Special Education & PT services at least monthly

- **Exclusion criteria:**
  - Progressive disability
  - Family plans to move within year
  - Major surgery planned
  - History of absences > 30% of school days in previous year

**Students Participating at End of Study n = 302**
296 students had complete data

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**PTs Participating**

<table>
<thead>
<tr>
<th>States</th>
<th>NE</th>
<th>SE</th>
<th>NW</th>
<th>Central</th>
</tr>
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<tbody>
<tr>
<td>Signed Consent Forms</td>
<td>47</td>
<td>55</td>
<td>41</td>
<td>34</td>
</tr>
<tr>
<td>n = 177</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>States</th>
<th>NE</th>
<th>SE</th>
<th>NW</th>
<th>Central</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruited Students</td>
<td>28</td>
<td>36</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>n = 126</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>States</th>
<th>NE</th>
<th>SE</th>
<th>NW</th>
<th>Central</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participating at Study End</td>
<td>22</td>
<td>28</td>
<td>31</td>
<td>30</td>
</tr>
<tr>
<td>n = 111</td>
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</tbody>
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**Sample Distribution Across US**

<table>
<thead>
<tr>
<th>States</th>
<th>NE</th>
<th>SE</th>
<th>NW</th>
<th>Central</th>
</tr>
</thead>
<tbody>
<tr>
<td>n = 177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Participants: PTs**

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Participating PTs (n=111)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Gender, n (%)</td>
<td>106 (95.5%)</td>
</tr>
<tr>
<td>Age in years, Mean (SD)</td>
<td>46.1 (9.09)</td>
</tr>
<tr>
<td>White Race, n (%)</td>
<td>107 (96.5%)</td>
</tr>
<tr>
<td>Hispanic/ Latino Ethnicity, n (%)</td>
<td>2 (1.9%)</td>
</tr>
</tbody>
</table>

| Degrees, n (%) | Certification: 2 (1.8%) |
| BS: 60 (54.1%) | MPT: 35 (31.5%) |
| DPT: 14 (12.6%) |

| Time worked, n (%) | 75 (67.6%) FT; 36 (32.4%) PT |
| Average # students/year, Mean (SD) | 36.1 (12.6%) | (includes 32% working part-time) |
| APTA member, n (%) | 57 (52.3%) |
| PCS, n (%) | 9 (8.1%) yes; 8 (7.2%) in process |

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**Participants: Students (5-12 years-old)**

<table>
<thead>
<tr>
<th>Parent-reported data</th>
<th>Students (n=302)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Gender, n (%)</td>
<td>131 (43.5%)</td>
</tr>
<tr>
<td>Age, Mean (SD)</td>
<td>7.3 (2.01)</td>
</tr>
<tr>
<td>White, n (%)</td>
<td>218 (72.2%)</td>
</tr>
<tr>
<td>Hispanic/ Latino Ethnicity, n (%)</td>
<td>51 (17.3%)</td>
</tr>
</tbody>
</table>

| Receive additional therapy outside school, n (%) | 97 (32.4%) |
| Receive school-based OT, n (%) | 262 (86.8%) |
| Receive school-based SLP, n (%) | 240 (79.5%) |
| Receive school-based Adapted PE, n (%) | 124 (41.1%) |
Participants: Students (5-12 years-old)

Diagnosis Categories # (%) n=302
- Cerebral palsy 102 (34.6%)
- Down syndrome 48 (16.3%)
- Other genetic syndromes 41 (13.9%)
- Global developmental delay 31 (10.5%)
- Autism/PDD 22 (7.5%)
- Learning disability/ADHD/SLD/DCD 16 (5.4%)
- Developmental delay due to medical issues 15 (5.1%)
- Myelomeningocele 8 (2.7%)
- Visual &/or hearing impairment 6 (2.0%)
- Traumatic brain injury 5 (1.7%)
- Limb deficiency 1 (0.3%)

Students’ Functional Classification

Gross Motor Function Classification System
<table>
<thead>
<tr>
<th>Level</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>117</td>
<td>(38.7%)</td>
</tr>
<tr>
<td>II/III</td>
<td>119</td>
<td>(39.4%)</td>
</tr>
<tr>
<td>IV/ V</td>
<td>66</td>
<td>(21.9%)</td>
</tr>
</tbody>
</table>

Manual Abilities Classification System
<table>
<thead>
<tr>
<th>Level</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>53</td>
<td>(17.6%)</td>
</tr>
<tr>
<td>II/III</td>
<td>179</td>
<td>(59.5%)</td>
</tr>
<tr>
<td>IV/ V</td>
<td>69</td>
<td>(22.9%)</td>
</tr>
</tbody>
</table>

Communication Function Classification System
<table>
<thead>
<tr>
<th>Level</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>48</td>
<td>(15.9%)</td>
</tr>
<tr>
<td>II/III</td>
<td>125</td>
<td>(41.5%)</td>
</tr>
<tr>
<td>IV/ V</td>
<td>128</td>
<td>(42.5%)</td>
</tr>
</tbody>
</table>

Procedures
- Completed sections of the SFA
- Identified student goals from IEP
- Wrote goal in GAS format
- GAS reviewed by research team
- GAS categories determined by research team
- If more than one goal, identified primary goal

During Study
- Completed SPTIP weekly for 6 mo
- Rescored sections of SFA
- Determined students level of goal attainment

School Physical Therapy Interventions for Pediatrics (S-PTIP)
- S-PTIP Form and Manual further developed by research team from their previous research
- Posted at: http://www.mc.uky.edu/healthsciences/grants/ptcounts
- S-PTIP Reliability
Type of Activity

- Time spent on activities with child:
  - Based on primary intent of intervention
  - Split time between activities if multiple intents
  - Estimated duration in ~5 minute increments
  - Highest activities were: PE/Recreation, Mobility, and Pre-functional
  - TOTAL time spent with the student: Average = 26.8 minutes/week

Services to the Student:

- Reflects how services reported under Activities and Interventions Sections were delivered
- A. Group vs. individual service
- B. Time with other Special Ed students, with non-Special Ed students, and/or with the child alone
- C. Time spent within school activity vs. separate from school activity
- D. Time spent in co-treatment • I indicate “with whom”

Interventions

- List of Interventions used
  - Each is listed once per form
  - Most frequently provided interventions were: neuromuscular, musculoskeletal, mobility, & educational
- Who delivered the service
  - PT, PTA, or both

Services on Behalf of the Student:

- E. Consultation/collaboration time, indicate “with whom”
- F. In-service time
- G. Curriculum development time
- H. Documentation time
- I. TOTAL MINUTES on behalf of student (Sum of E, F, G, H), average of 13.2 minutes/week

Service Delivery Duration

- Four sections:
  - Services to the Student (A-D)
  - Services on Behalf of the Student (E-I)
  - Setting
  - Student Participation/Engagement Rating
- Estimated duration in ~5 minute increments

Setting

- Where services were provided
  - School, home, or another location

Student Participation/Engagement Rating

- I indicated the participation/engagement rating for child
  - 0 = Student’s participation/engagement during the session was not at all conducive to achieving the session’s objectives
  - 6 = Student’s participation/engagement during the session was exceptionally conducive to meeting the session’s objectives
How could this method of documentation help you?

- Discussion:
  - Research
  - Clinical
  - Teaching
  - Administration

Descriptive Data Results

- Duration: at least 20 weeks
- Number of weeks with no services provided:
  - Mean = 5.4 weeks (3.66)
  - Min-Max: 1-16 weeks
- Reason for No Services:
  - Student absent 36.7%
  - School closed 24.2%
  - PT or PTA absent 17.4%
  - Per IEP 17.1%
  - Other 8.2%
  - Schedule conflict 5.7%

Student Participation & Setting

- Student engagement/participation rating (n=295)
  - 0 (not conducive to session objectives) to 6 (conducive to session objectives) scale
  - Mean (SD): 4.8 (0.92)
  - Min/Max: 0/6
- Setting n=296 (n, %)
  - School 252 (85.1%)
  - School & Other 30 (10.1%)
  - Other totals 14 (4.7%)
- Provider n=296
  - PT only: 260 (87.8%)
  - PT & PTA: 36 (12.2%)

SFA Outcome Results

- Raw scores converted into criterion scores
- Standard error of measurement (SEM) varies by subscale but generally around 5 points (range 2-15)

- Divided outcomes into:
  - SFA Criterion Change Score below -5
  - SFA Criterion Change Score -5 to 5
  - SFA Criterion Change Score above 5

ICF-CY activity, participation
- Children with disabilities grades K-6
- Comprehensive, criterion-referenced, standardized, judgment-based interview to determine child’s participation in all aspects of school environment
- Used several subsections
### Data results: SFA Outcomes

<table>
<thead>
<tr>
<th>Physical Tasks</th>
<th>SFA Criterion Score</th>
<th>SFA Criterion Score</th>
<th>SFA Criterion Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Below -5</td>
<td>-5 to 5</td>
<td>Above 5</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>Travel</td>
<td>11 (4%)</td>
<td>157 (53%)</td>
<td>127 (43%)</td>
</tr>
<tr>
<td>Maintaining &amp; Changing Positions</td>
<td>9 (3%)</td>
<td>151 (51%)</td>
<td>134 (46%)</td>
</tr>
<tr>
<td>Recreational Movement</td>
<td>14 (5%)</td>
<td>155 (53%)</td>
<td>123 (42%)</td>
</tr>
<tr>
<td>Manipulation with Movement</td>
<td>9 (3%)</td>
<td>155 (53%)</td>
<td>127 (44%)</td>
</tr>
<tr>
<td>Eating &amp; Drinking</td>
<td>18 (6%)</td>
<td>161 (55%)</td>
<td>114 (39%)</td>
</tr>
<tr>
<td>Hygiene</td>
<td>23 (8%)</td>
<td>160 (55%)</td>
<td>109 (37%)</td>
</tr>
<tr>
<td>Clothing Management</td>
<td>11 (4%)</td>
<td>172 (59%)</td>
<td>111 (38%)</td>
</tr>
</tbody>
</table>

### However:

- Start of year: Travel raw score = 43
- End of year: Travel raw score = 47
- 4 point improvement
- **Moves around room freely with no or infrequent bumping into obstacles or people**
  - Start year: Partial performance (2 pts)
  - End year: Consistent performance (4 pts)
- **Enters room and takes seat/place without bumping into obstacles or people**
  - Start year: Partial performance (2 pts)
  - End year: Consistent performance (4 pts)

**Example:**

- At beginning of year
  - Travel raw score = 43; criteria score = 52
  - CI 52 +/- (1.96 x 2 = 3.92)
  - 95% CI for student’s score = 48.08 - 55.92
- At end of year
  - Travel raw score = 47; criteria score = 55
  - CI 55 +/- (1.96 x 2 = 3.92)
  - 95% CI for student’s score = 51.08 - 58.92

*Was there improvement?*

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### SFA Outcomes: GMFCS

<table>
<thead>
<tr>
<th>Physical Tasks</th>
<th>GMFCS Level I</th>
<th>GMFCS Levels II/III</th>
<th>GMFCS Levels IV/V</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel</td>
<td></td>
<td></td>
<td></td>
<td>Not significant</td>
</tr>
<tr>
<td>Maintaining &amp; Changing Positions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreational Movement</td>
<td>Most Change</td>
<td>Middle Change</td>
<td>Least Change</td>
<td>p&lt; 0.0001</td>
</tr>
<tr>
<td>Manipulation with Movement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating &amp; Drinking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hygiene</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing Management</td>
<td></td>
<td></td>
<td></td>
<td>p&lt; 0.02</td>
</tr>
</tbody>
</table>
**SFA Outcomes: GMFCS**

<table>
<thead>
<tr>
<th>Physical Tasks</th>
<th>GMFCS Levels I</th>
<th>GMFCS Levels II/III</th>
<th>GMFCS Levels IV/V</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>Less Change</td>
<td></td>
<td></td>
<td>p &lt; 0.0025</td>
</tr>
<tr>
<td>Task Supports:</td>
<td>Most Change</td>
<td>Middle Least Change</td>
<td></td>
<td>p &lt; 0.0001</td>
</tr>
<tr>
<td>Assistance</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Task Supports:</td>
<td>Most Change</td>
<td>Middle Least Change</td>
<td></td>
<td>p &lt; 0.0001</td>
</tr>
<tr>
<td>Adaptation</td>
<td></td>
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</tr>
</tbody>
</table>

**SFA Criterion Change Score**

- Improvement beyond SEM range 109 (37%) to 148 (51%) of students
- Most students improved in Participation, followed by Maintaining & Changing Positions

**SFA Outcomes**

- SFA Criterion Change Score Below -5, Regression
  - Ranged from 5 (2%) to 24 (8%) of students
  - More regressed in Task supports (Assistance) and Hygiene

- SFA Criterion Change Score -5 to 5
  - No change based on SEM, range 134 (46%) to 172 (59%) of students
  - Most improved, but not beyond SEM

**Which children had the greatest changes on the SFA?**
- Children less than 8 years of age
- More positive changes in:
  - Participation: p < .01
  - Maintaining and changing position: p < .05
  - Recreational movement: p < .0001
  - Clothing management: p < .01
  - Hygiene: p < .05

**Goal Attainment Scaling**

- An individualized evaluation tool
- A methodology to measure progress
- A mathematical technique for quantifying change
**GAS 5 POINT INTERVAL SCALE**

-2: current level of performance
-1: somewhat less than expected performance
0: expected level of performance after pre determined period
+1: somewhat more than expected performance
+2: much more than expected performance

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**Advantages to Using GAS**

- Useful tool to facilitate coordination and collaboration with parents and teachers
  - At IEP meetings therapist can engage parents, teachers, and student in discussion to establish goals and set appropriate intervals.
  - May foster greater investment in educational process and student progress

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**Collaboration in Determining Goal Attainment**

- Collaborated with IEP team for:
  - 78% of primary goals
  - 81% of posture & mobility goals
  - 71% of recreation goals
  - 94% of self-care goals
  - 89% of academic goals

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**Classification of Primary Goals**

- Posture / Mobility 58%
- Recreation 33%
- Self-care 5%
- Academics 4%
Examples of Goals

- Posture / Mobility: With verbal cues student maneuvers her manual wheelchair to 3 different locations within the classroom 3/5 observed opportunities.
- Recreation: Student climbs the steps to the playground structures and slide down with verbal prompts and close supervision.
- Self-care: With contact guard, student pushes pants down for 2 consecutive toileting routines.
- Academics: Student follows 2 step signed directions, 7 out of 10 opportunities with only 1 cue over 10 opportunities.

Data results: GAS Outcomes

<table>
<thead>
<tr>
<th>Goal Area</th>
<th>No Change or Regressed</th>
<th>GAS -1 Score</th>
<th>GAS 0 Score</th>
<th>GAS +1 or +2 Score</th>
<th>Achieved Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posture Mobility</td>
<td>205 goals</td>
<td>18 (9%)</td>
<td>41 (20%)</td>
<td>62 (30%)</td>
<td>146 (71%)</td>
</tr>
<tr>
<td>Recreation</td>
<td>161 goals</td>
<td>11 (7%)</td>
<td>28 (17%)</td>
<td>59 (37%)</td>
<td>122 (76%)</td>
</tr>
<tr>
<td>Self-Care</td>
<td>50 goals</td>
<td>1 (2%)</td>
<td>11 (22%)</td>
<td>18 (36%)</td>
<td>38 (76%)</td>
</tr>
<tr>
<td>Academics</td>
<td>82 goals</td>
<td>19 (23%)</td>
<td>22 (27%)</td>
<td>19 (23%)</td>
<td>22 (27%)</td>
</tr>
</tbody>
</table>

Primary Goal (PT selected) 296 goals

- 21 (7%) regressed
- 51 (17%) improved
- 105 (36%) achieved goal
- 119 (40%) exceeded goal
- 224 (76%) achieved goal

No significant difference by GMFCS level

Younger students: higher goal attainment in recreation & primary
No significant difference by Dx groups

Summary of SFA Outcomes
- 46% to 59% no change in criterion scores
  - Does not mean no clinically significant change
  - Consider tracking key items
- Overall, least change for students in GMFCS levels IV/V
  - Consider other outcome measures to supplement SFA

Summary of GAS Outcomes
- GAS captured progress for more students compared to SFA
- Therapists struggled with writing goals but were good at anticipating progress (across GMFCS levels & diagnoses)
- For recreation & primary goals, older students had less goal attainment
- Few goals in self-care and academics
- Progress on student school goals not associated with receiving outside PT services

Group Discussion
- PT COUNTS Outcomes Results
  - Results: expected or surprised?
  - Comparison of SFA and GAS in capturing outcomes?
  - Are these tools helpful in documenting services and outcomes and for PT performance appraisals?
- So What?
  - How does this information help us?
  - Comments?

What therapists told us about the tools
- 92% would use the SFA again, 72% the GAS, and 48% the S-PTIP
- GAS training improved goal writing
- 61% reported use of SFA promoted team collaboration a moderate to a great extent
- S-PTP promoted accountability and helped therapist consider a range of interventions both with and on behalf of the student
- Student assessment and documentation takes time and is challenging
### Group Discussion

Intervention planning starts with a good outcomes assessment
- How can we improve outcomes assessment process?
- What will be needed to make changes?

### Association of Student Outcomes with PT Services

- **Services**
  - Amount: total minutes of service
  - Activity types: minutes with student in various activities
  - Frequency & rate of various interventions
  - Service approaches: i.e. individual / group, within or separate from a school activity, services on behalf of the student
  - Student engagement during PT sessions

### Our Thoughts

- Promote collaboration in outcomes assessment and monitoring
- Consider developing goals
  - that reflect student’s priorities
  - in context of important school routines / activities
  - integrated across domains
- Document and chart outcomes (goals, SFA items) for student evaluation, self-evaluation, and program evaluation

### Individualized Outcomes: Goal Attainment Scaling (GAS)

- Logistic regression: Two groups
  - Those who scored -3, -2, -1, 0
  - Those who scored +1, +2
- Variables in model selected based on differences in services between the two groups
- Accounted for GMFCS level and age
- Slides for Primary and Posture / Mobility Goal Attainment Associations with Services and summary comparisons / take home messages are not in your handout

### GAS: Association of Services to Primary Goal Attainment

- Final model included:
  - Self-care activity minutes
  - Total counts of balance, motor learning, and functional strength interventions
  - Total counts of mobility training interventions related to halls, doors, stairs, and playground access
  - Total counts of cognitive / behavioral training interventions
  - Provision of group therapy
  - Minutes of services on behalf of the student (consultation/collaboration and documentation)

---

What goals can you set for yourself to affect change?
### GAS: Association of Services to Primary Goal Attainment
- No service variables in the model were significantly (p<0.05) associated with exceeding goal attainment.
- Minutes of services on behalf of students, p<0.09
  - An increase in 100 minutes of services on behalf of the student (5 minutes per week) increases the odds of exceeding goal attainment by 16%.

### GAS: Association of Services to Posture / Mobility Goals
- Less use of cognitive / behavioral training interventions was associated with exceeding goal expectations (p<0.05)
  - Every increase in 1 cognitive / behavioral intervention decreases the odds of exceeding goal expectations by 10%.

### GAS: Association of Services to Posture / Mobility Goals
- Final model included:
  - Self-care activity minutes
  - Total counts of mobility training interventions related to halls, doors, stairs, and playground access
  - Total counts of cognitive / behavioral training interventions
  - Provision of group therapy
  - Minutes of services on behalf of the student (consultation/ collaboration and documentation)

### GAS: Association of Services to Recreation Goals
- Greater use of functional strength and mobility for playground access interventions was associated with exceeding goal expectations (p<0.05)
  - Every increase in any one of functional strength and mobility for playground access interventions increases the odds of exceeding goal expectations by 5.6%.

### GAS: Association of Services to Recreation Goals
- Greater use of functional strength and mobility for playground access interventions was associated with exceeding goal expectations (p<0.05)
  - Every increase in any one of functional strength and mobility for playground access interventions increases the odds of exceeding goal expectations by 5.6%.
**GAS: Services and Self-care & Academic Goals**

- Based on group comparisons:
  - Self-care: Those who exceeded goal expectation
    - Higher average # of neuromuscular interventions (p<0.04)
    - Less PT service time with no other students (p<0.05)
    - Less documentation time (p<0.02)
  - Academic: Those who exceeded goal expectation
    - Higher average # of mobility interventions (p<0.03)

**Association of Services to GAS Outcomes Summary:**

<table>
<thead>
<tr>
<th>Exceeded primary goal expectations when provided</th>
<th>Exceeded posture / mobility goal expectations when provided</th>
<th>Exceeded recreation goal expectations when provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>More self-care activity minutes</td>
<td>Greater use of functional strength and mobility for playground access interventions</td>
<td></td>
</tr>
<tr>
<td>More minutes of services on behalf of student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less use of cognitive / behavioral training interventions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SFA - Participation**

- Participation Score changes for a standardized 1 point increase in:

<table>
<thead>
<tr>
<th>Change in Standardized Participation Score</th>
<th>Grouped activity or interventions</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ 0.23</td>
<td>Average # of Mobility interventions</td>
<td>0.0002</td>
</tr>
</tbody>
</table>

**SFA Mobility Composite**

- Mobility Composite Score changes for a standardized 1 point increase in:

<table>
<thead>
<tr>
<th>Change in Standardized Mobility Score</th>
<th>Grouped activity or interventions</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ 0.16</td>
<td>Total minutes of PE/ Rec activity</td>
<td>0.02</td>
</tr>
<tr>
<td>↓ 0.16</td>
<td>Average # of Positioning interventions</td>
<td>0.02</td>
</tr>
<tr>
<td>↑ 0.15</td>
<td>Average # of Mob Assistive interventions</td>
<td>0.03</td>
</tr>
<tr>
<td>↑ 0.19</td>
<td>Total counts motor learning interventions</td>
<td>0.002</td>
</tr>
<tr>
<td>↑ 0.16</td>
<td>Total counts aerobic/ conditioning interventions</td>
<td>0.004</td>
</tr>
<tr>
<td>↑ 0.12</td>
<td>Average student engagement rating</td>
<td>0.04</td>
</tr>
</tbody>
</table>

**SFA Recreation**

- Recreational Movement Score changes for a standardized 1 point increase in:

<table>
<thead>
<tr>
<th>Change in Standardized Recreation Score</th>
<th>Grouped activity or interventions</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ 0.19</td>
<td>Average # of Orthoses interventions</td>
<td>0.0005</td>
</tr>
<tr>
<td>↓ 0.13</td>
<td>Average # of Equipment interventions</td>
<td>0.02</td>
</tr>
<tr>
<td>↑ 0.10</td>
<td>Total counts Sensory processing interventions</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>↑ 0.10</td>
<td>Total counts Playground access interventions</td>
<td>0.04</td>
</tr>
<tr>
<td>↑ 0.21</td>
<td>Average student Engagement rating</td>
<td>&lt;0.000</td>
</tr>
</tbody>
</table>

**Standardized Outcome: School Function Assessment (SFA)**

- Criterion scores:
  - Participation
  - Mobility composite: travel, maintaining & changing positions, manipulation with movement
  - Recreational movement
  - Self-care composite: hygiene, eating, dressing
  - Stepwise multiple regression
  - Variables selected based on differences in services between students who improved and those who did not improve
  - Adjusted for GMFCS, age, and pre-score
SFA - Activities of Daily Living Composite

- ADL Composite Score changes for a standardized 1 point increase in:

<table>
<thead>
<tr>
<th>Change in Standardized ADL Score</th>
<th>Grouped activity or interventions</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ 0.19</td>
<td>Average # of Mobility interventions</td>
<td>0.002</td>
</tr>
<tr>
<td>↑ 0.16</td>
<td>Total counts Motor learning interventions</td>
<td>0.005</td>
</tr>
</tbody>
</table>

Association of Services to SFA Outcomes
Summary: Your thoughts on the results?

<table>
<thead>
<tr>
<th>Better school participation with more</th>
<th>Better mobility outcome with more</th>
<th>Better Recreation outcome with more</th>
<th>Better ADL outcome with more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility interventions</td>
<td>Mobility assistance interventions</td>
<td>Mobility for playground access interventions</td>
<td>Mobility interventions</td>
</tr>
<tr>
<td>Motor learning interventions</td>
<td>Sensory processing</td>
<td>Engagement of student during therapy session</td>
<td>Engagement of student during therapy session</td>
</tr>
<tr>
<td>Aerobic conditioning interventions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engage student during therapy session</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Services Associated with Similar Individualized & Standardized Outcomes

<table>
<thead>
<tr>
<th>Area</th>
<th>GAS</th>
<th>SFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility</td>
<td>More self-care activity minutes</td>
<td>More mobility assistive interventions</td>
</tr>
<tr>
<td></td>
<td>More minutes of services on behalf of student</td>
<td>More motor learning interventions</td>
</tr>
<tr>
<td>Recreation</td>
<td>More functional strength and mobility for playground access intervention</td>
<td>More sensory processing interventions More mobility for playground access interventions</td>
</tr>
</tbody>
</table>

Group Discussion

- Comments on PT COUNTS results
  - Are services associated with individualized outcomes the same or different than services associated with standardized outcomes?
  - Comments?
- So What?
  - How does this information help us?
  - How do we change actual practice?

How might we change practice? What will be needed to make changes?

- Activities
  - More active practice
    - Consider engaging others
    - Task specific activity
    - Engaging the students
- Interventions
  - Motor learning
  - Mobility training, functional strength
  - Sensory processing
  - Aerobic exercise
  - Access to environment
- Service type
  - Service on behalf

- Barriers
  - Time for service on behalf
  - Being allowed to be in classrooms/ school activities
- Solutions
  - Getting administration to value service on behalf
  - Education & partnership with classroom teachers/ staff
PT COUNTS

- Engaged PTs across nation in study of school-based practice
- Importance of goal-setting process
- Systematic data collection of student outcomes and services
- Students achieve and sometimes exceed goals and improve on the SFA
- Evidence for mobility interventions
- Overall few interventions associated with outcomes
- Outcomes are complex

References


Thank-you! Questions?

Contact Information

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Web site:
http://www.mc.uky.edu/healthsciences/grants/ptcounts