ReHAP

Rehabilitation and Healthcare Analytics Platform

Seminar on AM-PAC Scoring for Decision Support in Acute Rehabilitation

ReHAP Summary

1. **Web-based decision support** platform for acute and homecare rehabilitation

2. Use **evidence to prioritize** - Provide PT/OT services to patients who <u>truly</u> need it

3. **Increase efficiency** of therapy staff by informing them of these high priority patients in real time

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Paper Selection

Validity of the AM-PAC "6-Clicks" Inpatient Daily Activity and Basic Mobility Short Forms

March 2014

1. AM-PAC: Activity Measure for Post-Acute Care
2. Score is central to proposed decision support model
3. Paper validates use of AM-PAC in acute care settings
4. Comparison of "6-Click" to slower FIM (Functional Independence Measure)

Paper Summary

Problem

1. Acute rehabilitation teams need to measure patient performance
2. FIM evaluation takes 30 minutes to complete
3. Performance of "6-Clicks" as an indicator of therapy success and predictor of revisits was largely unknown

Key Results

1. "6-Click scores differed across patient age, pre-admission living status, and number of therapy visits
2. Area under ROC using "6-Click" to predict revisits:
   1. .703 using basic mobility
   2. .652 using daily activity
3. Internal consistency
   1. .96 basic mobility
   2. .91 daily activity

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JOHNS HOPKINS MEDICINE

Significance

"6-Click" AM-PAC Score is a valid and useful criteria for decision support in acute therapy settings

Background

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Background

Two "6-Click" AMPAC scores

| Basic Mobility (PT) | Daily Activity (OT) |

- Each include 1-4 scores on 6 tasks
- Intended for Post-Acute, but used in acute for this study (and today in practice)

Background

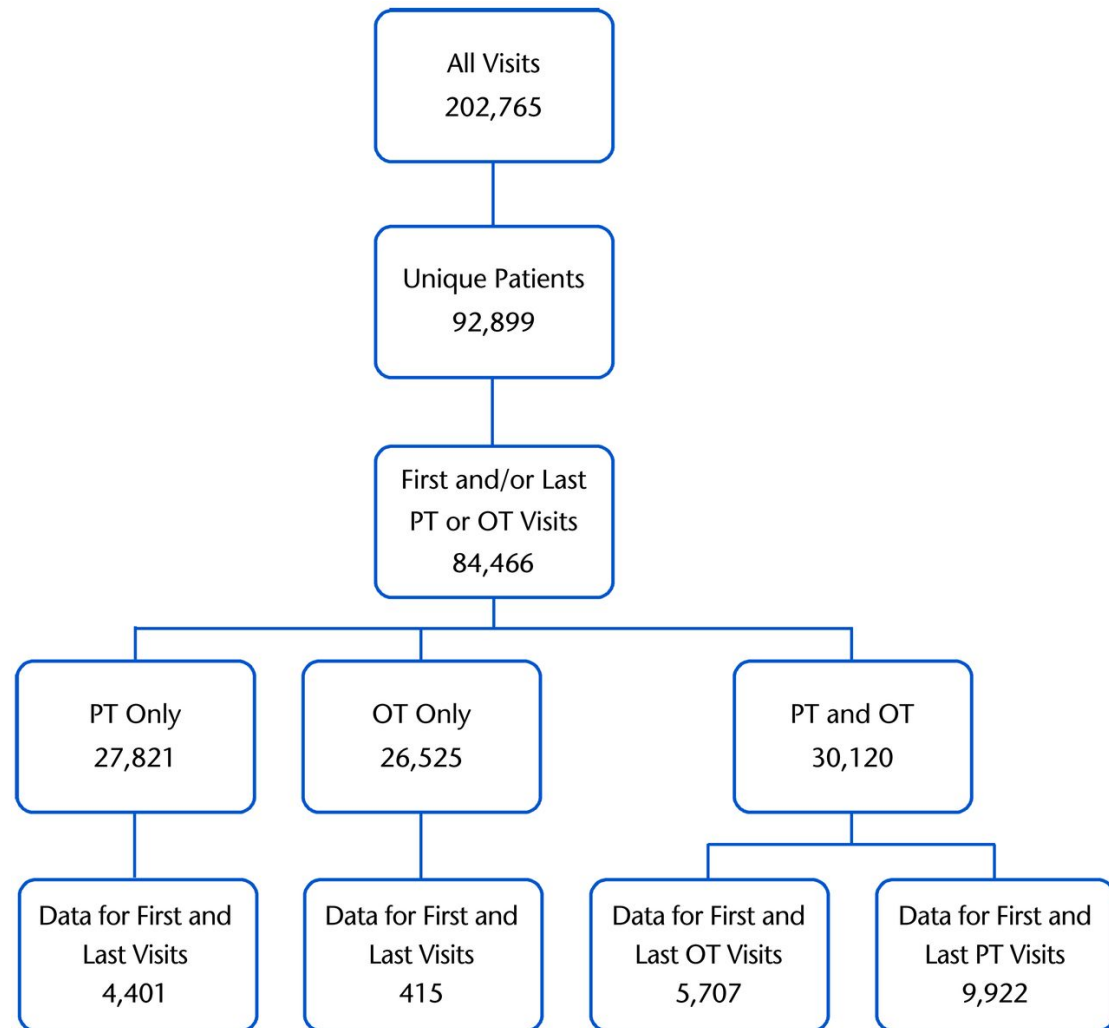## "6-Clicks" Inpatient Daily Activity Short Form

Please check the box that reflects your (the patient's) best answer to each question.	Unable	A Lot	A Little	None
How much help from another person does the patient currently need . . .				
1. Putting on and taking off regular lower body clothing?	☐1	☐2	☐3	☐4
2. Bathing (including washing, rinsing, drying)?	☐1	☐2	☐3	☐4
3. Toileting, which includes using toilet, bedpan, or urinal?	☐1	☐2	☐3	☐4
4. Putting on and taking off regular upper body clothing?	☐1	☐2	☐3	☐4
5. Taking care of personal grooming such as brushing teeth?	☐1	☐2	☐3	☐4
6. Eating meals?	☐1	☐2	☐3	☐4

Clinicians may find the following helpful in selecting responses:
1. Unable=Total/Dependent Assist
2. A Lot=Maximum/Moderate Assist
3. A Little=Minimum/Contact Guard Assist/Supervision
4. None=Modified Independence/Independent

Experiment Setup

- Retroactive study
  - Clinical database from Cleveland Clinic PT/OT
- Entries over 16 months
- Therapists asked to complete short form
- 6-click scores entered in EMR
- FIM Score included

All Visits
202,765

Unique Patients
92,899

First and/or Last
PT or OT Visits
84,466

PT Only	OT Only	PT and OT
27,821	26,525	30,120

| Data for First and Last Visits	Data for First and Last Visits	Data for First and Last OT Visits	Data for First and Last PT Visits
4,401	415	5,707	9,922

Hypotheses

- AMPAC and FIM positively correlated
- AMPAC on first visit predicts follow-up visits
  - Patients with lower scores more likely to have followup
- Younger patients have higher scores
- Patients living at home have higher scores than patients in more restrictive settings

Statistical Methods

- ANOVA and trend analysis across:
    - Age groups (18–40, 41–64, 65–85, and 86 years)
    - 5 types of preadmission settings (home alone, home with others, assisted/ independent senior living, IRF or skilled nursing facility, and extended care)

- Pearson correlation between FIM and AMPAC

- Internal responsiveness of AMPAC
    - How does score change?

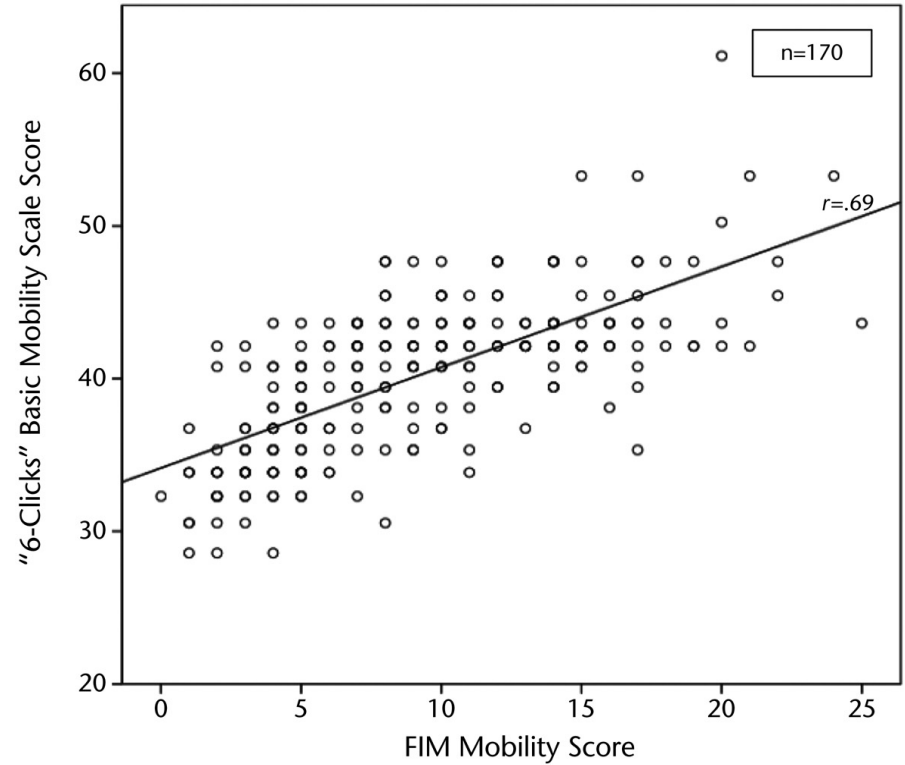# Results

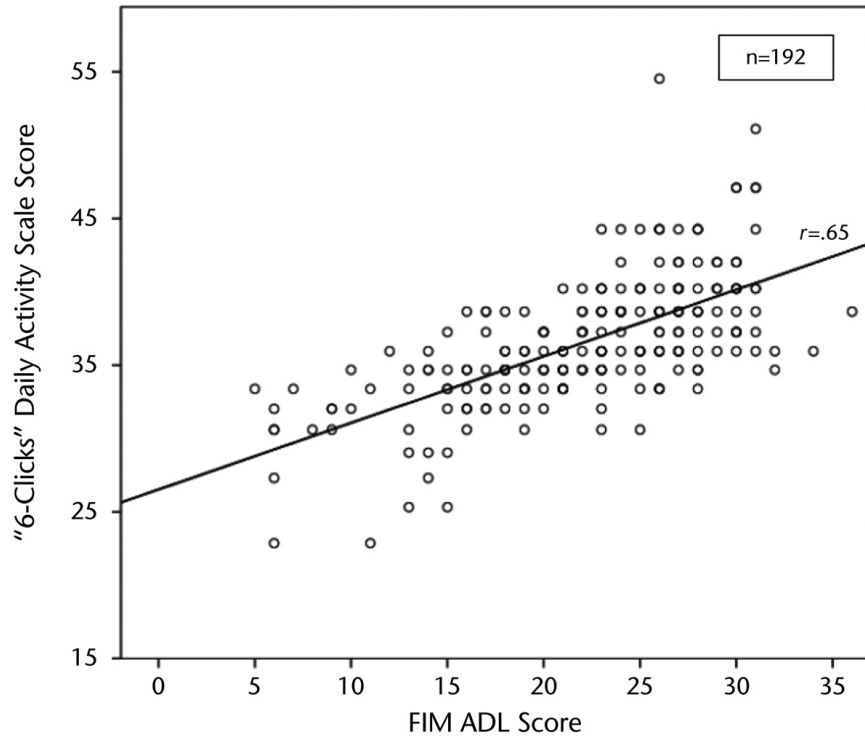
ROC Curve for Basic Mobility Scores — Area=0.70
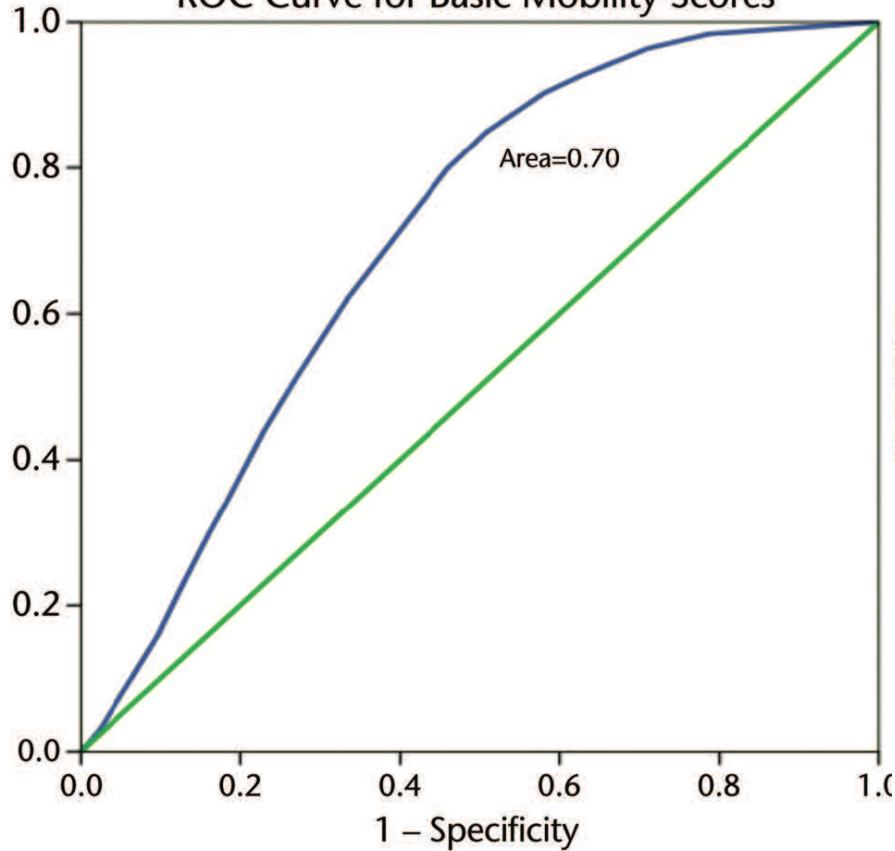
ROC Curve for Daily Activity Scores — Area=0.65
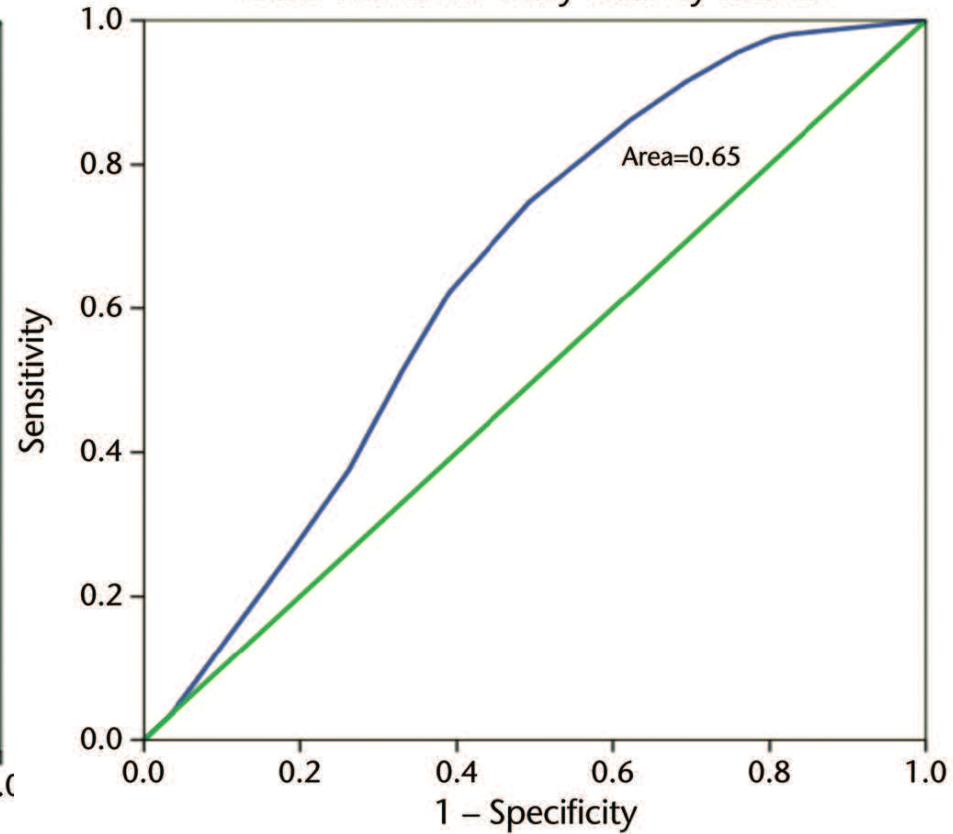
Results

FIM Correlation

Results

1. Area under ROC using "6-Click" to predict revisits:
   1. .703 using basic mobility
   2. .652 using daily activity
2. Correlation
   1. .65 basic mobility
   2. .69 daily activity
3. Internal consistency
   1. .96 basic mobility
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Study Assessment

PROS

- Broad statistical evaluation of AMPAC

- Very large population size

CONS

- Assumes AMPAC and follow-up are independent
  - Note we're flipping this around
- No ANOVA on Primary diagnosis type
- Retrospective using clinical database can include missing data, misclassifications, selection bias
- No Rater-reliability

AMPAC Assessment

PROS

- Simple
- Available
- Seems to evaluate patient performance well
- Well-adopted in acute PT/ OT settings

CONS

- AMPAC is not statistically based itself
  - Room to optimize
- Should be combined with other factors

Next Steps

- Use of AMPAC in ReHAP prototype
  - Combine AMPAC with PT/OT Lag time and other facility operation features for decision support
- Possible inclusion of other features for stronger prediction