

Opportunity in transitions: using a mandatory electronic records upgrade to support life participation and outcomes tracking

William Evans, MS CCC-SLP; Magdalen Balz, MS CCC-SLP;
Paige Nalipinski, MA CCC-SLP; Carmen Vega-Barachowitz, MS CCC-SLP
Department of Speech, Language, and Swallowing Disorders



INTRODUCTION

Over time, the profession of speech-language pathology will need to show increasing efficacy data for functional and life participation-oriented treatments in the medical setting. However, the time and service delivery constraints in current medical practice require that any outcomes data of this type be built into the process of service delivery whenever possible (cf. Balz et al., 2013).

The Massachusetts General Hospital (MGH) Speech, Language, and Swallowing, Disorders Department participated in a network-wide project to address these needs at Partners by taking advantage of an EPIC software medical records upgrade.

PROCESS

1. Planning: Setting Upgrade Priorities

Our department believes that policy mandates and systems upgrade are opportunities to improve patient care. With planning, it is possible to meet all surface-level constraints and better support underlying clinical needs and values at the same time.

Motivated by this perspective, our team identified goals and priorities for the medical records system design based on needs, practice constraints, and system options and configuration:

1. Provide a method for accurate and accessible data collection and data tracking, without any losses of specificity or flexibility present in the current system.
2. Provide a means for easily reporting outcome measurements in documentation.
3. Provide a way to systematically incorporate administration of Patient-Reported Outcomes (PROs) into our practice routines.
4. Determine digital record formats that:
 - Automate data entry to maximize clinician efficiency.
 - Support data mining for process improvement and retrospective clinical research.
 - Support multiple assessment types (standardized scores and patient-reported outcomes).

2. Planning: Instrument Selection

Given our ability to incorporate only a limited number of PROs per domain, we contacted a researcher from this area (Will Hula, PhD, CCC-SLP) to solicit expert advice.

Dr. Hula worked with us to determine our needs and suggested a list of evidence-based PROs for our patient population and treatment domains. We selected 3 final instruments from this list (table 1).

We consulted within-team to determine most frequently used quantitative assessments (e.g., the BDAE, BADS, etc).

References:

Balz, M, Garrity, LL, Leighton, J, Zipse, L, and Brady Wagner, L. (2013). Self-Awareness of Cognitive Deficits in TBI. Abstract for technical research presentation, American Speech Language and Hearing Association (ASHA) Conference. Chicago, Illinois.

Baylor, C., Yorkston, K., Eadie, T., Kim, J., Chung, H., & Amtmann, D. (2013). The Communicative Participation Item Bank (CPIB): Item bank calibration and development of a disorder-generic short form. *Journal of Speech, Language, and Hearing Research*, 56(August), 1190–208.

Bogner, J. (2013). The Participation Assessment with Recombined Tools-Objective. *The Center for Outcome Measurement in Brain Injury*. <http://www.tbims.org/combi/parto>.

Doyle, P. J., McNeil, M. R., Mikolic, J. M., Prieto, L., Hula, W. D., Lustig, A. P., ... Elman, R. J. (2004). The Burden of Stroke Scale (BOSS) provides valid and reliable score estimates of functioning and well-being in stroke survivors with and without communication disorders. *Journal of Clinical Epidemiology*, 57(10), 997–1007.

EpicCare Ambulatory Electronic Medical Record [computer software]. (2015). Accessed from: <http://www.epic.com/software-ambulatory.php>

Goodglass H., Kaplan E. (1972). *Boston Diagnostic Aphasia Examination*. Philadelphia: Lea and Febiger.

Patient-Reported Outcomes

Published PROs:	Description:	Question Examples:																																				
PART-O 17 Participation Assessment with Recombined Tools-Objective. Bogner, J. (2013)	A 17-question objective measure of participation at the societal level, developed for TBI population. Questions assess the number of times or number of hours respondents engage in life participation activities within a given week or month.	<p>(O)8. In a typical week, how many days do you get out of your house and go somewhere? It could be anywhere – it doesn't have to be anyplace "special".</p> <input type="checkbox"/> <table border="1"><thead><tr><th>Category</th><th>Score</th></tr></thead><tbody><tr><td>None</td><td>0</td></tr><tr><td>1-2 days</td><td>1.25</td></tr><tr><td>3-4 days</td><td>2.50</td></tr><tr><td>5-6 days</td><td>3.75</td></tr><tr><td>7 days</td><td>5</td></tr><tr><td>Don't know/not sure/refused</td><td>9</td></tr></tbody></table>	Category	Score	None	0	1-2 days	1.25	3-4 days	2.50	5-6 days	3.75	7 days	5	Don't know/not sure/refused	9																						
Category	Score																																					
None	0																																					
1-2 days	1.25																																					
3-4 days	2.50																																					
5-6 days	3.75																																					
7 days	5																																					
Don't know/not sure/refused	9																																					
CPIB-short Communicative Participation Item Bank- short form. Baylor et al. (2013).	A 10-question instrument that measures participation in communication activities. Tested on populations with motor speech disorders.	<table border="1"><thead><tr><th>Question</th><th>Not at all (0)</th><th>A little (1)</th><th>Quite a bit (2)</th><th>Very much (3)</th></tr></thead><tbody><tr><td>1. Does your condition interfere with... ...talking with people you know?</td><td><input type="radio"/></td><td><input type="radio"/></td><td><input type="radio"/></td><td><input type="radio"/></td></tr><tr><td>2. Does your condition interfere with... ...communicating when you need to say something quickly?</td><td><input type="radio"/></td><td><input type="radio"/></td><td><input type="radio"/></td><td><input type="radio"/></td></tr><tr><td>3. Does your condition interfere with... ...talking with people you do NOT know?</td><td><input type="radio"/></td><td><input type="radio"/></td><td><input type="radio"/></td><td><input type="radio"/></td></tr></tbody></table>	Question	Not at all (0)	A little (1)	Quite a bit (2)	Very much (3)	1. Does your condition interfere with... ...talking with people you know?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2. Does your condition interfere with... ...communicating when you need to say something quickly?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3. Does your condition interfere with... ...talking with people you do NOT know?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																
Question	Not at all (0)	A little (1)	Quite a bit (2)	Very much (3)																																		
1. Does your condition interfere with... ...talking with people you know?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																																		
2. Does your condition interfere with... ...communicating when you need to say something quickly?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																																		
3. Does your condition interfere with... ...talking with people you do NOT know?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																																		
BOSS Burden of Stroke Scale. Doyle et al., (2004)	A 60+ question instrument that measures functioning and well-being developed for stroke survivors. Question areas include: Communication, Cognition, and Social Relations, Psychological Distress, Life Participation, and Physical functioning.	<p>VI. Social Relationships: The next set of questions asks about difficulties you may have in social situations and relationships. Because of your stroke, how difficult is it for you to...</p> <table border="1"><thead><tr><th></th><th>Not at all</th><th>A little</th><th>Moderately</th><th>Very</th><th>Cannot Do</th></tr></thead><tbody><tr><td>enr Enjoy leisure activities with friends or relatives?</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>enr Keep old friendships going?</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>enr Maintain your role as a friend or family member?</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>enr Interact with people you're meeting for the first time?</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>enr Interact with friends and family members?</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr></tbody></table>		Not at all	A little	Moderately	Very	Cannot Do	enr Enjoy leisure activities with friends or relatives?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	enr Keep old friendships going?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	enr Maintain your role as a friend or family member?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	enr Interact with people you're meeting for the first time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	enr Interact with friends and family members?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Not at all	A little	Moderately	Very	Cannot Do																																	
enr Enjoy leisure activities with friends or relatives?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																	
enr Keep old friendships going?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																	
enr Maintain your role as a friend or family member?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																	
enr Interact with people you're meeting for the first time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																	
enr Interact with friends and family members?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																	

Example on an Implemented Quantitative assessment: the Boston Diagnostic Aphasia Examination (BDAE).

Flow sheet for entering data from BDAE (on right), with combination of different data entry types:

1. Free form text.
 - Allow full written descriptions, qualitative observations, patient transcripts, etc.
2. Categorical data entry for rating scales and percentiles via flow sheet "buttons".
 - Data of this type is automatically captured across levels of the system.
 - Can be used to automatically populate documentation templates (e.g., SOAP and progress notes)
 - Is automatically available to database queries for patient progress tracking, quality improvement, and research.

3. Implementation: Understanding Technical Constraints

Throughout this project, the group was “working blind” because all designed work was based on screenshots from previous builds already completed for other disciplines (physician groups, physical therapists, etc.).

The available build options did not include an interactive product; therefore, all designs were completed by creating the “input” interface without being able to see the published “output”.

Many of the constraints and options in EPIC became evident by scanning through completed templates from other groups and identifying features such as flowcharts and “free” text areas for notes that could be implemented into the SLP builds.

4. Implementation: Advocating for Unique SLP Requirements

While working with technical builders, we had to explain and defend our rationale for needing to capture different types of patient care data (e.g., recording scores in raw, standardized, and percentile formats, along with subjective impressions) in ways that allowed us to actually use system features (automatic reporting, database queries).

In a multidisciplinary team, it was challenging to explain different diagnostic and reporting needs for cognitive/linguistic vs. physical impairments.

We also advocated to include some metacontextual clinical information within flow sheets to improve our practice and mission as a teaching institution (e.g., cranial nerve definitions in motor speech assessment flow sheet).

CONCLUSION

Expected Effects on Future Clinical Practice

We were able to incorporate evidence-based patient-reported outcome measures and standardized assessment results in a way that will facilitate data collection for future advocacy and research.

The following goals were met and will improve future practice:

- Templates for standardized quantitative assessments will improve the ease and quality of future data mining and process improvement efforts.
- A consistent, single system that is network-wide, increases the *n* for data collection.
- Automate data collection was added; for example, PRO surveys can be done over phone/ email.
- All patient demographics, dates of treatments, and tests administered are consistently collected across the continuum of care; data tracking is built to mirror patient care practices that are already in place.

Concerns for the builds created and future use:

- The build has not been used yet; the “go live date” is scheduled for later this year.
- Templates were built for specific assessments. As formal assessments change and new editions are published, new templates will need to be created to maintain the system.

We hope that this process will serve as a viable model for meeting professional and practice needs while adopting new electronic health records, based on careful study of available options, needs, and constraints.