

Interrater reliability of occupational therapists using the ICF to code clinical encounters

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ICF and ICF-CY**

Evaluating Social Participation: Applications of the ICF and ICF-CY

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Introduction

- One purpose of the ICF is to facilitate communication between clinicians and across disciplines
- The classification of the ICF has not been fully embraced by clinicians. The conceptual model has.
- Lack of knowledge (how to use the ICF) and inconsistencies in application of the ICF may contribute to this slow response to use the ICF

Problem

- Interrater reliability studies report low reliability between coders. (Cronk et al, 2004, Ogonowski et al, 2004)
- There is a growing pool of code sets that seem to positively influence reliability
- There is a lack of literature examining the back coding of standardized assessments to **qualifiers**



"Something's just not right—our air is clean, our water is pure, we all get plenty of exercise, everything we eat is organic and free-range, and yet nobody lives past thirty."

Like the organic caveman....

Purpose and design

- Examine the effectiveness of a set of “clinical coding rules” (in addition to code sets) to assist in reliably using the ICF in an occupational therapy clinic
- Interrater reliability study of OT medical charts.
- Hypothesis: clinical coding rules will increase the reliability of coding between occupational therapist raters

Professionals

- 3 OTs with varied experience
 - 2 with 1-6 years
 - 1 clinical doctoral student
- Each with experience in the practice area of home modification
- Good introductory knowledge of the ICF

Clinical Setting

- Community based occupational therapy practice
- Focus of intervention is on modification of the environment; measures in the domains of B,D,E
- Charts were chosen from a sub-sample (n=80) of a project from a single neighborhood organization

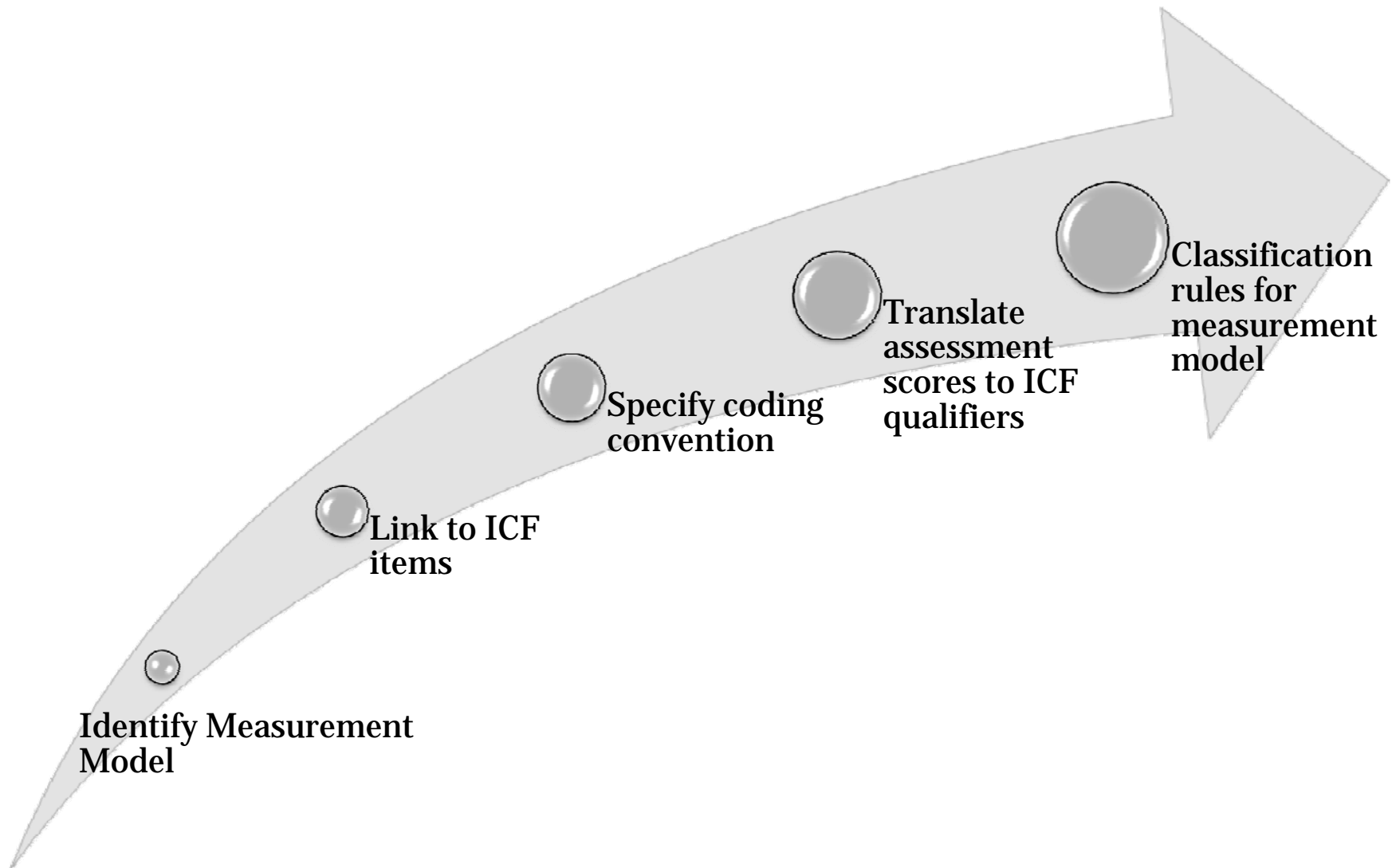
Procedures

- Training of therapists in the ICF
 - Self-directed learning module (4 hr)
- Development of coding rules
- Group coding session on sample case; refinement of coding rules
- Selection of representative sample of cases
 - Pre and post data available
 - Environmental barriers and solutions present in chart

Training/Coding Materials

- **Self-directed training module** (Stark, et al, 2004)
- **Red Book** (WHO, 2002)
- **APA Clinical Manual Introduction** (APA, 2004)
- **WHO Website**
(<http://www.who.int/classifications/icf/en/index.html>)
- **Coding rules/worksheet**

How to develop clinical coding rules for the ICF



Development of Code Set: Measurement Model

Body Structure/function

- MMT/ROM (strength, ROM) (Radomski, M.V. and C. Trombly Latham, eds., 2008)
- Audition (Edwards, D., et al., 2006)
- Lighthouse near visual acuity (Ross, et al, 1984)
- Get up and Go (mobility) (Mathias, S.N., Isaacs, B, 1986)

Activities and Participation

- Functional Independence Measure (Granger, C.V., Hamilton, B.B., & Sherwin F.S, 1986)
- COPM (subjective performance) (Law, M., et al., 1994)

Environmental Factors

- In -Home Occupational Performance Evaluation (barrier scale) (Stark, et.al, manuscript submitted)

**A mix of
standardized
assessments and
clinical judgment**

Development of Code set: Link from standardized assessments

- **Published**
 - **FIM** (Grill E, Stucki G, Scheuringer M, Melvin J, 2006)
- **Linking strategies** (Poissant, Mayo, Ahmed, 2004)
- **ICF Linking Rules** (Cieza A, Brockow T, Ewert T, Amman E, Kollerits B, Chatterji S, et al, 2002; Reed, Bufka & Stark, 2004)
 - **Code relevant information**
 - **Code explicit information**
 - **Code specific information**

Clarify use of ICF: Determine coding convention

Convention 1 (environmental factors coded alone)

Body functions	_____
Body Structures	_____
Activity/Participation	_____
Environment	_____

Convention 2 (modified) (environmental factors coded with Activity and Participation)

Body functions	_____
Body Structures	_____
Activity/Participation	_____ E _____

Clarify use of ICF: Determine coding convention

Convention 1 (environmental factors coded alone)

Body functions _____
Body Structures _____
Activity/Participation _____
Environment _____

Convention 2 (modified) (environmental factors coded with Activity and Participation)

Body functions _____
Body Structures _____
Activity/Participation _____ E_____

Scale: translate assessment results to qualifiers

- ICF red book

xxx.0 NO problem	(none, absent, negligible,...)	0-4 %
xxx.1 MILD problem	(slight, low,...)	5-24 %
xxx.2 MODERATE problem	(medium, fair,...)	25-49 %
xxx.3 SEVERE problem	(high, extreme, ...)	50-95 %
xxx.4 COMPLETE problem	(total,...)	96-100 %
xxx.8 not specified		
xxx.9 not applicable		

- APA Clinical Manual

Impairment, Limitation, or Restriction level	Standard Score	T-Score	Predicted from normal distribution
None (0)	≥ 92.5	≥ 45	69.15
Mild (1)	77.5-92	35-44	24.17
Moderate (2)	62.5-77	25-34	6.06
Severe (3)	55-62	20-24	0.49
Complete (4)	< 55	< 20	0.13

Scale: translate assessment results to qualifiers

- Use of assessment manual
 - Lighthouse Near visual acuity assessment
 - Converted from Snellen chart

RANGES (ICD-9-CM)	
(Near-) Normal Vision	Range of Normal Vision
	Mild Vision Loss
Low Vision	Moderate Vision Loss
	Severe Vision Loss
	Profound Vision Loss
(Near-) Blindness	Near-Blindness
	Blindness

ACUITY NOTATIONS		
Decimal	US	1 m
1.6	20/12.5	1/0.63
1.25	20/16	1/0.8
1.0	20/20	1/1
0.8	20/25	1/1.25
0.63	20/32	1/1.6
0.5	20/40	1/2
0.4	20/50	1/2.5
0.32	20/63	1/3.2
0.25	20/80	1/4
0.20	20/100	1/5
0.16	20/125	1/6.3
0.125	20/160	1/8
0.10	20/200	1/10
0.08	20/250	1/12.5
0.063	20/320	1/16
0.05	20/400	1/20
0.04	20/500	1/25
0.03	20/630	1/32
0.025	20/800	1/40
0.02	20/1000	1/50
0.016	20/1250	1/63
0.0125	20/1600	1/80
0.01	20/2000	1/100
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No Light Perception (NLP)		

In Summary:

Classification rules for ICF

- **Specific Assessments (Code Set)**
- **Link to items in ICF (Code Set)**
- **Coding Convention**
- **Translate scores to qualifiers**

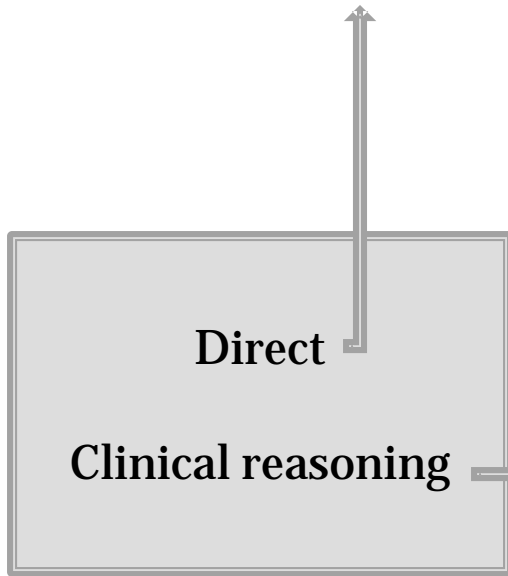
Result: Coding Rules

Test	ICF Page	Code	LNVA Score	ICF Qualifier
Lighthouse Near Visual Acuity	62	b21002	65-75=normal	xxx.0=none
			45-64=mild	xxx.1=mild
			25-44=moderate	xxx.2=moderate
			1-24=severe	xxx.3=severe
			0=total blindness	xxx.4=complete
				xxx.8 not specified
				xxx.9 not applicable

2 scenarios

FIM, Eating d550.____

FIM, Grooming d520.____



Test	ICF Page	Code
COPM		
Eating	151	d550
Using the toilet	150	d530
Using the faucet	156	d6403
Sleeping	52	b134
Getting in/out shower	140	d420
Taking bath/shower	149	d510
Getting in/out bed	139	d4104
Grooming	149	d520
Getting dressed	151	d540
Taking medication	152	d5702
Resting	138	d4100

Code set

- **59 ICF codes**
 - Represent the measurement model used in this clinical service
- **Domains and Chapters**
 - **Body Function**
 - Chapters 2, 7
 - **Activity and Participation**
 - Chapters 1-7
 - **Environment**
 - Chapter 1

Cases

Characteristics of sample

- N=10
- Randomly selected (complete data, pre/post data)
- 77 codes rated for each case
- Time to code: 16 min (6-65)

Age (years, SD) 81.7 (6.0)

Ethnicity

White 90.7

Black 6.7

Asian 1.3

Russian 1.3

Marital status

Never Married 5.3

Currently Married 18.7

Divorced 9.3

Widowed 66.7

Table 2. Interclass correlations of raters (model 2)

	ICC	95% CI	Number of codes
ENTIRE DATASET			770
Assigning qualifiers	.976	(.973-.978)	
OPEN ENDED QUESTIONS			320
Assigning Qualifiers	.985	(.9882-.988)	
Note: N=3			

Conclusions

- Therapists who receive limited ICF training, a clear code set, coding rules and real clinical cases with standardized assessments are able to code cases with high reliability
- The classification rules appear to support reliable coding.

Necessary elements

- Measurement model
- Linked assessments
- Coding Convention
- Translate scores to qualifiers

Contact information

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