

# The Improvement of the Inter-rater Reliability of Coding of Activity and Participation by the use of the Japanese Provisional Criteria for the Qualifiers

Yayoi Okawa, MD<sup>1)</sup>, Harumi Sekiguchi, RPT<sup>1)</sup>, Satoshi Ueda, MD<sup>2)</sup>, Kouji Sato, OTR<sup>3)</sup>, Kenji Shuto, MD<sup>4)</sup>

1) National Institute for Longevity Sciences, National Center of Geriatrics and Gerontology, Japan

2) Japanese Society for Rehabilitation of Persons with Disabilities, Japan

3) Yufuin Kohseinenkin Hospital, Japan

4) ICD office, Statistics and Information Department, Minister's Secretariat, Ministry of Health, Labour and Welfare, Japan

**Abstract** The results of studies on the inter-rater reliability of the coding of activity and participation of inpatients of a general hospital by co-medical professionals were compared before and after the introduction of the Provisional Criteria for the Qualifiers of Activity and Participation by Ministry of Health, Labour and Welfare (2007). The study after its adoption revealed remarkably higher inter-rater reliability (higher value of matching coefficient Kappa) than the one before it.

## Introduction

We have reported on the adoption by a governmental committee of Japan of the "Provisional Criteria for the Qualifiers of ICF Activity and Participation" based on accumulated data of population surveys (Ueda, Okawa, Shuto, Mizoguchi, WHO-FIC, Trieste, 2007). At the same meeting we presented a study on the Qualifier 1 of Activity by that criteria ("Limited Independence") as an important risk factor for decline of functioning after a natural disaster (heavy snow) (Okawa, Ueda, Kurachi, *ibid*). as well as another study on the effectiveness of that qualifier in detecting impacts of health condition and disability on the functioning of elderly population (Okawa, Ueda, Shuto, Kudou, *ibid*). In the following year we reported that this qualifier was a risk factor in the decline of activities over a year in elderly outpatients (Okawa, Kudo, Ueda, Shuto, Kurachi, Arita, WHO-FIC, Delhi, 2008).

As a "sequel" to this series providing additional supports to the criteria we studied their effects on the inter-rater reliability of coding with ICF.

## Methods & Materials

**Study 1 (2006)** before the adoption of the criteria: the functioning of each of 80 inpatients of a general hospital were coded, using ICF codes (on the Two-Level Classification), independently by a PT and an OT (18 PTs and 18 OTs in all). The selection of A & P codes was in line of our proposal (Okawa, Ueda, Shuto: The selection of activity and participation codes in ICF, WHO-FIC, Delhi, 2008).

**Study 2 (2008)** after the adoption: 70 inpatients were assessed based on the new criteria, but otherwise in the same way, by 15 PTs and 15 OTs.

**Data analysis:** The data were analyzed for matching coefficient Kappa using SPSS 14.0J.

## Results

Table 1 shows changes in kappa values before and after the use of the new criteria. There are remarkable improvement in Kappa values in all of 15 codes. Whereas in 2006 only nine were in the "relatively good match" range ( $0.75 \leq \kappa < 0.9$ ) and remaining six in "questionable match" ( $0.4 < \kappa < 0.75$ ), in 2008 five were in "perfect match" ( $\kappa = 1.00$ ), eight in "very good match" ( $\kappa > 0.75$ ) and two in "relatively good match".

Table 2 is the summary of the range and median of Kappa values of all the Two-Level codes in all the A and P chapters. The difference between 2006 and 2008 is remarkable again.

## Conclusions

The Japanese Criteria for A and P qualifiers were proved to have a strong influence to improve inter-rater reliability of coding of ICF.

Table1. Changes in kappa Values before and after the Use of Japanese Provisional Criteria for Qualifiers (Chapter 5, A & P)

Code	Activity as Performance or Capacity, and Participation	$\kappa$ Before (2006)	$\kappa$ After (2008)
a510:Washing self	Performance	0.35	0.89
	Cap. without As.	(-)	1.00
	Cap. with As.	0.34	0.82
a520:Caring for body parts	Performance	0.31	0.90
	Cap. without As.	(-)	1.00
	Cap. with As.	0.31	0.82
a530:Toileting	Performance	0.55	0.90
	Cap. without As.	(-)	1.00
	Cap. with As.	0.54	0.91
a540:Dressing	Performance	0.39	0.90
	Cap. without As.	(-)	1.00
	Cap. with As.	0.39	0.87
a550:Eating	Performance	0.48	1.00
	Cap. without As.	(-)	1.00
	Cap. with As.	0.46	1.00
a560:Drinking	Performance	0.44	1.00
	Cap. without As.	(-)	1.00
	Cap. with As.	0.47	1.00
a570:Looking after one's health	Performance	0.46	0.68
	Cap. without As.	(-)	0.98
	Cap. with As.	0.41	0.72
p570:Looking after one's health	Performance	0.48	1.00
	Capacity	(-)	1.00

Table2. Changes in kappa Values before and after the Use of Japanese Provisional Criteria for Qualifiers (All A & P Chapters)

Chapter	Activity as Performance or Capacity, and Participation	$\kappa$ Before (2006)*	$\kappa$ After (2008) *
1:Learning etc.	Activity (perf.)	0.23–0.42 (0.31)	0.70–0.96 (0.81)
	Activity (cap.)	0.17–0.45 (0.32)	0.64–0.89 (0.75)
2:General Task etc.	Activity (perf.)	0.25–0.30 (0.26)	0.81–0.94 (0.83)
	Activity (cap.)	0.24–0.37 (0.28)	0.74–0.85 (0.83)
3:Communication	Activity (perf.)	0.00–0.45 (0.34)	0.71–1.00 (0.85)
	Activity (cap.)	-0.01–0.47 (0.29)	0.74–1.00 (0.85)
4:Mobility	Activity (perf.)	0.16–0.50 (0.26)	0.58–0.96 (0.82)
	Activity (cap.)	0.07–0.49 (0.27)	0.62–0.98 (0.79)
5:Self-care	Activity (perf.)	0.31–0.55 (0.44)	0.68–1.00 (0.90)
	Activity (cap.)	0.31–0.54 (0.41)	0.72–1.00 (0.87)
6:Domestic Life	Participation	0.22–0.55 (0.38)	1.00–1.00 (1.00)
	Activity (perf.)	0.05–0.22 (0.12)	0.85–0.96 (0.95)
7:Interactions etc.	Activity (cap.)	0.12–0.40 (0.25)	0.82–0.96 (0.90)
	Activity (perf.)	0.30–0.35 (0.33)	0.54–0.64 (0.59)
8:Major Life Areas	Activity (cap.)	0.14–0.38 (0.26)	0.66–0.77 (0.72)
	Participation	0.12–0.24 (0.23)	0.73–0.90 (0.78)
9:Community etc.	Activity (perf.)	0.06–0.13 (0.11)	1.00–1.00 (1.00)
	Activity (cap.)	0.07–0.14 (0.10)	1.00–1.00 (1.00)
9:Community etc.	Participation	0.05–0.22 (0.15)	0.96–1.00 (1.00)
	Activity (perf.)	0.03–0.11 (0.06)	0.89–1.00 (0.98)
9:Community etc.	Activity (cap.)	0.04–0.18 (0.13)	0.85–0.98 (0.96)
	Participation	0.05–0.20 (0.09)	0.87–0.98 (0.95)

\* $\kappa$  values are shown as: minimum-maximum (median).