

DCCT Data Set Documentation: Form 88

Form 88: Neurobehavioral Consensus Rating

Purpose: Used by the Central Neurobehavioral Coding Unit to report their evaluation of the neurobehavioral status of patients selected for detailed ratings.

Collection Schedule: Completed for a subset of patients at baseline, years two, five, and seven, and close-out.

Data Set Name: F0882

Structure: One record per evaluation.

Size: 1805 observations of 36 variables.

Known Anomalies: None.

Comments: Consensus ratings were performed on patients whose neurobehavioral test results were flagged by an automated screening algorithm as showing possible indications of declining performance, as well as on an approximately equal number of age- and sex-matched controls. Details of the development of the screening algorithm may be found in

DCCT Research Group. "A Screening Algorithm to Identify Clinically Significant Changes in Neuropsychological Functions in the Diabetes Control and Complications Trial," *Journal of Experimental and Clinical Neuropsychology* 16: 303-316, 1994.

A general description of the DCCT neurobehavioral test protocol may be found in

Diabetes Control and Complications Trial Research Group. "Effects of Intensive Diabetes Therapy on Neuropsychological Function in Adults in the Diabetes Control and Complications Trial," *Annals of Internal Medicine* 124 (in press, scheduled publication date February 15, 1996).

Details of the administration, scoring, and interpretation of the DCCT neurobehavioral test battery are provided in

Ryan, C., Adams, K.M., Heaton, R.K., Grant, I., and the DCCT Study Group. "Neurobehavioral Assessment of Medical Patients: The DCCT Experience". In E. Mohr and P. Brouwers (eds.), *Handbook of Clinical Trials: The Neurobehavioral Approach*, Swets & Zeitlinger, 1991, pp. 217-242.





DIABETES CONTROL AND COMPLICATIONS TRIAL

Neurobehavioral Consensus Rating . . .

PATIENT Patient ID _____ Date Rated ___/___/___ ³ HHRATEDT
 Follow-up Visit (Baseline = 00) _____ Rater's Number _____ ⁵ HHRATER
 Test Date ___/___/___ Rater's Initials _____ ⁷ HHRATINL

For each of the areas listed below, select the rating that best summarizes the current status of that ability. For ratings that seem to fall between categories, use a plus (+) to indicate that the rating is closer to the next higher (somewhat more impaired) category, and a minus (-) to indicate that the rating is closer to the next lower (somewhat less impaired) category.

RATING LIST:

- 1. above average functioning
- 2. average functioning
- 3. borderline; not definitely pathological
- 4. definite mild impairment
- 5. definite moderate impairment
- 6. definite severe impairment
- 7. not ratable

			CHAR	RANK
¹ INTEL	INTELLIGENCE *	FSIQ VIQ PIQ (scatter)	1 ⇒	1
² VERBAL	VERBAL FLUENCY	FAS (Vocabulary)	1+	2
³ ABSTR	ABSTRACTION *	Category TPT-Total-Time (BD, PA, SIM)	2-	3
⁴ CALC	CALCULATION *	Wechsler WRAT	2+	4
⁵ LEARN	LEARNING	Symbol-Digit-Learning	3-	5
⁶ SHDRTM	SHORT-TERM MEMORY	Imm-VR Imm-LM STM DSST-Recal TPT-Loc	3	6
⁷ LONGM	LONG-TERM MEMORY	Del-VR Del-LM Delayed-SD-Recall	3+	7
⁸ VISUO	VISUOSPATIAL	Embed PC Copy-Segmentation	4-	8
⁹ CONST	CONSTRUCTIONAL *	BD OA VR-Copy	4	9
¹⁰ ATTEN	ATTENTION	Dig-Vig-Time Dig-Vig-Errors (Dig-Span Arith)	4+	10
¹¹ PERCEP	PERCEPTUOMOTOR	Trails-B DSST	5-	11
¹² SPEED	SPEED & DEXTERITY	Tapping Pegboard Star (worse hand)	5+	12
¹³ ASYM	ASYMMETRY	1=none 2=poss L dysfunction 3=poss R 4=def L dysfunction 5=def R	6-	13
¹⁴ GLOBAL	GLOBAL JUDGMENT		6+	14
¹⁵ CHANGE	CHANGE FROM BASELINE	1=significantly improved 2=slightly improved 3=no change 4=slightly worse 5=significantly worse	7	15
¹⁶ WEEKNO				16

NOTE: * NOT ON SHORT BATTERIES



Contents of the archived data set of consensus ratings of DCCT neurobehavioral results

CONTENTS PROCEDURE

Data Set Name: DCEXPORT.F0882
 Member Type: DATA
 Engine: V608
 Created: 15:12 Friday, December 1, 1995
 Last Modified: 15:12 Friday, December 1, 1995
 Protection:
 Data Set Type:
 Label:

Observations: 1805
 Variables: 36
 Indexes: 0
 Observation Length: 85
 Deleted Observations: 0
 Compressed: NO
 Sorted: NO

-----Engine/Host Dependent Information-----

Data Set Page Size: 5120
 Number of Data Set Pages: 32
 File Format: 607
 First Data Page: 1
 Max Obs per Page: 59
 Obs in First Data Page: 3
 Userid : ONITE1
 File : F0882 DCEXPORT

-----Alphabetic List of Variables and Attributes-----

#	Variable	Type	Len	Pos	Format	Label
1	FORM	Num	3	0		DCCT FORM NUMBER
2	FSASDATE	Num	3	3	MMDYY8.	FORMDATE AS SAS DATE VALUE
7	HHABSTR	Char	2	19		ABSTRACTION
17	HHASYM	Char	2	39		ASYMMETRY
14	HHATTEN	Char	2	33		ATTENTION
8	HHCALC	Char	2	21		CALCULATION
19	HHCHANGE	Char	2	43		CHANGE FROM LAST ASSESSMENT
13	HHCONST	Char	2	31		CONSTRUCTIONAL
18	HHGLOBAL	Char	2	41		GLOBAL JUDGEMENT
5	HHINTEL	Char	2	15		INTELLIGENCE
9	HHLEARN	Char	2	23		LEARNING
11	HHLONGM	Char	2	27		LONG-TERM MEMORY
15	HHPERCEP	Char	2	35		PERCEPTUOMOTOR
3	HHRATEDT	Char	6	6		DATE RATED
35	HHRATER	Num	2	75		RATER NUMBER
4	HHRATINT	Char	3	12		RATER'S INITIALS
10	HHSHORTM	Char	2	25		SHORT-TERM MEMORY
16	HHSPEED	Char	2	37		SPEED & DEXTERITY
6	HHVERBAL	Char	2	17		VERBAL FLOUENCY
12	HHVISUO	Char	2	29		VISUOSPATIAL
34	HHVSITNO	Num	2	73		VISIT NUMBER
36	MASK_PAT	Num	8	77		Patient ID number
22	RKABSTR	Num	2	49		RANK: ABSTRACTION
32	RKASYM	Num	2	69		RANK: ASYMMETRY
29	RKATTEN	Num	2	63		RANK: ATTENTION
23	RKCALC	Num	2	51		RANK: CALCULATION
28	RKCONST	Num	2	61		RANK: CONSTRUCTIONAL
33	RKGLOBAL	Num	2	71		RANK: GLOBAL JUDGMENT
20	RKINTEL	Num	2	45		RANK: INTELLIGENCE
24	RKLEARN	Num	2	53		RANK: LEARNING
26	RKLONGM	Num	2	57		RANK: LONG-TERM MEMORY

CONTENTS PROCEDURE

#	Variable	Type	Len	Pos	Format	Label
30	RKPERCEP	Num	2	65		RANK: PERCEPTUOMOTOR
25	RKSHORTM	Num	2	55		RANK: SHORT-TERM MEMORY
31	RKSPED	Num	2	67		RANK: SPEED & DEXTERITY
21	RKVERBAL	Num	2	47		RANK: VERBAL FLUENCY
27	RKVISUO	Num	2	59		RANK: VISUOSPATIAL

** DISTRIBUTIONAL SUMMARY **

Variable Attributes	Statistic	<--Int-->	<--Cnv-->	<--Total-->	<--Int-->	<--Cnv-->	<--Total-->	<--Int-->	<--Cnv-->	<--Total-->	<--Int-->	<--Cnv-->	<--Total-->
RANK: INTELLIGENCE													
Variable Name: RKINTEL													
N		359.00	405.00	764.00	553.00	487.00	1040.00	912.00	892.00	1804.00			
Miss		0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00			
Mean		4.65	4.36	4.50	4.27	4.41	4.34	4.42	4.39	4.41			
Std		2.22	2.30	2.26	1.98	1.96	1.97	2.08	2.12	2.10			
Minimum		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
25th pct		4.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00			
Median		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00			
75th pct		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00			
Maximum		18.00	18.00	18.00	18.00	13.00	18.00	18.00	18.00	18.00			
RANK: LEARNING													
Variable Name: RKLEARN													
N		359.00	405.00	764.00	553.00	488.00	1041.00	912.00	893.00	1805.00			
Miss		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Mean		4.77	4.61	4.68	4.71	5.07	4.88	4.73	4.86	4.80			
Std		3.20	2.96	3.08	3.14	3.28	3.21	3.17	3.15	3.16			
Minimum		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
25th pct		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00			
Median		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00			
75th pct		5.00	5.00	5.00	5.00	5.50	5.00	5.00	5.00	5.00			
Maximum		18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00			
RANK: LONG-TERM MEMORY													
Variable Name: RKLONEM													
N		359.00	405.00	764.00	553.00	488.00	1041.00	912.00	893.00	1805.00			
Miss		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Mean		5.74	5.39	5.55	5.56	5.40	5.49	5.63	5.40	5.52			
Std		2.98	2.69	2.83	2.93	2.82	2.87	2.95	2.76	2.86			
Minimum		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
25th pct		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00			
Median		5.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00			
75th pct		8.00	7.00	7.00	7.00	7.00	7.00	8.00	7.00	7.00			
Maximum		18.00	18.00	18.00	18.00	16.00	18.00	18.00	18.00	18.00			
RANK: PERCEPTUOMOTOR													
Variable Name: RKPERCEP													
N		359.00	405.00	764.00	553.00	488.00	1041.00	912.00	893.00	1805.00			
Miss		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Mean		5.11	4.84	4.97	4.92	5.14	5.02	5.00	5.00	5.00			
Std		2.61	2.51	2.56	2.58	2.78	2.67	2.59	2.66	2.62			
Minimum		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
25th pct		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00			
Median		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00			
75th pct		6.00	5.00	5.00	6.00	6.00	6.00	6.00	6.00	6.00			
Maximum		18.00	18.00	18.00	18.00	15.00	18.00	18.00	18.00	18.00			

(V=M=O=U=I=PROD 191: F0882 LISTING)
(V=M=ARNOLD 191: DOCUMENT SAS)

Notes:

*** DISTRIBUTIONAL SUMMARY ***

Variable Attributes	Statistic	<--Int-->	<--Env-->	<--Total-->	<--Int-->	<--Env-->	<--Total-->	<--Int-->	<--Env-->	<--Total-->	<--Cmv-->	<Overall-->
RANK: SHORT-TERM MEMORY												
Variable Name: RKSHORTM												
N	359.00	405.00	764.00	553.00	488.00	1041.00	912.00	893.00	1805.00	0.00	0.00	1805.00
Nmiss	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mean	5.44	5.75	5.61	5.44	5.62	5.52	5.44	5.68	5.56	5.44	5.68	5.56
Std	2.67	2.82	2.75	2.73	2.50	2.63	2.71	2.65	2.68	2.71	2.65	2.68
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25th pct	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Median	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
75th pct	7.00	8.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Maximum	18.00	18.00	18.00	18.00	13.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
RANK: SPEED & DEXTERITY												
Variable Name: RKSPEED												
N	359.00	405.00	764.00	553.00	488.00	1040.00	911.00	893.00	1804.00	0.00	0.00	1804.00
Nmiss	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mean	5.12	5.26	5.20	5.51	5.75	5.62	5.36	5.53	5.44	5.36	5.53	5.44
Std	2.46	2.60	2.54	2.85	2.76	2.81	2.71	2.70	2.71	2.71	2.70	2.71
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25th pct	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Median	4.00	4.00	4.00	4.00	5.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00
75th pct	6.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Maximum	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
RANK: VERBAL FLUENCY												
Variable Name: RKVERBAL												
N	359.00	405.00	764.00	553.00	488.00	1041.00	912.00	893.00	1805.00	0.00	0.00	1805.00
Nmiss	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mean	4.65	4.67	4.66	4.63	4.61	4.62	4.64	4.64	4.64	4.64	4.64	4.64
Std	2.21	2.35	2.29	2.26	2.50	2.37	2.24	2.43	2.34	2.24	2.43	2.34
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25th pct	4.00	4.00	4.00	4.00	3.00	4.00	4.00	3.00	4.00	4.00	3.00	4.00
Median	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
75th pct	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Maximum	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
RANK: VISUOSPATIAL												
Variable Name: RKVISUO												
N	359.00	405.00	764.00	553.00	488.00	1041.00	912.00	893.00	1805.00	0.00	0.00	1805.00
Nmiss	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mean	4.76	4.65	4.70	4.60	4.68	4.53	4.54	4.67	4.61	4.54	4.67	4.61
Std	2.32	2.27	2.29	2.31	2.47	2.39	2.32	2.38	2.35	2.32	2.38	2.35
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25th pct	4.00	4.00	4.00	3.00	3.00	3.00	3.00	4.00	3.00	3.00	4.00	3.00
Median	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
75th pct	6.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Maximum	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00

Variable Attributes	Primary Retinopathy			Secondary Retinopathy			Treatment Group			Overall
Statistic	<--Int-->	<--Cnv-->	<--Total-->	<--Int-->	<--Cnv-->	<--Total-->	<--Int-->	<--Cnv-->	<--Total-->	<Overall-->
DCCT FORM NUMBER Variable Name: FORM	359.00 0.00 100.00	405.00 0.00 100.00	764.00 0.00 100.00	553.00 0.00 100.00	488.00 0.00 100.00	1041.00 0.00 100.00	912.00 0.00 100.00	893.00 0.00 100.00	1805.00 0.00 100.00	1805.00 0.00 100.00
RATER NUMBER Variable Name: HRATER	359.00 0.00 39.55 39.55 55.71 4.74	405.00 0.00 40.49 56.30 3.21	764.00 0.00 40.05 56.02 3.93	553.00 0.00 39.24 55.15 5.61	488.00 0.00 37.70 56.76 5.53	1041.00 0.00 38.52 55.91 5.57	912.00 0.00 39.36 55.37 5.26	893.00 0.00 38.97 56.55 4.48	1805.00 0.00 39.17 55.96 4.88	1805.00 0.00 39.17 55.96 4.88
RATER'S INITIALS Variable Name: HRATINT	359.00 0.00 4.74 39.55 55.71	405.00 0.00 3.21 40.49 56.30	764.00 0.00 3.93 56.02	553.00 0.00 5.61 39.24 55.15	488.00 0.00 5.53 37.70 56.76	1041.00 0.00 5.57 38.52 55.91	912.00 0.00 5.26 39.36 55.37	893.00 0.00 4.48 38.97 56.55	1805.00 0.00 4.88 39.17 55.96	1805.00 0.00 4.88 39.17 55.96
VISIT NUMBER Variable Name: HRVSTW0	359.00 0.00 59.89 29.81 9.19 1.11	405.00 0.00 54.81 32.84 9.14 3.21	764.00 0.00 57.20 31.41 9.16 2.23	553.00 0.00 55.52 27.31 14.47 2.71	488.00 0.00 55.94 29.10 10.86 4.10	1041.00 0.00 55.72 28.15 12.78 3.36	912.00 0.00 57.24 28.29 12.39 2.08	893.00 0.00 55.43 30.80 10.08 3.70	1805.00 0.00 56.34 29.53 11.25 2.88	1805.00 0.00 56.34 29.53 11.25 2.88
RANK: ABSTRACTION Variable Name: RKABSTR	359.00 0.00 4.90 2.72 1.00 4.00 4.00 5.00 18.00	404.00 1.00 4.61 2.88 1.00 3.00 4.00 5.00 18.00	763.00 1.00 4.75 2.81 1.00 3.00 4.00 5.00 18.00	553.00 0.00 4.85 2.81 1.00 3.00 4.00 5.00 18.00	488.00 0.00 4.95 2.75 1.00 4.00 4.00 6.00 18.00	1041.00 0.00 4.90 2.78 1.00 3.00 4.00 6.00 18.00	912.00 0.00 4.87 2.77 1.00 3.00 4.00 5.00 18.00	892.00 1.00 4.79 2.81 1.00 3.00 4.00 5.00 18.00	1804.00 1.00 4.83 2.79 1.00 3.00 4.00 5.00 18.00	1804.00 1.00 4.83 2.79 1.00 3.00 4.00 5.00 18.00
RANK: ASYMMETRY Variable Name: RKASTM	359.00 0.00 1.33 1.74 1.00 1.00 1.00 1.00 18.00	405.00 0.00 1.35 1.92 1.00 1.00 1.00 1.00 18.00	764.00 0.00 1.34 1.83 1.00 1.00 1.00 1.00 18.00	553.00 0.00 1.15 1.10 1.00 1.00 1.00 1.00 18.00	487.00 1.00 1.21 1.10 1.00 1.00 1.00 1.00 10.00	1040.00 1.00 1.18 1.10 1.00 1.00 1.00 1.00 18.00	912.00 0.00 1.22 1.39 1.00 1.00 1.00 1.00 18.00	892.00 1.00 1.27 1.53 1.00 1.00 1.00 1.00 18.00	1804.00 1.00 1.25 1.46 1.00 1.00 1.00 1.00 18.00	1804.00 1.00 1.25 1.46 1.00 1.00 1.00 1.00 18.00

Notes: (VNF=DOUGPROD 191: F0882 LISTING)
(VNF=ARNOLD 191: DOCUMENT SAS)

* * D I S T R I B U T I O N A L S U M M A R Y * *

Variable Attributes	Statistic	Primary Retinopathy	Secondary Retinopathy	Treatment Group	Overall
		Int	Int	Int	
RANK: ATTENTION					
Variable Name: RKATTEN					
N	359.00	764.00	488.00	912.00	1805.00
Nmiss	0.00	0.00	0.00	0.00	0.00
Mean	5.37	5.38	5.49	5.45	5.42
Std	2.84	2.70	2.59	2.69	2.69
Minimum	1.00	1.00	1.00	1.00	1.00
25th pct	4.00	4.00	4.00	4.00	4.00
Median	4.00	5.00	5.00	5.00	5.00
75th pct	7.00	7.00	7.00	7.00	7.00
Maximum	18.00	18.00	18.00	18.00	18.00
RANK: CALCULATION					
Variable Name: RKCALC					
N	359.00	764.00	488.00	912.00	1805.00
Nmiss	0.00	0.00	0.00	0.00	0.00
Mean	4.76	4.84	4.74	4.59	4.70
Std	2.10	2.63	2.19	2.16	2.25
Minimum	1.00	1.00	1.00	1.00	1.00
25th pct	4.00	4.00	4.00	4.00	4.00
Median	4.00	4.00	4.00	4.00	4.00
75th pct	5.00	5.00	5.00	5.00	5.00
Maximum	18.00	18.00	18.00	18.00	18.00
RANK: CONSTRUCTIONAL					
Variable Name: RKCONST					
N	359.00	763.00	488.00	912.00	1804.00
Nmiss	0.00	1.00	0.00	0.00	1.00
Mean	4.25	4.54	4.14	4.05	4.19
Std	2.42	3.43	2.51	2.29	2.65
Minimum	1.00	1.00	1.00	1.00	1.00
25th pct	3.00	3.00	3.00	3.00	3.00
Median	4.00	4.00	4.00	4.00	4.00
75th pct	4.00	5.00	4.00	4.00	4.00
Maximum	18.00	18.00	18.00	18.00	18.00
RANK: GLOBAL JUDGMENT					
Variable Name: RKGLOBAL					
N	359.00	764.00	488.00	912.00	1805.00
Nmiss	0.00	0.00	0.00	0.00	0.00
Mean	5.87	5.79	6.00	5.95	5.93
Std	2.55	2.61	2.47	2.50	2.53
Minimum	1.00	1.00	1.00	1.00	1.00
25th pct	4.00	4.00	4.00	4.00	4.00
Median	5.00	5.00	5.00	5.00	5.00
75th pct	7.00	7.00	8.00	8.00	8.00
Maximum	18.00	18.00	13.00	18.00	18.00