Integrity Check for the Chronic Prostatitis Clinical Research Network-Chronic Prostatitis Cohort Study (CPCRN-CPC)

As a partial check of the integrity of the CPCRN datasets archived in the NIDDK data repository, a set of tabulations was performed to verify that published results from the CPCRN-CPC study can be reproduced using the archived datasets. Analyses were performed to duplicate published results for the data reported by the CPCRN Research Network in *The Journal of Urology* in Februray, 2006. The results of this integrity check are described below. The STATA code for our tabulations is included in Attachment 1 and the full text of the article can be found in Attachment 2.

Summary:
Sample baseline characteristics and baseline, year one, and year two symptoms (NIH Chronic Prostatitis Symptom Index, NIH-CPSI, and Global Response Assessment indices) were successfully replicated using the analysis file for all subjects; however, there were small discrepancies in sample size and in symptom scores for the cohort of subjects who had complete baseline, year 1 and year 2 follow-up data when using the analysis and raw data files. Replication of observed trends (from baseline to 24 months) in NIH-CPSI symptoms were similar to the published results.

Data and Structures. The CPCRN Research Network reports results for 488 subjects who met eligibility criteria for the CPC study. Eligibility for the CPC study included: male, having symptoms of discomfort or pain in the pelvic region for at least three months duration within the past six months. Enrollment began in October 1998 and continued through August 2001. Patients were recruited from six clinical centers and followed at 1, 2, 3, 6, 9, 12 months in the first year and at 3-month intervals for up to three years (including telephone contacts, brief clinic visits, and annual clinic visits). Follow-up assessments included completion of the NIH-CPSI, impact index, and general Quality of Life index.

In the data structure of the CPCRN-CPC study, there are 37 raw data and three analysis datasets. The following datasets were used for the integrity check of Tables 1 through 4 and Figure 1.

LONGITUD	An analysis dataset of longitudinal data; source file for the manuscript
SXIND_PCKT	Data from the Symptom Index Form, SXIND
WITH_SNGL	Data from the Patient Withdrawal Form, WITH
BSYM1_PCKT	Baseline Symptom Form, BSYM1

Both the LONGITUD analysis file and the raw data files were used for the replication analyses. Sample sizes were obtained by restricting the datasets to observations with a value of '0', '12', and/or '24' for the *vnum* variable (visit number).

The NIH-CPSI scores were calculated by summarizing responses to the NIH Chronic Prostatitis Symptom Index (SXIND study form):
Pain = *sxind_01a* + *sxind_01b* + *sxind_01c* + *sxind_01d* +*sxind_02a* + *sxind_02b* + *sxind_03* + *sxind_04*
Urinary = *sxind05* + *sxind_06*
Quality of Life = *sxind_07* + *sxind_08* + *sxind_09*
Total Score = Pain + Urinary + Quality of Life
These tabulated scores match closely the summary variables, *pain, urin, quol,and cpsi* found in the analysis file and reported in the manuscript.

A final symptom index, the Global Response Assessment, was derived from the variable, *sxind_10*.

Table 1 presents baseline summary statistics for the 445 subjects in the published report and their NIH-CPSI baseline scores. Of the 488 subjects, 455 had the potential for at least two years follow-up; 10 persons were excluded due to missing data on key baseline items. Tabulations using the longitudinal analysis files closely matched published results.

TABLE 1. BASELINE CHARACTERISTICS AND SYMPTOMS, ALL SUBJECTS

Variable	**Propert et al. (2006)**				**Integrity Check: Longitudinal File**			
	No. Pts.	Mean ± SD	Median	Range	No. Pts.	Mean ± SD	Median	Range
Age at baseline, *Age*	445	42.6±11.3	42.0	19.5-82.9	445	42.6±11.3	42.0	19.5-82.9
Yrs since dx, *Study_time*	433	6.8±7.8	3.3	0.1-47.4	433	6.8±7.8	3.3	0.1-47.4
NIH-CPSI								
Total (0-43)	444	22.5 ± 8.1	23.0	0-43	441	22.5 ± 8.1	23.0	0-43
Pain (0-21)	445	10.4 ± 4.3	10.0	0-21	442	10.4 ± 4.3	10.0	0-21
Urinary (0-10)	445	4.4 ± 2.9	4.0	0-10	445	4.4 ± 2.9	4.0	0-10
QOL (0-12)	444	7.7 ± 2.9	8.0	0-12	444	7.7 ± 2.9	8.0	0-12

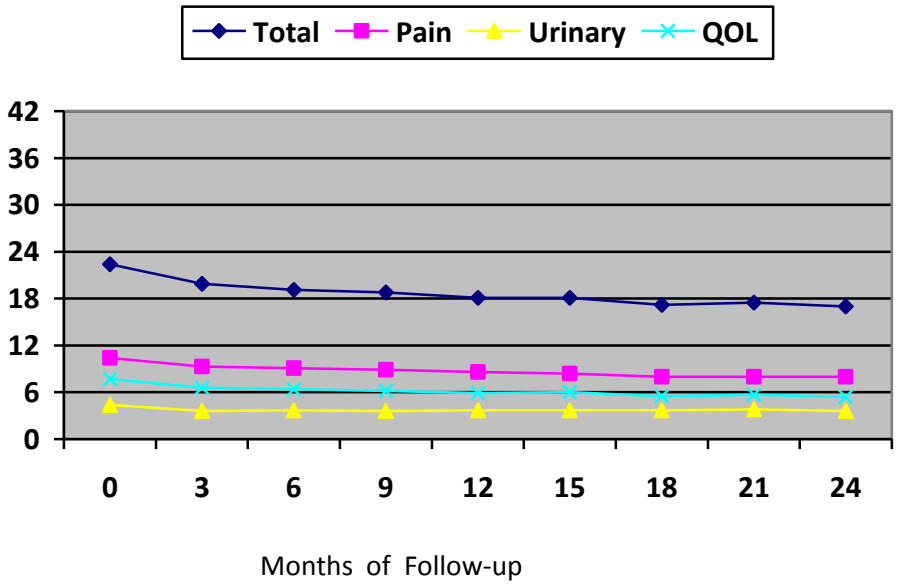
The raw data form file, SXIND, includes data on 488 subjects who completed the Symptom Index Form . Tabulations of Table 1 based on the raw data are similar to the published results. It is not possible to replicate the published sample sizes as the closing date for the published analyses was defined as “those enrolled at least 2 years before the current analysis...[a]lthough additional followup was available for some subjects” whereas the repository includes the final data collected. Despite the sample size differences, summary statistics based on the raw data are similar to the published estimates.

Variable	**Propert et al. (2006)**				**Integrity Check: Raw Data Files**			
	No. Pts.	Mean ± SD	Median	Range	No. Pts.	Mean ± SD	Median	Range
NIH-CPSI								
Total (0-43)	444	22.5 ± 8.1	23.0	0-43	482	22.6±8.0	23.0	0-43
Pain (0-21)	445	10.4 ± 4.3	10.0	0-21	484	10.4±4.3	10.0	0-21
Urinary (0-10)	445	4.4 ± 2.9	4.0	0-10	487	4.4±2.9	4.0	0-10
QOL (0-12)	444	7.7 ± 2.9	8.0	0-12	486	7.7±2.9	8.0	0-12

The Quality of Life (MOS SF-12) PCS (physical component score) and MCS (mental component score) presented in the published manuscript were not replicated for these analyses. A specific scoring algorithm is required for calculation of the composite scores from the 12-question MOS SF-12 questionnaire (The questionnaire is included in study form SXIND).

Longitudinal changes (baseline to 24 months) for the NIH-CPSI total score and the three subscores (pain, urinary, and QOL) were evaluated by tabulating mean values for each outcome score at three-month intervals and plotting those values by length of follow-up. All subjects with available data at each visit, whether or not they subsequently withdrew from the study were included (Figure 1).

FIGURE 1. MEAN NIH-CPSI SCORES OVER TIME (Integrity Check: Longitudinal Data File)



Similar to the published Figure 1 (see Appendix 2), our tabulations indicate a reduction in symptom scores during the first three months with smaller changes from 3 months to 2 years. The actual data points and sample sizes presented in Figure 1 above are shown below.

Data for Figure 1: Mean values of NIH-CPSI scores by visit number and sample sizes (Integrity Check: Longitudinal Data File)

	NIH-CPSI Total	NIH-CPSI Pain	NIH-CPSI Urinary	NIH-CPSI QOL
Baseline (n=441-445)	22.4	10.4	4.4	7.7
Month 1 (n=405-413)	20.0	9.5	3.7	6.8
Month 2 (n=395-405)	19.4	9.3	3.6	6.6
Month 3 (n=390-395)	19.9	9.4	3.9	6.7
Month 6 (n=397-402)	19.1	9.1	3.7	6.4
Month 9 (n=363-367)	18.8	8.9	3.6	6.2
Month 12 (n=355-356)	18.2	8.6	3.7	5.9
Month 15 (n=321-324)	18.1	8.4	3.7	6.0
Month 18 (n=321)	17.2	8.0	3.7	5.5
Month 21 (n=296-302)	17.5	8.0	3.8	5.7
Month 24 (n=307-309)	17.0	8.0	3.6	5.4

Descriptive statistics corresponding to Figure 1 at baseline, 1 and 2 years were shown in Table 2. All subjects with available data at each visit, whether or not they subsequently withdrew from the study, were included in these tabulations.

TABLE 2. SYMPTOM CHARACTERISTICS OVER TIME, ALL SUBJECTS

	Propert et al. (2006)			**Integrity Check: Longitudinal File**		
	Median ± SD			Median ± SD		
	Baseline	1 year	2 years	Baseline	1 year	2 years
Sample Size	444	356	309	444	355-56	307-309
NIH-CPSI						
Total (0-43)	22.5±8.1	18.2 ±8.9	17.0±9.0	22.5 ± 8.1	18.2 ±8.9	17.0±9.0
Pain (0-21)	10.4 ± 4.3	8.6±4.9	8.0±4.9	10.4 ± 4.3	8.6±4.9	8.0±4.9
Urinary (0-10)	4.4 ± 2.9	3.7±2.6	3.6±2.6	4.4 ± 2.9	3.7±2.6	3.6±2.6
QOL (0-12)	7.7 ± 2.9	5.9±3.2	5.4±3.1	7.7 ± 2.9	5.9±3.2	5.4±3.1

Sample sizes for the published study are for NIH-CPSI total score. Sample sizes for the integrity check are for all symptom outcomes.

Table 3 in the manuscript presents symptom outcomes among only the subjects who had complete data at baseline, year one and year two follow-ups. To tabulate changes in symptoms over time for the subset of respondents who completed the baseline, year one and year two follow-ups, select variables from the SXIND files were transformed in STATA to a rectangular format (long to wide format) and merged with variables from WITH (withdrawal form data). Subjects with 12 and 24-month visits and who withdrew from the study by 24 months were included in the denominator. Tabulations were conducted using the longitudinal analysis file and raw data files. Results of these analyses closely matched published results. Changes in symptoms over time for those with complete follow-up were similar to those for the entire sample.

TABLE 3. CHANGES IN SYMPTOMS OVER TIME, COMPLETE FOLLOWUP ONLY

	Propert et al. (2006)			**Integrity Check: Longitudinal File**		
	Change from Baseline			Change from Baseline		
	Baseline	1 year	2 years	Baseline	1 year	2 years
Mean NIH-CPSI ± SD						
Total (0-43)	21.8±8.1	-3.7±7.4	-5.0±8.1	21.7±8.1	-3.7±7.4	-4.9±8.0
Pain (0-21)	10.1±4.2	-1.5±4.1	-2.2±4.4	10.0±4.2	-1.5±4.1	-2.2±4.4
Urinary (0-10)	4.3±2.9	-0.6±2.2	-0.7±2.5	4.3±2.9	-0.6±2.2	-0.7±2.5
QOL (0-12)	7.4±3.0	-1.6±2.8	-2.1±3.0	7.4±3.0	-1.6±2.8	-2.1±3.0
N				287-294	291-294	291-294

Note: Negative change indicates improvement. Sample size is 293 for the published table.

	Propert et al. (2006)			Integrity Check: Raw Data Files		
	Change from Baseline			Change from Baseline		
	Baseline	1 year	2 years	Baseline	1 year	2 years
Mean NIH-CPSI ± SD						
Total (0-43)	21.8±8.1	-3.7±7.4	-5.0±8.1	21.7±8.1	-3.7±7.4	-4.9±8.0
Pain (0-21)	10.1±4.2	-1.5±4.1	-2.2±4.4	10.0±4.2	-1.6±4.1	-2.1±4.3
Urinary (0-10)	4.3±2.9	-0.6±2.2	-0.7±2.5	4.3±2.8	-0.6±2.2	-0.7±2.5
QOL (0-12)	7.4±3.0	-1.6±2.8	-2.1±3.0	7.4±3.0	-1.6±2.8	-2.1±3.0
N				299-306	303-306	303-306

Note: Sample N was 293 for published results.

As a final assessment of overall patient-reported outcomes, results of the global response assessment (GRA) were tabulated at one and two years after study enrollment, for the entire sample and for the subjects with complete follow-up at years one and two. The GRA was derived from the variable, *sxind-_10*, on the SXIND form, and asks "As compared to when you started the study, how would you rate your overall symptoms now?" A 7-point response scale was used ranging from Markedly Worsened to Markedly Improved. Tabulated results from the longitudinal analysis file match the published results for all subjects and the 293 subjects with complete follow-up.

TABLE 4. GLOBAL RESPONSE ASSESSMENT OVER TIME

	Propert et al. (2006)				Integrity Check: Longitudinal File			
	No. All Subjects, %		No. Complete FU,%		No. All Subjects, %		No. Complete FU,%	
GRA Cateogry	1 Yr	2 Yrs	1 Yr	2 Yrs	1 Yr	2 Yrs	1 Yr	2 Yrs
Markedly improved	51 (12)	69 (16)	44 (15)	66 (23)	51 (12)	69 (16)	44 (15)	66 (23)
Moderate improved	54 (12)	67 (15)	43 (15)	63 (22)	54 (12)	67 (15)	44 (15)	63 (22)
Mildly improved	87 (20)	73 (16)	76 (26)	70 (24)	87 (20)	73 (16)	76 (26)	69 (24)
No change	115 (26)	63 (14)	90 (31)	59 (20)	115 (26)	63 (14)	90 (31)	59 (20)
Mildly worsened	29 (7)	24 (5)	23 (8)	24 (8)	29 (7)	24 (5)	23 (8)	24 (8)
Moderately worsened	14 (3)	8 (2)	13 (4)	7 (2)	14 (3)	8 (2)	13 (4)	7 (2)
Markedly worsened	3 (1)	5 (1)	2 (1)	4 (1)	3 (1)	5 (1)	2(1)	4(1)
Missing	42 (9)	44 (10)	2 (1)	0 (0)				
Withdrew	50 (11)	92 (21)	na	na	92 (20)	136 (31)		
Responder rate*	115 (24)	136 (33)	87(30)	129(44)	115(24)	136 (33)	88(30)	129(44)

*Responders were defined as subjects who answered that they were "moderately" or "markedly" improved on the GRA. Subjects who withdrew from follow-up or were missing data for the GRA are included in the denominator.

An additional tabulation of Table 4 was derived using the raw data files provided to the repository, SXIND and WITH. The percentages reporting each GRA category for all subjects and subjects with complete follow-up are similar to the published results, however, sample sizes are not consistent with the published data.

	Propert et al. (2006)				Integrity Check: Raw Data Files			
	No. All Subjects, %		No. Complete FU,%		No. All Subjects, %		No. Complete FU,%	
GRA Cateogry	1 Yr	2 Yrs	1 Yr	2 Yrs	1 Yr	2 Yrs	1 Yr	2 Yrs
Markedly improved	51 (12)	69 (16)	44 (15)	66 (23)	53 (11)	70 (14)	45 (15)	67 (22)
Moderate improved	54 (12)	67 (15)	43 (15)	63 (22)	60 (12)	70 (14)	46 (15)	66 (22)
Mildly improved	87 (20)	73 (16)	76 (26)	70 (24)	92 (19)	78 (16)	80 (26)	74 (24)
No change	115 (26)	63 (14)	90 (31)	59 (20)	123 (25)	67 (14)	95 (31)	61 (20)
Mildly worsened	29 (7)	24 (5)	23 (8)	24 (8)	30 (6)	25 (5)	23 (8)	25 (8)
Moderately worsened	14 (3)	8 (2)	13 (4)	7 (2)	16 (3)	8 (2)	13 (4)	7 (2)
Markedly worsened	3 (1)	5 (1)	2 (1)	4 (1)	4 (1)	5 (1)	2(1)	4(1)
Missing	42 (9)	44 (10)	2 (1)	0 (0)				
Withdrew	50 (11)	92 (21)	na	na	110(23)	165 (34)	na	na
Responder rate*	115 (24)	136 (33)	87(30)	129(44)	113 (23)	140 (28)	91(30)	133(44)

NOTES:

Analyses were conducted using a copy of the database provided to the NIDDK repository. STATA v10 statistical software was used for the replication analysis. STATA datasets were created on 3 October, 2010 from the SAS datafiles provided to the repository using StatTransfer. Four of 40 datasets were utilized in these analyses.

REFERENCE:

Propert KJ, McNaughton-Collins M, Leiby BE et al. (2006) A prospective study of symptoms and quality of life in men with chronic prostatitis/chronic pelvic pain syndrome: The National Institutes of Health Chronic Prostatitis Cohort Study. *J of Urology* 175:619-623.

ATTACHMENT 1

STATA Code for Baseline and Follow-up Tabulations from CPCRN-CPC Datasets in the NIDDK Repository

```
*USE longitude.dta
**Table 1. Baseline characteristics and symptoms, all subjects

summarize duration if vnum==0, d

**NIH-CPSI pain score
tab1 sxind_01a  sxind_01b sxind_01c sxind_01d sxind_02a sxind_02b sxind_03 sxind_04
*note in longitudinal file variables are named sxind_1a sxind_1b sxind_1c sxind_1d
sxind_2a sxind_2b
*gen CPSI_pain=sxind_1a + sxind_1b + sxind_1c + sxind_1d + sxind_2a + sxind_2b +
sxind_03 + sxind_04
gen CPSI_pain=sxind_01a + sxind_01b + sxind_01c + sxind_01d + sxind_02a + sxind_02b +
sxind_03 + sxind_04
tab CPSI_pain
summarize CPSI_pain if vnum==0, d

**NIH-CPSI urinary score
tab1 sxind_05 sxind_06
gen CPSI_urin=sxind_05 + sxind_06
tab CPSI_urin
summarize CPSI_urin if vnum==0,d

***NIH-CPSI quality of life score
tab1 sxind_07 sxind_08 sxind_09
gen CPSI_QOL=sxind_07+sxind_08+sxind_09
summarize CPSI_QOL if vnum==0, d
tab CPSI_QOL

**NIH CPSI total score (0-43)
gen CPSI_tot=CPSI_pain+CPSI_urin+CPSI_QOL
tab CPSI_tot
summarize CPSI_tot if vnum==0, d

*compare longitudinal file variables pain, urinary, quol, CPSI to calculated variables
in longitudinal file
summarize pain urinary quol cpsi if vnum==0, d

***QOL PCS-12 (physical component score)
**QOL MCS-12 (mental component score)
**these 2 scores not included - need algorithm for tabulating score (0-100) from 12
questions

**Table 2. Symptom characteristics over time (baseline, 1 year, 2 years)
summarize CPSI_pain CPSI_urin CPSI_QOL CPSI_tot if vnum==0
summarize CPSI_pain CPSI_urin CPSI_QOL CPSI_tot if vnum==12
summarize CPSI_pain CPSI_urin CPSI_QOL CPSI_tot if vnum==24


****Fig 1.
sort vnum
by vnum: summarize CPSI_pain CPSI_urin CPSI_QOL CPSI_tot
```

```
*****Table 4a. Global response assessment over time, all subjects
tab sxind_10 if vnum==12, missing
tab sxind_10 if vnum==24, missing


***Table 3: Changes in symptoms over time, complete follow-up only
keep subj CPSI_pain CPSI_urin CPSI_QOL CPSI_tot sxind_10 vnum
reshape wide CPSI_pain CPSI_urin CPSI_QOL CPSI_tot sxind_10, i(subj) j(vnum)

**save file wide data.dta
*sort subj
*merge with with_dta (n=149 withdrawn)
gen withdraw=with_01
recode withdraw (1/8=1) (else=9)
tab withdraw
gen withdraw24=withdraw
replace withdraw24=9 if vnum > 24
tab withdraw24

summarize CPSI_pain0 CPSI_pain12 CPSI_pain24
gen pain1b=CPSI_pain0-CPSI_pain12
gen pain2b=CPSI_pain0-CPSI_pain24
gen urin1b=CPSI_urin0-CPSI_urin12
gen urin2b=CPSI_urin0-CPSI_urin24
gen qol1b=CPSI_QOL0-CPSI_QOL12
gen qol2b=CPSI_QOL0-CPSI_QOL24
gen tot1b=CPSI_tot0-CPSI_tot12
gen tot2b=CPSI_tot0-CPSI_tot24

***Table 3. Changes in symptoms over time complete followup only
summarize CPSI_pain0 CPSI_pain12 CPSI_pain24 pain1b pain2b if CPSI_pain12<. &
CPSI_pain24<. & withdraw24==9
summarize CPSI_urin0 CPSI_urin12 CPSI_urin24 urin1b urin2b if CPSI_urin12<. &
CPSI_urin24<. & withdraw24==9
summarize CPSI_QOL0 CPSI_QOL12 CPSI_QOL24 qol1b qol2b if CPSI_QOL12<. &
CPSI_QOL24<. & withdraw24==9
summarize CPSI_tot0 CPSI_tot12 CPSI_tot24 tot1b tot2b if CPSI_tot12<. &
CPSI_tot24<. & withdraw24==9


***Table 4a. Global response assessment, all subjects
tab1 sxind_1012 sxind_1024,missing

***Table 4b. Global response assessment, subjects with complete followup
tab1 sxind_1012 sxind_1024 if sxind_1012<. & sxind_1024<. & withdraw24==9
```

ATTACHMENT 2
Full Text of Article

Propert KJ, McNaughton-Collins M, Leiby BE, O'Leary MP, Kusek JW, Litwin MS. Chronic Prostatitis Collaborative Research Network. **A prospective study of symptoms and quality of life in men with chronic prostatitis/chronic pelvic pain syndrome: the National Institutes of Health Chronic Prostatitis Cohort study.**
J Urol 175(2):619-23, 2006.