Supporting Statement B

National Sample Survey of Nurse Practitioners Data Collection

OMB Control No. 0915-XXXX

B. Collection of Information Employing Statistical Methods

1. Respondent Universe and Sampling Methods

Target Population

The Respondent Universe or Target Population for this study is the largest subpopulation of Advanced Practice Registered Nurses (APRNs) in the United States, the Nurse Practitioners (NPs). APRNs are Registered Nurses (RNs) who have undertaken advanced education to develop knowledge and skills that are more complex than the clinical abilities of the general RN population. Preparation typically includes taking an exam to receive certification from a nationally recognized professional organization after completion of an approved educational program. The precise requirements vary by state, and each state respectively maintains listings of those prepared to serve as an NP. NPs can be thought of as RNs who are "prepared to serve" as NPs, as an NP may be employed in the nursing profession but not in an NP capacity. The target population can be described as those RNs currently licensed as NPs.

The 2008 National Sample Survey of Registered Nurses (NSSRN), OMB Control No. 0915-0276, discontinued on 5/31/2011) provides national estimates of RNs who have completed the educational requirements needed to work as NPs. As seen in Table 1 an estimated 158,000 RNs are educated to work as NPs, representing roughly five percent of all RNs nationally. About 89.2 percent (141,286/158,348) of RNs prepared to serve as NPs were employed in the nursing profession.

Table 1. 2008 NSSRN Estimates for the Nurse Practitioner (NP) Population

Category	Total Number, Estimate	Number Employed in Nursing, Estimate
Nurse Practitioner only	138,558	123,759
Nurse Practitioner/Clinical Nurse Specialist	16,370	14,427
Nurse Practitioners/Nurse Midwives	2,764	N.R.
Nurse Practitioners/Other	656	N.R.
All Nurse Practitioners	158,348	141,286

N.R.— Not Reported

Subpopulations of particular analytic interest for this study include:

1. NPs who are working as NPs
2. NPs working in the nursing profession but not as NPs
3. NPs not working as NPs.

It is expected that roughly two thirds of NPs will actually be working with the job title of Nurse Practitioner.

Sample Frame

We plan to sample all 50 states and the District of Columbia Nurse Practitioner licensure listings. These lists represent all RNs in the nation prepared to serve as an NP, whether or not they are working as an NP. This sample will provide extremely high coverage of the target population for this study. Some NPs will appear on multiple state listings and thus will have multiple chances of selection. These individuals will be identified as part of the survey process and accounted for in the sample weighting.

Response Rates

A national survey primarily focused on the NP population has never been undertaken by the U.S. government. Estimates from the 2008 NSSRN data suggest that the NP population is somewhat older than the general RN population, so we may expect that the response rate will be somewhat higher than for the 2008 NSSRN which had a weighted response rate of about 61.5 percent. We also know that previously sampled RNs the 2008 NSSRN were no longer working in healthcare, due to retirement, and with an older population to begin with, this rate might be higher for the NP sample. After accounting for losses due to nonresponse and ineligibility (not a member of the target population, i.e., those currently licensed to serve as NPs) we estimate about 65 percent of the sample group to be eligible respondents.

2. Procedures for the Collection of Information

Statistical Methodology for Stratification and Sample Selection

The national sample of NPs will be distributed proportional to the number of NPs licensed in each state. Explicit strata for oversampling purposes will not be employed. The capability of doing meaningful sorting to achieve implicit stratification varies by state, depending on the variables provided by a state and

the extent to which such variables have non-missing data. Potential variables for stratification include age, gender, geography, and race/ethnicity. Systematic random sampling with equal selection probabilities will be employed to select a representative sample of NPs after sorting.

Sample Size

The targeted number of NPs participating in the survey is approximately 14,300. Allowing for sample loss due to nonresponse and ineligibility of about 35 percent, we plan to select roughly 22,000 licensed NPs initially.

Table 2 provides information on the expected sample allocation by state with a proportional allocation of 22,000 NP license records. Assuming a 65% sample yield rate, due to nonresponse and ineligibility, expected numbers of participating NPs are also provided by state. However, this should only be regarded as an approximation to what the sample yield will be for several reasons. First of all, for the 2008 NSSRN, the response and eligibility rates varied by state. It is expected that this will also be true for this survey of NPs. In addition, anyone licensed in multiple states would be represented in both, though Table 2 does not account for this. Specifically, the U.S. total is simply a sum of the state totals and thus overstates the number of individuals in the U.S. licensed as NPs. As mentioned earlier, the 2008 NSSRN estimate of individuals licensed as NPs in the nation was a little over 158,000.

Table 2. Sample Allocation Information

States (ordered by number of NPs licensed)	Number of NP licenses (state licensure boards, 2010)	Percentage of U.S. Licenses	Expected Sample Allocation with equal probability sample of NP license records being of size	Corresponding Expected Number of Participants with 65% yield rate in each state
United States	167,857	100.00	22,000.0	14,300
California	15,766	9.39	2,066.4	1,343
New York	15,227	9.07	1,995.7	1,297
Florida	12,237	7.29	1,603.8	1,043
Texas	8,576	5.11	1,124.0	731
Pennsylvania	6,944	4.14	910.1	592
Virginia	6,535	3.89	856.5	557
Massachusetts	6,368	3.79	834.6	543
Tennessee	5,329	3.17	698.4	454
Ohio	4,876	2.90	639.1	415
New Jersey	4,600	2.74	602.9	392
Georgia	4,534	2.70	594.2	386
Illinois	3,900	2.32	511.1	332
Michigan	3,804	2.27	498.6	324
Missouri	3,777	2.25	495.0	322
North Carolina	3,665	2.18	480.3	312
Washington	3,611	2.15	473.3	308
Wisconsin	3,479	2.07	456.0	296
Arizona	3,436	2.05	450.3	293

Table 2. Sample Allocation Information

South Carolina	3,401	2.03	445.7	290
Maryland	3,387	2.02	443.9	289
Connecticut	3,334	1.99	437.0	284
Colorado	3,113	1.85	408.0	265
Indiana	3,021	1.80	395.9	257
Kentucky	2,634	1.57	345.2	224
Arkansas	2,630	1.57	344.7	224
Mississippi	2,547	1.52	333.8	217

Table 2. Sample Allocation Information

States (ordered by number of NPs licensed)	Number of NP licenses (state licensure boards, 2010)	Percentage of U.S. Licenses	Expected Sample Allocation with equal probability sample of NP license records being of size	Corresponding Expected Number of Participants with 65% yield rate in each state
Minnesota	2,495	1.49	228.9	148.8
Oregon	2,446	1.46	224.4	145.9
Louisiana	2,135	1.27	195.9	127.3
Alabama	1,726	1.03	158.4	102.9
Kansas	1,726	1.03	158.4	102.9
Iowa	1,504	0.90	138.0	89.7
New Hampshire	1,455	0.87	133.5	86.8
Utah	1,345	0.80	123.4	80.2
Maine	1,048	0.62	96.1	62.5
New Mexico	987	0.59	90.6	58.9
Nebraska	947	0.56	86.9	56.5
Oklahoma	940	0.56	86.2	56.1
Hawaii	935	0.56	85.8	55.8
District of Columbia	929	0.55	85.2	55.4
West Virginia	865	0.52	79.4	51.6
Alaska	725	0.43	66.5	43.2
Nevada	661	0.39	60.6	39.4
Rhode Island	651	0.39	59.7	38.8

Table 2. Sample Allocation Information

Delaware	627	0.37	57.5	37.4
Idaho	611	0.36	56.1	36.4
Montana	535	0.32	49.1	31.9
Vermont	527	0.31	48.3	31.4
Wyoming	462	0.28	42.4	27.6
North Dakota	422	0.25	38.7	25.2
South Dakota	422	0.25	38.7	25.2

Notes: Data reflect the current number of reported nurse practitioners from each state's board of nursing as reported on the website. http://www.statehealthfacts.org/comparemaptable.jsp?ind=773&cat=8 maintained by the Kaiser Family Foundation.

Original Data Sources: *The 2011 Pearson Report*, The American Journal for Nurse Practitioners, NP Communications LLC. The complete state-by-state NP legislation/regulation summary and analysis is available at www.webnponline.com.

Estimation Procedure

Sample weights will be developed for NPs responding to the survey for estimation purposes. Each sampled NP will be assigned a base weight; therefore, reflecting each NP's chance of selection and accounting for those appearing on multiple listings. Nonresponse adjustments to the base weights will be developed so that estimates from participating NPs can be used to make appropriate inference to the currently licensed NP population.

For nonresponse adjustment purposes, cells consisting of respondents and nonrespondents will be formed and adjustment factors computed as the ratio of the sum of the weights (using the base weights) of both respondents and nonrespondents to the sum of the weights for respondents alone. The cells will be formed based on the variables available for both respondents and nonrespondents of each state listingof licensed NPs. Analyses of differential nonresponses (e.g., using a software package such as CHAID) are planned which will help to identify cells with important differences in response propensity, a critical criterion in the formation of useful nonresponse adjustment cells.

If useful population figures can be identified for the purposes of calibrating the nonresponse adjusted weights, ranking or poststratification to such figures may be employed.

For the purposes of variance estimation, as has been done for the nine implementations of the NSSRN since 1977, replicate weights using the jackknife methodology will be developed as part of the weighting process. Design effects due to differential weights are expected to be relatively small, even with rough

proportional allocation across states and some NPs incurring multiple chances of selection. The ratio of NP licenses in 2010 (roughly 168,000) to the 2008 NSSRN estimated number of NPs (approximately158,000) is close to 1.06. With this information it is expected that relatively few individuals will be licensed as NPs in multiple states.

Degree of Precision Needed for the Purpose Described in the Justification

For national estimates based on 14,300 respondents, ample precision will be obtained. As discussed above, there are three subpopulations of particular analytic interest: NPs who are working as NPs; NPs working as RNs but not as NPs; and those not working as NPs. It is expected that of the targeted 14,300 responding NPs, roughly 8,600 will be employed as NPs, 4,300 will be employed in the nursing profession but not as NPs, and about 1,400 will not be working in the nursing profession.

Maintaining a 5 percent margin of error at a 95 percent confidence level is a precision requirement. This requirement is met for percentages of 50 percent with effective sample sizes of 400 (where effective sample size is defined as the ratio of the actual sample size to the overall design effect associated with a given estimate). Thus, for the three analytic subgroups separately and for estimates of many subgroups (e.g., age groups) within the two analytic groups involving NPs working in the nursing profession, precision requirements will generally be met. Subgroup level analyses for those licensed as NPs but not working in the nursing profession will be limited to larger subgroups.

For the larger states some analyses may be undertaken at the state level, if effective sample sizes indicate that reasonable levels of precision can be achieved. For instance, if the above-mentioned assumptions hold, we expect that the 10 largest states in terms of licensed NPs will have at least 400 respondents while the top 16 will have at least 300.

3. Methods to Maximize Response Rates and Deal with Nonresponse

HRSA and the NCHWA have set a target of 65 percent for the NSSNP survey based on 30 years experience with the National Sample Survey of Registered Nurses (NSSRN). The response rate for the 2004 National Survey of RNs was 70.5 percent and the response rate for the 2008 NSSRN was 60 percent.

According to the 2008 NSSRN data, almost 50 percent of the NPs were 50 years of age or older. Significant research has shown that older respondents are more likely to respond to mail surveys. In a 2009 report, Dillman reported that 51 to 65 year-old survey respondents preferred mail surveys 61 percent to web-based surveys at 39 percent. Additionally, Dillman's methodological research has found that response rates to mail surveys over the past 20 years have not significantly declined. Given these two factors and that e-mail addresses are not available in the sample frame, this survey will be conducted by mail only. To ensure the targeted 65 percent response rate for the survey, all mailings for the data collection methodology will be sent by U.S. mail and will include a scannable questionnaire, cover letter and postage paid reply envelope. A

three-wave mailout method will be used and timed to achieve maximum yield. A second mailout of a thank you/reminder postcard will be mailed approximately 10 days after the first questionnaire is mailed. The third mailout will be a second questionnaire sent approximately 2-3 weeks after the postcard. The exact timing of this third mailout will be based on response return fall-off rates.

4. Tests of Procedures and Methods to be Undertaken

This National Sample Survey of Nurse Practitioners is using a matching question and response format designed by the same contractor, Westat, who conducted the 2008 National Sample Survey of Registered Nurses (NSSRN). The 2008 NSSRN included nurse practitioners in the sample. Recommendations for simplification and changes to instructions in the 2008 NSSRN questionnaire were implemented in this questionnaire. Additionally, suggestions for question wording and response categories made by outside consultants were implemented in the questionnaire design. The previous surveys have yielded effective results, and expert panels of nursing workforce researchers and nurse practitioners provided significant input for this survey. The questionnaire will be pre-tested with 9 or fewer person prior to the study launch.

5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

The study methodology and overall sampling design were developed through previous and current contracts with consulting firms having subject matter expertise in designing complex sampling designs for large-scale surveys along with consultation with researchers from HRSA. The names of individuals who designed or were consulted on the statistical aspects of NSSNP study design along with their affiliation, telephone numbers and e-mail addresses are provided below:

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