Nursing Education Data Sources: A User's Guide

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Introduction

The Institute of Medicine (IOM) Committee on the Future of Nursing recommended that stakeholders engage in a coordinated national effort to have at least 80% of registered nurses (RNs) hold a bachelor's degree or higher by 2020. In response to this recommendation, the Robert Wood Johnson Foundation (RWJF) is engaging with state Action Coalitions and the Center to Champion Nursing in America at AARP to develop and implement strategies to achieve this goal.

To measure the gap between current RN education levels and the 80% target and learn whether current educational capacity is sufficient to fill the gap, stakeholders need to have data about the current educational attainment of RNs, the educational levels of newly-graduating nurses, and the numbers of RNs advancing their education each year. Such data can be difficult to find, particularly at the state level. No single source of data exists for all three of these items, and although a few states have excellent data systems, most states have none of the needed data elements.

This Brief reviews the main sources of data stakeholders at the national and state level can use to measure education levels among RNs. Each data source is described, with attention to the population of nurses or nursing graduates it represents. Nuances and shortcomings of the data are discussed to help stakeholders understand why each data source provides a different estimate of the education levels of nurses and nursing graduates and determine which data will best meet their needs in planning strategies to achieve the IOM goal.

Data to Measure the Population of Currently-licensed Nurses

There are two main sources of federal data that can be used to describe the characteristics of the current RN workforce: the National Sample Survey of Registered Nurses (NSSRN) and the American Community Survey (ACS). Some analysts have used the Current Population Survey (CPS), which is collected annually by the Bureau of Labor Statistics, but the ACS has a larger number of respondents and more detailed educational data; thus, we do not discuss the CPS here.

There is a national effort to develop a "Minimum Supply Data Set," which would augment current state licensing records with some demographic and employment data, and would compile these data into a single data repository. The Forum of State Nursing Centers is collaborating with the National Council of State Boards of Nursing to move this effort forward, but at this time only a handful of states collect the recommended data. In the future, this could be an excellent source of information about the national RN workforce.

Some states have developed their own data collection systems. In some cases, states use a survey that they distribute through a license renewal process, as recommended by the Forum of State Nursing Centers. Other states rely upon periodic census or sample surveys to obtain information. These state-level data sources, if available, are usually better for understanding a single state's nursing workforce than using a national data source.

National Sample Survey of Registered Nurses (NSSRN)

The National Sample Survey of Registered Nurses (NSSRN) is the most complete source of information describing the RN workforce in the United States. Conducted every four years since 1980, the NSSRN collects information about the education, demographics and employment of about 30,000 nurses per survey. The sample is selected from RN license records from all states, territories and the District of Columbia. Survey weights are provided so that calculations are representative of the total U.S. RN workforce, and the survey also is designed to generate reliable state-level estimates.

The education of nurses in the NSSRN is recorded for both the nurse's initial RN education and any additional education received. For additional education, respondents are asked if the degree is a nursing or non-nursing degree, and if non-nursing, whether the degree is related to their nursing career. Data can be tabulated for all licensed RNs, as well as only for those employed in nursing. For larger states and the nation, education levels by age group also can be tabulated with a high level of accuracy.

The most recent survey was conducted in 2008. However, a survey has not been scheduled for 2012, marking the first time in 30 years that the survey will not be conducted at least every four years. Thus, this survey can provide excellent baseline data but may not be available to track future changes.

American Community Survey (ACS)

The ACS is a large-scale national survey administered by the U.S. Census Bureau. Roughly 65,000 households are surveyed every month over the course of a year, representing about 2.5% of the population. The full set of data is published annually in a series of pre-tabulated profiles, tables and maps. In addition to these pre-tabulated products, ACS data is available as a 1% public use microdata sample (PUMS) file.

In the ACS, nurses are identified by whether they self-declare that their occupation is nursing -- not by whether they ever completed nursing education or are licensed as an RN. Information describing occupation and education is collected regardless of whether the individual is currently active in the workforce. Nurses who are retired or employed in non-nursing occupations will not be identified as RNs in the ACS. When describing the RN workforce, it is important to define who is considered "actively employed" and who is not. In the tables describing the RN workforce that follow, we restricted the ACS sample to cases where the individual was reported as being employed as an RN.[1]

In 2009, the ACS added information describing the major field of study for an individual's bachelor's degree for the first time. Thus, starting in 2009, one can identify whether a bachelor's degree is in a nursing major or other field. Major fields of study for higher degrees are not recorded; thus it would not be known If a nurse received a bachelor's degree in a non-nursing field and subsequently completed a nursing master's or doctoral degree.

There are technical issues related to using the ACS PUMS file to describe the RN workforce that warrant discussion. Unlike the NSSRN, the ACS does not necessarily survey RNs directly; information in the survey is provided by the designated head of household. Therefore, the ACS relies on the head of household to accurately characterize information of other members of the household, including occupation, educational attainment and educational field of study. Unless the head of household is an RN, it is possible that individuals in the ACS data whose occupation is coded as "Registered Nurse" do not actually work as an RN due to misreporting. In addition, some nurses who might consider their work as an RN job may not have it described as such by the head of household.

Comparison of NSSRN, ACS and State-level Data

Table 1 compares sample size, the estimated number of RNs with active licenses, and the estimated number of RNs employed in nursing in each state from the 2008 NSSRN with sample size and estimated number of RNs employed in nursing in each state from the 2009 ACS PUMS file. In this table, the "state" is the nurse's place of residence, not the place of employment.[2] We used the 2009 ACS because it provided information about the bachelor's degree major field of study, which was previously unavailable.. This allowed further comparison with the NSSSRN, using estimates of the number of RNs in each state with a bachelor's in nursing (BSN) degree or higher.

The results of this comparison highlight the fact that the NSSRN oversamples RNs in less populated states and the District of Columbia in order to generate reliable

[1] Being employed includes those who have a job but were not at work at the time of the survey; cases where the individual was reported as being unemployed were excluded.

[2] The ACS PUMS file includes a variable identifying place of work at the state level, but values are only coded for individuals who were at work at the time of the survey and not on leave or vacation.

information about the nursing workforce at the state level. The variance of the ACS estimates (not shown here) in such cases is much larger by comparison with the NSSRN. The general pattern seen in Table 1 is that the 2009 ACS estimate of the number of RNs employed in nursing is reasonably close to what one might expect if one were extrapolating from the 2008 NSSRN estimate of RNs employed in nursing; the 2009 ACS estimate is somewhat larger, approximating a single year's growth in the size of the workforce. There are certainly exceptions, and the smaller ACS sample size may be a factor in many of these instances.[3]

Table 2 focuses on RNs who have a bachelor's in nursing degree (BSN) or higher.[4] The differences in state-level estimates in Table 2 are generally bigger by comparison with Table 1. Small sample size is almost certainly a factor. The ACS identifies the field of study only for degrees at the bachelor's level, not at the master's or doctoral level. RNs whose highest level of education was a master's or doctoral degree were excluded from the 2009 ACS estimates in Table 2 if they did not also report having a bachelors' in nursing.[5]

Table 1. Comparison of 2008 National Sample Survey of Registered Nurses (NSSRN) and 2009 American Community Survey (ACS) Estimates of the Registered Nurse Workforce, by State

	2008 NSSRN			2009 ACS	
State	Number in Sample	All Active Licenses	Employed in Nursing	Number in Sample	Employed in Nursing
Alabama	534	49,780	41,488	526	49,037
Alaska	450	5,883	5,247	53	6,644
Arizona	528	55,001	49,325	541	50,782
Arkansas	503	26,096	22,443	283	29,432
California	1,541	277,575	234,530	2,832	269,441
Colorado	668	47,805	39,461	460	44,496
Connecticut	584	42,215	35,343	410	37,503

[3] The correlation between the ACS state sample size and the difference in the estimated number of RN employed in nursing compared with the NSSRN has a coefficient value of -0.26.

[4] For the NSSRN, the population of RNs with a BSN degree or higher was derived from responses to two separate questions on the NSSRN survey: Question 3. Which type of nursing degree or nursing credential qualified you for your first U.S. RN license? Valid responses are Bachelor's degree; Master's degree; or Doctorate. Question 13. Did you earn any additional academic degrees after graduating from your initial registered nurse education program described in Question 3? Valid responses are: Bachelor's degree in nursing; Master's degree in nursing; Doctorate in nursing. For the ACS, the population of RNs with a BSN degree or higher is derived from the reported major field of study for the bachelor's degree. Only records where the major field of study for bachelor's degree is reported as nursing are included in the population of RNs with a BSN degree or higher. Because field of study is not reported for master's or doctoral degrees in the ACS data, RNs whose highest level of educational attainment is a master's or doctoral degree in nursing, but whose major field of study at the bachelor's degree level is not reported as nursing, have been excluded from this population.

[5] The correlation between the ACS state sample size and the difference in the estimated number of RNs with a BSN degree or higher employed in nursing compared with the NSSRN has a coefficient value of -0.38.

Table 1. Comparison of 2008 National Sample Survey of Registered Nurses (NSSRN) and 2009 American Community Survey (ACS) Estimates of the Registered Nurse Workforce, by State (continued)

State	2008 NSSRN			2009 ACS	
	Number in Sample	All Active Licenses	Employed in Nursing	Number in Sample	Employed in Nursing
Delaware	605	10,547	9,169	108	11,343
District of Columbia	434	11,487	11,053	16	1,296
Florida	1,227	186,349	150,321	1,780	160,427
Georgia	634	84,489	68,254	821	72,873
Hawaii	363	12,061	10,195	101	8,294
Idaho	502	12,922	10,808	123	11,712
Illinois	922	136,213	111,939	1,302	120,625
Indiana	579	69,672	58,089	657	61,904
Iowa	525	38,208	33,929	389	35,173
Kansas	553	32,165	27,032	288	26,717
Kentucky	487	46,473	41,520	479	42,569
Louisiana	491	41,863	36,859	431	40,185
Maine	517	19,249	16,279	152	15,738
Maryland	848	55,276	50,159	635	57,542
Massachusetts	868	89,434	77,574	812	75,457
Michigan	733	105,222	88,449	954	91,019
Minnesota	650	67,551	58,391	584	53,611
Mississippi	430	30,801	27,414	330	31,933
Missouri	658	72,698	64,064	606	57,889
Montana	423	10,373	8,877	95	10,360
Nebraska	479	20,501	19,086	218	20,693
Nevada	454	17,902	16,069	224	20,241
New Hampshire	628	15,468	13,562	161	15,731
New Jersey	745	89,314	73,634	857	78,759
New Mexico	345	18,949	16,240	179	18,537
New York	1,246	203,597	167,427	1,984	189,567
North Carolina	825	96,864	82,104	1,000	91,550
North Dakota	500	8,566	8,169	77	6,838
Ohio	1,032	138,743	120,643	1,319	121,813
Oklahoma	490	32,522	27,256	334	33,692
Oregon	585	37,170	33,773	298	27,659
Pennsylvania	1,187	169,353	136,876	1,454	141,570
Rhode Island	494	12,887	11,531	129	11,063

Table 1. Comparison of 2008 National Sample Survey of Registered Nurses (NSSRN) and 2009 American Community Survey (ACS) Estimates of the Registered Nurse Workforce, by State (continued)

	2008 NSSRN			2009 ACS	
State	Number in Sample	All Active Licenses	Employed in Nursing	Number in Sample	Employed in Nursing
South Carolina	469	41,371	37,472	438	38,838
South Dakota	449	11,591	10,720	90	9,174
Tennessee	536	68,660	60,598	673	62,299
Texas	1,213	189,823	163,331	1,942	175,637
Utah	487	19,200	16,364	191	17,282
Vermont	523	8,290	7,338	84	8,424
Virginia	1,077	70,499	54,988	691	62,989
Washington	684	63,795	52,405	606	57,454
West Virginia	485	19,456	17,529	172	16,457
Wisconsin	616	66,229	56,823	653	61,389
Wyoming	373	5,008	4,446	45	3,718
U.S. Totals	**33,179**	**3,063,162**	**2,596,599**	**29,587**	**2,765,376**

Sources: 2008 NSSRN General Use Data File; 2009 American Community Survey Public Use Microdata Sample

Table 2. Comparison of 2008 National Sample Survey of Registered Nurses (NSSRN) and 2009 American Community Survey (ACS) Estimates of the Registered Nurse Workforce with a Bachelor's in Nursing (BSN) Degree or Higher, by State

	2008 NSSRN			2009 ACS	
State	All active Licenses	Employed in Nursing	Percent of RNs Employed in Nursing with a BSN+	Employed in Nursing	Percent of RNs Employed in Nursing with a SN+
Alabama	21,106	17,143	41.3	20,154	41.1
Alaska	3,542	3,177	60.5	4,171	62.8
Arizona	25,142	22,398	45.4	24,267	47.8
Arkansas	8,801	7,719	34.4	9,856	33.5
California	147,345	126,803	54.1	127,801	47.4
Colorado	27,752	23,461	59.5	23,877	53.7
Connecticut	19,909	16,857	47.7	15,505	41.3
Delaware	5,584	4,893	53.4	5,100	45.0
District of Columbia	7,861	7,618	68.9	842	65.0

Table 2. Comparison of 2008 National Sample Survey of Registered Nurses (NSSRN) and 2009 American Community Survey (ACS) Estimates of the Registered Nurse Workforce with a Bachelor's in Nursing (BSN) or Higher, by State (continued)

	2008 NSSRN			2009 ACS	
State	All Active Licenses	Employed in Nursing	Percent of RNs Employed in Nursing with a BSN+	Employed in Nursing	Percent of RNs Employed in Nursing with a BSN+
Florida	76,608	61,371	40.8	65,933	41.1
Georgia	37,370	30,819	45.2	31,932	43.8
Hawaii	7,652	6,659	65.3	4,297	51.8
Idaho	6,065	5,037	46.6	3,984	34.0
Illinois	64,563	54,475	48.7	58,772	48.7
Indiana	31,974	26,827	46.2	27,922	45.1
Iowa	13,496	12,036	35.5	11,854	33.7
Kansas	15,180	12,892	47.7	12,834	48.0
Kentucky	18,076	16,396	39.5	14,645	34.4
Louisiana	22,321	19,972	54.2	19,322	48.1
Maine	8,495	7,402	45.5	7,643	48.6
Maryland	27,740	24,867	49.6	25,902	45.0
Massachusetts	46,881	42,229	54.4	36,680	48.6
Michigan	46,263	40,719	46.0	38,135	41.9
Minnesota	33,284	29,124	49.9	23,250	43.4
Mississippi	12,945	11,559	42.2	9,962	31.2
Missouri	37,096	33,166	51.8	26,404	45.6
Montana	6,078	5,270	59.4	6,274	60.6
Nebraska	10,823	10,180	53.3	11,438	55.3
Nevada	9,298	8,287	51.6	10,144	50.1
New Hampshire	5,736	4,999	36.9	6,224	39.6
New Jersey	42,672	36,246	49.2	37,548	47.7
New Mexico	9,410	7,756	47.8	6,033	32.5
New York	96,936	81,659	48.8	81,922	43.2
North Carolina	44,105	37,438	45.6	35,830	39.1
North Dakota	5,537	5,340	65.4	4,281	62.6
Ohio	58,574	50,564	41.9	47,724	39.2
Oklahoma	15,205	13,085	48.0	12,663	37.6
Oregon	18,686	17,144	50.8	12,821	46.4
Pennsylvania	68,318	58,415	42.7	56,434	39.9
Rhode Island	6,319	5,761	50.0	4,500	40.7
South Carolina	17,963	16,752	44.7	15,787	40.6

South Dakota	5,278	4,971	46.4	4,571	49.8

Table 2. Comparison of 2008 National Sample Survey of Registered Nurses (NSSRN) and 2009 American Community Survey (ACS) Estimates of the Registered Nurse Workforce with a Bachelor's in Nursing (BSN) or Higher, by State (continued)

	2008 NSSRN			2009 ACS	
State	All Active Licenses	Employed in Nursing	Percent of RNs Employed in Nursing with a BSN+	Employed in Nursing	Percent of RNs Employed in Nursing with a BSN+
Tennessee	31,881	28,306	46.7	27,557	44.2
Texas	98,529	85,988	52.6	79,303	45.2
Utah	9,321	8,077	49.4	7,109	41.1
Vermont	3,760	3,172	43.2	3,547	42.1
Virginia	32,908	26,258	47.8	25,926	41.2
Washington	30,490	25,159	48.0	24,149	42.0
West Virginia	7,818	7,071	40.3	6,189	37.6
Wisconsin	34,142	29,907	52.6	29,933	48.8
Wyoming	1,990	1,756	39.5	1,724	46.4
U.S. Totals	**1,444,528**	**1,245,181**	**48.0**	**1,209,958**	**43.8**

Sources: 2008 NSSRN General Use Data File; 2009 American Community Survey Public Use Microdata Sample

Table 3 details the difference in the state-level and national estimates from Table 1 and Table 2. A negative percentage value indicates that the 2009 ACS estimate was smaller by comparison with the 2008 NSSRN, and a positive percentage value indicates the ACS estimate was larger than the NSSRN estimate.

Table 3. Difference in Size of Estimates (%) of the Registered Nurse Workforce by State: 2009 American Community Survey (ACS) vs. 2008 NSSRN

	All Degree Types		BSN Degree or Higher	
State	ACS – NSSRN Active Licenses	ACS – NSSRN Employed in Nursing	ACS – NSSRN Active Licenses	ACS – NSSRN Employed in Nursing
Alabama	-1.5%	18.2%	-4.5%	17.6%
Alaska	12.9%	26.6%	17.8%	31.3%
Arizona	-7.7%	3.0%	-3.5%	8.3%
Arkansas	12.8%	31.1%	12.0%	27.7%
California	-2.9%	14.9%	-13.3%	0.8%
Colorado	-6.9%	12.8%	-14.0%	1.8%

Connecticut	-11.2%	6.1%	-22.1%	-8.0%
Delaware	7.6%	23.7%	-8.7%	4.2%

Table 3. Difference in Size of Estimates (%) of the Registered Nurse Workforce by State: 2009 American Community Survey (ACS) vs. 2008 NSSRN (continued)

	All Degree Types		BSN Degree or Higher	
State	ACS – NSSRN Active Licenses	ACS – NSSRN Employed in Nursing	ACS – NSSRN Active Licenses	ACS – NSSRN Employed in Nursing
District of Columbia	-88.7%	-88.3%	-89.3%	-88.9%
Florida	-13.9%	6.7%	-13.6%	7.4%
Georgia	-13.7%	6.8%	-14.6%	3.6%
Hawaii	-31.2%	-18.6%	-43.8%	-35.5%
Idaho	-9.4%	8.4%	-34.3%	-20.9%
Illinois	-11.4%	7.8%	-9.0%	7.9%
Indiana	-11.1%	6.6%	-12.7%	4.1%
Iowa	-7.9%	3.7%	-12.2%	-1.5%
Kansas	-16.9%	-1.2%	-15.5%	-0.4%
Kentucky	-8.4%	2.5%	-19.0%	-10.7%
Louisiana	-4.0%	9.0%	-13.4%	-3.3%
Maine	-18.2%	-3.3%	-10.0%	3.3%
Maryland	4.1%	14.7%	-6.6%	4.2%
Massachusetts	-15.6%	-2.7%	-21.8%	-13.1%
Michigan	-13.5%	2.9%	-17.6%	-6.3%
Minnesota	-20.6%	-8.2%	-30.1%	-20.2%
Mississippi	3.7%	16.5%	-23.0%	-13.8%
Missouri	-20.4%	-9.6%	-28.8%	-20.4%
Montana	-0.1%	16.7%	3.2%	19.1%
Nebraska	0.9%	8.4%	5.7%	12.4%
Nevada	13.1%	26.0%	9.1%	22.4%
New Hampshire	1.7%	16.0%	8.5%	24.5%
New Jersey	-11.8%	7.0%	-12.0%	3.6%
New Mexico	-2.2%	14.1%	-35.9%	-22.2%
New York	-6.9%	13.2%	-15.5%	0.3%
North Carolina	-5.5%	11.5%	-18.8%	-4.3%
North Dakota	-20.2%	-16.3%	-22.7%	-19.8%
Ohio	-12.2%	1.0%	-18.5%	-5.6%
Oklahoma	3.6%	23.6%	-16.7%	-3.2%
Oregon	-25.6%	-18.1%	-31.4%	-25.2%
Pennsylvania	-16.4%	3.4%	-17.4%	-3.4%
Rhode Island	-14.2%	-4.1%	-28.8%	-21.9%
South Carolina	-6.1%	3.6%	-12.1%	-5.8%

South Dakota	-20.9%	-14.4%	-13.4%	-8.0%

Table 3. Difference in Size of Estimates (%) of the Registered Nurse Workforce by State: 2009 American Community Survey (ACS) vs. 2008 NSSRN (continued)

	All Degree Types		BSN Degree or Higher	
State	ACS – NSSRN Active Licenses	ACS – NSSRN Employed in Nursing	ACS – NSSRN Active Licenses	ACS – NSSRN Employed in Nursing
Tennessee	-9.3%	2.8%	-13.6%	-2.6%
Texas	-7.5%	7.5%	-19.5%	-7.8%
Utah	-10.0%	5.6%	-23.7%	-12.0%
Vermont	1.6%	14.8%	-5.7%	11.8%
Virginia	-10.7%	14.5%	-21.2%	-1.3%
Washington	-9.9%	9.6%	-20.8%	-4.0%
West Virginia	-15.4%	-6.1%	-20.8%	-12.5%
Wisconsin	-7.3%	8.0%	-12.3%	0.1%
Wyoming	-25.8%	-16.4%	-13.3%	-1.8%
U.S. Totals	-9.7%	6.5%	-16.2%	-2.8%

Sources: 2008 NSSRN General Use Data File; 2009 American Community Survey Public Use Microdata Sample

Table 4 compares 2008 NSSRN and 2009 ACS estimates of the number of RNs employed in nursing with state-level RN workforce surveys conducted in California, Florida and Texas for all RNs as well as RNs with a BSN degree or higher. Some of the variation in estimates is certainly due to the fact that these surveys describe different points in time. The California and Florida estimates describe the RN workforce in 2010, while the Texas estimates describe the workforce in 2009. Another factor is that the California data is based on a sample of the RN workforce, whereas the Florida and Texas data are based on information collected at the time of license renewal (in this sense Florida and Texas are closer to an enumeration of the workforce, rather than sample-based estimates). It is worth noting that the 2009 ACS estimates are very close in size to the Texas state survey data.

Table 4. Comparison of 2008 NSSRN, 2009 American Community Survey (ACS) and Selected State Survey Estimates of the Registered Nurse Workforce Employed in Nursing

	Estimated Number of Registered Nurses Employed in Nursing					
	State Survey Data		2008 NSSRN		2009 ACS	
State	Total	BSN or higher	Total	BSN or higher	Total	BSN or higher
California	262,695	139,609	234,530	126,803	269,441	127,801
Florida	160,303	69,732	150,321	61,371	160,427	65,933
Texas	169,446	79,809	163,331	85,988	175,637	79,303

Sources: 2008 NSSRN General Use Data File; 2009 American Community Survey Public Use Microdata Sample; California Board of Registered Nursing, 2010 Survey of Registered Nurses; Texas Center for Nursing Workforce Studies, Nursing Workforce in Texas-2009: Demographics and Trends; Florida Center for Nursing, Florida's RN and APRN Supply: Growth, Demographics, and Employment Characteristics (2010)

Data to Measure Nursing Program Graduations

There is no national source of data focused on RN education. However, several national data sources can be used to obtain some information about nursing graduations, and some states enumerate nursing degrees through their own surveys of nursing education programs.

Integrated Postsecondary Education Data System (IPEDS)

A principal source of national education data is the Integrated Postsecondary Education Data System (IPEDS), administered by the federal Department of Education. IPEDS uses a taxonomic scheme called the Classification of Instructional Programs (CIP) to classify different types of degree programs by their educational content; each individual content area has its own unique CIP code. There are 23 different CIP codes that relate to nursing education. This is important because there is a CIP code for describing "Registered Nursing" education, and it would be easy to assume that schools would use this single code to describe their programs, particularly for pre-licensure education. However, in our analysis we found that individual institutions used multiple CIP codes to report graduates of both pre-licensure and graduate level nursing programs. All of the IPEDS data presented in the tables below include all nursing education-related CIP codes.

National Council of State Boards of Nursing (NCSBN's NCLEX data)

All states require that prospective RNs pass a national licensing exam, the NCLEX, before obtaining an RN license. The NCLEX is administered by the National Council of State Boards of Nursing (NCSBN), and NCSBN publishes data on the number of people who take the NCLEX for the first time each year for each state. NCSBN also reports the numbers of first-time NCLEX takers by the type of initial RN education completed. The number of first-time exam takers is probably close to the number of new graduates, with some variation for graduates who move to a new state before taking the exam and for those who delay taking their exam, resulting in a different year of graduation and year of first examination.

American Association of Colleges of Nursing data

The American Association of Colleges of Nursing (AACN) is an organization representing baccalaureate and graduate-level nursing education programs. AACN conducts an annual survey of member institutions (as well as non-member institutions) that offer bachelors and graduate degrees in nursing. The response rates to their surveys are quite high. They publish their survey results in annual reports. Custom data tables can be requested from AACN to obtain data for specific groups of schools or degree programs. For this Brief, we have included state-level data describing bachelor's (including RN to BSN) and graduate-level degrees awarded for the academic year 2009-2010.

Comparison of IPEDS, NCSBN, AACN and State-level Data

Table 5 compares the number of 2010 graduates from undergraduate nursing education programs reported in IPEDS with the number of U.S. educated, first-time candidates for the NCLEX examination in 2009, by degree level and by state. The number NCLEX candidates who were graduates of RN diploma programs are included as well to give a sense of the distribution of NCLEX candidates by program type.[6]

The number of associate degree in nursing (ADN) graduates reported in IPEDS tracks the number of first-time NCLEX candidates from ADN programs quite closely. Some of the difference is likely attributable to the fact that the data describe different time periods. However, there is a substantial difference in the number of BSN graduates reported in IPEDS compared to first-time NCLEX candidates from BSN programs. This is because the IPEDS data include students who graduated from "RN-to-BSN" programs that allow currently-licensed RNs to advance their education.

[6] RN diploma programs are not readily identifiable in the IPEDS data.

Table 5. Comparison of 2010 IPEDS Reported Graduates of Registered Nursing Programs and U.S.-educated, First-time Candidates for the 2009 NCLEX Examination, by State and by Degree Level

	IPEDS Graduates, 2010			NCLEX Candidates, 2009			
State	ADN	BSN	Total	Diploma	ADN	BSN	Total
Alabama	2,063	1,701	3,764	0	1,889	1,244	3,133
Alaska	89	118	207	0	76	106	182
Arizona	1,909	3,348	5,257	30	1,845	775	2,650
Arkansas	835	710	1,545	181	831	567	1,579
California	7,219	4,638	11,857	0	7,341	3,454	10,795
Colorado	831	1,285	2,116	0	897	1,010	1,907
Connecticut	532	670	1,202	151	552	660	1,363
Delaware	247	330	577	16	266	227	509
District of Columbia	0	239	239	0	99	216	315
Florida	5,355	3,795	9,150	0	5,143	1,957	7,100
Georgia	1,526	2,051	3,577	0	1,396	1,484	2,880
Hawaii	158	392	550	0	184	415	599
Idaho	530	534	1,064	0	463	180	643
Illinois	2,979	2,718	5,697	17	2,704	2,260	4,981
Indiana	2,243	2,759	5,002	48	2,038	1,557	3,643
Iowa	1,387	929	2,316	0	1,335	549	1,884
Kansas	1,131	943	2,074	0	1,021	858	1,879
Kentucky	1,795	1,093	2,888	0	1,818	789	2,607
Louisiana	917	1,476	2,393	36	970	1,163	2,169
Maine	308	412	720	0	361	321	682
Maryland	1,443	1,106	2,549	0	1,341	935	2,276
Massachusetts	1,641	1,926	3,567	74	1,527	1,652	3,253
Michigan	2,856	2,496	5,352	0	2,823	1,838	4,661
Minnesota	1,936	1,376	3,312	0	1,980	975	2,955
Mississippi	1,345	664	2,009	0	1,216	435	1,651
Missouri	1,552	3,676	5,228	49	1,589	1,589	3,227
Montana	149	263	412	0	188	211	399
Nebraska	398	929	1,327	0	378	726	1,104
Nevada	334	463	797	0	404	406	810
New Hampshire	437	288	725	0	392	204	596
New Jersey	1,888	1,413	3,301	725	1,193	876	2,794

Table 5. Comparison of 2010 IPEDS Reported Graduates of Registered Nursing Programs and U.S.-educated, First-time Candidates for the 2009 NCLEX Examination, by State and by Degree level (continued)

	IPEDS Graduates, 2010			NCLEX Candidates, 2009			
State	ADN	BSN	Total	Diploma	ADN	BSN	Total
New Mexico	676	393	1,069	0	721	208	929
New York	6,884	4,490	11,374	9	6,852	2,808	9,669
North Carolina	2,443	2,105	4,548	126	2,590	1,245	3,961
North Dakota	86	382	468	0	97	375	472
Ohio	4,367	3,573	7,940	302	4,307	2,635	7,244
Oklahoma	1,318	1,366	2,684	0	1,316	886	2,202
Oregon	594	783	1,377	0	650	560	1,210
Pennsylvania	2,837	4,370	7,207	1,242	2,884	2,998	7,124
Rhode Island	213	367	580	28	240	282	550
South Carolina	1,295	1,011	2,306	0	1,331	822	2,153
South Dakota	357	443	800	0	347	357	704
Tennessee	1,366	2,008	3,374	0	1,192	1,648	2,840
Texas	5,560	4,656	10,216	203	4,841	3,087	8,131
Utah	1,128	731	1,859	0	1,046	410	1,456
Vermont	211	97	308	0	152	111	263
Virginia	1,726	1,681	3,407	441	1,787	1,283	3,511
Washington	1,695	1,155	2,850	0	1,660	848	2,508
West Virginia	576	794	1,370	0	609	566	1,175
Wisconsin	1,655	1,683	3,338	0	1,498	1,400	2,898
Wyoming	282	140	422	0	227	65	292
U.S. Totals	**81,302**	**76,969**	**158,271**	**3,678**	**78,666**	**52,260**	**134,604**

Sources: National Center for Education Statistics, 2010 IPEDS Completions Survey; National Council of State Boards of Nursing, 2009 Nurse Licensee Volume and NCLEX Examination Statistics; Table 7 (Part II) "First-Time, U.S.-Educated Candidates Taking the NCLEX-RN Examination by Degree Type (Jan. 1 - Dec. 31, 2009)".

Table 6 compares data describing graduates of BSN programs from the 2010 IPEDS completions survey with data from selected state-based surveys of RN education (also from 2010). These data confirm the fact that RN-to-BSN graduates are included in the total number of BSN graduates reported in IPEDS. The difference in the total number of BSN awards between IPEDS and the state-based surveys is quite small, with the exception of Florida. However, in the publication of the Florida–based survey, the authors note that not all schools responded, and that the data undercount the actual number of graduates.

Table 6. Comparison of 2010 IPEDS and Selected State Surveys Reported Graduates of Bachelor's in Nursing (BSN) Programs

	Non-IPEDS State Surveys			IPEDS
State	Pre-license BSN	RN to BSN	Total BSN	BSN
California	3,255	1,374	4,629	4,638
Florida	2,189	1,286	3,475	3,795
New York	3,074	1,443	4,517	4,490
Texas	3,575	1,175	4,750	4,655

Sources: National Center for Education Statistics, 2010 IPEDS Completions Survey; California Board of Registered Nursing, 2010 Annual School Report; Florida Center for Nursing, Florida Nursing Education and Nurse Faculty Supply and Demand: 2010 Survey Results; Center for Health Workforce Studies, Trends in New York Registered Nursing Graduations, 1996-2011; Texas Board of Nursing, Nursing Program Educational Information Survey (NEPIS)

Table 7 compares data describing graduates of BSN programs from the 2010 IPEDS completions survey with data from the American Association of Colleges of Nursing (AACN) at the state level. These data underscore that BSN graduates data reported in IPEDS include RN-to-BSN programs. The difference in the total number of BSN awards is most likely explained by differences in response rates to the two surveys. The AACN is a member-based organization, and although the survey does include some non-member institutions, IPEDS includes all postsecondary institutions that participate in federal student aid programs.

Table 7. Comparison of 2010 IPEDS and American Association of Colleges of Nursing Reported Graduates of Bachelor's in Nursing (BSN) Programs, by State

	AACN			IPEDS
State	Pre-license BSN	RN to BSN	Total BSN	BSN
Alabama	1,240	416	1,656	1,701
Alaska	109	9	118	118
Arizona	1,005	4,502	5,507	3,348
Arkansas	585	107	692	710
California	3,030	850	3,880	4,638
Colorado	766	287	1,053	1,285
Connecticut	594	91	685	670
Delaware	159	138	297	330
District of Columbia	209	6	215	239

Table 7. Comparison of 2010 IPEDS and American Association of Colleges of Nursing Reported Graduates of Bachelor's in Nursing (BSN) Programs, by State (continued)

State	American Association of Colleges of Nursing			IPEDS
	Pre-license BSN	RN to BSN	Total BSN	BSN
Florida	1,952	1,107	3,059	3,795
Georgia	1,561	502	2,063	2,051
Hawaii	346	18	364	392
Idaho	222	225	447	534
Illinois	2,179	951	3,130	2,718
Indiana	1,667	964	2,631	2,759
Iowa	594	273	867	929
Kansas	752	179	931	943
Kentucky	831	217	1,048	1,093
Louisiana	1,291	186	1,477	1,476
Maine	345	53	398	412
Maryland	819	246	1,065	1,106
Massachusetts	1,332	377	1,709	1,926
Michigan	1,905	479	2,384	2,496
Minnesota	931	522	1,453	1,376
Mississippi	486	171	657	664
Missouri	1,646	503	2,149	3,676
Montana	214	17	231	263
Nebraska	624	87	711	929
Nevada	460	35	495	463
New Hampshire	160	67	227	288
New Jersey	865	399	1,264	1,413
New Mexico	285	93	378	393
New York	2,881	1,304	4,185	4,490
North Carolina	1,129	838	1,967	2,105
North Dakota	298	16	314	382
Ohio	2,435	744	3,179	3,573
Oklahoma	918	310	1,228	1,366
Oregon	700	123	823	783
Pennsylvania	2,858	1,341	4,199	4,370
Rhode Island	306	50	356	367
South Carolina	844	139	983	1,011
South Dakota	330	71	401	443
Tennessee	1,407	370	1,777	2,008

Table 7. Comparison of 2010 IPEDS and American Association of Colleges of Nursing Reported Graduates of Bachelor's in Nursing (BSN) Programs, by State (continued)

	American Association of Colleges of Nursing			IPEDS
State	Pre-license BSN	RN to BSN	Total BSN	BSN
Texas	3,511	1,298	4,809	4,656
Utah	366	462	828	731
Vermont	64	3	67	97
Virginia	1,206	504	1,710	1,681
Washington	667	329	996	1,155
West Virginia	447	141	588	794
Wisconsin	1,360	334	1,694	1,683
Wyoming	66	60	126	140
U.S. Totals	**51,407**	**22,514**	**73,471**	**76,969**

Sources: National Center for Education Statistics, 2010 IPEDS Completions Survey; American Association of Colleges of Nursing, Custom Data Run, 2010 Graduations in Baccalaureate and Graduate Programs in Nursing

Data on Graduate-level Education

Table 8 compares data describing graduates of MSN programs from the 2010 IPEDS completions survey with data from the American Association of Colleges of Nursing (AACN) at the state level. Neither IPEDS nor the AACN data distinguish between entry-level masters (pre-licensure) and post-license masters programs. The difference in the total number of masters in nursing awards is most likely explained by differences in response rates to the two surveys. As noted above, the AACN is a member-based organization, and although the survey does include some non-member institutions, IPEDS includes all postsecondary institutions that participate in federal student aid programs.

Table 8. Comparison of 2010 IPEDS and American Association of Colleges of Nursing Reported Graduates of Masters in Nursing Programs, by State

	Master in Nursing Degrees, 2010	
State	IPEDS	AACN
Alabama	770	696
Alaska	8	9
Arizona	2,184	2,351
Arkansas	170	168
California	1,573	1,485
Colorado	315	329
Connecticut	283	314
Delaware	125	98
District of Columbia	127	152
Florida	1,097	894
Georgia	481	462
Hawaii	50	40
Idaho	42	40
Illinois	790	792
Indiana	602	648
Iowa	226	151
Kansas	180	152
Kentucky	443	483
Louisiana	474	478
Maine	114	88
Maryland	443	482
Massachusetts	675	616
Michigan	507	425
Minnesota	1,368	1,282
Mississippi	150	148
Missouri	432	484
Montana	15	15
Nebraska	219	135
Nevada	76	72
New Hampshire	41	42

Table 8. Comparison of 2010 IPEDS and American Association of Colleges of Nursing Reported Graduates of Masters in Nursing Programs by State (continued)

	Master in Nursing Degrees, 2010	
State	IPEDS	AACN
New Jersey	363	358
New Mexico	92	72
New York	1,439	1,336
North Carolina	539	594
North Dakota	114	116
Ohio	976	939
Oklahoma	119	118
Oregon	47	69
Pennsylvania	1,115	1,035
Rhode Island	33	34
South Carolina	154	100
South Dakota	86	38
Tennessee	888	767
Texas	1,080	985
Utah	135	331
Vermont	42	48
Virginia	399	447
Washington	363	339
West Virginia	148	89
Wisconsin	345	354
Wyoming	25	18
U.S. Totals	**22,482**	**21,718**

Sources: National Center for Education Statistics, 2010 IPEDS Completions Survey; American Association of Colleges of Nursing, Custom Data Run, 2010 Graduations in Baccalaureate and Graduate Programs in Nursing

Table 9 compares data on the number of graduates of doctoral-level nursing programs from the 2010 IPEDS completions survey with data from the American Association of Colleges of Nursing (AACN), at the state level. IPEDS includes CIP codes that distinguish between research-related and practice-related doctoral nursing programs, as well as a CIP code for “other” doctoral nursing programs; it isn’t clear what type of program would be assigned this code. These data suggest that doctoral-level nursing education is underreported in IPEDS for certain states and that schools may not consistently use the CIP codes that distinguish research-oriented programs from practice-oriented programs.

Table 9. Comparison of 2010 IPEDS and American Association of Colleges of Nursing Reported Graduates of Doctoral-level Nursing Programs, by Type of Program and by State

	Doctorate in Nursing Degrees, 2010						
	IPEDS				AACN		
State	Research	Practice	Other	Total	Research	Practice	Total
Alabama	6	120	0	126	6	151	157
Alaska	0	0	0	0	0	0	0
Arizona	41	0	0	41	16	24	40
Arkansas	5	0	0	5	5	0	5
California	54	22	0	76	41	23	64
Colorado	6	25	0	31	6	40	46
Connecticut	8	9	0	17	11	10	21
Delaware	0	0	0	0	0	0	0
District of Columbia	7	19	0	26	6	22	28
Florida	36	70	0	106	35	71	106
Georgia	18	0	0	18	4	13	17
Hawaii	7	0	0	7	7	0	7
Idaho	0	0	0	0	0	0	0
Illinois	28	0	2	30	24	52	76
Indiana	10	13	0	23	10	13	23
Iowa	2	0	0	2	3	17	20
Kansas	7	8	0	15	7	8	15
Kentucky	10	21	0	31	8	21	29
Louisiana	6	0	0	6	6	0	6
Maine	0	0	0	0	0	0	0
Maryland	11	53	0	64	12	55	67
Massachusetts	36	21	17	74	22	55	77
Michigan	18	25	0	43	24	25	49
Minnesota	9	29	15	53	10	40	50
Mississippi	3	0	0	3	2	0	2
Missouri	31	0	0	31	12	19	31
Montana	0	0	0	0	0	0	0
Nebraska	4	1	0	5	4	1	5
Nevada	8	4	0	12	8	3	11
New Hampshire	0	0	0	0	0	0	0
New Jersey	37	3	0	40	10	43	53
New Mexico	2	0	0	2	2	0	2
New York	26	55	0	81	28	53	81
North Carolina	12	15	0	27	10	12	22
North Dakota	2	6	0	8	2	2	4

Table 9. Comparison of 2010 IPEDS and American Association of Colleges of Nursing Reported Graduates of Doctoral-level Nursing Programs, by Type of Program and by State
(Continued)

	Doctorate in Nursing Degrees, 2010						
	IPEDS				AACN		
State	Research	Practice	Other	Total	Research	Practice	Total
Ohio	17	89	0	106	15	88	103
Oklahoma	0	0	0	0	0	0	0
Oregon	7	0	0	7	8	1	9
Pennsylvania	30	127	20	177	31	154	185
Rhode Island	1	0	0	1	1	0	1
South Carolina	16	0	0	16	6	10	16
South Dakota	1	0	0	1	1	0	1
Tennessee	52	31	0	83	12	70	82
Texas	43	51	0	94	48	63	111
Utah	6	30	0	36	7	37	44
Vermont	0	0	0	0	0	0	0
Virginia	58	18	0	76	17	34	51
Washington	36	0	0	36	13	20	33
West Virginia	4	6	0	10	4	6	10
Wisconsin	29	26	0	55	29	26	55
Wyoming	0	0	0	0	0	0	0
U.S. Totals	**750**	**897**	**54**	**1,701**	**533**	**1,282**	**1,815**

Sources: National Center for Education Statistics, 2010 IPEDS Completions Survey; American Association of Colleges of Nursing, Custom Data Run, 2010 Graduations in Baccalaureate and Graduate Programs in Nursing

Conclusions

There are multiple sources of data that provide information about the nursing workforce and nursing education. To track the educational backgrounds of the current workforce, the American Community Survey (ACS) provides annual data of good quality for large states and nationally. Among smaller states, for which the sample of RNs in the ACS is small, the ACS estimates will be less reliable, and it will be difficult to discern annual changes. Small states should consider averaging two or three years of ACS data on a rolling basis to improve accuracy.

To track the educational mix of students graduating from pre-licensure RN education programs, NCSBN's data on first-time NCLEX candidates probably provides the most reliable estimates. To measure the capacity of RN-to-BSN education programs, one should consider requesting data from AACN