METHODOLOGY

Overview In the spring of 2009, the deans, directors, or department chairs of all state-accredited prelicensure nursing programs in the United States[*] were contacted by email by the National League for Nursing and invited to participate in the Spring 2009 Annual Survey of Schools of Nursing. Invitations were sent on June 4, 2009 followed by a series of follow-up emails sent to non-responding schools between July 14 and August 25, 2009. The survey was closed to responses on September 14, 2009. Electronic, web-based survey forms were made available to nursing school administrators and staff members.

Data Reporting and Estimation Techniques The estimation techniques used to generate the Annual Survey graphs and tables were devised to balance two key objectives: a) the evaluation of the 2007-08 dataset within the context of historical trends, and b) accurate statistical estimation of the size of the 2007-08 student and nurse educator populations and their respective subpopulations.

To improve the accuracy of population estimates, and also to mitigate the impact of non-response bias, a refined estimation technique was introduced this year for key summary statistics. Between 2003 and 2008 key statistics were estimated using unweighted historical imputation -- a technique that increases the number of data points available for analysis by imputing missing data from historical records.
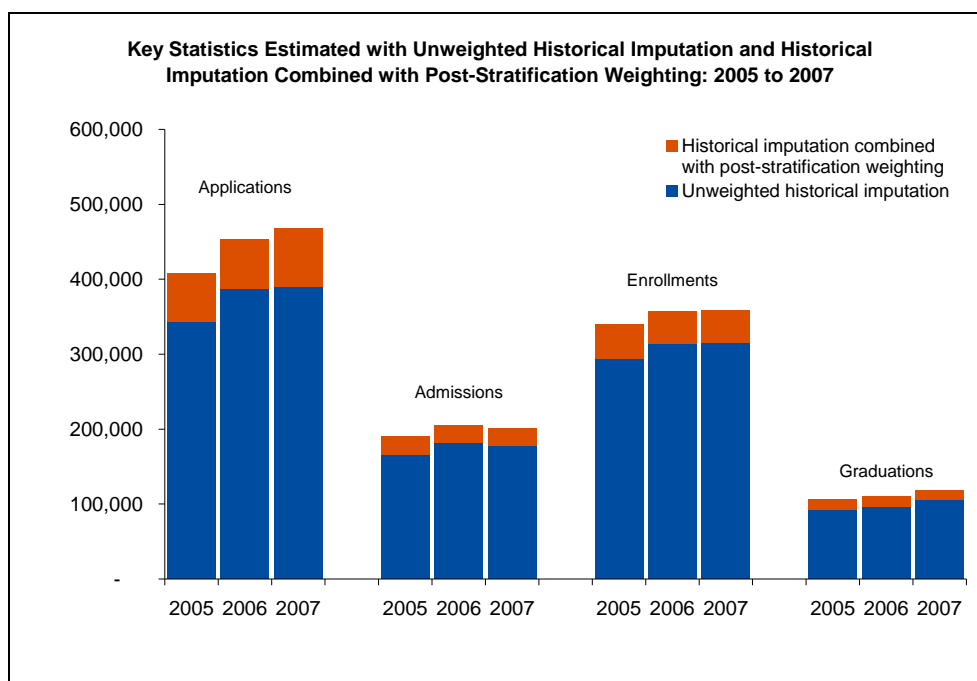
In addition, this year key statistics have also been generated using historical imputation combined with post-stratification sample weighting. Post-stratification weighting adjusts sample statistics to more accurately represent the distribution of the population with respect to key factors. This additional refinement improves the precision of population estimates by eliminating bias caused by dissimilarities between responding schools and the full universe of nursing education programs. In addition, it permits the accurate weighting of reported data —which are typically available for approximately 85 percent of the population —- to full population levels. As a result, estimates produced using historical imputation combined with post-stratification weighting will be larger than previous estimates produced via historical imputation alone.

As in previous years, throughout this report figures and tables that present the proportional distribution of the 2007-08 nursing student population use only data derived from the most current survey. Also as in the past, population estimates produced via unweighted historical imputation will continue to be available in order to allow new data points to be interpreted in light of earlier ones which were generated using that technique. **What is new in 2010 is that more accurate statistics generated using historical imputation combined with post-stratification sample weighting are introduced for the first time in this "Methodology" section.**
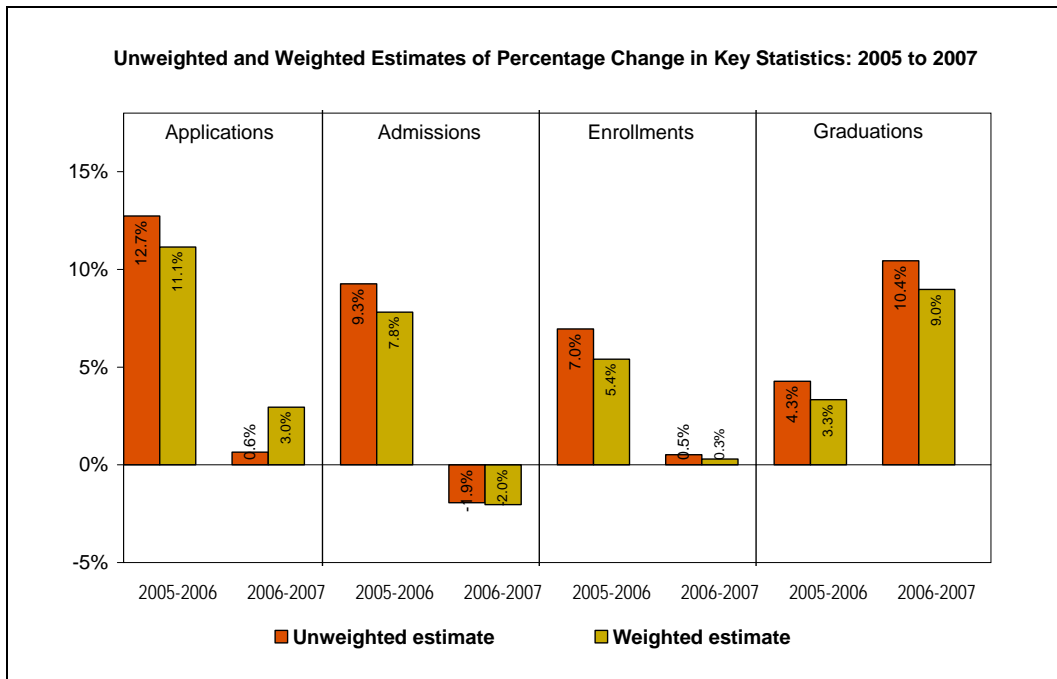
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[*] US territories are not included in this publication.

Impact of Estimation Strategies The differences between key statistics produced using weighted and unweighted estimation techniques for trend data on prelicensure RN programs are illustrated in the figures below. Post-stratification weighting had the largest impact on estimates of the total number applications submitted, which were on average 15.7 percent higher than estimates produced using unweighted historical imputation. Estimates of the numbers of enrollments, admissions and graduations were approximately 12 percent higher when post-stratification weights were applied.

Key Prelicensure Program Statistics Produced with Unweighted and Weighted Estimation Techniques: 2005 to 2007												
Prelicensure RN Programs	Applications			Admissions			Enrollments			Graduations		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Unweighted estimate	343,659	387,450	389,948	166,442	181,862	178,354	293,442	313,875	315,524	92,123	96,065	106,095
Weighted estimate	408,398	453,927	467,341	190,939	205,869	201,681	339,300	357,653	358,729	106,029	109,564	119,402
Increase due to weighting	15.9%	14.6%	16.6%	12.8%	11.7%	11.6%	13.5%	12.2%	12.0%	13.1%	12.3%	11.1%

Key Statistics Estimated with Unweighted Historical Imputation and Historical Imputation Combined with Post-Stratification Weighting: 2005 to 2007

Although applying post-stratification weights does increase the size of estimates, the techniques produce very similar estimates of the magnitude and direction of statistical trends. The chart below shows the percentage change in applications, admissions, enrollments and graduations from 2005 to 2006, and from 2006 to 2007, estimated using both weighted and unweighted estimation methods. The most pronounced discrepancy in estimates produced by the two methods is in the percentage change in the number of applications submitted to prelicensure programs between 2006 and 2007, which was 2.3 percent higher using the weighted method. However, for all other statistics and periods the discrepancies were much more minor, ranging from 0.1 to 1.6 percent and averaging .6 percent.

Unweighted and Weighted Estimates of Percentage Change in Key Statistics: 2005 to 2007

Response Rate Analysis Of 1,773 prelicensure RN programs, 1,541 reported survey data within the past four years yielding an overall cumulative response rate of 86.9 percent. The cumulative response rate varied slightly by program type, with 84 percent of baccalaureate programs, 90 percent of diploma programs, and 89 percent of associate degree programs submitting data in the most recent survey or a prior year. When reported data are combined with historical data to produce population estimates, the 2007-08 dataset is very similar to the universe of nursing schools with respect to program type and almost identical with respect to region (see tables below).

| | All Nursing Programs | | Data Collection Year | | | | | | | | | | |
| | | | Any data | | Spring 2009 | | 2008 | | 2007 | | pre-2007 | | no data | |
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Program Type	**1773**	**100.0**	**1541**	**86.9**	**911**	**51.4**	**243**	**13.7**	**101**	**5.7**	**286**	**16.1**	**232**	**13.1**
Baccalaureate	681	100.0	569	83.6	281	41.3	91	13.4	43	6.3	154	22.6	112	16.4
Diploma	69	100.0	62	89.9	49	71.0	5	7.2	5	7.2	3	4.3	7	10.1
Associate Degree	1023	100.0	910	89.0	581	56.8	147	14.4	53	5.2	129	12.6	113	11.0

Isolating only data reported in the most recent survey year, a total of 911 prelicensure programs submitted data in the spring of 2009, producing an overall single-year response rate for prelicensure programs of 51.4 percent. The single year response rate varied considerably by program type, ranging from a rate of 71 percent among diploma programs to 41.3 percent among baccalaureate programs. Associate degree programs responded at a rate of 56.8 percent.

Distribution of Responding Programs by Program Type

	Count	%	Data Collection Year											
			Any data		Spring 2009		2008		2007		pre-2007		no data	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Program Type	**1773**	**100.0**	**1541**	**100.0**	**911**	**100.0**	**243**	**100.0**	**101**	**100.0**	**286**	**100.0**	**232**	**100.0**
Baccalaureate	681	38.4	569	36.9	281	30.8	91	37.4	43	42.6	154	53.8	112	48.3
Diploma	69	3.9	62	4.0	49	5.4	5	2.1	5	5.0	3	1.0	7	3.0
Associate Degree	1023	57.7	910	59.1	581	63.8	147	60.5	53	52.5	129	45.1	113	48.7

Distribution of Responding Programs by Region

	Total		Data Collection Year											
			Any data		Spring 2009		2008		2007		pre-2007		no data	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Region	**1773**	**100.0**	**1541**	**100.0**	**911**	**100.0**	**243**	**100.0**	**101**	**100.0**	**286**	**100.0**	**232**	**100.0**
Midwest	489	27.6	424	27.5	241	26.5	78	32.1	32	31.7	73	25.5	65	28.0
North Atlantic	337	19.0	305	19.8	188	20.6	40	16.5	25	24.8	52	18.2	32	13.8
South	631	35.6	554	36.0	335	36.8	85	35.0	29	28.7	105	36.7	77	33.2
West	316	17.8	258	16.7	147	16.1	40	16.5	15	14.9	56	19.6	58	25.0