

# CALCULATING GRADUATION AND PERSISTENCE RATES

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For Initial RN Licensure Programs  
In the Gulf Coast Region of Texas: Round 1  
*(Academic Year 2001)*

Prepared for  
The Health Services Steering Committee

By the  
Graduation Rates Taskforce

Houston, Texas  
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**For Initial RN Licensure Programs**  
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**BACKGROUND**

Since its 2000 inception, the Health Services Steering Committee (HSSC) has focused on the chronic shortage of registered nurses (RNs) in Gulf Coast hospitals. Our strategies for solving this problem involve increasing enrollments in initial RN licensure programs as well as the percentage of enrollees who graduate, go to work and remain at work in area hospitals.

We've made significant progress.

- Enrollments have risen in each of the last three years. In fact, we are well on our way toward doubling enrollments in initial licensure programs by 2012, a goal that seemed unreachable when it was established.
- We have instituted an industry-wide initiative to improve the work environment in Gulf Coast hospitals, an ongoing effort that will make hospitals more attractive places to work and learn.
- We have collected baseline employment information on program graduates. We know where academic year 2000 graduates went to work and where they were working in 2001 and 2002, and we can now easily track graduates from subsequent years to determine how many are working in area hospitals or somewhere else in the region's healthcare industry.

Now it's time to turn our attention to increasing the percentage of enrollees who graduate. Whatever the rate for individual schools or for the region as a whole is now, we want to increase it. Without compromising the quality of nurse education, we want to graduate as many of the students we enroll as possible.

In November 2004, HSSC Chair Rob Mosbacher asked Dr. Pat Starck, Dean of the School of Nursing at the University of Texas at Houston Health Science Center, to chair an ad hoc group charged with developing a standard definition and common methodology for calculating graduation and persistence rates at area nursing schools.

The Graduation Rate Taskforce has completed its work and prepared the report that follows. For specific information on the demographic characteristics of graduates, graduation and persistence rates and performance ranges by type of nursing program, see the data table at the end of the report.

## **DEFINING TERMS**

**Academic term:** a semester, quarter, or other multiple of months or weeks that make up a school's educational period for any given program leading to initial RN licensure.

**Educational period:** the time required to complete all courses and graduate as specified by the nursing program track's curriculum design, excluding the time required to satisfy program prerequisites if done before starting nursing courses, i.e., not co-requisite or concurrently.

**Full course load:** the number of semester credit or contact hours a student is expected to enroll in for each academic term of an educational period to complete all courses and graduate on time as specified by the program track's curriculum design.

**Graduate:** One who has met all requirements for graduation and earned a degree.

**Graduating on time:** successfully completing all of the required courses and graduating within the timeframe specified by the program track's curriculum design at the time of initial enrollment.

**Officially enrolled student:** one who has paid tuition and fees by the official day-of-record set by the institution for an academic term.

**Original student cohort:** the number of new students officially enrolled for a full course load on a program track leading to initial RN licensure during the first academic term of an educational period and who are expected to complete their initial licensure program within the same educational period.

**Persisting student:** One who has not yet graduated, but is still enrolled for at least one nursing course on a program track leading to initial RN licensure at a Gulf Coast nursing school.

**Specified time period:** a period of time required to graduate expressed either in academic terms or calendar months from initial enrollment.

**Time taken to graduate:** Mutually exclusive categories set by the survey designers to capture information on time taken to graduate. The categories are defined in two ways: 1) the expected time taken to graduate on time as specified by the program track's curriculum design plus additional academic terms, or 2) the number of calendar months from initial enrollment.

## **SETTING STUDY PARAMETERS**

- The base year for calculating graduation and persistence rates is academic year 2001, which includes the Fall term 2000, and the Spring and Summer terms of 2001.

- Students enroll in area nursing programs seeking initial RN licensure at times specified by the institution during a given academic year. Dates for accepting new enrollees vary by institution.
- The length of education program tracks leading to initial RN licensure varies by institution and within institution, by program track. For purposes of this analysis, time required to satisfy program prerequisite courses is not included in reported times to graduate unless they are co-requisites taken concurrently.
- Anecdotal information from participating programs indicates that the number of transfer students is too small to affect survey findings therefore they are not included.
- A student who drops out of an initial RN licensure program track and later returns to that same program track at the same institution is still a member and potential graduate of the original student cohort.
- To be included in the original student cohort for a program track leading to initial RN licensure a student must be a new student enrolled for a full course load in the first academic term of the educational period as specified by the program track's curriculum design.
- Time taken to graduate is measured and reported here two different ways.
  - **Academic terms required to graduate:** This statistic is a proxy measure of the resources required to produce a graduate. It is the sum of the number of academic terms required to graduate on time as specified by the program track's curriculum design plus all additional academic terms required to complete the initial RN licensure program track and graduate. Intervening terms in which the student was not enrolled in at least one course on a program track leading to initial RN licensure are not included in this calculation.
  - **Months required to graduate:** This statistic is a measure of duration. It is calculated by determining the number of months between date of initial enrollment and graduation date required to produce a graduate. All months are included in this statistic even if the student was not enrolled in courses leading to initial RN licensure during some of these months.

Graduation rates are calculated for each of the following three program tracks:

1) Associate Degree in Nursing (ADN), 2) transition to ADN for Paramedics or Licensed Vocational Nurses and 3) Bachelor of Science in Nursing (BSN).

## **DEVELOPING THE METHODOLOGY**

### **Calculating the Graduation Rate**

**The Technical Version:** The graduation rate equals the number of new students officially enrolled for a full course load on an initial RN licensure program track in the first academic term of an educational period who graduate within a specified time period, divided by the number of new students officially enrolled for a full course load on an

initial RN licensure program track during the first academic term of that same educational period.

**The Shorthand Version:** Number of graduates from the original student cohort at the time of the survey divided by the total number of students in the original student cohort.

### Percentage of Graduates Measured by Academic Terms Required

The number and percentage of graduates from the original student cohort measured by the number of academic terms required to graduate are classified into the five mutually exclusively categories below:

- 1) within the educational period specified by the program track's published curriculum (graduating on time as expected)
- 2) requiring one additional academic term beyond the educational period specified by the program track's curriculum (expected+1)
- 3) requiring two additional academic terms beyond the educational period specified by the program track's curriculum (expected+2)
- 4) requiring three additional academic terms beyond the educational period specified by the program track's curriculum (expected+3)
- 5) requiring four additional academic terms beyond the educational period specified by the program track's curriculum (expected+4)

The sum of the numbers and percentages of graduates in each category equals the cumulative number of graduates for all five time periods.

On time graduation, measured by the academic terms required, is defined as successfully completing all of the required courses and graduating within the number of academic terms specified by the program track's curriculum design at the time of initial enrollment.

### Percentage of Graduates Measured by Calendar Months Required

The number and percentage of graduates from the original student cohort measured by number of calendar months taken from initial enrollment to graduation are classified into three mutually exclusively categories below:

- 1) within 24 calendar months of the beginning of a program track's specified educational period
- 2) between 25 and 36 calendar months of the beginning of a program track's specified educational period
- 3) between 37 and 48 calendar months of the beginning of a program track's specified educational period.

The sum of the numbers and percentages of graduates in each category equals the cumulative number of graduates for all three time periods.

On-time graduation, measured by the number of months required, is defined as successfully completing all of the required courses and graduating within 24 calendar months of the beginning of a program track's specified educational period at the time of initial enrollment.

### Calculating the Weighted Average Months to Graduate From the Date of Initial Enrollment

**The Technical Version:** The weighted average months (WAMG) required for students to graduate from a school's initial RN licensure program track is calculated as follows:

$$\text{WAMG} = \frac{\Sigma(X_1M_1 + X_2M_2, + \dots X_nM_n)}{\Sigma(X_1+X_2, + \dots X_n)}$$

where X equals the number of graduates  
and M equals the number of months required to graduate.

**The Shorthand Version:** The sum of the weighted number of months required to graduate divided by the total number of graduates at the time of the survey.

### Calculating the Persistence Rate

**The Technical Version:** The persistence rate equals the number of new students in the original student cohort who have not graduated, but are still enrolled on the same program track leading to initial RN licensure at the same institution for the academic term in which the rate is being calculated, divided by the total number in the original student cohort who have not yet graduated.

**The Shorthand Version:** Number of students in the original student cohort who have not graduated, but are still enrolled, divided by those who have not yet graduated.

### Calculating the Graduation and Persistence Rate

**The Technical Version:** The graduation and persistence rate (GPR) is the sum of the graduation and the persistence rates.

### Giving an Example

A new student cohort of 100 begins an initial licensure program track in the Fall 2000, and by virtue of the school's curriculum design should graduate in Spring 2002. In May 2002, 50 of these students graduate as expected for an on-time graduation rate of 50 percent.

In May 2003, a second calculation is made that includes five more students who needed one additional academic term to graduate and seven more students who needed two additional academic terms to graduate. The total number of graduates from the original cohort is now 62 (50+5+7). The graduation rate has now risen to 55 percent for students within the expected +1 time period and 62 percent for students within the expected +2 time period.

In May 2004, a third calculation is made that includes three additional students who needed three additional academic terms to graduate.

In February 2005, a final calculation finds one additional student who needed four additional academic terms to graduate. The total number of graduates from the new student cohort is now 66. The graduation rate has now risen to 65 percent for students within the expected +3 time period and 66 percent for students within the expected +4 time period.

Using the second set of measurement periods — months required to graduate — graduation rates for this same cohort would reveal:

- Fifty percent of students graduated within 24 months.
- An additional 12 percent (62 percent cumulatively) of students graduated within 36 months.
- Finally, an additional 4 percent (66 percent cumulatively) of students graduated within 48 months.

The weighted average months to graduate for the cohort in this example would be calculated as:

$$\frac{(50 \text{ graduates} \times \text{the expected } 21 \text{ months}) + (5 \text{ graduates} \times 27 \text{ months}) + (7 \text{ graduates} \times 33 \text{ months}) + (3 \text{ graduates} \times 40 \text{ months}) + (1 \text{ graduate} \times 44 \text{ months})}{66 \text{ total graduates to date}}$$

$$= 1580 \text{ months divided by } 66 = 23.9 \text{ months}$$

A total of 34 students have not graduated by August 2005 — 30 who have left the program track for various reasons or are lost to follow-up and four who remain enrolled at the same institution on the same initial RN licensure program track they began in Fall 2000. The persistence rate for this new student cohort as measured in Fall 2004 would be 12 percent (4 divided by 34).

The combined graduation/persistence rate is 70 percent [(66 + 4) divided by 100].

## **REPORTING ON THE FINDINGS**

Thirteen Gulf Coast educational institutions house a total of 22 nursing programs leading to initial RN licensure. Twenty programs in 11 of the 13 institutions had graduates during the survey period and are represented in the following survey results (see list of programs by institution on page 8):

- Only 51 percent of the students initially enrolled in academic year 2001 (635 of 1,256) graduated on time, as expected by the nursing program track's curriculum design. Sixty-four percent of those initially enrolled graduated in the expected time period plus two additional academic terms. Sixty-seven percent graduated within the expected time plus four additional academic terms. These numbers are lower than anyone expected for the region and not nearly as high as nursing schools individually or collectively aspire to.
- Measuring time required to graduate by the total number of months after initial enrollment provides an alternative way to present the findings, but does not significantly change them. The percentages of those graduating within two roughly comparable periods (as expected by the program track's curriculum design plus four additional academic terms or within 48 months of initial enrollment) are the same – 67 percent.
- Of those who eventually graduated, 95 percent did so within the expected time period plus two additional academic terms. Again, when measured by the number of months after initial enrollment (36 months), 96 percent of those graduating did so within this comparable time period.
- The actual weighted average number of months to graduate was only slightly above the average expected months to graduate for the three types of nursing programs; 3.6 months longer than expected for Bachelor of Science programs; 2.2 months for associate degree programs and 1.5 months longer than expected for transition programs for paramedics or licensed vocational nurses pursuing associate degrees in nursing.
- As expected, the number of graduates varied significantly by type of program. Only 55 percent of those enrolled in basic ADN program tracks at community colleges finished within the maximum time period set by survey designers (expected plus four additional academic terms or within 48 months of initial enrollment), while 83 percent of those on basic BSN program tracks did. Worth noting is that 73 percent of those enrolled in transitional programs at community colleges (i.e. students who already hold credentials as LVNs or paramedics) graduated within the above timeframe. Graduation rates need to be higher for all program tracks at all educational institutions. Challenges facing each program need to be examined with the goal of maximizing the percentage of enrollees who graduate from Gulf Coast nursing schools.
- Only three students had not graduated, but were persisting at one of the nursing schools in the Gulf Coast region during the survey time period. All three were on program tracks leading to Bachelor of Science degrees in nursing.

## **REACHING CONCLUSIONS**

- Results presented here are for new students that enrolled on program tracks leading to initial RN licensure during academic year 2001 (Fall term 2000, and the Spring and Summer terms of 2001). This is the baseline year before organized efforts to collectively increase enrollments and graduations throughout the 13-county region were underway.
- Clearly some nursing schools do better than others in both graduation rates and length of time to graduate. The reasons for such variation should be explored.
- Improvements in graduation rates could significantly increase the number of entry-level nurses produced annually.

## **MAKING RECOMMENDATIONS**

- The survey should be repeated for students beginning the nursing curriculum during academic year 2002 to provide additional information needed to document recent performance better before setting a baseline and performance targets for future years. Once this is done, the recommended frequency of the survey can be determined better.
- A special effort should be made to identify, summarize and share “best practices” for increasing graduation rates among all of the professional nursing programs in the Gulf Coast region, then statewide and beyond.
- A related effort should be undertaken to discuss reasons why students do not graduate with both nurse faculty and students, and to identify specific strategies both consider most important for improving graduation rates.
- The initial survey of graduates only had two categories for capturing information on reasons why students left school short of graduation: 1) not graduated for academic reasons, and 2) not graduated for non-academic reasons. Future surveys need to provide a standardized set of categories to help identify more detailed explanations of reasons for not graduating from nursing school.
- Student’s ages should be added to the existing demographic variables identified in the survey.

**INITIAL RN LICENSURE PROGRAMS IN THE GULF COAST REGION**

The following initial RN licensure program tracks are represented in this report on Gulf Coast graduation rates, with two exceptions as noted:

School	ADN Program	Paramedic/ LVN to ADN Program	BSN Program
Alvin Community College	x	x	
College of the Mainland <sup>1</sup>	x		
Galveston College	x	x	
Houston Baptist University <sup>2</sup>	x		x
Houston Community College	x	x	
Lee College	x	x	
North Harris Montgomery Community College District	x	x	
Prairie View A&M University			x
San Jacinto College – Central Campus	x	x	
San Jacinto College – South Campus		x	
Texas Woman’s University – Houston Campus			x
UT Health Science Center at Houston			x
UT Medical Branch at Galveston			x
Wharton County Junior College	x	x	

<sup>1</sup> College of the Mainland had no ADN program graduates in AY2001.

<sup>2</sup> Houston Baptist University had no ADN program graduates in AY2001.

**Calculating Graduation and Persistence Rates  
For Initial RN Licensure Students in the Gulf Coast Region: Round 1  
(Academic Year 2001)**

	ADN Programs (n = 7)	Transition to ADN Programs (n = 8)	BSN Programs (n = 5)	TOTAL (n = 20)
<b>Students</b>				
<b>Ethnicity</b>				
% Asian	6.3%	3.1%	8.6%	6.6%
% Black	25.2%	35.4%	25.1%	26.8%
% Caucasian	49.2%	42.7%	51.4%	49.0%
% Foreign - requires visa	0.3%	0.5%	0.7%	0.5%
% Hispanic	18.0%	15.6%	13.2%	16.0%
% Native American	0.2%	0.5%	0.0%	0.2%
% Unknown	0.8%	2.1%	1.0%	1.0%
<b>% Total Minority</b>	<b>50.8%</b> <i>Range = 39% to 68%</i>	<b>57.3%</b> <i>Range = 40% to 74%</i>	<b>48.6%</b> <i>Range = 33% to 95%</i>	<b>51.0%</b>
<b>Gender:</b>				
% Female	87.0%	88.5%	91.9%	88.9%
% Male	12.7%	10.9%	8.1%	10.9%
	<i>Range = 3% to 18%</i>	<i>Range = 0% to 18%</i>	<i>Range = 5% to 16%</i>	
<b>Number in Original Student Cohort</b>	<b>646</b>	<b>192</b>	<b>418</b>	<b>1,256</b>
<b>Graduates (as measured by the number of academic terms required to complete the nursing program)</b>				
# Graduates - Expected	278	120	237	635
# Graduates - Expected+1	35	13	53	101
# Graduates - Expected+2	36	5	18	59
# Graduates - Expected+3	4	1	33	38
# of Graduates - Expected+4	2	1	3	6
<b>Cumulative Number of Graduates</b>	<b>355</b>	<b>140</b>	<b>344</b>	<b>839</b>
% Graduates - Expected	43%	63%	57%	51%
% Graduates - Expected+1	5%	7%	13%	8%
% Graduates - Expected+2	6%	3%	4%	5%
% Graduates - Expected+3	1%	1%	8%	3%
% Graduates - Expected+4	0%	1%	1%	0%
<b>Cumulative Percent of Graduates<sup>1</sup></b>	<b>55%</b> <i>Range = 43% to 80%</i>	<b>73%</b> <i>Range = 44% to 100%</i>	<b>82%</b> <i>Range = 64% to 91%</i>	<b>67%</b>
<b>Graduates (as measured by the number of months required to complete the nursing program)</b>				
# of Graduates within 24 months	293	138	224	655
# of Graduates between 25 and 36 months	58	N/A	97	155
# of Graduates between 37 and 48 months	6	N/A	24	30
<b>Cumulative Number of Graduates</b>	<b>357</b>	<b>138</b>	<b>345</b>	<b>840</b>
% Graduates within 24 months	45%	72%	54%	52%
% Graduates between 25 and 36 months	9%	N/A	23%	12%
% Graduates between 37 and 48 months	1%	N/A	6%	2%
<b>Cumulative Percent of Graduates<sup>1</sup></b>	<b>55%</b> <i>Range = 43% to 80%</i>	<b>72%</b> <i>Range = 44% to 100%</i>	<b>83%</b> <i>Range = 64% to 91%</i>	<b>67%</b>
<b>Weighted Average Months to Graduate</b>	<b>23.2<sup>2</sup></b>	<b>13.0<sup>2</sup></b>	<b>25.8<sup>2</sup></b>	N/A
Average Expected Months to Graduate on Time	21.0	11.5	22.2 <sup>1</sup>	N/A
<b>Non-Graduates</b>				
# Never Graduated	289	51	70	410
% Never Graduated	44.7%	26.6%	16.7%	32.6%
% Not Graduated for Academic Reasons	61.6%	80.4%	72.9%	65.9%
% Not Graduated for Non-Academic Reasons	38.4%	17.6%	28.6%	34.1%
# Persisting	0	0	3	3
<b>Graduates and Persisters</b>				
<b># Graduates and Persisters</b>	<b>357</b>	<b>138</b>	<b>348</b>	<b>843</b>
<b>% Graduates and Persisters</b>	<b>55%</b>	<b>72%</b>	<b>83%</b>	<b>67%</b>

1. Totals may not add due to suppression and rounding.  
2. Revised June 2007