

**BERGEN COMMUNITY COLLEGE**

**Assessment Report for (Department and/or Program): Department of Nursing**

**Academic Chair:**

**Assessment Period: Fall 2011 – Spring 2013**

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**1. Intended Outcome (Goal):**

*To achieve an 80% pass rate among BCC nursing students on their first attempt with the HESI Exit Exam while enrolled in a mid-curricular evaluation and remedial program.*

**2. General Education Requirement(s) to which the intended outcome relates:**

*Scientific Knowledge and Reasoning:*

*Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.*

**3. Section(s) of the Strategic Plan to which the intended outcomes relates:**

*Goal 1: We will improve student engagement and student success*

*1.1 Take steps to increase student retention and student progression through academic programs*

**4. Means of assessment, sources of data, and desired result:**

*This study is the next phase in a CIE study completed in 2009. Recommendations from this previous study have been implemented in the Department of Nursing and now it is time to assess the outcomes of this remediation program upon student success on the HESI Exit Exam.*

*Therefore, data from two cohorts of learners representing day and evening graduates from the nursing program will be collected and analyzed to determine if a relationship exist between scores received on remediation program exams and success on the HESI Exit Exam. This data*

*will be collected for 2010, 2011 and 2012. Data to be collected will include student scores on five specialty exams and one mid-curriculum exam.*

*Following the complete analysis of this data to determine the relationships to student success on the HESI Exit Exam, the desired result hopefully will identify a significant (positive) correlation with recommendations to maintain this remedial program in the Department of Nursing. However, if a limited correlation or a negative correlation is found, further study into the effectiveness and continuation of this remediation program may need further investigation.*

## **5. Summary of Results: (as of July 2012)**

*The sample population for this assessment cycle included two cohorts of students. The first student cohort began the nursing program in the Spring 2010 and completed the program in the Fall 2011. During this time they were administered one mid-curricular exam at the end of Level 2 and two specialty exams, Maternal/Child Health and Psychiatric Nursing, at the end of Level 3. This cohort took the HESI Exit exam in December 2011. The total number in this cohort who took the HESI exam was 41.*

*The second student cohort began the nursing program in the Fall 2010 and completed the program in the Spring 2012. During this time they were administered five specialty exams; Fundamentals, Assessment, Pharmacology; Maternal Child Health and Psychiatric Nursing and one mid-curriculum exam. This cohort took the HESI final exam in May 2012. The total number in this cohort who took the HESI Exit exam was 60.*

*Therefore to determine if a relationship exists between student scores on the specialty/ mid curricular exams and the HESI Exit score the total number of students in this study was  $n = 101$ .*

*The methodology used to determine this relationship was as follows. The Mean scores of these 101 students on their specialty and mid-curricular exams were identified and tabulated. The Exit HESI exam scores from these students were identified.*

*The Mean scores on the specialty and mid-curricular exams ranged from 510 to 1055 among those students who went on to take the HESI exit exam. The HESI exit exam scores among this group of students ranged from 420 to 1167.*

*The distribution of the students' mean scores on the specialty and mid-curricular exams was compared to the distribution of the HESI Exit exam score. **Table 1** represents the distribution of the students' scores for the specialty/mid-curricular and HESI Exit exam.*

**Table 1. Distribution of Specialty/Mid-curricular Exams and the HESI Exit Exam\*\***

Score Range	Below 500	501-599	600-649	650-699	700-749	750-799	800-849	850-899	901-949	950-999	1000-1049	1050-1099	1100-1149	1150-1200	Total HESI Exams
Below 500															<b>0</b>
501-599	<b>1</b>		<b>1</b>	<b>1</b>											<b>3</b>
600-649		<b>1</b>	<b>2</b>	<b>1</b>		<b>1</b>									<b>5</b>
650-699	<b>1</b>		<b>2</b>	<b>4</b>			<b>1</b>								<b>8</b>
700-749			<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>2</b>	<b>1</b>				<b>1</b>			<b>14</b>
750-799		<b>1</b>		<b>2</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>1</b>				<b>18</b>
800-849	<b>1</b>			<b>2</b>	<b>6</b>	<b>3</b>		<b>4</b>	<b>7</b>	<b>1</b>					<b>24</b>
850-899			<b>2</b>	<b>1</b>	<b>2</b>		<b>2</b>		<b>2</b>	<b>3</b>	<b>1</b>				<b>13</b>
900-949				<b>1</b>				<b>3</b>		<b>1</b>					<b>5</b>
950-999			<b>1</b>					<b>4</b>	<b>2</b>	<b>1</b>				<b>1</b>	<b>9</b>
1000-1049											<b>1</b>				<b>1</b>
1050-1099											<b>1</b>				<b>1</b>
1100-1149															<b>0</b>
1150-1200															<b>0</b>
<b>Total Spec Exam</b>	<b>3</b>	<b>2</b>	<b>9</b>	<b>14</b>	<b>15</b>	<b>11</b>	<b>6</b>	<b>15</b>	<b>12</b>	<b>8</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>101</b>

\*\*x = specialty/mid-curricular mean score range

\*\*y = HESI Exit Exam score range

*The company responsible for the development of the HESI exit exam, has concluded after extensive research a score of 850 or greater on the exit exam has a statistically significant probability of passing the NCLEX-RN licensing exam on the student's first attempt. Table 2 represents the distribution of the students' specialty exam mean score range and the HESI exit exam score by percent. The conclusions for this percent of score distributions will be based upon the company's statistically found score of 850 on the HESI exit exam.*

**Table 2. % of Students Receiving Exam Scores within Specific Ranges\*\***

Score Range	# of Students with Spec/MC Exam Score Range	% * of Students with Spec/MC Exam Score Range	# of Students with HESI Exit Exams Mean Score Range	%* of Students Receiving HESI Exit Exam Mean Score Range
Below 500	3	3%	0	0%
501 - 599	2	2%	3	3%
600 – 649	9	9%	5	5%
650 - 699	14	14%	8	8%
700 - 749	15	15%	14	14%
750 - 799	11	11%	18	18%
800 - 849	6	6%	24	24%
850 - 899	15	15%	13	13%
900 - 949	12	12%	5	5%
950 - 999	8	8%	9	9%
1000 - 1049	4	4%	1	1%
1050- 1099	1	1%	1	1%
1100 - 1149	0	0%	0	0%
1150 - 1200	1	1%	0	0%
TOTAL	101		101	

\* = rounded to the nearest whole number

\*\*x = specialty/mid-curricular mean score range

\*\*y = HESI Exit Exam score range

## Findings

### 1. HESI Exit exam scores and Specialty/Mid-Curricular Mean Scores

Research studies done by the publishing company for the HESI have concluded a score of 850 on the exit exam as a predictor for success on the NCLEX-RN licensing exam. An analysis of these two cohorts of 101 students identified:

**60 students or 60% received HESI scores below 850**

**41 students or 41% received HESI scores above 850**

The following results represent an analysis of the mean scores on the specialty/mid-curricular and HESI exit exams.

**72 students or 71.3 % received specialty/mid-curricular exam scores below 850**

- 51 of these 72 students, (71%), received scores below 850 HESI exit exams
- 21 of these 72 students, (29%) received scores at or above 850 on the HESI exit

**29 students or 28.7% received specialty/mid-curricular exam scores equal to or greater than 850**

- 9 of these 29 students, (31%), received HESI scores below 850
- 20 of these 29 students, (69%), received HESI scores equal to or greater than 850

## **Conclusions**

*Based on the above findings the following conclusions can be made:*

- 1. a percentage of students achieve less than 850 on the HESI Exit Exam. Only 41% achieved a pass rate on the HESI Exit exam well below the intended outcome of 80% for this study.*
- 2. if the student receives a specialty/mid-curricular mean score of 850 or greater, there is a 69% chance of passing the HESI exit exam.*
- 3. if the student receives a special/mid-curricular mean score less than 850, there is a 71% chance of failing the HESI exit exam*
- 4. it is imperative for students to achieve a mean score equal to or greater than 850 on specialty/mid-curricular exams to pass the HESI Exit exam*
- 5. the self-remediation program included with these specialty and mid-curriculum exams results in a 41% pass rate on the HESI Exit exam. Perhaps a more formalized process of remediation needs to be developed.*

## **2. Statistical analysis of the data:**

This study was also done to determine if a statistical relationship exists between the two variables - mean scores on specialty/mid-curricular exams (**x**) and the HESI exit exam score (**y**).

Findings from this study identified a (an):

- **r score of 0.57.** This Pearson **r** coefficient is a measure of linear correlation; that is, the direction of the relationship and the strength of the relationship between the mean scores on the specialty/mid-curricular exams and the HESI exit exam. The maximum values of Pearson **r** are -1 (perfect negative linear relation) and +1 (perfect positive linear relationship. Significance at or > 95%.
- **r-squared = 0.32.** The **r-squared** values can be interpreted as the proportion of the variance in **y** attributed to the variance in **x**. **r-squared** permits the interpretation of the strength of the relationship between the two variables. . The variance in **y** attributed to the variance in **x** was **32%**; that is , **68%** variance is due to random errors suggesting the existence of other variables of possible importance.

- The equation of the Regression line  $y = 0.82x + 136$ . The **regression line** describes the relationship between the mean scores and the HESI Exit exam where  $y$  represents the HESI score and  $x$  represents the mean score of the specialty /mid-curricular exams. Solving the equation for the regression line  $y = 850$  than  $x = 871$ . In other words, a score of **871** on the specialty/mid-curricular exams would yield a HESI Exit exam score of 850 or greater.
- 21 students out of 102 of students (**22%**) received the minimum mean score of 871 on the specialty/mid-curricular exams needed predict a score of 850 or greater on the HESI Exit exam
- This **standard error** is a measurement of the amount of error in the prediction of  $y$  for an individual  $x$ . The standard error of the predicted  $y$ -value for each  $x$  in the regression was **123.0987**

### Conclusions from Statistical Analysis

Based on a statistical analysis of the data for the relationship between the means scores of the specialty/mid-curricular scores and the HESI Exit exam score the following conclusions can be made:

1. *There is a positive correlation between the mean scores on the specialty /mid-curricular exams and the HESI Exit exam score, although, this correlation is not strong.*
2. *The variance in HESI Exit exam score attributed to the specialty/mid-curricular exams indicates the existence of other variables influencing the HESI Exit scores.*
3. *You can't predict a HESI Exit exam score based on specialty/mid-curricular exam score with any degree of certainty since  $r^2 = 0.32$  using the equation of the regression line.*

### 6. Recommendations for improvement:

- a. **Since the correlation between the specialty/mid curricular exam scores and the HESI Exit exam score is not strong and there is a limited ability to predict a HESI Exit exam score based on specialty/mid-curricular exam scores, it may be of value for faculty to consider the continued use of these exams. The purchase of these exams have an authorized amount not to exceed \$30,000 until June 2012 as noted in the Board of Trustee report in March 2012.**
- b. **If the use of specialty/mid-curricular exams continues in the nursing department, student scores should be used by students and faculty as an indicator for remediation and curriculum revision. This remediation needs to be a faculty-driven formalized and compensated process.**
- c. **The costs to initiate a remedial program may need to be shared equality among the students and the nursing department.**