

## Case Study

# Helping Students Achieve First-time NCLEX Success

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### SUMMARY OF FINDINGS

- This group had a 92.3 % pass rate (first time NCLEX takers)
- The overall NCLEX-RN pass rate for 2013 in North Carolina was 76%.
- National data so far for 2014 show an 88.74% pass rate for BSN programs.
- Students used prepU throughout their whole nursing program—as well as to prepare for the NCLEX (NCLEX-RN 10,000)
- Students who passed the NCLEX had an average Mastery Level (ML) of 6.47.

### Study Sample

The School of Health Sciences at WSSU is currently the fourth largest producer of nurses in North Carolina. The population in the nursing program is around 220 students. Some of these are in the accelerated option (around 25%) and the rest are in the traditional, non-accelerated program.

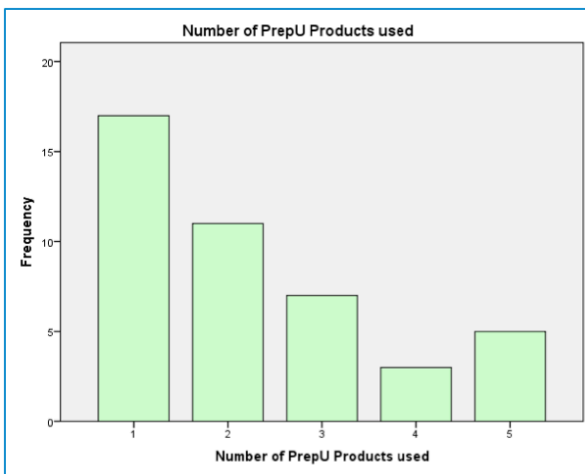
The nursing program at WSSU is a two-year baccalaureate program following two years of general education courses. Students used multiple versions of prepU (including NCLEX-RN 10,000) as part of an institution-wide efficacy study. Several cohorts of students participated in the study and for this analysis we focus on students in the accelerated option at WSSU, who were eligible for graduation in February, 2014.

The number of students in the cohort was 43. All students are included in the analysis.



## prepU Implementation

Students used NCLEX-RN 10,000 in their final semester to help prepare for the NCLEX exam. Students graduated in February, 2014 and became eligible for the NCLEX exam about 6-8 weeks later. Throughout their program, students also had access to prepU in various courses. The number of prepU products used by students in this cohort is shown below.



**Figure 1: Number of prepU products used throughout nursing program**

Students used an average of 2.26 prepU products throughout the nursing program ( $SD = 1.36$ ). Students who logged into a prepU product fewer than three times were not included as having used the product.

## NCLEX-RN 10,000 usage

Usage of NCLEX-RN 10,000 is shown in Table 1 below.

|                       | N  | Min   | Max   | M        | SD     |
|-----------------------|----|-------|-------|----------|--------|
| Number of Log Ins     | 43 | 33    | 139   | 63.81    | 25.70  |
| Number of Quizzes     | 43 | 63    | 325   | 117.30   | 47.64  |
| Number of Questions   | 43 | 1,900 | 4,770 | 2,259.44 | 574.50 |
| Overall Mastery Level | 43 | 5     | 8     | 6.40     | .68    |

Overall students answered an average of 2,259.44 questions ( $SD = 574.5$ ), 117.30 quizzes ( $SD = 47.64$ ), and had an average ML of 6.4 ( $SD = 0.68$ ). ML variance was low, and the lowest overall ML was a 4.9. Medians for all variables in Table 1 are shown in Table 2. The median number of questions answered was 2,051.00.

|        | Number of Log Ins | Number of Quizzes | Number of Questions | Overall Mastery Level |
|--------|-------------------|-------------------|---------------------|-----------------------|
| Median | 55.00             | 107.00            | 2,051.00            | 6.30                  |

**Figure 2: Number of NCLEX questions for those reporting data**

## NCLEX Outcomes

To date, 41 students in the cohort have taken the NCLEX-RN exam. The pass rate for the cohort was 92.3% with 38 students passing the exam and 3 students not passing. Two students have not yet taken the exam. Pass rates for the cohort were compared to pass rates in the school as well as the state for the years 2011-2013 (2014 data are not available at this time).

| School/State           | Year |      |      |
|------------------------|------|------|------|
|                        | 2011 | 2012 | 2013 |
| WSSU                   | 93   | 94   | 86   |
| North Carolina         | 93   | 95   | 76   |
| National BSN Pass Rate | 87   | 92   | 85   |

Given the change in passing standard (which occurred in April, 2013), many schools have reported, and indeed the data reflect, a decrease in average pass rates (see Table 3). The study group had a pass rate of 92.3% (based on the 41 students who have taken the exam), which is higher than the average rates seen in 2013. Data for 2014 are still being collected. Data reported by the NCSBN between January 2014 and June 2014 reflect a 88.74% pass rate (nationwide) for BSN students. The study group had a higher pass rate than the national average for 2014 so far, with 92.3%.

## Comparison of Passing and Non-Passing Students

Typically a binary logistic regression would be conducted to determine if the predictor scores could accurately predict NCLEX success. Given the small number of students in this sample who did not pass the NCLEX ( $N = 3$ ), it was not feasible to conduct a regression analysis as the event of failing the NCLEX is too rare.

Table 4 below compares the usage and ML of the two groups. The non-passing group, however, is too small to permit any meaningful comparisons between the number of quizzes or questions answered by two groups (or ML), given the different sample sizes.

**Table 4: Usage and ML by Passing Group**

|                       | NCLEX Outcome | N  | M        | SD     |
|-----------------------|---------------|----|----------|--------|
| Number of Log Ins     | Passed        | 38 | 65.47    | 26.57  |
|                       | Failed        | 3  | 57.33    | 11.93  |
| Number of Quizzes     | Passed        | 38 | 119.45   | 50.09  |
|                       | Failed        | 3  | 99.33    | 21.59  |
| Number of Questions   | Passed        | 38 | 2,279.66 | 607.74 |
|                       | Failed        | 3  | 2,111.67 | 81.82  |
| Overall Mastery Level | Passed        | 38 | 6.47     | .66    |
|                       | Failed        | 3  | 5.53     | .50    |

Students who passed the NCLEX had a higher average ML than those who did not—and all other usage variables were higher as well.

## Prior prepU Usage

Students had access to prepU in most courses throughout the nursing program. Table 5 compares the number of overall products (a measure of overall prepU usage) between the NCLEX passing and non-passing groups.

**Table 5: Number of prepU products used by NCLEX Outcome Group**

| NCLEX Outcome | N  | M    | SD   |
|---------------|----|------|------|
| Passed        | 38 | 2.39 | 1.39 |
| Failed        | 3  | 1.33 | .58  |

Students who failed the NCLEX used fewer overall prepU products than those who passed. Again, given the small number of students in the non-passing group, no statistical test is feasible.

## Conclusions

All students in the study group made use of NCLEX-RN 10,000 to help prepare for the NCLEX. Students answered an average of 2,259 questions during their preparation. The minimum number of quizzing questions was 1,900 and the largest number was 4,470. To date, 92.3% of students passed the NCLEX on their first attempt and had an average quizzing ML of 6.47.

We often see a correlation between quizzing activity and mastery, which indicates that usage of NCLEX-RN 10,000 leads to demonstrated ability to correctly answer more difficult questions. Thus, with increased usage, student mastery of the content improves. We did not see that same pattern with this group of students—likely because there was very little variance in overall ML. If all students are around the same ML and seem to stop there, it is harder to tease out possible differences which may be seen with a different implementation (one in which we see a wider spread of overall ML between students).

The analyses reported above are retrospective and were used to explore the relationships between student usage of NCLEX-RN 10,000 and NCLEX outcomes. We can make no assertions as to causal relationships in the above analyses—in other words, we can't say that using NCLEX-RN 10,000 caused students to pass the NCLEX. These findings do, however, reflect other findings in which NCLEX-RN 10,000 ML for students who passed the NCLEX was ~4.0. Clearly, the ML in this group was higher, which may be a function of students using prepU in earlier courses and gaining more familiarity with the system.

The nature of the NCLEX data (pass/fail) and the high percentage of students passing the NCLEX on their first try renders analysis complex as there is little or no variation in student outcomes. With only 3 students not passing, it is difficult to discern much about potential, significant group differences which may impact success on the exam. Those who passed the exam did use more prepU products overall (2.39 vs. 1.33) and all usage and ML statistics were higher for those who passed versus those who did not. These patterns are encouraging and suggest that using NCLEX-RN 10,000 as an ongoing component of an NCLEX preparation strategy can be beneficial to students as it provides continuing, ongoing measures of student learning and progress. As the student engages with the program, they get practice answering questions, increase their mastery, and continue learning.