Arizona State Board of Nursing

CLINICAL FACILITY UTILIZATION BY ARIZONA NURSING PROGRAMS

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The purpose of nursing education is to produce competent practitioners who use clinical reasoning to make safe, effective patient care decisions (Benner, Sutphen, Leonard & Day, 2009). There is broad agreement among nurse educators that while didactic methods and simulated situations are essential, supervised experiences in clinical settings participating in direct patient care are imperative to prepare nurses to use theoretical knowledge and develop ethical comportment and professional values. Despite a rich tradition of clinical teaching and learning, nursing education is increasingly challenged with accessing sufficient clinical placements due to significant increases in nursing program enrollments secondary to increased interest in nursing as a career, unprecedented growth in new programs, and expansion of existing programs (Auerback, Staiger, Muench, & Buerhaus, 2013).

Limited availability of clinical experiences and reduced student-faculty ratios have prompted greater use of innovative instructional methods and settings such as high-fidelity simulation (Massias, 2009; Shearer, 2012), strengthened partnerships with healthcare facilities (Fetherstonhaug, Nay, & Heather, 2008; McIntyre, Murray, Teel, & Karshmer, 2009), dedicated education units (Freundl, Anthony, Johnson, Harmer, Carter et al, 2012), and observational and community-based opportunities (McNelis, Fonacier, McDonald, & Ironside, 2011). To strengthen the evidence for best practices in clinical nursing education, researchers (McIntyre et al.; Sheare; Massias) have identified the need for comparative studies of student learning and development using various educational methods.

Responding to the need to measure student outcomes with various instructional methods, the National Council of State Boards of Nursing (NCSBN) is currently conducting a multi-site study of simulation to determine how well new associate and baccalaureate nurses are able to apply the acquired knowledge to their practice as new nursing graduates. Researchers are examining and comparing the effect of clinical and simulation instructional experiences on competencies and level of practice. Follow-up of graduates into their first year of practice will measure retention and clinical judgment.

The NCSBN Simulation Study aims to 1) highlight currently known best practices in simulation use; evaluate the learning occurring with various amounts of simulation substituting for clinical hours, 2) establish key simulation standards and learning experiences in each core clinical course during the study and 3) evaluate new graduates’ ability to effectively apply educational experiences to the practice in the workplace. To achieve these objectives, in August 2011, new nursing students were randomized to one of three study groups: clinical as usual (control), 25% simulation or 50% simulation. Students remained in their assigned study group for all of the core clinical courses during their nursing program. Each semester and in each of the core clinical courses, students were assessed on their nursing knowledge, clinical competency and how well they perceived their
learning needs were met in both the clinical and simulation environments. Students in the study cohort graduated in May of 2013 and the researcher will be collecting NCLEX data through December, 2013.

While studies at a national level focus on the analysis of methodology that influence the demand for clinical space, annual surveys conducted by the Arizona State Board of Nursing provide evidence of the rapid expansion of existing nursing programs and proliferation of new programs. More than a decade ago, projections indicated shortages of 500,000 to 1 million RNs by 2020 (Buerhaus, Steiger, & Auerbach (2000). In 2002, the Arizona State Legislature responded by passing SB 1260 which required the state's community colleges and public universities to double their nursing program enrollments within five years (2007). As a result of this mandate, Arizona experienced a 108 percent increase in RN graduates from 2002 (1,133) to 2007 (2,364).

In 2005, the Arizona State Board of Nursing conducted a state-wide survey of clinical facility utilization by nursing programs to determine the effects of planning for the expansion of nursing programs by the SB 1260 legislative mandate. Since 2005, five additional registered nursing (RN) programs and two additional practical (LPN) programs have opened in Arizona. In 2005, nursing programs reported 4,191 prelicensure nursing students engaged in clinical patient care experiences in Arizona. Seven years later in 2012, all nursing programs reported a 64% increase in the number of prelicensure nursing students (6,892) participating in patient care experiences in Arizona. To make matters worse, in 2012, nursing programs and clinical facilities reported that healthcare facilities significantly reduced in the numbers of clinical placements available for nursing students.

In 2012 the Board sought to assess the impact of greater numbers of programs, students, and fewer placements on clinical utilization patterns. Nursing programs throughout the state were asked to provide the number of total patient care hours provided to students in acute care facilities, alternative facilities, and community based settings in eight specialty areas: basic medical-surgical, advanced medical-surgical, geriatric, pediatric, mental health, maternity, community health, and preceptorship. Respondents also provided the number of hours that students spent in skills lab, simulation lab, and virtual clinical experiences. Additional data were acquired on average time students spent in pre-clinical and post-clinical activities, experiences in working with organized scheduling consortia, and reductions in specific patient care experiences.

**SAMPLE**

All pre-licensure practical, associate, baccalaureate and master’s prelicensure nursing programs offering both classroom and clinical instruction in Arizona were surveyed (n=39). One public and one private practical nursing program did not respond. Two public baccalaureate degree programs reported two nursing tracks with differing clinical hours. Data were received between October 2012 through April 2013.

**TOTAL PATIENT CARE HOURS**

Total patient care hours included the number of hours students spent in direct patient care activities at acute care facilities, alternative facilities, and community based settings in eight specialty areas: basic medical-surgical, advanced medical-surgical, geriatric, pediatric, mental health, maternity, community health, and preceptorship.
Among all participating nursing programs (n=37) the average number of total patient care hours was 599, ranging from 196 total in a practical nursing program to 1113 hours in a master degree program. The mean total patient care hours decreased by 17% since 2005, when the average number of total patient care hours reported by all programs (n=22) was 720 (range 284-1158). Due to the variance between types of program, additional data were analyzed to learn if the decrease in total patient care hours was proportionally similar across type.

**PRACTICAL NURSING PROGRAMS**

In 2005, practical nursing programs (n=3) reported a range of 284-312 with a mean of 294 patient care hours. In 2012, practical nursing programs (n=5) reported a broader range of patient care hours (196 to 440) which represented a 10% increase in the mean of total patient care hours (325).

**REGISTERED NURSING PROGRAMS**

The two categories of registered nurse programs include ADN and BSN preparation. The average total patient care hours across all registered nursing programs was 796 in 2005 (n=19) and 644 in 2012 (n=37), evidence of an estimated 19% overall reduction in the mean number of patient care hours over the past seven years.

- In 2005, associate degree nursing programs reported an average of 743 clinical hours. In 2012, patient care hours in associate degree programs ranged from 476 to 752 with a mean of 604, representing a 19% reduction in the average number of clinical hours.
- In 2005, baccalaureate programs reported an average of 901 clinical hours. In 2012, baccalaureate programs clinical hours ranged from 390 to 855 with a mean of 680, representing a 25% reduction in the average number of clinical hours.
- The baccalaureate program that reported 390 hours was a bridge program that admitted only practicing LPNs (LPN to BSN).
- Three accelerated programs limited enrollment to baccalaureate prepared students. In 2005, only one accelerated program existed reporting 790 clinical hours. In 2012 the average number of patient hours among accelerated programs was 589 with a range of 507 to 855, evidence of a 25% reduction since 2005.
- One master entry into practice program established in 2011 provided a total of 1,113 patient care hours.

**PATIENT CARE HOURS DISTRIBUTION ACROSS SETTINGS**
Similar to the 2005 survey, respondents were asked to identify the number of clinical hours held in acute care, alternative care and community-based settings. While the data demonstrate that baccalaureate programs provided approximately 12% more clinical hours on average than associate degree programs (680 BSN vs. 604 ADN), when the LPN to BSN program (390 total clinical hours) was eliminated, the remaining BSN programs offered 19% more clinical hours on average than ADN programs (716 BSN vs. 604 ADN).

The mean number of clinical hours in acute care was nearly equivalent for ADN programs (482 hours) and for all types of BSN programs (470 hours). The majority of patient care hours were in acute care settings in both baccalaureate and associate degree programs. Practical nursing students provided patient care in alternative settings more often than registered nursing students. Baccalaureate students practiced more frequently in community-based settings than practical and associate degree nursing students.

**ACUTE CARE PATIENT CARE HOURS**

Across program types, in 2005, programs and facilities reported scarce acute care settings and students spent an average of 540 hours in acute care clinical settings. In 2012, students in all programs spent 19% fewer hours (439) in acute care settings. Acute care patient care hours were analyzed to determine if the decrease in total acute care patient care hours was proportionally similar across types of nursing programs.
AGENDA ITEM 9.e.

Average Number of Acute Care Hours by Specialty and Prelicensure Program Type

While practical nursing students averaged 194 hours in acute care settings in 2005, in 2012 the average total acute care hours was 128 (range 48-217) with the majority of hours in basic medical surgical (mean 68, range 30-180) followed by maternity (mean 26, range 12-36). In 2012, practical nursing students spent more hours in pediatrics at alternative facilities (60) than in acute care settings (42) or community-based facilities (25).

Associate degree nursing students spent an average of 539 hours in acute care settings in 2005. In 2012, associate degree students spent approximately 10% less time on average (482 hours, range 334 – 698) in acute care settings. Similar to data collected in 2005, the greatest numbers of clinical hours were in advanced medical surgical (146 average hours) followed closely by basic medical surgical (140 average hours). Similar to data gathered in 2005, other areas in descending order were preceptorship (77) maternity (51), pediatric (40), psychiatric (31), other (18), and geriatric (17).

Baccalaureate programs reported that students in 2005 spent an average of 616 hours in acute care clinical settings. In 2012, the average was 470 hours. The greatest number of hours were in advanced medical-surgical areas (mean 143, range 60-540) followed by basic medical surgical (mean 111, range 44-192), preceptorship (mean 112, range 60-186), maternity (mean 54, range 24-75), pediatrics (mean 51 range 24-72), mental health (mean 46, range 40-54) and “other” (45) specifically leadership. One program reported 20 geriatric hours in acute care. In 2005 and in 2012, many programs reported difficulty obtaining patient care experiences in pediatrics and psych/mental health, due to the limited availability of such units in acute care facilities. The lowered number of hours in these areas may be due to the limited availability of these units to nursing programs.

Between 2005 and 2012, declines in the number of acute care patient care hours in prelicensure nursing programs were inconsistent. The average number of acute care patient hours declined 34 % among LPN programs, 10% among ADN programs and 23% among BSN programs.

**ALTERNATIVE CARE FACILITY PATIENT CARE HOURS**

Nursing programs provided data regarding patient care hours at facilities other than acute-care hospitals and facilities. These alternative care facilities provided tertiary rehabilitative services such as
long-term care including long-term pediatric care facilities, sub-acute care, and skilled nursing and included assisted living homes, group homes, and hospice settings.

In 2005, the largest proportion of LPN student clinical hours was in acute care settings. In 2012, the majority (59%) of patient care hours in practical nursing programs (n=5) were acquired at alternative facilities, primarily in basic medical-surgical and geriatric specialty areas which together accounted for 74% of alternative care hours. This represents a shift to alternative care facilities. There was little difference between the average number of basic medical-surgical hours reported in 2005 (61, range 56-66) in alternative facilities and those hours reported in 2012 (68, range 32-132).

In 2005, ADN programs reported averages of 32 basic medical-surgical hours (range 0-96) and 46 geriatric hours (range 0-152) at alternative care facilities. In 2012, ADN programs reported using alternative care facilities for basic medical-surgical experiences (mean 60 hours, range 18-105) and geriatric experiences (mean 71 hours, range 0-120). These data indicate an increase in the use of alternative facilities. Two ADN programs in 2005 and five ADN programs in 2012 utilized alternative settings for psych mental health clinical instruction. Additionally, in 2012, two programs used alternative care settings for pediatrics and three programs reported conducting preceptorships in alternative care settings. No associate degree nursing programs reported preceptorships in alternative care facilities in 2005.

In 2005, BSN programs reported little use of alternative care facilities with the greatest usage in geriatrics (mean 16, range 0-60). In 2012, BSN programs reported greater use in basic medical-surgical (mean 57, range 45-90); four BSN programs reported alternative settings were used for geriatrics (mean 51, range 25-72); four BSN programs reported conducting mental health instruction in alternative facilities (mean 30, range 3-80).

COMMUNITY-BASED FACILITY PATIENT CARE HOURS
Data gathered from nursing programs regarding community-based facilities included primary care clinics, physician/NP offices, home health care settings, public health agencies, shelters, schools, parish nursing, and social service agencies. One practical nursing program reported the pediatric experience (12 hours) occurred at a community-based facility. The same program supplemented 12 hours of acute maternity care with 6 hours of community-based maternity care.

Associate Degree Nursing
- Associate degree programs rarely reported utilizing community based settings (6% of total clinical hours).
- Sixteen associate degree nursing programs reported an average of 50 hours (range 12-130) in community based settings, an increase since 2005 when the mean number of hours in community health was 28 (range 0-120).
- Associate degree nursing programs utilized community settings most frequently for mental health (n=11, mean 19, range 5-60), pediatrics (n=8, mean 9, range 4-24), community health (n=5, mean 21, range 4-50), and basic medical-surgical (n=4, mean 11, range 12-24).
- Programs specified dialysis, community service and school nursing as “other” categories. One program required students to complete 80 hours of community service.

Baccalaureate Degree Nursing
• Twenty percent (20%) of total clinical care hours in baccalaureate programs occurred in community-based service settings with a focus on community health (72% of all hours).
• There was no difference in the number of community-based hours baccalaureate programs reported in 2005 and 2012. Baccalaureate programs provided an average of 132 hours (range 76-190) in 2005 and an average of 126 hours (range 45-180) in community health clinical experiences in 2012.
• In 2012, baccalaureate programs utilized community-based settings for mental health (n=5, mean 29, range 16-45), pediatrics, (n=2, mean 12), geriatrics (n=2, mean 12, range 8-16), and maternity (n=1, 12 hours).
• One program reported 52 hours in home health while another program reported 45 community-based clinical hours focused on management of family.

Masters Degree Nursing
• In 2012, the prelicensure master’s program provided 72 hours of basic/advanced medical-surgical and geriatric care in community-based settings.
• In 2012, 70 hours of pediatric care and 90 hour of community health care was provided in community-based settings.

NURSING SPECIALTY PATIENT CARE HOURS
Data were further analyzed to determine the number of patient care hours for each type of program in each identified specialty area.

PRACTICAL NURSING PROGRAMS
All practical nursing programs reported experiences in the three specialty areas required by Board rules: basic medical surgical, pediatric, and maternity. The majority of all patient care hours (42%) were in basic medical surgical in acute care settings.
• Geriatric facilities: One program reported using geriatric facilities in 2005; three programs reported geriatric clinical care in alternative facilities (mean 130, range 70-200) in 2012. A fourth program reported 45 hours in long-term care under “other” specialty area.
• Maternity facilities: Practical nursing programs provided fewer maternity clinical hours (mean 25, range 12-36) and clinical hours (mean 23, range 12-36) than reported in 2005 (maternity mean 36, range 32-40).
• Pediatric facilities: In 2012, practical nursing programs provided fewer pediatric clinical care hours (mean 23, range 12-36) than in 2005 (mean 32, range 28-36).
• There were a variety of ways in which programs provided clinical instruction in mental health. One program reported integration of mental health throughout the curriculum, while another offered 30 patient care hours in an acute care setting.

ASSOCIATE DEGREE NURSING PROGRAMS
All associate degree programs reported meeting the Board rule requirements for student experiences in medical-surgical, pregnancy/delivery, pediatrics, and mental health specialty areas.
• In 2005, program directors reported an average of 208 basic medical-surgical clinical hours (range 70-384). In 2012, the number of basic medical-surgical care reported by and programs was 177 (range 45-316), representing a 15% decrease.
• In 2005, the average number of hours in advanced medical-surgical clinical hours was 166 (range 0-384). There was little apparent change in 2012, when ADN programs reported an average of 159 advanced medical-surgical hours (range 0-448).
Six ADN programs utilized alternative or community-based facilities for direct care in mental health placements.

Three programs accessed pediatric direct care opportunities in alternative or community-based facilities rather than in acute care facilities.

Clinical hours reported in other areas included: preceptorship (mean 110, range 0-180); maternity (mean 52, range 20-120); geriatric (mean 78, range 0-120); pediatrics (mean 46, range 8-65); mental health (mean 48, range 0-120); and community health (mean 26, range 0-50).

**BACCALAUREATE NURSING PROGRAMS**

All baccalaureate programs reported patient care hours in all categories mandated by rule.

- Similar to data provided in 2005, programs reported the greatest number of clinical hours in advanced medical surgical areas (mean 143, range 60-180).
- The average number of advanced medical surgical clinical hours reported in 2012 was 27% lower than in 2005 (mean 195, range 60-476).
- Clinical hours in other areas included: basic medical surgical (mean 123, range 44-180); community health (mean 96, range 45-180); preceptorship (mean 99, range 0-186); mental health (mean 72, range 45-80); maternity (mean 55, range 24-87); pediatric (mean 72, range 40-83); and geriatric (mean 62, range 0-92). “Other” categories included home health, management of family, and management/leadership courses.

Baccalaureate programs provided more patient care hours than associate degree programs in all specialty areas with the exception of basic medical surgical and geriatrics. Larger variances were seen in the community and “other” categories. Baccalaureate programs provide community health coursework and practice, in contrast to associate degree nursing programs which focus primarily on acute care experiences. The large variance in the “other” category reflected the diverse and creative opportunities available to BSN students as clinical time was spent in non-traditional health care settings such as health fairs and day care centers.

**PRECEPTORSHIPS**

Directors reported if preceptorships were scheduled for students and if they planned to continue the practice. The number of preceptorship hours was not collected.

- Sixteen associate degree programs reported offering preceptorships opportunities from July 2011 through June 2012.
- Six associate degree programs provided no data regarding preceptorship experiences in 2012.
- There appears to be movement toward a planned reduction/discontinuation of preceptorships by seven programs.
  - One program conducted a selective process to award a limited number preceptorships to students based on achievement.
  - Two programs reported reducing the number of students offered preceptorships by 50% while another program reduced preceptorships by 25%.
  - Two programs reported discontinuing preceptorships in June 2012 and another program planned to suspend preceptorship placements after July 2013.
- Five of seven baccalaureate programs reported providing preceptorships. Two programs indicated phased plans to reduce the number of preceptorships in the future.

**SKILLS LAB, SIMULATION AND VIRTUAL EXPERIENCES**
All programs were asked to provide the time students spent in clinical instruction provided in laboratory and virtual settings. Skill lab hours included practice and demonstration of clinical skills in a lab environment with assessment by instructor. Simulation lab hours included student practice, demonstration and debriefing in a simulated nursing care environment with patient-centered scenarios using moderate or high fidelity simulated technology. Virtual clinical hours included interactive time with computer simulated clinical processes with virtual patients to develop clinical reasoning and decision-making skills. Data regarding if the virtual clinical excursions were completed individually, in groups, or with faculty.

**SKILLS LAB**

![Average Skill Lab Hours](chart)

Practical nursing programs reported more skill lab hours in basic medical-surgical nursing than either ADN and BSN programs. Associate degree programs reported more skills lab hours on average in basic and advanced medical-surgical, geriatric and maternity specialty areas. Baccalaureate programs reported more skill lab hours in mental health and comparable hours in pediatrics and community health. Associate degree programs an average of 139 skill lab hours (range 30-300) while baccalaureate programs reported a mean of 125 hours simulation (range 28 – 204).

**SIMULATION**
Practical nursing programs reported a higher average number of simulation hours in basic medical-surgical nursing and fewer simulation hours in geriatrics than either BSN or ADN nursing programs. Baccalaureate programs reported similar use of simulation on average to associate degree programs. Associate degree programs averaged 60 hours of simulation (range 12-138) while baccalaureate programs reported a mean of 68 simulation hours (range 39 – 142).

VIRTUAL CLINICAL EXPERIENCES

One LPN programs reported providing 4 to 5 hours of virtual clinical experiences in four areas and another LPN program reported 4 and 6 hours in pediatrics and maternity respectively. Eight associate degree programs reported use of virtual clinical experiences (mean 38, range 1-96) in all specialty areas. Three baccalaureate programs reported virtual clinical experiences (mean 40, range 13-90) with an emphasis on medical-surgical content.

PRE-CLINICAL AND POST-CLINICAL CONFERENCES
All programs provided a general idea of how much time students spent in pre-clinical and post-clinical conference activities. Directors received estimates from faculty who conduct clinical conferences.

Seventeen (17 of 37) programs reported pre-clinical conferences were in the range of 15-30 minutes while five programs indicated pre-clinical conference could be as long as 60 minutes. While post-clinical conference could be as short as 30 (n=4) or as long as 90 minutes (n=3), most programs indicated post-clinical conferences lasted 60 minutes (n=22). The average total time for pre-clinical and post-clinical conference reported by all programs was approximately 80 minutes.

STUDY LIMITATIONS
In interpreting these data, it is important to remember that data were collected for the purpose of describing nursing program clinical utilization and may contain reporting errors as well as errors of omission and interpretation. Due to the great variability among the number of programs reporting specialty areas in different types of settings, averages in specialty areas were calculated and reported with the number of programs responding. Hours spent in nursing skills, in simulation, and in virtual clinical environments represented baseline data as these data were not collected in 2005.

Similar to the 2005 survey, patient care hours measured by this survey are a quantification of time spent providing patient care. Critical variables that significantly influenced the quality of the clinical experiences such as the teacher-student ratios, the types of activities, expectations regarding student performance, characteristics of the patient population, and the availability and amount of type of faculty and staff supervision were not measured. These data must be interpreted cautiously and are not a measure of the quality of nursing program or of the quality of clinical experiences.

CHANGE IN CLINICAL INSTRUCTIONAL HOURS
Data collected in the survey demonstrated reductions in the total number of patient care hours reported by nursing programs since 2005. While patient care hours in practical nursing programs were 10% greater than in 2005, associate degree programs and baccalaureate programs reported reductions of 20% and 25% in total patient care hours respectively. Fewer patient care hours were likely influenced by increases in existing nursing program enrollment, proliferation of new programs, and decreased availability of patient care opportunities. Many programs reported using simulation and skill lab experiences to enhance and supplant patient care hours.

While the vast majority of patient care experiences occurred in acute care settings, students in all programs spent 19% fewer hours in acute care settings in 2012 than students in 2005. Practical nursing programs also reported fewer patient care hours in maternity and pediatrics, while associate degree programs reported fewer patient care hours in basic medical-surgical nursing. Baccalaureate programs reported fewer clinical hours in advanced medical surgical settings than in 2005.

Data indicated increased use of alternative care settings among associate degree programs in medical-surgical, geriatric and mental health specialties. While the majority of registered nursing programs continued to offer preceptorships, evidence demonstrates that associate degree programs are decreasing, limiting, or discontinuing these opportunities. Overall there was consistently greater variability in the range of clinical hours reported throughout the responses to the survey compared to data provided in the 2005 survey.

Twelve of 22 associate degree programs reported reducing clinical hours in the past year, primarily in obstetrics, pediatrics and mental health. One program director explained that when healthcare facilities
decreased requirements for teacher:student ratios, the program supplanted lost clinical hours with simulation experiences.

Five of 9 baccalaureate program directors provided comments regarding reductions in clinical hours. Directors reported moving students to community settings for pediatric experiences when pediatric acute care settings became unavailable. Program directors reported augmenting advanced medical-surgical experiences with simulation using complex and multi-patient scenarios, and enhancing mental health clinical experiences with case study analyses. One baccalaureate program described a need for “redistribution” of all clinical areas in both acute and non-acute settings, skills labs, and simulation and virtual tools over the past year. Two BSN programs described adding simulation to all coursework to prepare students to practice clinical reasoning and improve their clinical evaluation skills.

More study is needed to determine the effect of reductions of clinical hours on nursing student learning and the preparation of future nurses. The NCSBN National Simulation Study is currently underway and measuring differences in clinical competency among graduating nursing students to determine how learning needs are met in clinical and simulation environments.

Nursing educators agree that clinical practice provides the best instructional experience to create, promote and support mastery of nursing knowledge and skills. The value of each clinical practice setting should be determined by students, staff nurses, faculty, and administrators as well as new graduate and employer evaluations of transition to practice. In making decisions regarding educational experiences and practice settings, program directors must consider patient safety, cost benefit, and student capacity at clinical sites. These survey results are offered to increase awareness of significant changes that have occurred in clinical experiences in Arizona over the past seven years. The results of this survey should encourage program directors and faculty to carefully conduct mindful assessments and evaluations of future changes, to make the best use of patient care experiences in the most appropriate settings to benefit future nurses.

References


