Nurse Articulation and Acceleration Models of Central Texas: Finding the Balance

An E^3 Alliance Report to *Work*Source

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Prepared by E^3 Alliance

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About E^3 Alliance

The E^3 Alliance was formed in May of 2006 by founding partners Austin Area Research Organization, Austin Community College District, and the University of Texas. The E^3 Alliance is a regional collaborative to create a research-based "blueprint" to align our education systems to better fulfill the potential of every citizen and in turn, increase economic outcomes and build a stronger economic future for our region. The E^3 Alliance acts as the P-16 Council for Central Texas. We use a data-driven model to determine high-level alignment opportunities and to work with the community and stakeholders to identify Central Texas goals for education. Much of the work of the E^3 Alliance is based on compiling and analyzing data and information never before available for any region of the state (and perhaps the country) to identify key leverage points in driving systemic change in education across the entire spectrum from early childhood through higher education.

In an effort to better contextualize quantitative data sets, our methodology has been extended to incorporate a number of qualitative approaches such as intensive interviews and focus groups. We at the E^3 Alliance feel strongly that a mixed-method approach is highly effective in light of its capacity to yield a robust analysis and to lay the ground work for the ultimate goal of our research: turning information into action.

Introduction:

In December 2006, *Work*Source contracted with E^3Alliance to conduct a year-long review and study of optimal models for Central Texas to address the nursing shortage in a sustained and sustainable way. The focus of this project was first to determine the scope of the shortage locally. E^3 was then contracted to conduct innovative, unbiased solution-based research to identify key strategies and models to increase the capacity of regional nursing programs. The aim of such models is to produce more RNs and capitalize on the strong and longstanding public-private partnership in regional healthcare workforce development. Although the specified industry was healthcare with an interest in nursing, the models proposed would have implications and applicability across several different industries such as computer engineering, biotechnology or other fields where the regional workforce demand is high.

There were several requirements related to the original grant contract:

1. Create an Ad Hoc Committee (a subcommittee of the Health Industry Steering Committee, or HISC) to focus on pipeline issues related to articulation from high school to 2 year or 4 year nursing degrees, RN-BSN/MSN and acceleration

models that would expedite the production of BSN and MSN prepared RN's. (See Appendix A for a complete list of members.)
2. Direct input and collaboration with local higher education institutions with nursing programs and other training providers to ensure commitment, accuracy and creativity in solving bottleneck issues.
3. Provide integrated research on the nursing workforce shortage and higher education capacity to meet this need.
4. Provide localized qualitative and quantitative information gathering to test assumptions and identify roadblocks in meeting workforce needs.
5. Develop draft models and strategy recommendations based on local and national research and regional input, including, where appropriate, applicability to other high need industries requiring post secondary education.
6. Submit a final report detailing the analysis and identifying recommendations for the optimal model based on analysis.

What follows is the final report based on a year of research including interviews, on-site visits, meetings, expert panels and local feedback from regional business and higher education partners. The report will begin with a brief description of the current and projected state of the workforce shortage in nursing and the capacity to address this issue. We will then provide the set of recommendations based on our research and a section outlining next steps. The remainder of the report will describe the models explored throughout the year and provide a detailed resource list of experts.

Healthcare Industry Regional Overview of the Nursing Shortage

Over the last 12 years, Central Texas has undergone phenomenal growth that has led the region to be ranked among top five fastest growing in the nation. Such expansion is fueled by and has in turn fueled a strong economy, led by high tech (semiconductor and computer), IT (software engineering and design), and biomedical and pharmaceuticals. Often unsung among these economic drivers is the tremendous growth experienced by the healthcare industry as the region's population continues to grow and age.

In the last two years alone, the region has seen:

- Groundbreaking at three new hospitals in Williamson County with plans for development of two additional hospitals in Hays County,
- The opening of two new hospitals in Williamson County,
- The expansion of Brackenridge and the opening of a Rehabilitation Hospital within Seton Medical Center in Travis County,
- The opening of the Dell Children's Medical Center of Central Texas in Travis,
- The launch of Seton's Clinical Education Center in Travis.
- St. David's HealthCare is responding to growing community needs in all 5 acute care facilities by committing over $500 million to capital expansion, facility renovation, and technology investment.

- North Austin Medical is scheduled to become the largest standalone Women's Center, including the expansion of their 65 bed Neonatal Intensive Care unit in 2009, making them the leading Level III NICU in Central Texas.

Each new hospital ranges in size from 70-300 beds. These openings reflect regional growth but are not a complete list of the strategic expansion plans slated over the next 5 years by the region's two largest healthcare providers: Seton Family of Hospitals and St. David's Healthcare System/ HCA. In addition, Scott & White and Triad have recently moved into the Greater Austin area with continued plans for expansion.

Consequently, by 2015, there the region is projected to add 4,000-5,000 new Registered Nurse (RN) positions.[1] This number does not include jobs openings due to turnover. When replacement jobs are included, RN openings in 2015 are expected to top 7,000. Figure 1.1 below describes the three fast-growing occupations in the region, their wage capacity and the region's current production of higher education degrees and licensures for these occupations. Nursing remains the job requiring a post secondary degree in highest demand for the region.

Figure 1.1

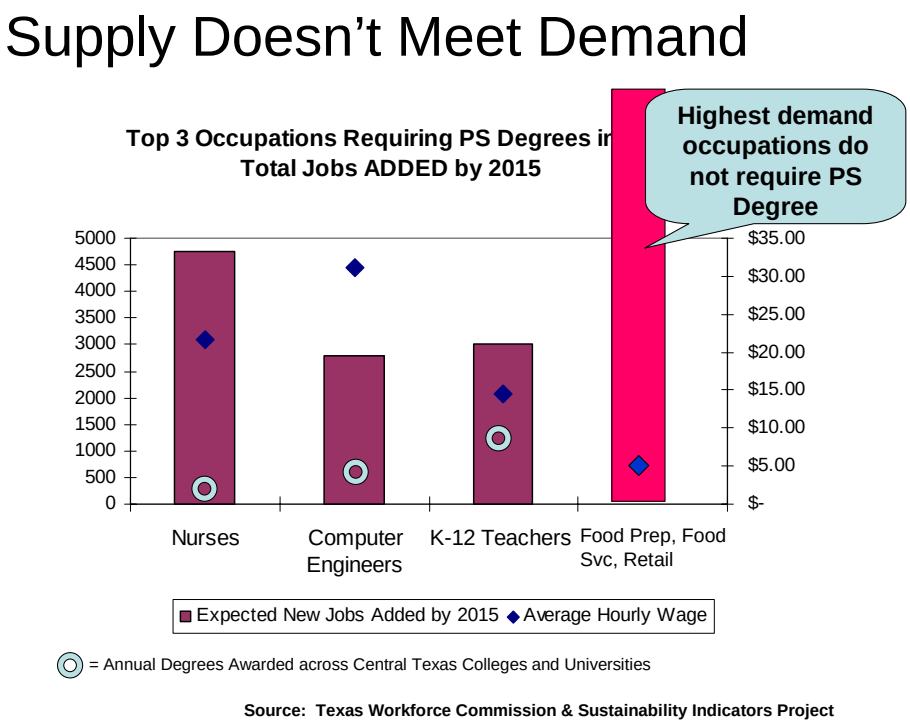


Figure 1.1 also shows that although the demand is great, the ability of the region to produce graduates from nursing programs who then obtain licenses to work as Registered

[1] This number was derived from combined research from the Texas Workforce Commission, the Sustainability Indicators Project and individual conversations with representatives from Seton Family of Hospitals and St. David's Healthcare System.

Nurses is limited. Through public-private partnerships supported by and through the *Work*Source-based Health Industry Steering Committee (HISC), Austin Community College and the University of Texas at Austin continue to expand their ADN and BSN programs.

Since 2003, Austin Community College has expanded more that 25%, increasing nursing student enrollments to 80-105 a semester and graduating about 150 a year. The University of Texas at Austin School of Nursing produces another 150 BSN graduates a year, although many may leave the region for employment. Texas Tech's distance program adds another 20 graduates locally. The approximate annual output runs at about 320 students graduating with nursing degrees a year. If these numbers were projected to remain flat and all graduates from the program were to be employed in local area, it would constitute just over one quarter of the total projected openings in nursing by 2015.

But there is some good news as well. Two new nursing programs -- each projected to train 100 nursing students per class -- are slated to open in Central Texas in the next two years. Concordia University has received funding to create a nursing program for the region scheduled to begin as early as the fall of 2008 or 2009. Texas State University anticipates launching its nursing program in 2010 at its Williamson County campus.

In addition to these new nursing programs, both Austin Community College and UTASON have pledged to continue to expand their programs. UTASON is currently expanding its graduate programs in nursing and has added a the sequence of nursing education courses needed for a concentration in education to address the most pressing issue inhibiting further expansion in the region: ***the lack of trained nurse faculty.***

Hospitals are also committed to expanding nurse education efforts through financial commitments to institutions that increase faculty resources and thereby enable more students to enter the programs. The faculty shortage -- even with these additional resources-- hinders progress. There are three primary reasons for the local faculty shortage:

1. Faculty, typically are not compensated at the same levels as nurse professionals with graduate degrees.
2. Prior to the fall of 2007, The University of Texas at Austin School of Nursing did not have a nurse educator track at the master's or doctorate levels.
3. Practicing RNs have little incentive to continue their education for graduate degrees because:
    a. ADN to BSN degree holders see little or no immediate differential in salary
    b. There is a lack of support for working professionals to return to graduate school (few on line courses, compensated release time, work-based on learning credits earned, etc.).

Figure 1.2

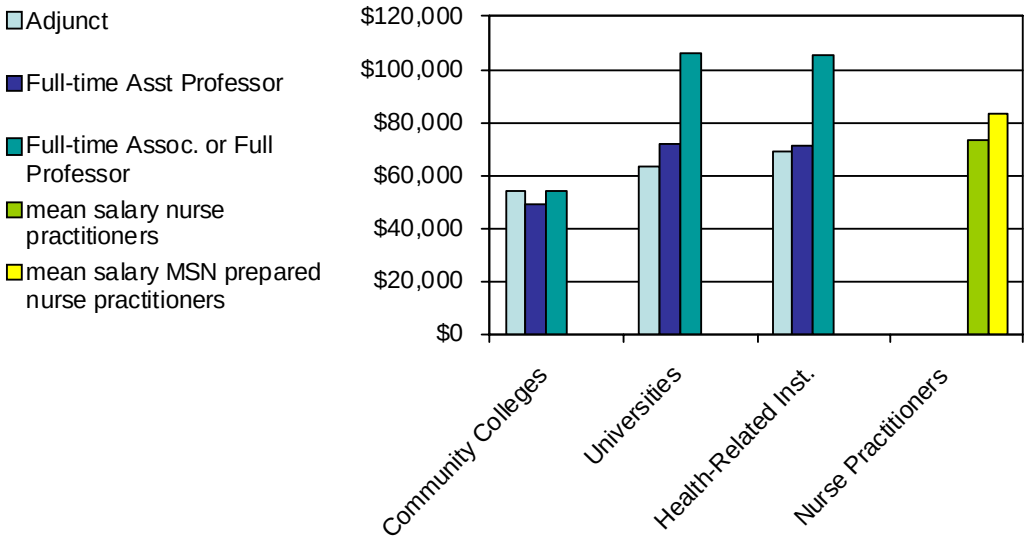


Figure 1.2 demonstrates the discrepancies in compensation that occur between practitioners and faculty.[2] In Central Texas, Austin Community College faces some of the biggest challenges because of these discrepancies, but they are not alone. High schools with health sciences programs are struggling to find qualified teachers, and it is likely that both Concordia and Texas State will face similar challenges in recruiting faculty. Further, senior officials at both institutions report that they have been through multiple rounds of recruiting looking for nursing directors for their respective programs. One immediate consequence to this faculty shortage is ACC's reluctant admission deferment for 30 qualified students for the spring of 2008 despite the availability of adequate facilities and funding for faculty salaries. [3]

Pipeline Challenges

Bottlenecks around challenging courses and transitions in the training pipeline further hinder expansion of regional nursing programs. Examples include:

- Courses such as Anatomy & Physiology, where a high percentage of students fail or are significantly challenged
- Difficult transitions from ADN/RN to BSN/MSN programs,
- Lack of sufficient on-line course offerings to ease the continuing education process for practicing nurses. nurse practitioners
- Lack of high school to college and career CTE tracking to test the efficiency of that portion of the regional pipeline. More than 7 high schools in the region offer career and technical education courses in health sciences that are considered career "pathways, academies, or clusters." Students in these courses have expressed interest in pursuing college degrees and/or careers in health care, many

[2] Dr. Christine Fowler from the Texas Higher Education Coordinating Board provided this data directly.
[3] This update on faculty shortage provided by Dr. Jean Ward from Austin Community College at the December 7, 2007 HISC Quarterly meeting.

in nursing. However, to date, the region can only anecdotally determine who enrolled in higher ed after high school and continued on to pursue a nursing degree. (See Appendix B for Pipeline with wages.)

Lack of robust transition data at all levels of the pipeline also hinder tracking and overall coordination. For instance, currently only anecdotal data are available about the number of local students who graduate high school in health science career pathways and move on to degrees in nursing or other health science fields.

One curriculum-related bottleneck that deserves particular attention is ***the lack of sufficient clinical rotation space*** at regional healthcare facilities. Current Board of Nurse Examiner (BON) state and national accreditation standards require that nursing students receive a specific percentage of clinical (hands-on and direct observation) experience during their tenure within a nursing program. In order to ensure quality learning experiences and to reduce the burden on individual practicing nurses, the ratio of clinical faculty to students is 1:10. In addition, students are required to precept (1-to-1) for a given period in their final semester in order to further increase their readiness to begin practicing as soon as they graduate. The shortage of faculty, in combination with the small clinical class sizes, and the constant need to use clinical rotations to onboard newly licensed nurses significantly inhibits the ability of local hospitals to increase clinical rotation space to accommodate the greater number of students passing through local nursing programs.

This challenge will only grow more acute as the new nursing programs at Texas State and Concordia University come on line in the next two years. Without an effective solution planned in advance of the launch of these programs, the ability to execute the planned curriculum will be severely compromised.

Across the state and the nation several strategies have been employed to ease the burden of clinical rotations on healthcare providers:

1. Creation of regional simulation centers that replicate the hospital experience and utilize simulation models that can mirror typical patient conditions. The value of these centers is that they serve to introduce a student to the clinical experience, and can replicate complex scenarios that are likely to occur in a hospital setting without directly impacting local hospitals and staff. Students report an increase in confidence level in students who train in simulation centers. However, studies are still pending on whether the use of simulation scenarios in lieu of some clinical experience has affected overall system efficiency, student performance or nurse readiness. Moreover, no clear guidelines exist as to how much of the required clinical experience can be replaced using simulation.

2. As approved by the state BON, modify faculty supervision to include RN's with BSN degrees (instead of MSN or higher). These faculty are strongly encouraged to obtain graduate degrees. This strategy has the dual benefit of expanding the

pool of faculty able to conduct clinicals and giving these nurses a jump start on pursuing their advance degrees. In the case of Midwestern University in Wichita Falls, the combination of the use of both a simulation center and BSN-prepared simulation coaches has resulted in more availability of clinical space and in a small increase in MSN-prepared nurses who can then serve as faculty. Each case must be approved by the state BON. Locally, ACC is reluctant to undertake this strategy until it has completed its next college accreditation process in 2008.

3. Expansion of clinical rotation hours to non-traditional times including overnight and weekends. This strategy already occurs on a limited basis in the region. However, faculty and students both must be available during these evening and weekend times and this proves challenging. There are also concerns about the impact of introducing students at night on patient safety and concerns that students will not be exposed to as many procedures at non-traditional hours because of the different patient routines at those times. Patient acuity and census are important to the learning process.

4. Expansion of clinical rotations to non-acute care healthcare facilities. For initial clinical rotations in the first year of the nursing program, this strategy has been viewed locally as viable, however for the second year of the program, hospital-based rotations are necessary for students to be prepared for the high levels of patient acuity they will be faced with in these settings once they become nurses. Examples of lower level health care facilities include rehabilitation centers, doctor's offices, outpatient clinics, etc.

Locally, the Health Industry Steering Committee has utilized a web-based program and a shared process for scheduling, negotiating and monitoring the use of clinical space across participating healthcare providers. The use of this model has increased optimization of existing clinical rotations and expanded the hospital's understanding of the education partner's needs which has led to the identification of additional slots, but it cannot address any true shortage of space. At the same time, data analysis shows that clinical capacity is not utilized as efficiently as it might be because of traditional assumptions about the timing and scheduling of clinical space.

In addition, Seton Family of Hospitals launched its Clinical Education Center in the fall of 2007 which will serve for the next few years as a central location for simulation-based clinical education for UTASON and ACC students as well as an apprenticeship program for Seton's new nurses. This CEC is expected to be temporary at this facility, but will serve as fertile ground to plan and develop a regional simulation center that can build on lessons learned from this effort.

This lack of sufficient faculty in combination with local ruptures in the nurse education pipeline has severely hampered the ability of the region to meet the local demand for nurses, and the gap is growing. Healthcare is not only an engine for the local economy by creating thousands of new jobs a year, it is considered a critical component in any region's infrastructure and ability to attract new business. If we don't find a way to close

the gap in nursing we risk compromising healthcare delivery to the region and reducing the attractiveness of Central Texas for new businesses.

The following section includes the list of recommendations from E^3 Alliance based on this year-long research effort and from the feedback of nursing programs and healthcare providers. In most cases, E^3 Alliance is not originating recommendations but endorsing ideas that have been espoused by committee members and need critical regional support from the public and private sectors.

E^3 Alliance Recommendations for Expanding Nursing Programs, Increasing Nurse Readiness, and Creating a more Seamless Pipeline

Central Texas faces tremendous challenges in addressing it regional shortage in the nursing workforce, but it has several assets that will play a significant role in successfully meeting these challenges.

The region boasts a nationally-recognized healthcare workforce education partnership that has enabled industry competitors, nursing programs, local school districts and nonprofit organizations to build a strong collaborative spirit and develop joint programs built on mutual benefits. Successful partnerships include an array of projects ranging from providing direct financial support of local nurse education programs to increase expansion, to developing regional standards for nurse program admissions for critical pre-requisite immunization and criminal background checks, and developing creative workforce development programs for adult workers seeking new career opportunities.

These same players (for a complete list please see Appendix A) came to the table throughout 2007 to explore program expansion models and discuss which models showed greatest promise and how they may be adapted to meet local needs. Based on these monthly meetings, we have divided our series of recommendations into three sections reflecting the order of priority as seen by constituents:

1. Expand local Nursing Programs
2. Increase Nurse Readiness to Enter Practice
3. Create a More Seamless Pipeline from High School - Graduate programs

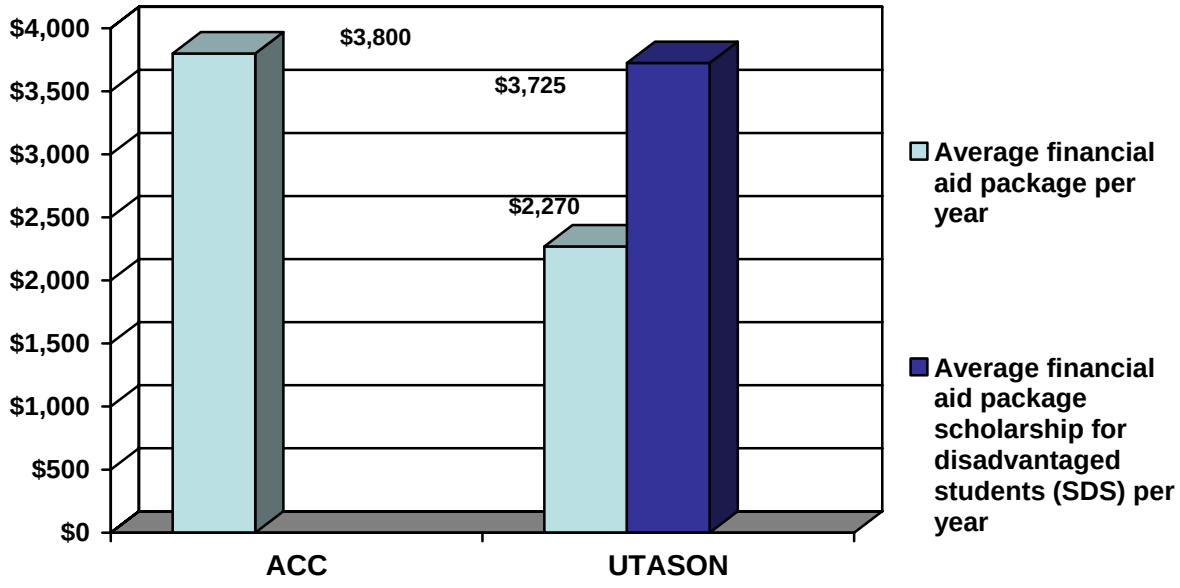
1. Nurse Program Expansion

Without question, committee participants were most interested in expanding the number of nursing students coming through regional nursing programs. However, this desire was tempered by the understanding that major barriers exist to wholesale expansion. The major stumbling block to significant strategic expansion remains a lack of nurse faculty (at the MSN and PhD levels). Limited clinical rotation space, particularly in specialty areas such as pediatrics and psychiatry is a close second.

Below is the list of recommendations for program expansion centered on faculty development:

1. Support UTASON's efforts to expand its MSN program (NExT) and education track through:
    a. Identifying institutional and financial support for creating on-line coursework and on-site coursework
    b. Identifying support for mapping work-based learning to course objectives.
2. Create a shared faculty model regionally that provides release time for practicing MSNs to teach in local programs.
    a. Identify mechanisms for hospital compensation to release qualified staff
3. Identify mechanisms for fast-tracking practicing RNs through MSN program(s).
    a. Create incentive programs that include increased family support (a major barrier for RN's to continuing their education) such as local child care discounts
    b. Create a separate scholarship funding stream for RN's who enter the MSN program that allows them to access public funds regardless of their current level of compensation. Figure 1.3 below illustrates the challenges nursing students face in financing their education. For ACC, financial aid constitutes the majority of the cost of the entire program not including board and lost wages. For UTASON, the amount constitutes roughly 20-40% of the cost of the program not including board or lost wages.

Figure 1.3



*Work*Source's current mandate from the Texas Workforce Commission would not enable most funds it has for allocation to be used for RN's interested in pursuing a Master's

Degree, because they earn far more than the standard for *Work*Source program participants. However, there may be other ways to identify *Work*Source's role in supporting these candidates, such as through Childcare vouchers or through efforts to recruit hospital employees in other occupations to pursue nursing (i.e. Robert Wood Johnson Foundation grant).

2. Increasing Nurse Readiness

Another major concern voiced by regional healthcare providers was the amount of orientation and support needed by new nurses upon initial employment in a hospital setting. Research shows that an effective transition leads to better retention and improved patient care.

Although some of these issues relate to unique environments within the different hospital settings, many can be seen at any acute healthcare facility. They include everything from helping nurses transition to the use of specific technologies, to working with care models being implemented at a facility, to teaching new nurses how to handle larger patient loads. Several projects are currently underway to address this issue locally, including Seton's new Clinical Education Center and Versant Residency program, St. David's GN Orientation and SNAP Fellowship, and ACC and St. David's pilot project for 4th-semester nursing students integrating hospital orientation objectives into learning objectives. Results are pending.

Below is a list of recommendations for Nurse Readiness centered on creating regional standards for nurse readiness and addressing the role of clinical rotation in readiness standards.

1. Develop a nurse competency checklist or transcript that coordinates with nationally recognized models of Clinical Competence (i.e. Benner) for the region. Coordinate with efforts already underway at Midwestern University.
2. Continue to pursue strategies to support a long-term regional simulation center that can include other healthcare professions in addition to nursing and include programs across the region, including Williamson County.
3. Continue to coordinate final semester learning objectives with regional healthcare provider orientation objectives.
4. Require a stronger technology competency component in nursing pre-requisite programs, including mastering wireless technology devices.
5. Provide ongoing professional development for local nursing faculty on new healthcare practices and technology.

Through the Health Industry Steering Committee and the standing NAAM subcommittee, E^3 strongly recommends collaborating with Dr. Sportsman at Midwestern University on creating a "nurse readiness transcript" that corresponds to new nurse and final semester nursing student learning objectives. Midwestern has acknowledged an interest in this collaboration and Central Texas has all the key stakeholders already convened. Further,

the development of this "transcript" prior to the launch of the new programs will serve as a means to guide curriculum development in the final semester for each program.

3. Create a More Seamless Pipeline

The interests of the committee in creating a more seamless pipeline were less salient than E^3 Alliance had originally expected because of the over-riding concern and need for more nurse faculty. As a result, the focus on how to move students more effectively from high school to nursing program to graduate program remained an ancillary issue for many members. However, there were some critical issues that emerged during the course of these meetings and our own research.

E^3 saw competing interests emerge between local high schools interested in developing or enhancing relevant health science coursework and the sense from higher education that these courses were not as valuable to student admission or successful progress as preparation in math and science needed to decrease failure rates in prerequisite coursework. Higher education institutions prefer to focus on recruiting students with more general education college credits under their belt, while K-12 leaders see health science-specific courses as being critical to keeping students engaged and interested in going on to healthcare fields. College representatives pointed to a desire to have students take prerequisite classes at the college as a way to ensure consistent preparation for core classes in each discipline. Again, the lack of data tracking in high school to higher education transitions makes this perception of the impact of specific versus general education credits on student interest and matriculation difficult to test. Also, the shortage of faculty credentialed in health care and higher education is a critical bottleneck to local area high school offerings in advanced health science classes.

Further, although articulation agreements have been in place between ACC and UTASON (and the soon to be Texas State), few students in the ADN program have capitalized on these agreements. In part, the standards for ACC students to go on to UT have remained out of reach for many students (i.e. required grade point averages are higher than those of most graduates). Also, it appears that faculty have not traditionally encouraged such transfers. Many students seek RN to MSN programs instead of the RN to BSN track offered locally. According to interviews with ACC's articulation program administrator, most students tend to be on their own in transferring to another program outside of ACC. This trend is not specific to nursing. We hope that the significantly updated ACC-UT nursing articulation agreement completed in 2007 will improve the opportunities for student transfers.

E^3 recommends the following:

1. E^3 Alliance to research Health Science Cluster high school graduate enrollment in local nursing programs and other healthcare fields.
2. ACC's Tech Prep Consortium, College Connection and Early College Start programs coordinate with the nursing programs and district CTE Coordinators in higher education degree planning.

3. Health Science Advanced CTE courses be incorporated into state 4-by-4 requirements (the new state mandate for high school students to take 4 years of core math and science courses).
4. As appropriate, ACC and Concordia develop a co-enrollment model for their respective nursing programs.
5. More attention be placed on recruiting from specific student populations including Hispanic, African American and Asian American.

HISC's partnership with Capital Area Health Education Center has been highly successful in creating nursing academies for both high school counselors and high school students. In 2007, they also included ACC college counselors who found the session highly useful. T he HISC is developing relationships with organizations such as GenAustin in order to reach middle school students. A 2006 attempt to hold an academy for middle school students and a 2007 attempt to do a week long career exploration camp with AISD were cancelled because of last of interest. E^3 recommends continuing to expand this effort to include middle school students and to work with regional efforts targeting the Hispanic community in moving on to higher education.

In addition, the opportunity to create a "co-enrollment option" for ACC students with Concordia has enormous implications not only for nursing but for other programs that eventually may be considered a significant priority such as teaching. This is a model used in other states and offers students an easy transition that simplifies both paperwork and planning as they progress with their education and look for work. E^3 Alliance will work with HISC to continue to facilitate this development as both ACC and Concordia leadership deem appropriate.

E^3,s 5^{th} recommendation has been generalized to target several populations, however, during the course of 2007, the emphasis was placed on Hispanic students, in part, because they represent a population growing at three times the rate of rest of the Central Texas student population and , in part, because industry is looking specifically for bi-lingual (Spanish-speaking) nurses. As a result, Sylvia Acevedo and Dr. Josie Lujan from El Paso Community College are working on strategies to recruit this specific population in Central Texas. Strategies will also include improved methods of retaining this population most at risk of dropping out of nursing programs. E^3 will make sure to facilitate conversations between the "Piercing the Cultural Bubble" Campaign and HISC and AHEC's efforts to ensure coordinated efforts in diversity recruiting strategies.

Finally, the research conducted for this effort focused on traditional nursing program expansion, but the growth of for-profit nurse education programs in the region cannot be ignored. It is critical in 2008 to continue to research the emerging popularity of these programs, their quality and efficacy in producing competent RN and MSN practitioners and faculty.

Implications for Other Fields

As part of the project's deliverables, E^3 Alliance was asked to see how the process and issues faced in nursing could be translated to improved matriculation and articulation into other key fields such as computer sciences, biotechnology, engineering and education. There are several lessons learned that directly translate to these industries.

1. We know that computer engineering (software engineers and system administrators) are the second fastest growing occupation requiring a post secondary degree in this region. To a lesser degree than nursing, the shortage of qualified teachers and faculty exists for these fields as well -- particularly in secondary education. As we look at our education system as part of the economic infrastructure of Central Texas, we need to determine what strategies can successfully direct engineering and computer practitioners into teaching. Further, a common theme between most of the fast growing career opportunities are the need for more students to take more advanced math and science classes at a high school level. The shortage of teachers for these fields is critical in limiting the potential workforce for many regional industries.

2. Articulation agreements between ACC and regional 4-year institutions are in place for computer sciences and biotechnology. However as in nursing, the student usually must take the initiative to pursue transfer rather than having a 4-year option developed as a default. In addition, barriers surrounding GPA and course transferability limit the number of students who opt to pursue degrees locally. As a result, those interested in pursuing a 4-year degree or more often opt for University of Texas San Antonio and other "out of region" institutions if they go on at all beyond a two-year degree.

3. Capital Area Tech Prep Consortium and ACC's *College Connection* program have greatly improved the number of students receiving "dual credit" for courses taken through Career & Technology Education programs in local high schools. However, these credits only count if a student enrolls at ACC and as a result, their potential for accelerating a student through higher education may be unrealized either because the student opted to attend a different institution or not to go to college at all. The region should continue to review expansion of dual credit courses as well as other college credit or preparation course such as Advanced Placement, and should coordinate these opportunities for students to have multiple options.

4. Dual credit is helpful only if the student recognizes and acts on its value for accelerating him through higher education. Most participating higher education members expressed an interest in students receiving dual credit in General Education pre-requisite courses rather than those specific to math, science, health-related majors. The value to this approach is to allow the student more electives in topics related to the major. The cost from the high school perspective is the

district's reduced ability to excite a student about a particular career path or major prior to her enrolling in college.

5. Nursing has an advantage over many higher education fields of study because the necessity to work closely with the healthcare industry provides natural business partnerships. Many higher education departments have connections to industry councils or other types of advisory structures. However, they are often under-utilized and not always used to inform the development and refinement of degree curricula and course objectives. As a result, students in these high demand fields often complete degrees not equipped with the critical thinking, problem-solving, team work and communication skills needed to be effective in the workplace.

In general, *Work*Source's role in facilitating a stronger workforce in these fields may best be in the role of intermediary facilitating the discussion between industry skill sets and the higher education objectives that can best meet those needs. Other organizations such as Skillpoint Alliance have developed outstanding models that work primarily in the arena of K-12 and adult education. There still needs to be a space for such facilitation in higher education for traditional programs.

Moving Forward

E^3 Alliance is pleased to note that the momentum from the Nurse Articulation and Acceleration Models subcommittee was significant enough that the group agreed to continue to meet in 2008 in a somewhat modified form.

1. Moving forward the NAAM committee will help make recommendations to the new programs at Texas State University and Concordia University as they develop their curriculum, plan clinical rotations and develop articulation models.

2. The group also remains committed to supporting UTASON's efforts to expand and accelerate its graduate programs, particularly those that can lead to more nurse faculty available in the region. Through the HISC and as E^3 as appropriate, we will continue to help identify funding sources for expansion and curriculum modification.

3. Another step in addressing the pipeline issue is establishing a more direct correlation between work-based learning and work experience and education objectives of the nurse programs. This effort is underway and should be fully supported as well as it has implications not only for the nursing program, but for other health science related fields and occupations as well.

4. Finally, E^3 will continue to work with local districts, ACC, UTASON, Texas State, and Concordia on ways to create appropriate pathways from health science programs in high school into nursing programs. These may include more dual

credit programs, or it may require greater rigor in general math science courses. It is likely to require both.

The long history of these partners working together through the HISC with great success should be emphasized in all efforts to pursue financial support for expansion. The NAAM subcommittee remaining intact may help the HISC continue to press forward with collaborative efforts that will yield results that are both long term and far-reaching and we look forward to remaining fully engaged in the process.

Nurse Articulation and Acceleration Models

During the course of this project, a number of state and national models for more optimized nursing education were examined for replicability in Central Texas. Some of the recommendations derived above stem from researching these models; others require further investigation. Following is a detailed description of the nurse education expansion models explored in 2007 and the NAAM committee's reaction to them.

***Regional Simulation Center**:* alternative and/or complementary pedagogy to clinical rotations – the critical portion of the nursing curriculum that limits growth capacity. Can help provide "real world" scenarios with specific learning objectives built in. Offers more predictable learning outcomes as a result. Challenge: How to fund and where to locate.

Presentations and Conversations with:

Temple Junior College
Midwestern University
University of Texas at Arlington

Feedback from NAAM Team: There is strong interest in the development of a regional simulation center that is modeled on the pilot efforts underway at Seton's Clinical Education Center and that can realistically replicate the hospital environment. However, strategies to create this regional center need to take into account the Williamson County expansion of both medical facilities and nursing programs and any possible UT Medical School plan that continues to evolve.

The team wanted to see greater attention paid to sustainability of the Simulation Center and how best to share the cost of staffing and maintenance. Currently, there are no national reports that demonstrate efficacy of simulation as an alternate to (some) clinical rotations – only as a supplement. In these studies, most show increased self esteem but have not been correlated to increased passing rates for NCLEX or nurse readiness upon workforce entry. Studies for the latter are pending. Further as Williamson County nursing programs expand with Texas State and a possible ACC campus, the NAAM team recommended strategizing about working collaboratively with critical public and private partners to garner public support for funding a regional simulation center.

***Faculty Expansion Models**:* expedient strategies for increasing the number of faculty in nursing programs in order to address demands for growth. The focus in these models includes fast-tracking RN's (many of whom may be serving in a teaching capacity at the hospital for clinicals or preceptorships) to MSN-prepared faculty with an education focus. In this region, this effort has been hampered by a lack of an education track at UT's MSN program. As of this fall, UT has an education track.

Presentations and Conversations with:

Texas Higher Education Coordination Board
Houston Worksource
UTSA Health Science Center
Texas Tech Health Science Center

Feedback from NAAM Team: This strategy has the highest level of priority for most members of the NAAM team, which was exemplified by the UT NExT Model grant submitted to THECB. As a result, this strategy will be prioritized to identify funding opportunities and for further development in 2008. UT continues to move forward with its MSN Education Track. However, it is only delivered in the traditional classroom so some nurses may choose to enroll in other programs that offer online MSN programs.

The team also expressed a strong interest in an RN to MSN track vs. an RN to BSN with a separate MSN track as it many of the nurses working in local hospitals have a ADN rather than a BSN degree.

Finally, UT expressed a strong interest in efforts to improve the yield of PhD candidates as those are needed to support some of their faculty needs.

***Faculty Extension Models**:* focuses on strategies that can alleviate the workload of faculty teaching during clinicals. BON standards still require a MSN in oversight, but now offers strategies where "units" can assist with clinicals, and where BSN or veteran and high-performing ADN's can assist clinicals in a limited capacity with proper oversight by MSN prepared faculty. This strategy alleviates some of the faculty shortage while serving as fertile recruiting ground for future MSN faculty.

Presentations and Conversations with:

Midwestern University
Texas Tech Health Science Center
University of Colorado at Denver

Feedback from NAAM Team: In close conjunction with faculty expansion, this strategy to extend faculty via creative strategies has a high priority. Further areas to develop within this strategy will be compensation and incentives for successful RN preceptors to move into accelerated MSN programs with an Education Track. ACC will be looking to undertake some of these more creative approaches pending finalization of accreditation process in 2008.

Recruitment, Expansion and Retention Strategies: Both ACC and UTASON have strong retention overall. However with ACC there are some student populations with

higher rates of attrition, in particular bilingual Spanish-speaking students. This population is considered a key demographic for nurse expansion because of the need for the nursing workforce to reflect the Central Texas community.

In addition, this effort is also looking for ways to expand the number of students in nursing programs that can maintain the quality of the program but also minimize the need for faculty expansion. One model is about to be launched in Kentucky includes an agreement across the state community college system that will bring the LPN and ADN programs on line and modularize each course. Students from across the state may enroll in the LPN or ADN programs out of their region, take the lecture courses on line, and conduct skill labs and clinicals in their region of residence.

Presentation and Conversation with:

UTEP
Tomas Rivera Research Center
Hendersen Community College

Feedback from NAAM Team: There is tremendous interest in cultivating more Bilingual Hispanic and other minority populations for nursing. Currently, however, strategies for recruitment seem more focused on marketing rather than direct outreach. ACC is interested in strengthening its retention strategies IN ANTICIPATION of the nursing program expansion. In addition, Concordia and Capital AHEC have suggested conversations and strategies that may pool remediation resources to increase regional capacity to mentor, tutor and support retention strategies. The NAAM team wants to ensure that all new recruitment strategies are coordinated with current efforts through the HISC and Capital AHEC.

Update: Dr. Josefina Lujan has moved to a Dean position at El Paso Community College. News on the Retention strategy grant submitted to ACC to THECB NIG is pending.

Higher Ed Curriculum – Workforce Skills Alignment: One strategy to continue to ease the demand on nurse faculty for precepting and clinical rotations is to make sure that students graduating from nursing programs are prepared for the nurse experience. Several programs are underway across the country and state that include work-based learning models as well as "competency" check list designed to reduce the amount of orientation and training required for new nurses entering the hospital environment.

Conversation with

Midwestern State University

Feedback from NAAM Team: Very interested in creating either competency check list or transcript that aligns the curriculum of 4th semester nursing students with hospital orientation programs and skill requirements. ACC is currently conducting a pilot project with St. David's addressing this issue. Dr. Sportsman of Midwestern is very interested in collaborating with HISC on this effort and looks forward to a follow up conversation in January. Ana MD also recommends review of the QSEN Knowledge Skills and Attitudes (KSA) model as an option for adaptation. http://qsen.org/competencydomains/KSAs_list

***2-year to 4-year (and beyond) Articulations*:** a state and national trend by healthcare providers is to push for more BSN-prepared (and higher) nurses, in part, to address the greater complexity that is part of patient care (higher acuity levels, more technology, more chronic conditions, more mental health challenges). This is also an important strategy for the development of faculty as faculty must have MSN or higher degree. As a result, there is a growing need for more fully articulated 2-year to 4-year programs and incentives for ADN-prepared RN's to pursue BSN and beyond.

Presentations and Conversations with:

Texas Tech University Health Science Center
Texas Higher Education Coordinating Board
Oregon Consortium for Nursing Articulation
National Center for State Boards of Nursing
Austin Community College for UTASON and TS articulation

Feedback from NAAM Team:
There is great interest in easing the pathway for RN-BSN-MSN models. UTASON has developed a comprehensive articulation agreement with ACC to ensure a smoother transition for students with a 3.5 or higher to move into their program. The second area is in fostering RN-BSN models for practicing nurses. Barriers to increasing numbers from this pool include incentives for the working RN to continue education and strategies to simplify scheduling and coursework requirements (through work-based learning) to increase the numbers moving through this pathway.

Update: Concordia University has broached the idea of developing a co-enrollment model with ACC pending interest and approval from ACC and logistical planning. ACC-UTASON agreement is finalized.

***HS to College Articulations*:** There are several Health Science Career Pathway programs in area high schools, but there is little information and less consistency in determining if and where these students continue in higher education in field. Dual Credit in Health Science is difficult to develop because of the higher ed faculty shortage which conveys to high school because of program stipulations. Some more established local programs have strong relationships with area hospitals but it is unclear if these relationships translate into more students in regional nursing programs or not.

Presentations and Conversations with:

Capital Area Tech Prep Consortium
Leander ISD

Conversations Pending with:

AISD, ACC P-16 Director, Pflugerville, Round Rock, Georgetown

Feedback from NAAM Team: High School articulation requires that the faculty at the high school level meet the same credentialing requirements as higher education and as a result, there is concern about the shortage of qualified faculty being further exacerbated by this issue. As are result there are several options that are considered good courses of action for this approach:

1. Strengthening Student Performance in core math/science classes in high school in order to improve performance in college-level pre-req courses such as Anatomy & Physiology.
2. Recommending dual credit, AP, or co-enrollment courses in General Education classes to reduce the load in pre-requisite course work at the higher education level.
3. Researching the number of CTE Health Science students from Central Texas High Schools continue on into Nursing Programs locally (or across the state).

Update: Regional Superintendents remain very interested in working with our Higher Ed institutions to pursue articulation models that provide a direct path to health sciences that would include dual credit or co-enrollment in major-specific courses. They have offered to include their school nurses in any accelerated training effort (or at least, to include them in recruiting outreach).

Sources

Strategies to Increase the Number of Graduates from Initial RN Licensure Programs: A Report to the Texas Legislature, Texas Higher Education Coordinating Board, October 2006.

Statewide Plan to Create Innovative Models for Nursing Education to Increase RN graduates in Texas Professional Nursing Education Programs. Board of Nurse Examiners for the State of Texas, January 2007.

Increasing Latino Participation in the Nursing Profession: Best Practices at California Nursing Programs. Tomas Rivera Policy Institute, March 2007.

Nursing School Gets Boost from Scott & White. Austin Business Journal December 13, 2006.

Strategies to Addressing the Challenges to Improving Diversity in the Healthcare Workforce. Texas Health Sources February 2007.

The Supply of and Demand for Registered Nurses and Nurse Graduates in Texas. Texas Center for Nursing Workforce Studies, report published Nov. 2006.

Texas Workforce Commission:
http://socrates.cdr.state.tx.us/iSocrates/Targeting/tgtSOClist.asp

2006 Biennial Data Report. Central Texas Sustainability Indicators Project

Nurse Competency Definitions and Standards:

http://www.nursesnetwork.co.uk/forum/index.php?showtopic=1296

Local Interviews with and Requests for Information from:

Donna Carlin	Texas Higher Education Coordinating Board
Dr. Patricia Carter	University of Texas at Austin School of Nursing
Dr. Thomas Cedel	Concordia University
Dr. Christine Fowler	Texas Higher Education Coordinating Board
Dr. Eileen Klein	Austin Community College
Ana Mejia Dietche	Health Industry Steering Committee at *Work*Source
Dr. Yvonne Van Dyke	Seton Family of Hospitals
Jim Walker	Sustainability Indicators Project
Dr. Ruth Wellborn	Texas State University

Appendix A:

Nurse Articulation and Acceleration (NAAM) Subcommittee Members and Expert Interviews

Gail Acuna	St. David's Healthcare Partnership/HCA
Myrna Armstrong	Texas Tech Health Science Center Marble Falls
Pat Carter	University of Texas Austin School of Nursing
Becky Condit	Capital Area Health Education Center (AHEC)
Sally Foster	Seton Family of Hospitals
Eileen Klein	Austin Community College
Lolly Lockhart	Texas State University San Marcos/Round Rock
Ana Mejia-Dietche	*Work*Source/ HISC
Mike Moyer	Concordia University
Amy Reeves	Cedar Park Medical Center
Yvonne Van Dyke	Seton Family of Hospitals
Jean Ward	Austin Community College

National Experts Interviewed for Research

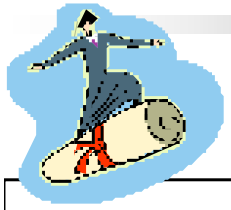
Dr. Nancy Spector	National Council of State Boards of Nursing
Dr. Christine Tanner	Oregon Consortium for Nursing Articulation
Dr. Wendy Nehring	Rutgers, State University of New Jersey

State Experts Interviewed for Research

Neil Coker	Temple Junior College
Dr. Christine Fowler	Texas Higher Education Coordinating Board
Dr. Alicia Green	Texas Tech Health Science Center
Dr. Josefina Lujan	University of Texas El Paso (now at El Paso CC)
Dr. Elizabeth Poster	University of Texas at Arlington
Dr. Suzie Sportsman	Midwestern University

Appendix B

Nursing Education and Career Paths



High School Graduate or G.E.D.

C.N.A: Certified Nurse Assistant
$10/hr = $20,800/year, 2 months

L.V.N: Licensed Vocational Nurse
$17/hr = $35,360/year, 12 months

D.N: Diploma Nurse
$20/hr = $41,600/year, 24 months

A.D.N: Associate Degree Nurse
$22/hr = $45,760/year, 24 months

B.S.N: Bachelor's Degree Nurse
$25/hr = $52,000/year, 48 months

RN License Exam NCLEX

M.S.N: Master's Science of Nursing
$30/hr = $62,400/year, 24 months

M.S.N.NP: Master's Science of Nursing Nurse Practitioner
$40/hr = $83,200+/year, 24 months

PHD Doctorate of Nursing
$50/Hr, $104,000/yr, 48 months

10.30.2007

Source: Sylvia Acevedo & Josefina Lujan

10.

Appendix C

Nurse Articulation and Acceleration Models
Working Resource List prepared by E3 Alliance

General Experts					
Name	**Title**	**Institutuion**	**Contact Information**	**NAAM Expert**	**Comments**
Suling Li, PhD, RN	Associate Driector of Research	National Council of State Boards of Nursing	Phone: (312) 942-4906 suling_li@rush.edu		is conducting important randomized control trial on performance of 3 groups of students -- simulation only, sim + clin, clin only. Testing on content knowledge, competence and clinical outcomes with real patients
Dr. Nancy Spector	Director of Education	National Council of State Boards of Nursing	(312) 525-3657 nspector@ncbsn.org		very interested in helping
Katherine Thomas	Executive Director	Board of Nurse Examiners	512-305-6816		
Terry Valiga		MLN	valiga@mln.org		
Simulation Center Experts					
Neil Coker, BS, EMT-P	Director, Simulation Teaching Assessment and Research (STAR) Programs	Temple College	254-298-8565, neilcoker@templejc.edu	yes	Helpful and interested in collaboration at the CC level
Virginia Leak	Director, Division of Nursing	Temple College	254-298-8667, virginia.leak@templejc.edu	yes	
Suzie Sportsman	Dean, School of Nursing	Midwestern State University	(940) 397-4594 susan.sportsman@mwsu.edu	yes	**has been very helpful and is willing to work with HISC and NAAM on competency transcript Wants to continue this conversation in January**

Wendy Nehring, PHD, RN, FAAN, FAAIDD	Assoc.Dean of Academic Affairs, and Director of Graduate School, College of Nursing	Rutgers, State University of New Jersey	(973)353-5293 X 606 nehrign@rutgers.edu		
Elizabeth Poster, PhD, RN, FAAN	Dean, School of Nursing	University of Texas at Arlington	(817)272-2776 poster@uta.edu		Could also be a good resource for sim center funding
Faculty Expansion Model Experts					
Diane Skiba, PhD, FAAN, FACMI	Professor and Project Director, I-Collaboratory	School of Nursing, University of Colorado at Denver	303-315-8665 Diane.Skiba@UCHSC.edu		getting faculty comfortable with technology
Janis Rice MSN, RN, CS	Assistant Professor		jan.rice@ttuhsc.edu (210) 567-1480		
Melissa Gonzales, MSN, RN WHCNP	Director Clinical Skills Lab	School of Nursing, University of Texas Health Science Center, San Antonio	(210) 567-5862 gonzalezmk@uthscsa.edu		
Alexia Green, Phd.	Associate Dean	Texas Tech Health Sciences Center	806-743-2788 x 259 alexia.green@ttuhsc.edu	yes	Conference Call July 11th also Patricia Allen and Cathy Collins
2-Year to 4-Year Articulation Model Experts					
Dr. Betty Adams	Dean	Prairie-View A&M University	713-797-7000 bnadams@pvamu.edu		lvn-BSN launched in 2003-04. Graduating first class this year 100% NCLEX passing. Small group.
Dr. Christine Tanner	Professor	Oregon Consortium for Nursing Articulation	971-678-3411 tannerc@ohsu.edu	yes	recommended by Nancy Spector

Dr. Patricia Benner	Professor and Chair	University of California San Francisco	415-476-4313 patricia.benner@ucsf.edu		Has a major Carnegie grant to research student competency based on patient care.
Work-based Learning Models					
Dr. Mary Gail Wilder	Program Coordinator	Henderson Community College	1-800-696-9958		Told by AMD that this program may be strong in Work-based Learning seems to have a component that is work-based for its pre-requisite 75 hour Nursing Assistant course
Clinical Rotation Expansion					
Terry Cicero, MN, RN	Instructor	College of Nursing, Seattle University	(206) 296-5671CICERO@seattleu.edu		
Anita Mikasa, MN, RN	Associate Professor	College of Nursing, Seattle University	mikasaa@seattleu.edu 206) 296-2220		
Student Retention and Support Model Experts					
Josefina Lujan	Dean, School fo Nursing	El Paso Community College	jlujan32@epcc.edu	yes	introduced by Sylvia -- particular interest in retention of bilingual nursing students