

A Communications Service to Nursing School Deans, Administrators, and Faculty

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## Point of Care Technology to Enhance Student Learning and Patient Outcomes: Drexel University's PDA Initiative



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Deborah, a 4th-year nursing student, arrives on the unit confident in her preparation for the day's patient assignment. The evening before, she spent several hours reviewing textbooks and checking medications to plan nursing care for her two assigned patients. Upon arrival this morning, Debbie learns that one patient was transferred to the CCU due to a suspected MI, and her new patient was admitted with the diagnosis of cholecystitis related to cholelithiasis. There is a stat order for compazine 10mg IM to relieve the new patient's nausea. With a few quick taps on the Personal Digital Assistant (PDA) screen, Debbie is able to review information about the diagnosis and nursing implications for care. Prior to administering the medication, she also quickly checks the PDA drug guide to verify dosage, drug action, interactions and nursing considerations when administering this medication. Later in the day, the patient's nausea and vomiting become so pronounced that the physician orders the insertion of a nasogastric tube to decompress the patient's abdomen and remove the excess bile. Debbie confidently refers to her PDA to review the procedure, including the equipment required, steps involved in performing the procedure, and recommendations for clear documentation.

This scenario highlights the value of having the right information available at the point of care just when it is needed. The PDA, a mini computer weighing a couple of ounces and small enough to fit in a pocket, provides the means to provide high quality care that is likely to be more appropriate, effective, efficient, and safe because it is based on the latest clinical information and resources. The PDA's benefit to student learning is obvious, but the benefit to patients is enormous.

### Infusing Technology into Nursing Education

Drexel University College of Nursing and Health Professions' (CNHP) began infusing technology into clinical

nursing education with a grant from the Hartford Foundation. The objective of the project was to develop students' skills using handheld technology in clinical practice to support clinical decision making in the care of geriatric patients. Senior undergraduate nursing students were given PDAs equipped with disease, drug, and laboratory references and a faculty-designed geriatric assessment tool. The use of the PDA was so successful in the Hartford project that the faculty decided to introduce nursing students to this technology at the very beginning of their clinical nursing education and to move the Nursing Informatics course from senior to sophomore year concurrent with the nursing foundations course. Currently, nursing students receive their PDA and learn to use it at the same time they are learning how to take blood pressures and perform other basic nursing skills. The Nursing Informatics course provides the foundation for developing information management skills with the goal to integrate these competencies throughout the program in every clinical course. Thus, students are required to carry their PDA with them to every clinical practicum and to have their PDA available in class for reference purposes. All nursing faculty are given a PDA and trained in its use. The students' required references are on the faculty member's PDA as well as other eBooks that may be useful in specialty courses such as geriatrics or women's health. Even part-time clinical faculty are trained to use the PDA and have one available on loan for the duration of a clinical course.

Proficiency is developed through consistent use of a skill or tool across the curriculum. Therefore, nursing faculty model the use of the PDA to check information at the point of care and expect students to do the same. Having current, accurate, evidence-based information instantly available gives students a sense of confidence and builds habits of researching the elements of care.

### The PDA and eBooks

After experimenting with a variety of devices, the Drexel faculty selected the Dell Axim x50 with additional memory (512MB). Additional accessories are included with the PDA to expand the device's functionality throughout the curriculum. For example, an external keyboard to which the PDA can be docked is helpful for note taking in class, and a protective aluminum case prevents damage if the PDA is dropped. Students may also purchase insurance if the PDA is lost or damaged. The required books: *Diseases and Disorders*, *Nursing Procedures*, *Nurse's Manual of Laboratory and Diagnostic Tests*, *Davis Drug Guide*, *Practical Guide to Assessment Through the Life Span*, and *Stedman's Medical Dictionary* are downloaded through an Internet-based vendor, Skyscape ([www.skyscape.com](http://www.skyscape.com)). Group discounts were negotiated with vendors of the both the device and eBooks. The cost of the PDA, accessories, and the eBooks is approximately \$650.

However, Drexel purchases the equipment and embeds the cost in the student's lab fee. This makes it possible for the student to use financial aid to cover the cost.

### Nursing Informatics Course

The Nursing Informatics course provides students with a structured introduction to the PDA as well as to the science of information management and utilization. The course includes a weekly, 2-hour laboratory session with hands-on experience using information systems as well as the PDA. Laboratory classes are limited to 20 and are taught by two informatics faculty members. This 1:10 ratio is essential in assisting students to master the use of this powerful technology.

One of the goals of the Nursing Informatics course is the successful integration of PDAs across the curriculum. Therefore, informatics labs are structured with an emphasis on using PDAs in meaningful learning activities that are linked with content and skills students are currently learning in concurrent nursing courses. For example, if students are learning about injections, PDA learning activities incorporate that same topic.

The goal of informatics laboratory activities is to assist students to become increasingly agile in using the PDA to find and manage information. A projector directly linked to the instructor's PDA is utilized for live display of the instructor's PDA screen to demonstrate navigation, information management techniques, tips, and other PDA components in "real time." Students follow along on their own PDA, which further reinforces skill development.

Since the students are novices in the nursing program when the PDA is first introduced, structured learning activities involve searching for general and basic information. For exam-

ple, the student may be asked, "What is the first action listed for acetylsalicylic acid?" Students then locate that specific information on their PDA to demonstrate their ability to navigate the PDA. In this exercise, it is not the student's knowledge of the drug itself being evaluated, but whether or not they can find the information. Using realistic case scenarios is another effective strategy to build student skill and model the integration of this technology into clinical practice. The use of scenarios help students develop proficiency in using the technology in a clinical situation as well as become more familiar with the information available on the PDA and how the eBooks are linked to one another. For example, if the scenario involves a patient with heart failure, the student looks up heart failure in the book on diseases and can then access a drop down menu to check the appropriate drugs, nursing procedures, or lab values. Unlike print books, the information in eBooks is integrated with content linked across books making it easily accessible with just a few taps.

Nursing students and clinical faculty report that the devices and the information housed within are valuable resources in the clinical setting. Students express considerable delight (and a bit of smugness) when they see students from other schools in the clinical setting lugging numerous heavy books while they have all their nursing references and then some, neatly tucked into their lab coat pocket. In many clinical settings, Drexel nursing students are "known" for their techno savvy and are frequently approached by physicians and staff nurses with requests to look up information on their PDAs. This is a great source of pride for the students, and it helps them feel more like a part of the interdisciplinary team.

Students report that they use their PDA most frequently to look up drugs, labs, and procedures as orders frequently change during a clinical day. Situations as described in the above scenario are not unusual. Students are frequently called upon to "switch gears," and as a result, the PDA is viewed by faculty as a tool that supports development of student competencies by making the most of "teachable moments."

Some students have become the driving forces for innovation by pushing the use of the PDA to new levels and serving as role models to their peers. It is common to see students using their PDAs to beam information to one another or seeking out and disseminating new tools and resources that further enhance the utility of the PDA. Nursing faculty wholeheartedly embrace the use of PDAs to reinforce student learning and to promote error-free nursing care. Nursing faculty technology leaders are currently developing PDA-based nursing care plans and clinical experience tracking systems that will enable more effective curriculum and clinical practice planning.

Knowledge is doubling every five years. The number of drugs and treatments are growing exponentially. Patient acuity and care complexity are on the rise. Nurses have so much to do, and time is of the essence. Technology-infused education creates a nurse who is an active learner, one who knows how to access the right information at just the right time as quickly as possible in the service of the patient.

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**Important Deadlines:**  
Hotel Reservations: March 7, 2006  
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On-line registration at [www.nсна.org](http://www.nсна.org): March 20, 2006

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## The Nursing School Dilemma: Turning Away Potential Nursing Students Due To Faculty Shortage

In December 2005, the American Association of Colleges of Nursing (AACN) released preliminary survey data showing that enrollment in entry-level baccalaureate nursing programs increased by 13% from 2004 to 2005. Though this increase is welcome, surveyed nursing colleges and universities denied 32,617 qualified applications due primarily to a shortage of nurse educators. AACN is very concerned about the increasing number of qualified students being turned away from nursing programs each year since the federal government is projecting a shortfall of 800,000 registered nurses (RNs) by the year 2020.

"With the nation's health care system calling for more baccalaureate-prepared nurses in the workforce, AACN is pleased to see that the trend toward enrollment increases has continued for the fifth consecutive year," said AACN President Jean E. Bartels. "Despite the successful efforts of schools nationwide to expand student capacity, our nation's nursing schools are falling far short of meeting the current and projected demand for RNs." According to research conducted by Dr. Peter Buerhaus from Vanderbilt University, enrollments in nursing programs would have to increase by at least 40% annually to replace those nurses expected to leave the workforce through retirement.

AACN's annual survey is the only resource for actual (versus projected) data on enrollment and graduations reported by the nation's baccalaureate and graduate degree programs in nursing. This year's 13% increase in enrollments is based on data supplied by the same 408 schools reporting in both 2004 and 2005. This is the fifth consecutive year of enrollment increases with 14.1, 16.6, 8.1, and 3.7% increases in 2004, 2003, 2002, and 2001, respectively. Prior to the five-year upswing, baccalaureate nursing programs experienced six years of declining enrollments from 1995 through 2000.

The AACN survey also found that the number of graduates from entry-level baccalaureate programs increased by 19.1% from 2004 to 2005. This data is based on information supplied by the same 393 schools reporting for the past two years. The recent rise in graduations follows 14, 4.3 and 3.2% increases in the number of graduates in 2004, 2003, and 2002, respectively. This upward trend was preceded by a six-year period of graduation declines from 1996 through 2001.

AACN's latest data confirm that interest in nursing careers continues to grow, which is good news considering the projected demand for nursing care. Last year, the U.S. Department of Labor identified registered nursing as the top occupation in terms of job growth through the year 2012. According to the latest projections from the U.S. Bureau of Labor Statistics, more than one million new and replacement nurses will be needed by 2012.

Given the demands of today's health care system, the greatest need in the nursing workforce is for nurses prepared at the baccalaureate and higher degree levels. With the federal Health Resources and Services Administration calling for baccalaureate preparation for at least two thirds of the nursing workforce, the evidence clearly shows that higher levels of

nursing education are linked with lower patient mortality rates, fewer errors, and greater job satisfaction among RNs. Nurse executives, federal agencies, the military, leading nursing organizations, health care foundations, magnet hospitals, and minority nurse advocacy groups all recognize the unique value that baccalaureate-prepared nurses bring to the practice setting and their contribution to quality nursing care.

"AACN is committed to working with the health care community to create a highly educated nursing workforce able to meet the challenges of contemporary nursing practice," added Dr. Bartels. "We strongly believe that encouraging all nurses to advance their education is in the best interest of patients and an important step toward enhancing patient safety."

The robust interest in professional nursing can be attributed in part to successful outreach efforts guided by nursing schools nationwide. Strategies employed to increase student capacity this year included forming alliances with hospitals, the business community, and other stakeholders to address faculty and clinical space constraints. Some schools have expanded or opened new accelerated programs for second-degree seekers looking to transition into nursing while others have taken advantage of state and federal funding aimed at strengthening the nursing workforce. In addition to these school-based initiatives, both Johnson & Johnson and the Nurses for a Healthier Tomorrow coalition continued their national media campaigns to encourage careers in nursing.

### Qualified Students Turned Away Despite Nursing Shortage

Though interest in nursing careers is strong, access to professional nursing education is becoming more difficult. AACN's preliminary findings show that 32,617 qualified applications to entry-level baccalaureate programs were not accepted in 2005 based on responses from 432 schools. The number of qualified students turned away each year from these programs continues to increase with 29,425, 15,944, and 3,600 students turned away in 2004, 2003, and 2002, respectively. The primary barriers to accepting all qualified students at nursing colleges and universities continue to be insufficient faculty, clinical placement sites, and classroom space.

To address these issues, AACN has focused its advocacy efforts on increasing funding for existing Nursing Workforce Development programs administered by the federal Division of Nursing and shaping new legislation to support faculty development and enrollment growth. Earlier this year, AACN secured a new funding stream for doctoral nursing education through the Department of Education's Graduate Assistance in Areas of National Need (GAANN) program, which will help to address the faculty shortage. AACN successfully lobbied to have nursing identified as an area of national need for the first time through the GAANN program.

Further, AACN has worked with colleagues in the health care community to introduce new legislation to address the faculty shortage and other nursing school resource constraints, including the Nurse Education, Expansion, and Development Act, and the Nurse Faculty Education Act. Without increased federal support, the potential for future growth in nursing education programs may be limited at a time when the demand for well-educated nurses is rising.

For more information about this survey and survey results, visit [www.aacn.nche.edu](http://www.aacn.nche.edu)

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# DEAN'S Notes™

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## Spirit of Nursing Award

The 2006 Spirit of Nursing Award, sponsored by the Army Nurse Corps in cooperation with NSNA, is presented to a student who demonstrates outstanding achievement and commitment to the nursing profession.

Each participating school selects one student for the Spirit of Nursing Award through a process determined by the dean or director of the school. Any accredited nursing program may participate and confer the award on an undergraduate in a two, three, or four-year program. There are currently over 1,600 programs eligible to nominate a worthy student for this award.

The recipient of the Spirit of Nursing Award is selected in early March from among school nominees. A selection committee composed of two NSNA members and one Army Nurse Corps representative judge the entries.

The student selected for this national honor receives the award at the Foundation of the National Student Nurses Association Awards Ceremony on April 6, 2006, and an all expense paid trip to NSNA's Annual Convention in Baltimore, MD.

The criteria for selection of the national award winner include:

- Academic achievement.
- Demonstrated excellence in nursing practice.
- Involvement in community activities.
- Professional involvement.
- Leadership experience.

Information about the award program is mailed to schools in the late fall or can be obtained from local Army Nurse Corps recruiting stations. Entries must be postmarked by January 31, 2006. The nominee should be a member of the National Student Nurses Association.

## Dr. Barbara Dossey to Keynote NSNA's 54th Annual Convention in Baltimore

Barbara Dossey, PhD, RN, AHN-BC, FAAN, will kick off NSNA's Annual Convention at the Baltimore Convention Center on Wednesday, April 5, 2006, beginning at 5:30 p.m. Dr. Dossey is a renowned speaker, writer, and authority in holistic health. The author of many well-respected books and articles on holistic nursing, she also wrote *Florence Nightingale: Mystic, Visionary, Healer*, where she explores Nightingale's work in research, nursing theory, statistics, public health, health-care reform, and feminism, all of which are among many of the pioneering nurse's efforts. She adds the Nightingale biography to a list of books that explore the connections between spiritual and physical healing and the importance of integrating both aspects to maximize effective health care.

NSNA's Annual Convention in Baltimore includes a pre-conference on Wednesday, April 5, for faculty, which is co-sponsored with the National League for Nursing. This day-long workshop entitled, "Optimizing Clinical Learning," features Dr. Diane Wink, professor, School of Nursing, the University of Central Florida.

Attend the faculty sessions and earn continuing education credit through the New York State Nurses Association, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.

For more about the convention, visit NSNA's Web site at [www.nсна.org](http://www.nсна.org) and click on "Meetings."