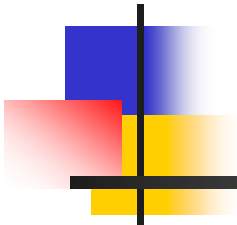


Technology's Role in Addressing Maryland's Nursing Shortage: Innovations and Examples



**Maryland Statewide Commission on the Crisis in
Nursing - Nursing Technology Workgroup**

**Susan K Newbold, MS RNBC FAAN FHIMSS
Barbara G Covington, PhD, RN**

14 September 2005, Toronto



Objectives

- List two or more Healthcare Technology Issues in Maryland, US that have applicability to other sites.
- Discuss the goal for conducting the Technology Survey in Maryland, US.
- Recall three examples of Technology from the Technology Innovation Report that may have applicability to Nursing in your setting.



Project Leaders

- Chair: Maria V. Koszalka, EdD, RN
Vice President Patient Care Services
Johns Hopkins Bayview Medical Center,
Commissioner Nursing Technology
Maryland Statewide Commission on the Crisis in
Nursing
- Co-Chair: Susan K. Newbold, MS RNBC FAAN
FHIMSS
Doctoral Candidate University of MD School of Nursing
Adjunct Faculty, Excelsior College, Albany, NY



Technology Issues In Maryland

- Uneven distribution of technology
- Little emphasis on technology for patient safety and medication errors
- Varying attitude of nurses towards automation
- No validation of these anecdotal notes regarding technology use by Nurses in Maryland



Maryland Legislation

Senator Teitelbaum sponsored legislation:
Taskforce to Study the Use of
Technology to Assist Nurses in Caring for
Patients -July 1, 2002 - HB 590



Committee Charge

1. Support statewide efforts to combat the nursing shortage by exploring the role of technology in nursing.
2. Identify technology driven point of care applications.
3. Assess How Information Technology Can:
 - Maximize nursing productivity
 - Increase quality of patient care
 - Improve work environment infrastructure in healthcare settings
 - Reduce errors and increase patient safety



Taskforce Volunteers

- Monthly meetings for over 3 years
- Maryland healthcare and informatics professionals who volunteer time
- Volunteers may attend meetings via telephone conference or participate in committee functions via email.

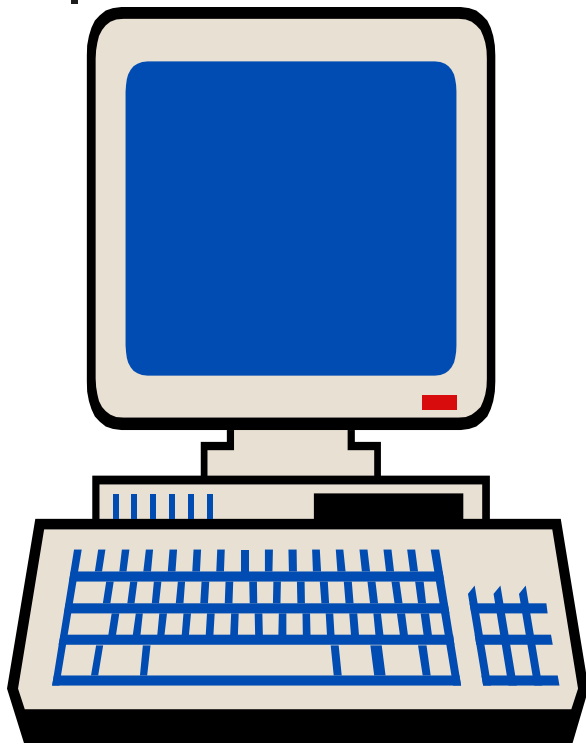


Learning About Technology

We had presentations on new cutting edge technology:

- Veterans Administration barcode medication administration system (BCMA)
- Communication System (Vocera)
- e-ICU (VISICU)
- Patient care monitors
- Pagers to notify nurses
- PDAs as clinical decision support and documentation

Technology Survey Premise



- We know that technology in and of itself does not provide a nurse increased time for patient care or improve the quality of care.
- We did not know the extent of technology use or which technologies are being used in various practice settings in MD.
- We did not know the effectiveness of the technologies nurses in Maryland are using.



Survey of Maryland Nurses

Should assist with recommendations about:

- The development of a process to get nurses involved in selection and implementation of technology;
- Guidelines for successful education and training;
- Guidelines to provide support for existing technology and continuous learning required with upgrades
- Specific technology used by Maryland nurses (RN & LPN) which contribute to patient safety.



Survey Goals

1. ID technologies currently being used by nurses in 11 practice settings
2. ID the effectiveness of technologies used by nurses.
3. ID barriers and supports to the effective use of technology by nurses



Survey Goals (cont.)

4. Recommend basic technologies which are effective in each nursing practice setting.
5. ID equipment or software to recommend or avoid for nurses in similar practice settings.
6. ID best methods to implement.
7. ID & share technology success stories throughout the state.



Survey Tool (cont.)

- Administered in 3 formats:
 - Paper
 - Online
 - Via the telephone



Survey Outcomes

1. Primary outcome is to determine which specific technology should be recommended for nursing practice in many different health care settings in Maryland
2. Secondary outcomes include:
 - Recommendations for the best methods to implement technology for nurses
 - Share technology success stories throughout the state



Survey

1. Survey of technology used by nurses in Maryland. A statistically representative sample of the 52,000 RNs and 9,000 LPNs.
2. Survey designed, conducted and analyzed by researchers at the University of Maryland School of Nursing and the MD Technology Workgroup:
 - Co-Investigators- Dr. Barbara Covington, Associate Dean of Information & Technology and Associate Professor & Dr. Maria V. Koszalka, Johns Hopkins Bayview

Technology Innovation Report

- Project's Premise:
 - Practical information about tangible technology projects helps nursing leaders “catch a vision” for the power of technology and how it benefits nurses.
 - Providing local examples with contact information, increases the chance that a nurse reader will call a nearby colleague to learn more.
 - “Imagination” combined with increased networking helps fuel adoption of innovation to the benefit of Maryland nurses.



University of Maryland School of Nursing Photo by Rick Lippert-Hill



Technology's Role in Addressing Maryland's Nursing Shortage: Innovations & Examples

A Report of the Technology Workgroup,
Maryland Statewide Commission on the Crisis in Nursing
January, 2004



Project Goals

- Conduct grass-roots interviews to discover how technology is being used today to help nurses in Maryland and nearby states.
- Highlight these “pockets of innovation” in a report to facilitate nurses networking and learning about the application of technology in their workplaces.
- Recommend actions to be taken by a variety of entities to speed the adoption of helpful technologies to improve the work experience of Maryland nurses.

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11	Technology Funding Opportunities
13	Additional Resources
14	Vendor References



Report Format

- Organized around the top challenges identified by nurses in the Workplace Subcommittee's 2001 survey.
- Each page contains a description of the challenge, with examples of how technology is being used to alleviate those challenges.

Challenge: Balancing the demands of home and work

When nurses feel torn between work and their kids, job dissatisfaction soars. Technology can be employed to help plan work around family commitments, and view the work schedule and request shift swaps from home via the internet.

Maryland Data

More than half of the 392 nurses who respond to dependent care questions say that child care is very important (52%) and 39 percent say that adult care is very important. Nearly half say that sick-child care is very important (48%). While respondents report that a modest amount of child care is provided by employers (17%), very little sick-child care (4%) or adult dependent care (10%) is reported as available to nurses. Source: *Maryland Statewide Commission on the Crisis in Nursing – Workplace Issues Survey, 2001.*

Pockets of Innovation:

- View work schedules from home Nurses at Johns Hopkins Bayview will soon be able to access work schedules when they are away from the hospital using an electronic scheduling system (Meditech). Staff can identify schedule preferences, review or print their schedules, request time off and receive approvals, and sign up for open shifts from anywhere they have internet access.
*Carol Thompson MS, RN
410-550-4821 cthomp15@jhmi.edu*
- Eliminate paper request forms At Altoona Hospital Center for Medicine (PA), nurses will soon contact each other to request shift swaps, communicate this to their managers, and receive approvals – all electronically. This saves nurses and nurse managers the hassle of dealing with paper request forms and meeting up in person for physical signatures. Additionally, nurses access the scheduling system (Care Systems Inc.) from home or work to choose the shifts they want to work, within the limits of their employment

profiles, giving them more ability to plan their schedules around family commitments.
*Thomas Zeek, Director Nursing Info Services
814-949-3001 tzeek@altoonahospital.org*

- Stay abreast of work announcements It's difficult for nurses to keep up with work announcements due to the shift they work or family commitments on off-days. At the Johns Hopkins Emergency Acute Care Unit, unit announcements are posted to a Unit website so nurses can view them later using software from Intranets.com. The site can also be used to assign and track the status of unit-based tasks and create polls, discussion topics, and send e-mail to nurses at home.
*Ray Blush, RN EACU Unit, Johns Hopkins
410-502-7842 rblush1@jhmi.edu*
- Flexible in-services For Annual training such as OSHA, blood borne pathogen, fire & electrical safety, etc. Lancaster General (PA) has been able to reduce the time it takes an RN to complete in-service training from 6-8 hours to 1-2 hours. What formerly was an all-day offsite event can now be done online, on the nurses' local unit, in pieces or all at once, at a time most convenient for each nurse.
*Ken Bowman RN, MS Project Leader
717-544-5059 kbowman@lanecasterngeneral.org*
- Fill empty shifts Nurses at St. Peter's Hospital (NY) use internet-based software (BidShift™) to bid on open shifts at the hospital. Nurses who meet minimum qualifications with the lowest bid rate are given the open shifts. Part-time nurses frequently use the system to work extra hours. Fewer outside nurses are used and nurses can control their own schedule. The hospital nurse vacancy rate has dropped and money is saved by using internal nurses instead of agency nurses.
*Philip Kahn, CIO
518-525-6725 pkahn@stpetershealthcare.org*
- Work from Home The Coordinating Center provides care coordination services for people living in the community with complex medical and social needs. Nurse coordinators use laptops and remote access technology to allow nurses the ability to work out of their homes. Nurses appreciate greater flexibility which enables them to balance work and family. Since implementing the system 3 years ago, nursing staff turnover has been very low.
*Carol Marsiglia MSN, CCM
800-296-2242 cmarsiglia@cccocaliforniacenter.org*



Report Highlights

- Focus areas (Workplace issues survey)
 - Not enough nurses to manage workloads
 - Reassignment to non-familiar care areas
 - Time spent on non-direct care activities
 - Balancing the demands of home and work
 - Improving quality and patient safety
- Also included
 - Recommendations to the Commission, volunteers and other organizations
 - Technology-related funding opportunities
 - Listing of additional published resources
 - Listing of vendors referenced in examples

Not enough nurses to manage workloads



- Electronic ICU
- Sentara, Norfolk, VA; Tripler AMC, HI, Inova, Fairfax, VA, etc.
- VISICU, Baltimore, MD

Not enough nurses to manage workloads



- Otterbein Retirement Living Communities, Hackensack UMC, UCLA, Detroit Medical Center
- Make Rounds
- InTouch Robot photo by Ed Kashi, Businessweekonline



Reassignment to non-familiar care areas

- Template for Skill Mix Required
 - Nightingale System by VasTech
 - Johns Hopkins Hospital, Baltimore, MD
- Intranet for Nursing
 - Online protocols & procedures
 - Johns Hopkins Hospital, Baltimore, MD

Time spent on non-direct care activities



- Real-time Communication via wearable wireless badge
- Voice over wireless network
- www.vocera.com
- Cupertino, CA
- Lightweight badge



Balancing the demands of home and work

- Fill Empty Shifts
 - St Peter's Hospital allows nurses to bid on open shifts.
 - Vacancy rates dropped and \$ is saved using internal (not agency) nurses.
 - BidShift or FirstStaff by FCG

Improving quality and patient safety



- Bar Coding for Medication Administration
- A Nurse and her COW

Quality & Care Continuity



Day 1



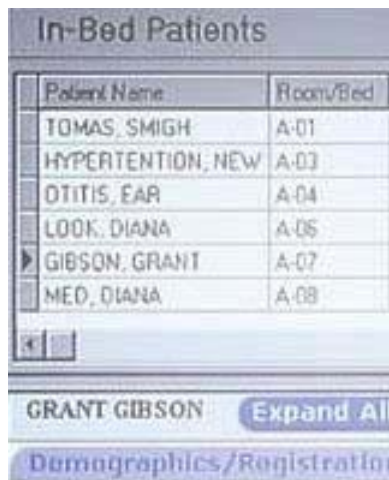
Day 39



Day 107

- A picture is worth a thousand words
- Digital images improve shared understanding and save nursing documentation time

Quality and Care Continuity



The screenshot shows a window titled "In-Bed Patients". It contains a table with two columns: "Patient Name" and "Room/Bed". The table lists several patients, with "GIBSON, GRANT" highlighted. Below the table, there is a button labeled "Expand All" and a link labeled "Demographics/Registration".

Patient Name	Room/Bed
TOMAS, SMIGH	A-01
HYPERTENTION, NEW	A-03
OTITIS, EAR	A-04
LOOK, DIANA	A-05
▶ GIBSON, GRANT	A-07
MED, DIANA	A-08

GRANT GIBSON [Expand All](#)
[Demographics/Registration](#)



- Vital signs flow directly from data collection devices into the electronic medical record
- Rather than transcribe numbers, nurses click to "accept" data



Recommendations

The report addresses research, education and advocacy, going beyond what the technology workgroup can do with limited resources.

- 1. Analyze Technology Usage**
- 2. Diffuse Technology Knowledge**
- 3. Leverage Education Dollars**
- 4. Improve Awareness of Funding Opportunities**
- 5. Explore Revolving Loan Funds**
- 6. Technology Contest**



Award

- Won Honorable Mention for Media by the American Academy of Nursing November 2004



Report Dissemination Strategy

- Publication on the Technology Workgroup's website : <http://maryland.nursetech.com>
- Summer Institute in Nursing Informatics, American Nursing Informatics Association, American Organization of Nurse Executives, MINING, American Medical Informatics Association, etc.



Next steps (cont)

- Broad dissemination of the findings
 - Conduct educational presentations throughout the state as opportunities arise
 - Give poster presentations
- Initiate a Recognition for Innovative Use of Technology by Nursing



Reference

- Womack, D., Newbold, S.K., Staugaitis, H. & Cunningham, B. (2004). *Technology's Role in Addressing Maryland's Nursing Shortage: Innovations & Examples*. Baltimore, MD. Technology Workgroup, Maryland Statewide Commission on the Crisis in Nursing.
<http://maryland.nursetech.com/F/NT/MD/NursingInnovations2004.pdf>
- See <http://maryland.nursetech.com/> for ongoing information