Final Report on Nurse Support Program I (NSP I) Activities for FY 2007 - FY 2012 and Recommendations for Program Renewal

Health Services Cost Review Commission
4160 Patterson Avenue
Baltimore, MD 21215
410-764-2605

July 11, 2012

These final recommendations have been approved at the Public Commission Meeting on July 11, 2012.

Purpose

This recommendation summarizes the activities of the Nurse Support Program I during the last 5 year cycle (FY 2007-FY 2012), and recommends renewal of the program for an additional 5 year cycle, with some program modifications.

Background

In 1986, the HSCRC initiated nurse education support through the collaborative efforts of hospitals, payers, and nursing representatives in response to a growing nursing shortage in Maryland. Originally, the Nurse Education Support Program (NESP) focused on supporting college and hospital-based training of Registered Nurses (RNs) and Licensed Practical Nurses (LPNs). Over the years, the NESP expanded to encourage new and innovative approaches to address the challenges and demands facing the nursing profession. HSCRC allocated approximately $7 million in hospital rates to thirty-seven hospitals that participated in the NESP from 1986 through 1995 when the program concluded.

As the economic situation in the US improved during the late 1990s-early 2000, another nursing shortage emerged. In 2001, the U.S. General Accounting Office conducted a study regarding the state of the nursing workforce in response to a congressional inquiry.[1] Results indicated that although national data were not adequate to describe the nature and extent of the potential nurse shortage, there was compelling evidence (declines in the RN unemployment rate and the RNs per capita) that suggests that the nursing shortage was a real phenomenon and that it would continue to grow. According to data from the National Sample Survey of Registered Nurses, there was a 2 percent decline nationally in the number of employed nurses per 100,000 people between 1996 and 2000. The study also listed multiple obstacles to increasing the supply of nurses including, an aging workforce, declines in younger nurses entering the field, a general dissatisfaction with the nursing environment (particularly staffing levels), concerns with quality of patient care, and lack of administrative support.

Although there was a slight (1.7 percent) increase in the number of employed RNs for the same time period in Maryland, the nursing workforce was experiencing similar dissatisfaction, according to a survey conducted by the Maryland Commission on the Crisis in Nursing in 2001.[2] In an effort to sustain and improve the number of bedside nurses in Maryland, the HSCRC initiated a new five-year, hospital-based, non-competitive grant program in 2000. The primary focus of Nurse Support Program I (NSP I) was increasing the number of bedside nurses in Maryland through retention and recruitment initiatives. Hospitals submitted proposals to the HSCRC for three- to five-year projects that ranged from nursing educational scholarships for their employees to high school outreach. A multi-stakeholder Evaluation Committee, comprised of nurse experts, reviewed the proposals and made recommendations to the Commission for funding. Funding was distributed through an increase in each hospital's rates equal to 0.1 percent of their regulated gross patient revenue from the prior year. Almost all Maryland acute care hospitals participated in NSP I from 2001-2006, receiving almost $36 million in rates.

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2007 Evaluation and Recommendation to the Commission

In 2005, HSCRC staff conducted an evaluation of the NSP I program, in part, because of difficulties in demonstrating program outcomes and accountability, unclear guidelines for eligible program activities, and a need to define the scope of the NSP I considering the initiation of the NSP II program in FY 2006. The Commission established the following NSP I evaluation goals:

- Clarify the categories of programs eligible for funding

- Fund projects deemed most valuable by nursing experts

- Simplify the application and reporting process, and

- Increase accountability through standardized program outcome and financial reporting

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2. Revise the Request for Applications process for grant funding to a simplified application process

3. Revise the review and evaluation process for initiative approvals and renewals

4. Ongoing review of the funding mechanism; and

5. Standardize quantitative annual reports to include uniform financial and annual data reporting requirements

The Commission approved program modifications and renewed funding for another five-year cycle from FY 2008 to FY 2012.

Implementation of the Modified NSP I Program

Application Process

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NSP I Achievements

The primary goal of the NSP I Program is to increase the number of bedside nurses in Maryland through retention and recruitment. Over the last 5 years, Maryland hospitals have met and exceeded this goal. The funding provided by NSP I has enabled hospitals to promote, nursing through enhanced educational opportunities, leadership development, research and shared governance. Hospitals indicate that these efforts have translated into higher satisfaction among Maryland nurses and better outcomes for patients.

Increased the Number of Bedside Nurses

In recent years, there has been a resurgence of nurses in the workforce. According to the HSCRC Wage and Salary Survey, Maryland hospitals increased the number of nurses by 15 percent between 2007 and 2011 (Chart 1). Eleven hospitals increased their nursing staff by more than 25 percent. The Commission requested HSCRC staff to research trends in the nursing workforce of neighboring states to determine how Maryland's nursing workforce trends compare regionally. Unfortunately, state-level workforce data for hospital-based nurses were not available for comparison. This lack of available, comparable, state-level data speaks to the need to "build an infrastructure for the collection and analysis of inter-professional healthcare workforce data" as described in the Institute of Medicine's Future of Nursing: Leading Change, Advancing Health report.[3]

Chart 1

There are several factors that may contribute to the increase in nursing workforce, including the state of the economy; nurses who would have otherwise retired are staying in their jobs or increasing their hours.[4] However, studies are predicting that this trend is temporary. The increasing demand for nurses to care for an aging nation, coupled with reduction in the workforce as nurses retire, will create an "unprecedented shortage of RN's in the United States."[5]

[3] Institute of Medicine of the National Academies. The Future of Nursing: Leading Change, Advancing Health. (2010)

[4] P. I. Buerhaus. Current and Future State of the US Nursing Workforce. *Journal of the American Medical Association*. 300:20 (2008).

[5] D.I. Auerbachm, P.I. Buerhaus & D.O. Staiger. Registered Nurse Supply Grows Faster Than Projected Amid Surge In New Entrants: Ages 23 -26. *Health Affairs*, 30, no.12 (2011):2286-2292; B.L.Cleary, A.B. McBride, M.L.McClure, & S.C. Reinhard. Expanding The Capacity Of Nursing . *Health Affairs*, 28, no.4 (2009):w634-w645

Hospitals attribute another reason for the increase in their nurse workforce to initiatives funded by the NSP I program. NSP I funding has enabled hospitals to develop programs aimed toward attracting and retaining new nursing graduates through rigorous residency and orientation programs, promoting nursing education for clinical and non-clinical staff, and providing extern and intern opportunities for nursing students who are subsequently hired as staff. For example, Johns Hopkins Hospital's Social and Professional Reality Integration for Nurse Graduates (SPRING) program focused on the retention of new graduate nurses in adult inpatient and critical care departments through a year-long internship. Through this program, Hopkins has been able to maintain an average retention rate of 88 percent among new graduates over the last 5 years. Franklin Square Hospital Center, through established partnerships with the weekend nursing program at Community College of Baltimore County (CCBC), increased the number of bedside RNs by offering tuition assistance to 30 non-clinical staff. With NSP I funding, Upper Chesapeake Medical Center (UCMC) sponsored an externship program where 90 percent of the students in the program have accepted RN positions at UCMC or at Harford Memorial Hospital. The externship program at Union Memorial Hospital (UMH) has produced 78 bedside nurses since FY2007; 59 of these nurses are currently employed at UMH.

Reduced Dependency on Agency Nurses

According to the HSCRC Wage and Salary survey, Maryland hospitals decreased their dependence on agency nurses by 68 percent, saving more than $98 million in agency costs between FY 2007 and FY 2011 (Chart 2). NSP I coordinators cite improved retention of existing nurses as the reason for the decreased usage of agency nurses.
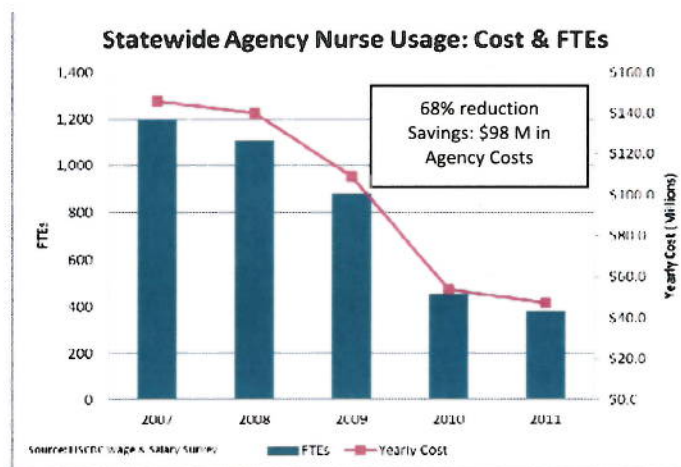

Chart 2

Increased the Number of Certified and Advanced Degree Nurses

A number of studies have shown a link between higher nursing education and better patient outcomes. One study showed compelling evidence that a 10 percent increase in the number of BSN degree nurses decreased the risk of patient death and failure to rescue by 5 percent.[6] In an effort to improve the level of education of their nursing staff, Maryland hospitals spent approximately $8.5 million on scholarships and tuition reimbursement for nursing education through the NSP I program between 2008 and 2011. Hospitals provide a majority of these funds (64 percent) for scholarships and tuition reimbursement for their nursing staff. Although, the number of hospitals reporting tuition assistance between FY 2008 and FY 2011 dropped from 25 hospitals to 19, investment in their staff's education more than doubled between FY 2008 and FY 2011, from $790,000 to $1.6 million respectively, peaking in FY2010 at $2.2 million. Maryland hospitals also invested close to $3 million in local nursing students through scholarships. In return, the students have service obligations at the hospital for a specific period of time ranging from 2 to 5 years. Between FY 2008 and FY2010, hospitals provided support to program participants pursuing the following degrees:

- 488 LPN or Associate degrees in Nursing
- 782 BSN degrees
- 95 MSN degrees

Maryland hospitals have also encouraged nursing staff to improve their competencies through professional certifications. Approximately 2,800 nurses completed certifications in various areas including, emergency room, pain management, wound care, medical-surgical and neonatal, through the NSP I initiatives between 2008 and 2011. St. Joseph Hospital used NSP I funds to improve the percentage of nurses with professional certifications. In FY 2011, the number of nurses with professional certifications at St. Joseph Hospital increased from 7 percent to 22 percent. Mercy has also seen a dramatic increase the number of certified nurses, from 22 in FY 2007 to 146 in FY 2011, a 564 percent increase.

Reduced Nurse Vacancy and Turnover Rates

Although a direct link cannot be made between the NSP I programs and vacancy or turnover rates, statewide data show significant reductions in vacancy rates for RNs and LPNs (26 percent and 57 percent, respectively) during this NSP I cycle (Chart 3). There also seems to be a similar downward trend for turnover rates (Chart 4). LPN turnover and vacancy rates have risen in the last 3 years, possibly because of the increased push for LPNs to become RNs as opportunities for LPNs in hospitals have declined.

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[6] L. H. Aiken, S.P. Clarke, R.B. Cheung, D. M. Sloane, & J.H. Silber. Educational Levels of Hospital Nurses and Surgical Patient Mortality. Journal of the American Medical Association. 290:12 (2003). 1617-1623
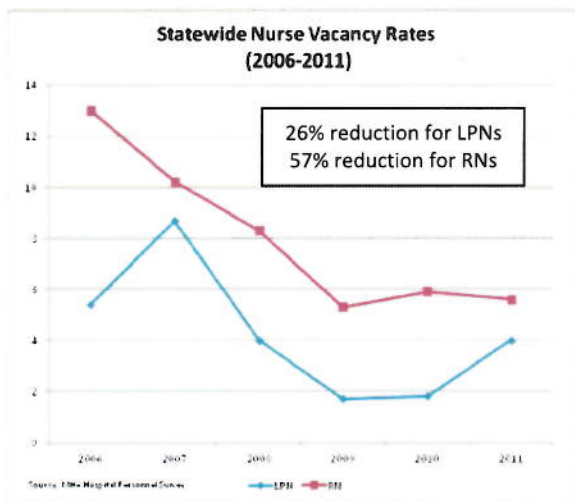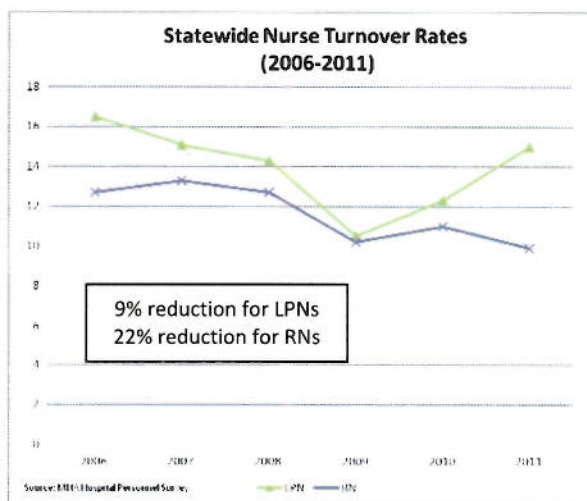
Chart 3

Chart 4

NSP I coordinators attribute the reduction in turnover and vacancy rates to improved nursing satisfaction. The funding provided by NSP I has enabled hospitals to promote nursing through enhanced educational opportunities, leadership development, research and joint governance. During the last 5 years, hospitals have established processes to encourage leadership development in a variety of areas. Some hospitals, like Bon Secours, have difficulty recruiting and retaining nurses because of their size or patient mix. Bon Secours invested its NSP I funds in developing an infrastructure for professional practice and engagement. The nursing leadership instituted councils that focus on three areas: professional development and improving the practice of nursing; recruitment, retention and recognition of nurses; and the lead partner's council. These councils provide nurses with a forum to communicate and collaborate with other departments. Through these efforts, Bon Secours have been able to reduce its voluntary turnover rate from 14 percent to 8 percent.

Recognized as Leaders in Nursing Excellence

The Magnet Recognition© program recognizes healthcare organizations for quality patient care, nursing excellence, and innovation in professional nursing practice. During the last 5 years, 6 hospitals have received Magnet© designation by the American Nurses Credentialing Center. These hospitals, and when they gained Magnet© status, are listed below:

- Franklin Square Hospital Center (2008)
- Sinai Hospital (2008)
- University of Maryland Medical Center (2009)
- Shore Health – Memorial Hospital of Easton (2009)
- Shore Health – Dorchester General Hospital (2009)
- Mercy Medical Center (2011)

With funding from the NSP I program, 11 more Maryland hospitals are on course to Magnet© status.

Hospital quality data collected by the HSCRC have shown a link between Magnet© hospitals and improved patient care, safety, and satisfaction. For FY2011, Maryland Magnet© hospitals had lower rates of most nursing-sensitive Maryland hospital acquired complications (MHACs) than non- Magnet© Maryland hospitals, for all measures except one, the difference was not significant.

Nursing Sensitive Hospital-Acquired Complications, FY 2011 Risk Adjusted Complication Rates per 1,000 admission Source: 3M Potentially Preventable Complications (PPC) Grouper using HSCRC FY2011 Abstract Data			
MHAC Measure	Magnet Hospitals	Non-Magnet Hospitals	Difference
PPC 5: Pneumonia and Other Lung Infections	5.00	5.59	-10.43%
PPC 6: Aspiration Pneumonia	2.34	2.76	-15.43%
PPC 22: Urinary Tract Infection	7.59	6.51	16.71%
PPC 28: In-Hospital Trauma and Fractures*	0.07	0.27	-66.93%
PPC 31: Decibutus Ulcer	1.17	1.55	-24.16%
PPC 54 Infections Due to Central Venous Catheters	0.58	0.36	61.87%
*Statistically Significant			

On the Hospital Care Quality Information from the Consumer Perspective (HCAHPS), for CY 2010, Maryland Magnet© hospitals tended to score higher on indicators of patient satisfaction than non- Magnet© hospitals, however, for all measures except one, the difference was not significant.

Patient Experience of Care Measures, CY 2010 Source: HCAHPS			
HCAHPS Measure	Magnet Hospitals	Non-Magnet Hospitals	Difference
Communication About Medicines (Q16-Q17)*	61.8%	57.0%	4.81%
Communication With Nurses (Q1-Q3)	78.7%	76.0%	2.72%
Discharge Information (Q19-Q20)	85.3%	80.8%	4.49%
Responsiveness of Hospital Staff (Q4,Q11)	61.2%	56.8%	4.37%
Communication With Doctors (Q5-Q7)	79.7%	77.9%	1.77%
Pain Management (Q13-Q14)	68.8%	67.3%	1.56%
Cleanliness of Hospital Environment	64.8%	64.2%	0.66%

Patient Experience of Care Measures, CY 2010 Source: HCAHPS			
HCAHPS Measure	Magnet Hospitals	Non-Magnet Hospitals	Difference
Quietness of Hospital Environment	53.3%	53.8%	-0.47%
Willingness to Recommend this Hospital	71.0%	66.0%	5.03%
Overall Rating of this Hospital	69.7%	64.7%	4.99%
HCAHPS score in QBR for FY2012 Rates	56.8%	37.7%	19.14%

*Statistically Significant

The Future of Nursing: IOM Recommendations

In 2010, the Institute of Medicine (IOM) published a groundbreaking report based on a two year initiative to respond to the need to assess and transform the nursing profession. The report laid out 8 recommendations to address the increasing demand for high quality and effective health care service. HSCRC Staff convened a workgroup with nursing leaders representing Sinai, Mt. Washington, Anne Arundel, and MedStar hospitals, to discuss how to incorporate four of the IOM recommendations into the scope of NSP I.

IOM Recommendation 3: Implement nurse residency programs. Maryland hospitals have already engaged in components of residency programs, including mentoring and extended orientations for new hires and graduates, and by encouraging evidenced based research and competency training for hard-to fill positions. The workgroup recommended standardizing the definition of residency programs and defining specific criteria for the components. The NSP I programs should also support hospitals that desire to pursue accreditation by the Commission on Collegiate Nursing Education (CCNE), an autonomous accreditation body that ensures the quality and integrity of baccalaureate, graduate, and residency programs in nursing.

IOM Recommendation 4: Increase the proportion of nurses with a baccalaureate degree to 80 percent by 2020. As reported above, Maryland hospitals are supporting nurses who are pursuing advanced degrees, but data are not consistently reported. The workgroup suggested that statewide targets be set for the number of nurses graduating with advanced degrees and that metrics be defined to track progress.

IOM Recommendation 6: Ensure that nurses engage in lifelong learning. Maryland hospitals are already sponsoring continuing education opportunities for their nursing staff. Examples of NSP I funded activities include: sending their nurses to national conferences, specialty training, and establishing simulation labs to improve the competency of their nursing staff. The NSP I program will continue to support these activities that will prepare Maryland's nursing workforce to provide "care for diverse populations across the lifespan."[7]

IOM Recommendation 7: Prepare and enable nurses to lead change to advance health. Data from the Wage and Salary survey show a slight increase in the number of nurse managers during this NSP I cycle. With an impending nurse shortage forecasted, and as the current nursing leaders

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[7] Institute of Medicine of the National Academies. The Future of Nursing: Leading Change, Advancing Health. (2010)

retire, growing a new generation of nursing leaders is an important step in a hospitals succession planning. However, nurse management is not the only area in which staff nurses can be leaders. Hospitals currently support many avenues for leadership. These include, clinical ladders, nurse champions in specialty areas, such as wound care, mentors, preceptors and educators, as well as management training. The NSP I program will continue to support programs that provide opportunities for nurses to develop leadership skills.

Staff Recommendations: Moving Toward Nursing Excellence

In preparing for this recommendation, HSCRC staff convened two NSP I Coordinator meetings to obtain feedback about NSP I, particularly regarding modifications to the program that will enable hospitals and staff to clearly demonstrate the value of the program. Based on these discussions, HSCRC staff recommends renewing the NSP I program for an additional 5 year cycle, with the modifications described in the following recommendations.

Revise focus of NSP I Program

Evidence has shown that nursing excellence is linked to improved patient outcomes, low nursing turnover, and increased satisfaction among nursing staff. Incorporating the IOM recommendations into the scope of the NSP I program provides guidance to move all hospitals toward nursing excellence.

> **Recommendation 1:** In an effort to raise the bar for Maryland nurses, the NSP I program should focus on three areas to achieve nursing excellence for all hospitals in Maryland:
> - **Education and career advancement.** The NSP I program aim to increase the number of advance degree nurses, collect standardized metrics for educational attainment, define and standardize criteria for nursing residency programs, and define and collect data on leadership initiatives and succession planning.
> - **Patient quality and satisfaction.** The NSP I program will utilize existing nursing sensitive metrics to demonstrate the link between improved nursing competency and better patient outcomes.
> - **Advancing the practice of nursing.** The NSP I program will continue to support activities that advance the practice of nursing, such as staff driven evidenced-based research in nursing, attendance at symposiums and research conferences, as well as achieving or maintaining Magnet status.

Improve Application Process

Since the NSP I program is non-competitive, it is unnecessary to have a formal application process.

> **Recommendation 2:** Instead of a formal application, hospitals will submit Letters of Commitment that describe their program and set goals using defined metrics to demonstrate program progress and outcomes. HSCRC staff, with input from hospital industry, will develop guidelines for the letters that outline reporting and compliance expectations. If hospitals need to revise their programs, there will be a process for submitting changes for review and approval.

Revise Annual Report and Budget Form

In an effort to move away from qualitative data, HSCRC developed a quantitative data collection tool that was capable of capturing outcomes from the varying programs implemented by hospitals. Unfortunately, this created a different problem; HSCRC staff received a large amount of data that still did not capture outcomes of the programs in a consistent way. There were a few metrics that could demonstrate outcome, such as vacancy and turnover rates; however, hospitals did not complete the data consistently, and the data could not be verified by other sources. In addition, tracking how NSP I funds were spent continued to be a challenging task. HSCRC review found several instances where hospitals had unfilled staff positions, but reported spending all the budgeted funds without indication of where the hospital redirected the funds budgeted for the unfilled positions. Hospitals did not report expenditures consistently, making it difficult for HSCRC staff to track and audit hospitals' use of NSP I funds. For FY 2011, hospitals spent 14 percent of their budgeted funds on "Other Expenses" that ranged from NCLEX Preparation courses to travel costs for staff.

> **Recommendation 3:** HSCRC staff will revise the annual report to contain 5-10 focused metrics that are well-defined and can be consistently reported by hospitals. Staff will also use datasets that hospitals are already reporting to the HSCRC, such as the Wage and Salary survey, as well as quality metrics such as the MHACs and HCAHPS. HSCRC staff will revise the budget form to better track hospitals expenditures related to the NSP I program.

Improve Monitoring and Oversight

As stated above, monitoring the NSP I program has been challenging. Outside of the annual reports and budget submission, communication with HSCRC staff and with other NSP I coordinators has been minimal.

> **Recommendation 4:** HSCRC staff will improve oversight and monitoring of the NSP I program through:
>
> - Routine site visits at hospitals (began already in FY 2012)
> - Include NSP I budgets with the special audits

HSCRC staff convened the first NSP I Steering Committee on June 29, 2012. The Steering Committee consists of HSCRC staff, nursing and finance staff from the hospitals, as well as representatives from the Board of Nursing and Department of Health and Mental Hygiene Healthcare Workforce. The Steering Committee is tasked with developing concise metrics, developing guidelines for commitment letters, revising data submission forms, and meeting periodically over the life of the grant to monitor progress and program outcomes. During this first meeting, the committee recommended minor changes to the budget form and discussed potential metrics.

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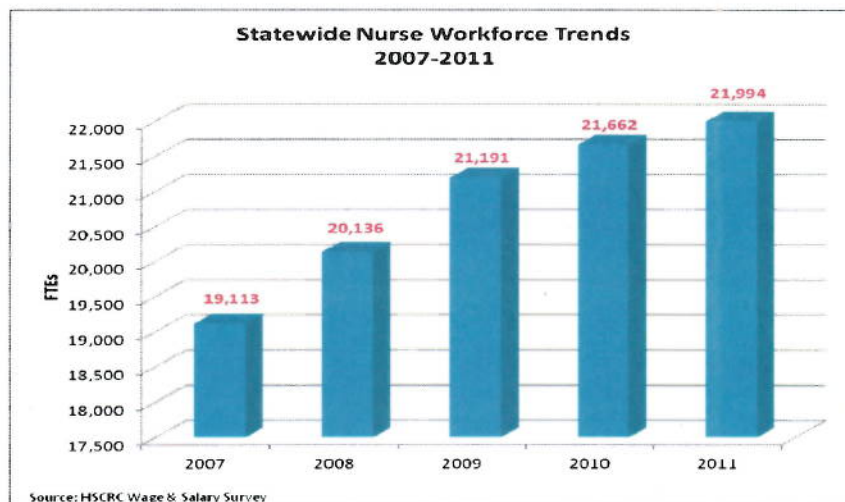
NSP I Achievements

The primary goal of the NSP I Program is to increase the number of bedside nurses in Maryland through retention and recruitment. Over the last 5 years, Maryland hospitals have met and exceeded this goal. The funding provided by NSP I has enabled hospitals to promote, nursing through enhanced educational opportunities, leadership development, research and shared governance. Hospitals indicate that these efforts have translated into higher satisfaction among Maryland nurses and better outcomes for patients.

Increased the Number of Bedside Nurses

In recent years, there has been a resurgence of nurses in the workforce. According to the HSCRC Wage and Salary Survey, Maryland hospitals increased the number of nurses by 15 percent between 2007 and 2011 (Chart 1). Eleven hospitals increased their nursing staff by more than 25 percent. The Commission requested HSCRC staff to research trends in the nursing workforce of neighboring states to determine how Maryland's nursing workforce trends compare regionally. Unfortunately, state-level workforce data for hospital-based nurses were not available for comparison. This lack of available, comparable, state-level data speaks to the need to "build an infrastructure for the collection and analysis of inter-professional healthcare workforce data" as described in the Institute of Medicine's Future of Nursing: Leading Change, Advancing Health report.[3]

Chart 1

There are several factors that may contribute to the increase in nursing workforce, including the state of the economy; nurses who would have otherwise retired are staying in their jobs or increasing their hours.[4] However, studies are predicting that this trend is temporary. The increasing demand for nurses to care for an aging nation, coupled with reduction in the workforce as nurses retire, will create an "unprecedented shortage of RN's in the United States."[5]

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[3] Institute of Medicine of the National Academies. The Future of Nursing: Leading Change, Advancing Health. (2010)

[4] P. I. Buerhaus. Current and Future State of the US Nursing Workforce. *Journal of the American Medical Association*. 300:20 (2008).

[5] D.I. Auerbachm, P.I. Buerhaus & D.O. Staiger. Registered Nurse Supply Grows Faster Than Projected Amid Surge In New Entrants: Ages 23 -26. *Health Affairs*, 30, no.12 (2011):2286-2292; B.L.Cleary, A.B. McBride, M.L.McClure, & S.C. Reinhard. Expanding The Capacity Of Nursing . *Health Affairs*, 28, no.4 (2009):w634-w645

Hospitals attribute another reason for the increase in their nurse workforce to initiatives funded by the NSP I program. NSP I funding has enabled hospitals to develop programs aimed toward attracting and retaining new nursing graduates through rigorous residency and orientation programs, promoting nursing education for clinical and non-clinical staff, and providing extern and intern opportunities for nursing students who are subsequently hired as staff. For example, Johns Hopkins Hospital's Social and Professional Reality Integration for Nurse Graduates (SPRING) program focused on the retention of new graduate nurses in adult inpatient and critical care departments through a year-long internship. Through this program, Hopkins has been able to maintain an average retention rate of 88 percent among new graduates over the last 5 years. Franklin Square Hospital Center, through established partnerships with the weekend nursing program at Community College of Baltimore County (CCBC), increased the number of bedside RNs by offering tuition assistance to 30 non-clinical staff. With NSP I funding, Upper Chesapeake Medical Center (UCMC) sponsored an externship program where 90 percent of the students in the program have accepted RN positions at UCMC or at Harford Memorial Hospital. The externship program at Union Memorial Hospital (UMH) has produced 78 bedside nurses since FY2007; 59 of these nurses are currently employed at UMH.

Reduced Dependency on Agency Nurses

According to the HSCRC Wage and Salary survey, Maryland hospitals decreased their dependence on agency nurses by 68 percent, saving more than $98 million in agency costs between FY 2007 and FY 2011 (Chart 2). NSP I coordinators cite improved retention of existing nurses as the reason for the decreased usage of agency nurses.
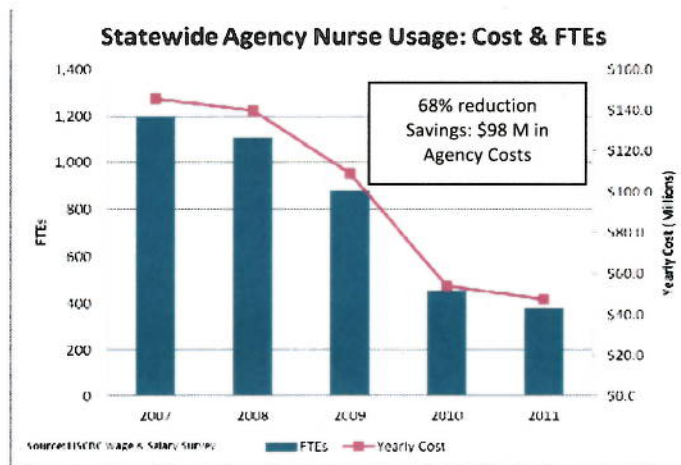

Chart 2

Increased the Number of Certified and Advanced Degree Nurses

A number of studies have shown a link between higher nursing education and better patient outcomes. One study showed compelling evidence that a 10 percent increase in the number of BSN degree nurses decreased the risk of patient death and failure to rescue by 5 percent.[6] In an effort to improve the level of education of their nursing staff, Maryland hospitals spent approximately $8.5 million on scholarships and tuition reimbursement for nursing education through the NSP I program between 2008 and 2011. Hospitals provide a majority of these funds (64 percent) for scholarships and tuition reimbursement for their nursing staff. Although, the number of hospitals reporting tuition assistance between FY 2008 and FY 2011 dropped from 25 hospitals to 19, investment in their staff's education more than doubled between FY 2008 and FY 2011, from $790,000 to $1.6 million respectively, peaking in FY2010 at $2.2 million. Maryland hospitals also invested close to $3 million in local nursing students through scholarships. In return, the students have service obligations at the hospital for a specific period of time ranging from 2 to 5 years. Between FY 2008 and FY2010, hospitals provided support to program participants pursuing the following degrees:

- 488 LPN or Associate degrees in Nursing
- 782 BSN degrees
- 95 MSN degrees

Maryland hospitals have also encouraged nursing staff to improve their competencies through professional certifications. Approximately 2,800 nurses completed certifications in various areas including, emergency room, pain management, wound care, medical-surgical and neonatal, through the NSP I initiatives between 2008 and 2011. St. Joseph Hospital used NSP I funds to improve the percentage of nurses with professional certifications. In FY 2011, the number of nurses with professional certifications at St. Joseph Hospital increased from 7 percent to 22 percent. Mercy has also seen a dramatic increase the number of certified nurses, from 22 in FY 2007 to 146 in FY 2011, a 564 percent increase.

Reduced Nurse Vacancy and Turnover Rates

Although a direct link cannot be made between the NSP I programs and vacancy or turnover rates, statewide data show significant reductions in vacancy rates for RNs and LPNs (26 percent and 57 percent, respectively) during this NSP I cycle (Chart 3). There also seems to be a similar downward trend for turnover rates (Chart 4). LPN turnover and vacancy rates have risen in the last 3 years, possibly because of the increased push for LPNs to become RNs as opportunities for LPNs in hospitals have declined.

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[6] L. H. Aiken, S.P. Clarke, R.B. Cheung, D. M. Sloane, & J.H. Silber Educational Levels of Hospital Nurses and Surgical Patient Mortality. Journal of the American Medical Association. 290:12 (2003). 1617-1623
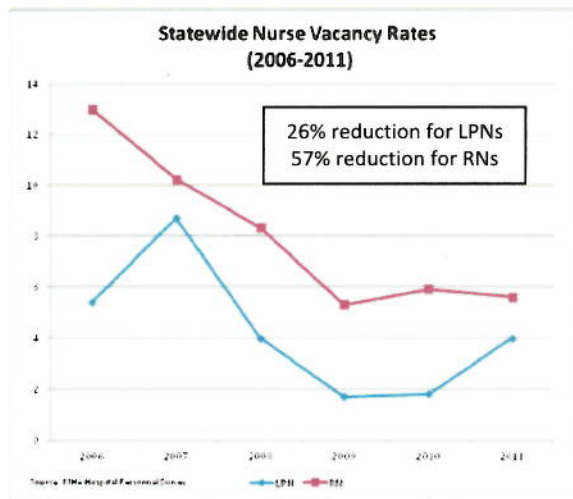
Statewide Nurse Vacancy Rates (2006-2011)

26% reduction for LPNs
57% reduction for RNs

Chart 3

Statewide Nurse Turnover Rates (2006-2011)

9% reduction for LPNs
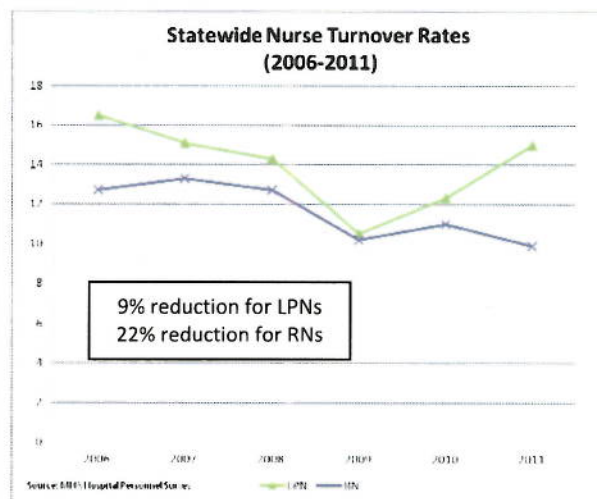22% reduction for RNs

Chart 4

NSP I coordinators attribute the reduction in turnover and vacancy rates to improved nursing satisfaction. The funding provided by NSP I has enabled hospitals to promote nursing through enhanced educational opportunities, leadership development, research and joint governance. During the last 5 years, hospitals have established processes to encourage leadership development in a variety of areas. Some hospitals, like Bon Secours, have difficulty recruiting and retaining nurses because of their size or patient mix. Bon Secours invested its NSP I funds in developing an infrastructure for professional practice and engagement. The nursing leadership instituted councils that focus on three areas: professional development and improving the practice of nursing; recruitment, retention and recognition of nurses; and the lead partner's council. These councils provide nurses with a forum to communicate and collaborate with other departments. Through these efforts, Bon Secours have been able to reduce its voluntary turnover rate from 14 percent to 8 percent.

Recognized as Leaders in Nursing Excellence

The Magnet Recognition© program recognizes healthcare organizations for quality patient care, nursing excellence, and innovation in professional nursing practice. During the last 5 years, 6 hospitals have received Magnet© designation by the American Nurses Credentialing Center. These hospitals, and when they gained Magnet© status, are listed below:

- Franklin Square Hospital Center (2008)
- Sinai Hospital (2008)
- University of Maryland Medical Center (2009)
- Shore Health – Memorial Hospital of Easton (2009)
- Shore Health – Dorchester General Hospital (2009)
- Mercy Medical Center (2011)

With funding from the NSP I program, 11 more Maryland hospitals are on course to Magnet© status.

Hospital quality data collected by the HSCRC have shown a link between Magnet© hospitals and improved patient care, safety, and satisfaction. For FY2011, Maryland Magnet© hospitals had lower rates of most nursing-sensitive Maryland hospital acquired complications (MHACs) than non- Magnet© Maryland hospitals, for all measures except one, the difference was not significant.

Nursing Sensitive Hospital-Acquired Complications, FY 2011			
Risk Adjusted Complication Rates per 1,000 admission			
Source: 3M Potentially Preventable Complications (PPC) Grouper using HSCRC FY2011 Abstract Data			
MHAC Measure	Magnet Hospitals	Non-Magnet Hospitals	Difference
PPC 5: Pneumonia and Other Lung Infections	5.00	5.59	-10.43%
PPC 6: Aspiration Pneumonia	2.34	2.76	-15.43%
PPC 22: Urinary Tract Infection	7.59	6.51	16.71%
PPC 28: In-Hospital Trauma and Fractures*	0.07	0.27	-66.93%
PPC 31: Decibutus Ulcer	1.17	1.55	-24.16%
PPC 54 Infections Due to Central Venous Catheters	0.58	0.36	61.87%
*Statistically Significant			

On the Hospital Care Quality Information from the Consumer Perspective (HCAHPS), for CY 2010, Maryland Magnet© hospitals tended to score higher on indicators of patient satisfaction than non- Magnet© hospitals, however, for all measures except one, the difference was not significant.

Patient Experience of Care Measures, CY 2010			
Source: HCAHPS			
HCAHPS Measure	Magnet Hospitals	Non-Magnet Hospitals	Difference
Communication About Medicines (Q16-Q17)*	61.8%	57.0%	4.81%
Communication With Nurses (Q1-Q3)	78.7%	76.0%	2.72%
Discharge Information (Q19-Q20)	85.3%	80.8%	4.49%
Responsiveness of Hospital Staff (Q4,Q11)	61.2%	56.8%	4.37%
Communication With Doctors (Q5-Q7)	79.7%	77.9%	1.77%
Pain Management (Q13-Q14)	68.8%	67.3%	1.56%
Cleanliness of Hospital Environment	64.8%	64.2%	0.66%

Patient Experience of Care Measures, CY 2010			
Source: HCAHPS			
HCAHPS Measure	Magnet Hospitals	Non-Magnet Hospitals	Difference
Quietness of Hospital Environment	53.3%	53.8%	-0.47%
Willingness to Recommend this Hospital	71.0%	66.0%	5.03%
Overall Rating of this Hospital	69.7%	64.7%	4.99%
HCAHPS score in QBR for FY2012 Rates	56.8%	37.7%	19.14%
*Statistically Significant			

The Future of Nursing: IOM Recommendations

In 2010, the Institute of Medicine (IOM) published a groundbreaking report based on a two year initiative to respond to the need to assess and transform the nursing profession. The report laid out 8 recommendations to address the increasing demand for high quality and effective health care service. HSCRC Staff convened a workgroup with nursing leaders representing Sinai, Mt. Washington, Anne Arundel, and MedStar hospitals, to discuss how to incorporate four of the IOM recommendations into the scope of NSP I.

IOM Recommendation 3: Implement nurse residency programs. Maryland hospitals have already engaged in components of residency programs, including mentoring and extended orientations for new hires and graduates, and by encouraging evidenced based research and competency training for hard-to fill positions. The workgroup recommended standardizing the definition of residency programs and defining specific criteria for the components. The NSP I programs should also support hospitals that desire to pursue accreditation by the Commission on Collegiate Nursing Education (CCNE), an autonomous accreditation body that ensures the quality and integrity of baccalaureate, graduate, and residency programs in nursing.

IOM Recommendation 4: Increase the proportion of nurses with a baccalaureate degree to 80 percent by 2020. As reported above, Maryland hospitals are supporting nurses who are pursuing advanced degrees, but data are not consistently reported. The workgroup suggested that statewide targets be set for the number of nurses graduating with advanced degrees and that metrics be defined to track progress.

IOM Recommendation 6: Ensure that nurses engage in lifelong learning. Maryland hospitals are already sponsoring continuing education opportunities for their nursing staff. Examples of NSP I funded activities include: sending their nurses to national conferences, specialty training, and establishing simulation labs to improve the competency of their nursing staff. The NSP I program will continue to support these activities that will prepare Maryland's nursing workforce to provide "care for diverse populations across the lifespan."[7]

IOM Recommendation 7: Prepare and enable nurses to lead change to advance health. Data from the Wage and Salary survey show a slight increase in the number of nurse managers during this NSP I cycle. With an impending nurse shortage forecasted, and as the current nursing leaders

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[7] Institute of Medicine of the National Academies. The Future of Nursing: Leading Change, Advancing Health. (2010)

retire, growing a new generation of nursing leaders is an important step in a hospitals succession planning. However, nurse management is not the only area in which staff nurses can be leaders. Hospitals currently support many avenues for leadership. These include, clinical ladders, nurse champions in specialty areas, such as wound care, mentors, preceptors and educators, as well as management training. The NSP I program will continue to support programs that provide opportunities for nurses to develop leadership skills.

Staff Recommendations: Moving Toward Nursing Excellence

In preparing for this recommendation, HSCRC staff convened two NSP I Coordinator meetings to obtain feedback about NSP I, particularly regarding modifications to the program that will enable hospitals and staff to clearly demonstrate the value of the program. Based on these discussions, HSCRC staff recommends renewing the NSP I program for an additional 5 year cycle, with the modifications described in the following recommendations.

Revise focus of NSP I Program

Evidence has shown that nursing excellence is linked to improved patient outcomes, low nursing turnover, and increased satisfaction among nursing staff. Incorporating the IOM recommendations into the scope of the NSP I program provides guidance to move all hospitals toward nursing excellence.

> **Recommendation 1:** In an effort to raise the bar for Maryland nurses, the NSP I program should focus on three areas to achieve nursing excellence for all hospitals in Maryland:
> * **Education and career advancement.** The NSP I program aim to increase the number of advance degree nurses, collect standardized metrics for educational attainment, define and standardize criteria for nursing residency programs, and define and collect data on leadership initiatives and succession planning.
> * **Patient quality and satisfaction.** The NSP I program will utilize existing nursing sensitive metrics to demonstrate the link between improved nursing competency and better patient outcomes.
> * **Advancing the practice of nursing.** The NSP I program will continue to support activities that advance the practice of nursing, such as staff driven evidenced-based research in nursing, attendance at symposiums and research conferences, as well as achieving or maintaining Magnet status.

Improve Application Process

Since the NSP I program is non-competitive, it is unnecessary to have a formal application process.

> **Recommendation 2:** Instead of a formal application, hospitals will submit Letters of Commitment that describe their program and set goals using defined metrics to demonstrate program progress and outcomes. HSCRC staff, with input from hospital industry, will develop guidelines for the letters that outline reporting and compliance expectations. If hospitals need to revise their programs, there will be a process for submitting changes for review and approval.

Revise Annual Report and Budget Form

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In an effort to move away from qualitative data, HSCRC developed a quantitative data collection tool that was capable of capturing outcomes from the varying programs implemented by hospitals. Unfortunately, this created a different problem; HSCRC staff received a large amount of data that still did not capture outcomes of the programs in a consistent way. There were a few metrics that could demonstrate outcome, such as vacancy and turnover rates; however, hospitals did not complete the data consistently, and the data could not be verified by other sources. In addition, tracking how NSP I funds were spent continued to be a challenging task. HSCRC review found several instances where hospitals had unfilled staff positions, but reported spending all the budgeted funds without indication of where the hospital redirected the funds budgeted for the unfilled positions. Hospitals did not report expenditures consistently, making it difficult for HSCRC staff to track and audit hospitals' use of NSP I funds. For FY 2011, hospitals spent 14 percent of their budgeted funds on "Other Expenses" that ranged from NCLEX Preparation courses to travel costs for staff.

> **Recommendation 3:** HSCRC staff will revise the annual report to contain 5-10 focused metrics that are well-defined and can be consistently reported by hospitals. Staff will also use datasets that hospitals are already reporting to the HSCRC, such as the Wage and Salary survey, as well as quality metrics such as the MHACs and HCAHPS. HSCRC staff will revise the budget form to better track hospitals expenditures related to the NSP I program.

Improve Monitoring and Oversight

As stated above, monitoring the NSP I program has been challenging. Outside of the annual reports and budget submission, communication with HSCRC staff and with other NSP I coordinators has been minimal.

> **Recommendation 4:** HSCRC staff will improve oversight and monitoring of the NSP I program through:
>
> - Routine site visits at hospitals (began already in FY 2012)
> - Include NSP I budgets with the special audits

HSCRC staff convened the first NSP I Steering Committee on June 29, 2012. The Steering Committee consists of HSCRC staff, nursing and finance staff from the hospitals, as well as representatives from the Board of Nursing and Department of Health and Mental Hygiene Healthcare Workforce. The Steering Committee is tasked with developing concise metrics, developing guidelines for commitment letters, revising data submission forms, and meeting periodically over the life of the grant to monitor progress and program outcomes. During this first meeting, the committee recommended minor changes to the budget form and discussed potential metrics.

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