Lessons Learned From 10 Years of Research on a Post-Baccalaureate Nurse Residency Program

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OBJECTIVES: The aim of this study was to examine outcomes from 10 years of research on a post-baccalaureate new graduate nurse residency program and to report lessons learned.

BACKGROUND: Transition to practice programs are recommended by the Future of Nursing report, the Carnegie Foundation study, the Joint Commission, and the National Council of State Boards of Nursing.

METHODS: Data from new graduate residents who participated in the University HealthSystem Consortium/American Association of Colleges of Nursing residency from 2002 through 2012 are presented. Analysis of variance results from the Casey-Fink Graduate Nurse Experience Scale and outcomes from the graduate nurse program evaluation instrument are provided.

RESULTS: Retention rates for new graduates in the residency increased considerably in the participating hospitals. Residents’ perception of their ability to organize and prioritize their work, communicate, and provide clinical leadership showed statistically significant increases over the 1-year program.

CONCLUSION: The recommendations for new graduate nurse residency programs are supported by the findings.
provide support and education for new graduates whose 1st position is a clinical nurse in an acute care hospital. Driving the need for a residency were increased acuity of hospital patients, increased complexity of treatments and technology, and the need to improve quality of care. There was also a need to increase new graduate job satisfaction and decrease turnover rates.

A core group of CNOs, deans from baccalaureate schools, and nurse educators from participating hospitals and BSN programs met over a 2-year period to develop curriculum and select measures to evaluate a post-baccalaureate yearlong nurse residency. In 2002, 6 hospitals and their partner school of nursing piloted the nurse residency program (NRP). As of August 2012, approximately 31,000 nurses and 86 organizations representing 100 hospitals have participated in the NRP. Academic medical center hospitals comprise most of the participants; however, the residency has also been implemented in teaching, community, and rural hospitals. Hawaii is the 1st state to adopt the program as a statewide initiative.

Summary of Articles Published on the UHC/AACN Residency

Several articles published about the residency provide information relative to the theoretical framework, structure, curriculum, roles and responsibilities, and evaluation. In a return on investment study, decreases in new graduate turnover were found to lead to significant cost savings. A qualitative study identified challenges experienced by residents in their 1st year of practice; fear of harming patients was paramount. Evaluation of the residency in a community hospital found similar results to outcomes in academic medical centers. Another study found teamwork on the resident’s unit, ability to give quality care, liking the job, and relationships with coworkers as reasons given for staying and thus decreasing turnover.

UHC/AACN Nurse Residency Program Curriculum

A standardized, evidence-based curriculum is the foundation of the UHC/AACN Nurse Residency Program. The residency curriculum is based on the AACN Essentials of Baccalaureate Education for Professional Nursing Practice. A key concept of the curriculum is to promote the development of nurse leadership at the point of patient care. The curriculum was developed by a team of experts providing the research and evidence for the curriculum design. This approach has continued as the program evolved, providing a review and update of content every 3 years.

Early development of the program included a foundational assumption; the content for hospital orientation and specialty care classes such as a critical care course would be the responsibility of the hospital and not the NRP. This approach was supported by a study on new graduate competency that described nurse leaders ranking the competencies for delegation, communication with physicians, conflict resolution, and prioritizing as issues of greatest concern for new graduate nurses.

The NRP curriculum is composed of 3 core areas of content: leadership, with a focus on managing resources for patient care and collaborating with interprofessional teams; patient safety and outcomes, which enhances knowledge of quality, safety, and nurse-sensitive outcomes; and professional role, which includes professional practice issues, managing changing patient conditions, ethics, and end-of-life care. Interprofessional exercises and simulation are integrated into content along with core topics such as patient- and family-centered care principles as outlined by the Institute for Patient and Family-Centered Care, quality and safety competencies as articulated by the Quality and Safety Education for Nurses faculty, and core competencies described by the Interprofessional Education Collaborative. An important curriculum component is the requirement to complete, individually or as part of a team, an evidence-based practice (EBP) project. This element of curriculum has been reported by CNOs, residency coordinators, and nurse managers to have significant impact on nursing practice. In a study conducted among nurse managers in hospitals participating in the residency, nurse managers reported that the EBP projects have a spillover effect to other unit staff, increasing their involvement.

Residents have an opportunity to answer a call for abstracts for the annual UHC meeting. The number of abstracts accepted has increased significantly each year, providing exceptional professional growth experience for residents.

The NRP curriculum is delivered in monthly residency seminar sessions in a face-to-face environment. The sessions include opportunities for professional reflection and facilitated peer discussion, presentation of topical content, and clinical or case study discussion. The case studies are based on actual complex clinical situations that have occurred in the hospitals. The curriculum includes simulation and interprofessional exercises. Seminars incorporate a resident facilitator to coach residents and hospital expert nurses, a vehicle for role modeling, and forging relationships between new practitioners and seasoned expert staff. The academic partners and hospital clinicians bring expertise to the content and learning methodologies. The curriculum meets the accreditation standards put forward by the Commission on Collegiate Nursing
**Evaluation Measures**

Evaluation of the NRP has changed over time, as have the measures used. Initially, 4 instruments formed the basis for evaluation: the Casey-Fink Graduate Nurse Experience Survey (Casey-Fink),\textsuperscript{20} the McCloskey Mueller Satisfaction Scale (MMSS),\textsuperscript{21} Gerber's Control Over Nursing Practice Scale (CONP),\textsuperscript{22} and the Graduate Nurse Residency Program Evaluation (GNRPE).\textsuperscript{23} These measures were used for the first 3 years, with the MMSS and CONP eliminated at that time because of inadequate fit with new graduate perspectives and other research issues. The Casey-Fink and the GNRPE instruments have remained in use through the program's history.

The Casey-Fink is composed of 4 sections.\textsuperscript{20} Items in the first 2 sections and the 4th section are either demographic or skill related (skills uncomfortable performing). The 3rd section is composed of questions responded to using a 4-point balanced response format (strongly disagree to strongly agree) and additional questions where respondents answers yes or no to a series of stressors. Quantitative scoring of the Casey-Fink comes from summing items in the 3rd section. The reliability estimate (Cronbach $\alpha$) was found to be $\alpha = .89$. When items in the 3rd section of the Casey-Fink were subjected to new reliability estimate and exploratory factor analysis (principal axis factoring with varimax rotation), 5 factors were found: support (0.82)*, organizing and prioritizing (0.76), stress (0.73), professional satisfaction (0.76), and communication/leadership (0.74).

The GNRPE is composed of 3 sections that address evaluation of recruitment and welcome to the institution and residency, evaluation of program objectives, and views of the program.\textsuperscript{23} When subjected to factor analysis (principal axis factoring, varimax rotation), 5 satisfaction dimensions emerged: recruitment/welcome (0.78), program goals (0.95), program topics (0.93), professional growth (0.94), and program faculty (0.91). Responses are obtained using a Likert scale (4-response options) ranging from strongly disagree (1) to strongly agree (4). When the MMSS and CONPs were eliminated, questions were added about organizational commitment from the Organizational Commitment Questionnaire.\textsuperscript{24-26} These items measure intent to leave nursing and intent to leave current position. Each item had the traditional Likert response options (“strongly disagree” to “strongly agree,” no midpoint). The reliability estimates exceeded 0.86. Items were subjected to exploratory factor analysis (principal axis factoring, direct oblimin rotation), yielding 2 factors: commitment to the current position (0.85) and commitment to nursing (0.86).\textsuperscript{23} No validity studies for these items were located; they appeared to have sufficient face validity for use in this evaluation.

The final area in the evaluation is termination/retention of residents. Termination for the NRP is defined as “any reason residents leave their position except failing the NCLEX, serious illness or death.”

**Evaluation Process and Results**

Data were collected online from residents completing the Casey-Fink instrument\textsuperscript{20} at the start, midpoint (6 months), and end of the program (1 year after hiring). The GNRPE\textsuperscript{23} was completed at the end of the program. Resident coordinators tracked resident termination and entered the information online. The evaluation was guided by 2 overall questions: How did the residents change across the program? What was the retention rate of the residents? Results from those over-time comparisons (repeated-measures analysis of variances) in the first 3 years revealed a general trend for residents to start the program with relatively high self-perceptions. At 6 months, there was almost always significant decrease in the residents’ self-perceptions of support and professional satisfaction, followed by a significant increase between the midpoint and the end of the program or a trend in that direction. The organize-prioritize and communication-leadership factors were exceptions to this trend, historically increasing from program start to the midpoint and again at the program end.

In 2005, the NRP evaluation committee held a series of meetings, funded by the Robert Wood Johnson Foundation, to revise the evaluation. It was during this revision process that the MMSS and CONPS were eliminated and a new series of questions were added. As noted earlier, questions were added to the overall program evaluation (GNRPE) that addressed commitment, specifically to nursing and their current position. These questions were projected for use in predicting termination.

Plans to include control subjects from like institutions considering joining the NRP at some point in the future were initiated. Participation of the residents in the data collection has been a challenge, and participation of new graduate nurses as control subjects was an even larger challenge, so much so that there were insufficient control subjects completing all 3 data collections to proceed with an NRP versus control comparison.

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*Reliability estimates in parentheses. The stress factor does not have an accompanying reliability because it is the sum of several dichotomous items (presence or absence of a list of stresses).
Significant increases across time in overall confidence and competence (total Casey-Fink) and the organize-prioritize and communication-leadership factors have been identified consistently across the years of the evaluation. Professional satisfaction has a significant decline from program start to the midpoint, at which point it stabilizes. Despite significant increases and decreases, overall, the residents’ means are high, except the Casey-Fink stress factor that is on a different scale (0-7 and lower is better). The results from the most recent evaluation (2012) can be seen in Table 1. What have changed over time have been enhancements in the curriculum, more standardized orientation of new sites, and assistance provided to new sites by those with the NRP already established.

Across the program, retention rates have continued to increase from 88% in the 1st annual evaluation to the current rate of 94.6%. This rate was more or less stable (±1%) for the first 3 years, after which it began to rise (eg, 90.3% in 2007, 93.6% in 2008) and varied between 94% and 96% thereafter. Reports estimate turnover for all nurses at 27% in the 1st year of employment26 and at 13% for new graduates.27

When additional questions were considered in the 2012 evaluation, residents in Magnet hospitals (when compared with non-Magnet hospitals) did gain significantly more in overall confidence and competence and in the organize-prioritize and communication-leadership factors. In the 2012 evaluation, no demographic variables predicted commitment or turnover, but the Casey-Fink scores (overall, organize-prioritize, and communication-leadership) were significant predictors of commitment to current position ($R^2 = 0.44$) and commitment to nursing ($R^2 = 0.33$). The skills identified as the most uncomfortable to perform have remained consistent throughout the years (code/emergency response, chest tube care, vent care and management). Table 2 contains the rank order of skills that residents are uncomfortable performing.

The residents’ evaluation of the program has been consistently positive, with highest ratings given to overall welcome and program faculty. Resident views of the infrastructure of the program remain positive (goals, topics, etc). Table 3 provides a summary of the lessons learned from 10 years of study of the UHC/AACN NRP.

**Evaluation Issues**

One issue has persisted throughout the evaluation—willingness of residents to participate in data collection. All of the data collected were under the rubric of research; therefore, all participation was voluntary. At the beginning of the program, most residents (mean, 85%) completed the study instruments, which fell to less than two-thirds participating at program midpoint (mean, 61%) and below half (mean, 48%) at the program end. Because over-time comparisons require that participants contribute data at all data collection points, the decline in participation has created a situation where overall program analyses are unfortunately based on fewer than 40% of residents. Participation rates vary greatly across sites, which creates a difference in the relative impact of sites on the results.

**Accreditation of the Residency Program**

The development of a residency program through the AACN/UHC collaboration created a groundswell of interest. With dissemination of evaluation findings from the residency sites, the importance of a formal program of transition was exceedingly clear to employers. The extensive investment of time, resources, and energy that

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### Table 1. Means, Standard Errors, and Greenhouse-Geisser Within-Subject F and P values for Comparison (Repeated Measures) Between Program Start, Midprogram, and Program Completion Casey-Fink Scores (n = 1,016)

<table>
<thead>
<tr>
<th>Casey-Fink Score</th>
<th>Start, Mean (SE)</th>
<th>Midprogram, Mean (SE)</th>
<th>Completion, Mean (SE)</th>
<th>F</th>
<th>P</th>
<th>Summary of Significant Comparisonsa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (mean)</td>
<td>3.04 (0.02)</td>
<td>3.18 (0.02)</td>
<td>3.24 (0.02)</td>
<td>50.64</td>
<td>&lt;.001</td>
<td>$T_1 &lt; T_2 &lt; T_3$</td>
</tr>
<tr>
<td>Stress (range, 0-7)</td>
<td>2.27 (0.11)</td>
<td>2.16 (0.12)</td>
<td>2.43 (0.13)</td>
<td>1.68</td>
<td>.19</td>
<td>NS</td>
</tr>
<tr>
<td>Support</td>
<td>3.28 (0.03)</td>
<td>3.31 (0.03)</td>
<td>3.30 (0.03)</td>
<td>0.50</td>
<td>.61</td>
<td>NS</td>
</tr>
<tr>
<td>Organizing and prioritizing</td>
<td>2.68 (0.03)</td>
<td>2.97 (0.03)</td>
<td>3.10 (0.02)</td>
<td>90.90</td>
<td>&lt;.001</td>
<td>$T_1 &lt; T_2 &lt; T_3$</td>
</tr>
<tr>
<td>Communication leadership</td>
<td>2.72 (0.03)</td>
<td>3.04 (0.02)</td>
<td>3.20 (0.02)</td>
<td>182.34</td>
<td>&lt;.000</td>
<td>$T_1 &lt; T_2 &lt; T_3$</td>
</tr>
<tr>
<td>Professional satisfaction</td>
<td>3.54 (0.03)</td>
<td>3.43 (0.03)</td>
<td>3.39 (0.03)</td>
<td>10.19</td>
<td>&lt;.001</td>
<td>$T_1 &gt; T_2, T_3$</td>
</tr>
</tbody>
</table>

*Significant change between assessments ($T_1$, program start; $T_2$, midprogram; $T_3$, program end) is noted by a < or > character representing a significant increase (eg, $T_1 < T_2$) or a significant decrease (eg, $T_1 > T_2$) between adjacent times. When a comma is placed between the symbols for adjacent times (eg, $T_1, T_2$) then the scores at these times were not significantly different. NS, not significant.*
were part of this collaborative process was seen by some outside the collaboration as unnecessary, and thus, a variety of other residency program offerings by employers and for-profit companies began to emerge in the marketplace. Residencies that were online programs only, shorter 3- to 6-month residencies, and extended orientation began to emerge.

The AACN and UHC partners understood, as a result of extensive testing, the importance of a 1-year residency experience and the need to have a formally developed evidence-based curriculum. The focus to build the residency curriculum on the AACN’s essentials of baccalaureate education for professional nursing practice gave the program its grounding for quality assurance.

In 1996, the AACN established an autonomous accrediting arm of the organization, the CCNE, with a sole focus on accrediting baccalaureate and graduate nursing programs in the United States. Nearly a decade later, the collaborators (UHC and AACN) approached CCNE to discuss the potential to create an accreditation process, framed on standards established by the residency constituents, to develop an assessment program that would validate the quality and ensure consistency across residency programs complying with the accepted standards.

### Table 3. Lessons Learned From 10 Years of Research

<table>
<thead>
<tr>
<th>Skill/Category</th>
<th>Start</th>
<th>Mid</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents' perception of their overall confidence and competence, ability to organize, and prioritize their work and ability to communicate and provide leadership shows statistically significant increases over the 1-y residency.</td>
<td>88%</td>
<td>94.6%</td>
<td>94.6%</td>
</tr>
<tr>
<td>Residents rate their professional satisfaction very high on entrance to the residency. A statistically significant decrease occurs at 6 mo and then stabilizes and satisfaction scores remain at or close to the 6-mo level on completion.</td>
<td>20</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Despite increases and decreases in scores, the mean scores for residents are very high overall.</td>
<td>18</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Across the 10 y, retention rates increased from 88% initially to 94.6% in 2012.</td>
<td>16</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>The scores for organizing, prioritizing, communication, and leadership were significant predictors of commitment to current position ($R^2 = 0.44$) and commitment to nursing ($R^2 = 0.33$).</td>
<td>10</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>The 3 top skills that residents rate as most uncomfortable performing have remained constant over the 10 y: code/emergency response, chest tube care, and vent care and management.</td>
<td>9</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>The evidence-based practice project completed during the last 6 mo of the residency is highly valued by the organizations and is having an impact on improving nursing practice.</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Residents rate the program, faculty, goals, and topics very positively.</td>
<td>19</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>It is difficult to maintain high response rates in a repeated-measures design.</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Accreditation of residencies is essential to ensure quality.</td>
<td>17</td>
<td>17</td>
<td>17</td>
</tr>
</tbody>
</table>

Abbreviations: ECG, electrocardiogram; IV, intravenous; PCA, patient controlled analgesia.
Following a process that included broad input, the CCNE Board of Commissioners approved accreditation standards for postbaccalaureate NRPs in April 2008. These standards address 4 areas: (1) program quality: program faculty; (2) program quality: institutional commitment and resources; (3) program quality: curriculum; and (4) program effectiveness. After approval of standards, the CCNE, through a competitive application process, recruited and trained volunteer peer reviewers to conduct onsite evaluations. The CCNE Board of Commissioners established a Residency Accreditation Committee to serve as advisory to the board for accreditation review and monitoring.

The CCNE accredited the 1st residency programs in 2009. As news of CCNE accreditation spread, the CCNE received many inquiries about the accreditation process. From the earliest discussions with AACN and UHC, the CCNE maintained that any postbaccalaureate NRP, regardless of whether it participates in the AACN/UHC model, would be eligible to pursue CCNE accreditation. As a result, the CCNE has seen interest from, and accredits, a variety of programs that have developed a residency experience that meets the accreditation standards.

Discussion
Implementing a new graduate residency program requires support from leadership at the hospital and partner school of nursing. A defined evidence-based curriculum that is reviewed and updated to meet the needs of the new graduates and the rapidly changing health care environment is imperative. Accreditation standards for NRPs are essential. Residencies are academic programs run by a hospital and a school of nursing. Nursing should follow the path of our interdisciplinary partners in medicine, pharmacy, and pastoral care who saw the need to achieve quality through national accreditation. All of these residencies focus on guided clinical experience, protected time to attain specialty knowledge, case study presentations, and learning to function as an interdisciplinary team. This study found that in the UHC/AACN 1-year residency, new graduates learned to organize and prioritize their work and they learned essential leadership and communication skills that enhanced the work of the interdisciplinary team. The residency focus on quality, safety, and EBP has enriched the culture of the hospitals where residents provide care.

References
18. Lynn MR. Enhancing the evaluation of the NRP: current research and projecting the future. Paper presented at: UHC/AACN Post Baccalaureate Nurse Residency Meeting; March 6, 2012; Amelia, Island, FL.