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doi:10.1016/j.ijnurstu.2012.06.009

Best Practices of Formal New Graduate Nurse Transition Programs: An Integrative Review

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Abstract

Objectives: The aim of this review was to identify best practices of formal new graduate nurse transition programs. This information would be useful for organizations in their support and development of formal transition programs for newly hired nurses.

Design: An integrative review of the nursing research literature (2000 – 2011).

Data Sources: The literature search included PubMed (MEDLINE), the Cumulative Index to Nursing and Allied Health Literature (CINAHL), and the Excerpta Medica Database (Embase). Studies that dealt with programs geared towards pre-registration nursing students were removed. At least two researchers evaluated the literature to determine if the article met the inclusion and exclusion criteria. The final number of articles included in this review is 47.

Review Methods: Cooper's (1989) five-stage approach to integrative review guided the process: Problem formulation, data collection, evaluation of data points, data analysis and interpretation, presentation of results.

Results: Transition program literature was examined according to four major themes: Education (pre-registration and practice), Support/Satisfaction, Competency and Critical Thinking, and Workplace Environment. This included new graduates' retrospective accounts of their undergraduate education and examination of orientation and formal supports provided beyond the traditional unit orientation period. Transition programs included residencies, internships, mentorships, extended preceptorships, and generic programs. Common elements of programs were a specified resource person(s) for new graduates, mentor (mentorship), formal education, and peer support opportunities. The length, type of education, and supports provided varied considerably amongst programs, yet the presence of a transition program resulted in improved new graduate nurse retention and cost benefits.

Conclusions: The variability in research designs limits the conclusions that can be drawn about best practices in transition programs for new graduate nurses. The presence of a formal new graduate transition program resulted in good retention and improved competency. The stronger evidence suggests

that new graduate education should focus on practical skill development, preceptors should receive a level of formal training, formal support should be available at least through the difficult six to nine month post-hire period, opportunities for connection with their peers should be provided, and organizations should strive to ensure clinical units with healthy work environments.

Key words: Clinical competence; Education; New Graduate; Nurse; Personnel selection; Personnel turnover; Staff development; Transition

Statements of:

What is already known about the topic?

- Evidence of a theory-practice gap and a developmental lag between being a student and entering the workplace
- Transition to practice associated with a reality shock
- Programs as a whole and their constituent components have not been extensively studied in a systematic manner to determine their efficacy or cost-effectiveness

What this paper adds?

- Transition programs have a positive impact on new graduate nurse retention
- Trained preceptors positively influence the new graduate-preceptor relationship
- Mentors, peers, and a transition program of at least 9 months provide new graduates with significant support during transition
- Evidence was variable, and overall of low quality, limiting best practices recommendations

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Background

The nursing shortage has drawn national and international attention to the recruitment and retention of new nurse graduates. The attrition rate in Canadian Registered Nurse (RN) entry-to-practice programs is 28% (Canadian Nurses Association, 2007). This can have a significant financial impact on an organization as considerable resources, in some cases estimated to be \$40,000 USD per new graduate (Almada et al., 2004), are committed to the recruiting, hiring, orientating, preceptoring, and training of the new graduate. Further, Canadian figures estimate a shortage of 60,000 RNs by 2022 (Canadian Nurses Association, 2007), and the United States (US) National Center for Health Workforce Analysis (2002) predicts the shortage of registered nurses will grow from 12% in 2010 to 20% by 2015.

Central to recruitment and retention concerns has been new graduate nurses' transition to practice, heightened by the movement of nursing education into universities, the growing acuity and complexity of care, and technological advancements. Evidence of a theory-practice gap has been identified as a global phenomenon (Maben et al., 2006). Findings from two recent Canadian studies of practice readiness agreed that a significant and problematic developmental lag exists between being a student and entering the workplace as a graduate nurse (Romyn et al., 2009; Wolff et al., 2010). Further, differing expectations between educational and practice stakeholders were observed, often influenced by the historical and social context within which nursing education and professional practice were grounded (Wolfe et al., 2010).

The entry-level competencies of new nurses have been well documented (College of Registered Nurses of British Columbia, 2010) yet research reveals gaps in their role-related knowledge, skills, and clinical judgment. Del Bueno (2005) found that new graduates from across the United States lacked critical thinking, with aggregate data revealing that 65% to 76% did not meet expectations for entry-level clinical judgment ability. In a Swedish study of competence of newly graduated nurses', neophyte nurses were rated lowest in the areas of informing and teaching co-workers and students and planning and prioritizing nursing interventions (Lofmark et al., 2006). Further, near misses and omissions and errors in the performance of clinical skills such as post-operative ambulation and wound dressing changes have been documented (Bjork and Kirkevold, 1999).

There is a plethora of literature on the transition of the new nurse graduate to practice, dating back to Kramer's (1974) seminal work on the nature of this transition as a reality shock. Various facets of this transition have been studied including new graduates' perceptions and experiences of the transition (Goh and Watt, 2003), support (Johnstone et al., 2008), competence (Lofmark et al.; Ramritu and Barnard, 2001), retention (Altier and Krsek, 2006), job satisfaction (Altier and Krsek, 2006), the workplace environment (Lavoie-Tremblay et al., 2008) and organizational infrastructure (Schoessler and Waldo, 2006). In addition, new Graduate Transition models have been developed that capture this very unique developmental process (Boychuk-Duchscher, 2009).

Transitional programs have emerged to facilitate and support the development and integration of neophytes into the workplace. Proponents of these programs regard them as essential for new graduates and in some countries this has led to the development of national standardized new graduate transition programs such as the US National Council of Nursing's Regulatory Model for Transitioning New Nurses to Practice (Roxburgh, et al., 2010) and Scotland's Flying Start Program (Spector and Echternacht, 2010). Others question the need for these programs, contending that new graduates should be prepared to meet the expectations of the workplace. Referred to as transition support programs, new graduate programs, residencies, or internships, transition programs have been characterized by diversity in duration, structure, content, and financial support. The length, number, and type of clinical rotations vary, as do the range of program components. Components generally include a combination of the following: education, formal or informal preceptorships, mentorships, supernumerary time, and unit specific orientation. Although transitional programs have been implemented across a range of practice settings, including home care (Meadows, 2009), the bulk of the transitional work has occurred with new graduates integrating into the acute care workplace, where 60% of new graduates choose to practice (Canadian Institute of Health Information, 2006).

Evidence has been mixed in demonstrating the value of these programs (Evans, 2008). In a review of new graduate programs, Levett-Jones and FitzGerald (2005) concluded that both the programs as a whole and their constituent components have not been studied in a systematic, comprehensive or objective manner to determine their efficacy or cost-effectiveness. Although case exemplars of new graduate transition initiatives reported in the literature provide descriptions of program components, those

components that most strongly contribute to program results have not been identified. Despite the volume of work done in this area there has been little consensus regarding what constitutes best practice. Therefore, the purpose of this study was to review existing research literature to identify best practices of formal new graduate nurse transition programs.

Methodology

Cooper's (1989) five-stage approach to integrative review guided the process. Following the first stage of problem formulation ensued data collection, evaluation of data points, data analysis and interpretation, and presentation of results.

Data Collection

The search strategy was developed and conducted in close collaboration with a research librarian at the University of British Columbia. Library databases that were searched included PubMed (MEDLINE), the Cumulative Index to Nursing and Allied Health Literature (CINAHL), and the Excerpta Medica Database (Embase). Key words, relevant synonyms, and associated truncations that were used in the search included *new nurse graduates* and either *transition programs* or *orientation programs*. This review included only English-language studies published between 2000 and 2011, and initial search results yielded more than 3,000 papers.

Studies that dealt with programs geared towards pre-registration students were removed. After duplicate citations were removed, a total of 695 original relevant citations were retrieved via these databases. Citation abstracts were reviewed and those not meeting the inclusion criteria were deleted ($n = 536$), leaving 159 papers for potential inclusion in the review. Hand searching of reference lists from these papers was conducted to ensure all relevant papers were included in the review, with four additional papers added.

Evaluation of Data Points

All 163 articles identified for potential inclusion were then evaluated by at least two researchers to determine if the article met all of the following criteria: (a) based on empirical research; (b) included an abstract; (c) targeted new graduates within one year of graduation participating in a formal new graduate nurse transition program; (d) contained sufficient detail describing the formal new graduate nurse transition program; (e) focused on acute care settings; (f) published in English. Reviewers excluded

articles for one or more of the following reasons: (a) focused on professional identity (eg. burnout, etc); (b) presented a review of the literature or editorial, or grey literature (c) studied nurses in residential, rural or community settings, (d) included populations other than newly graduated nurses, (e) focused on nurses working in specialty areas that typically provide advanced training. The final number of articles included in this review is 47.

Data Analysis and Interpretation

There were frequent consultations and meetings amongst members of the research team regarding elements of the process, such as search strategies, collection tools, and inclusion/exclusion criteria. One of the most significant challenges within the literature was the lack of consistency and clarity regarding definitions of key terms. This was particularly evident regarding the use of the terms 'orientation' and 'transition.' For the purpose of this review, orientation was defined as a period to familiarize staff with a new work environment, related expectations, and policies, and included clinical support through a supernumerary period. A transition program was defined as a program that occurred in addition to a general and/or specific unit orientation and was designed specifically to assist new nurse graduates with their transition to practice. The orientation period is addressed in this review only if it was discussed as a phase of a formal new graduate transition program.

A standardized charting form was developed that included significant elements for extraction from each of the selected papers. Using RefWorks, a bibliographic management tool, papers were categorized depending on their focus according to four major themes: Education (pre-registration and practice), Support/Satisfaction, Competency and Critical Thinking, and Workplace Environment. Papers were reviewed for study design, sample size, program elements (eg. orientation length, transition length, education, supports), and outcomes (eg. competency, critical thinking, job satisfaction). More detail on each transition program is provided in Table 1.

In addition, each paper was scored for its levels of evidence using an adaptation of a system developed by Beck (2001) and later modified by Park and Jones (2010). Three criteria were used that could be extracted from all of the papers and included: Study design (Quasi-experimental = 3 points; Longitudinal = 2 points; Descriptive and Qualitative = 1 point); Sample size (Greater than 100 = 3 points; 50 – 100 = 2 points; 0 – 50 = 1 point); and Author (Multiple publications (>3) in the transition program

literature = 2 points; Limited number of publications within the transition program literature = 1 point). The result was a level of evidence score specific to each article from 3 (lowest level) to 8 (highest level).

Papers with levels of evidence scores from 6 to 8 (n=10) were considered to be strong. Two authors independently scored the studies with good inter-rater agreement (fixed-marginal kappa score of 0.81).

The level of evidence score for each article can be found in table 1.

Presentation of Results

Sample sizes of study populations researched in the papers reviewed ranged from 10 to 7,907, with a median of 387. The majority used descriptive designs (n=27), but quasi-experimental (n=8), qualitative (n=5), and longitudinal (n=7) designs were also represented. The vast majority of the literature was of U.S. origin. The literature review revealed both generic transition programs (n=14), and programs based on a specific model: Extended Preceptorship (n=11), Mentorship (n=7), Residency (n=13), and Internship (n=2). The Residency literature was dominated by contributions from a U.S. national post baccalaureate nurse residency program established by members of the University Health System Consortium/American Association of Colleges of Nursing partnership (Altier & Krsek, 2006; Casey et al., 2004; Fink et al., 2008; Goode et al., 2009; Krugman et al., 2006; Pine & Tart, 2007).

Transition programs varied in length from less than one month to over a year, with 14 papers not specifically identifying a program length. Of the 33 papers that identified a program length, eight had lengths of three months or less, five papers reported lengths from four to six months, and nineteen papers described programs longer than six months. One investigation involved a mix of new graduates in programs from zero to three months and from four to six months in length.

Common Features of Transition Programs

Due to the variability among programs described in the literature demonstrating positive outcomes, it can be challenging to determine what is most effective. Thus the transition programs in the literature were analyzed for common components.

A defined resource person. The most prevalent component shared by transition programs was the availability of a defined new graduate resource person assigned in a one-to-one relationship with the new graduate. Although this resource person was identified in 15 articles, a standard definition of this role and title was lacking. For example, in some cases the preceptor fulfilled this additional support role

(Kowalski and Cross, 2010; Schoessler and Waldo, 2006), but in the majority of studies this resource person was described as a Mentor (n=11), 'Clinical Coach,' (n=3) or 'Sponsor,' (n=1). In some cases the resource person started their relationship with the new graduate immediately upon hire, and in other cases the relationship did not begin until after a preceptored period. Beecroft et al. (2006) distinguished the non-clinical, non-evaluative role of the resource person with the clinical supervisory role of the preceptor. Regardless of the title, this additional support person was intended to focus on the socialization of the new graduate (Zucker et al., 2006).

There were an additional five studies that identified the use of a single resource person to support multiple new graduates as an alternate model of support. Titles commonly used to identify this resource included 'Resident Facilitator' or 'Transition Program Coordinator,' whose role was to connect with new graduates and respond to any issues or concerns. None of these roles were specifically evaluated within the literature.

Mentorship. Mentorship was a common type of one-to-one resource available for new graduates within a formal new graduate transition program, but evaluations and outcomes were generally limited to retention. All articles involving mentorship programs demonstrated enhanced new graduate nurse retention (Ho, 2006; Mills and Mullins, 2008). There was limited discussion of mentor selection criteria and matching (Fox, 2010), and only two articles discussed mentor training programs with little detail regarding the content delivered (Fox, 2010; Zucker et al., 2006). The effectiveness of mentor training, the selection process, and the matching process were not specifically assessed. Several programs had salary bonuses for mentors tied to the successful retention of new graduates (Fox, 2010; Zucker et al., 2006). Beecroft et al. (2006) demonstrated that regular meetings with a mentor positively influenced the likelihood of the mentor being a stress reducer ($p=0.001$), and a source of guidance and support ($p<0.001$), and the mentee 'clicking' with the mentor ($p<0.001$). In addition, mentors of an older age were more likely to be stress reducers ($p=0.005$) and to provide guidance and support ($p=0.100$). Fox (2010) described a structured mentorship program where effectiveness was inferred through evaluation of new graduates' level of satisfaction rating to the statement: 'Overall, I feel confident my job will be satisfying one year from now.' Seventy-five percent of the pilot group mentor-protégé pairs improved their satisfaction score level from 'agree' to 'strongly agree' or from 'tend to disagree' to 'agree.'

Peer support opportunities. Peer support and providing opportunities for new graduates to meet and discuss their transition experiences with each other was a theme in four qualitative articles. Keller et al. (2006) described a residency program that had as a component various activities designed for the socialization of the new nurse such as welcome breakfasts, lunches, and seasonal parties. Qualitative data collected from new graduates described how this camaraderie assisted with their ability to cope with the stress and emotions experienced during transition. Fink et al. (2008) found peer support and camaraderie as two of the top satisfying aspects of new graduates' work environment. Subjective comments from the new graduates in this investigation included how important the interactions with other residents were, and how this offered moral support.

Impact on New Graduate Retention

Retention and turnover were important outcomes found in the new graduate transition program literature. A summary of studies that measured these outcomes is provided in Table 2. Retention rates indicated the number or percentage of new graduates remaining at an organization at the end of a defined period. Turnover rates represented a calculated percentage of the number of new graduates leaving an organization within 12 months of their hire date divided by the number of new graduates hired during that same time period. Organizations strive for a high retention rate and a low turnover rate.

Thirteen papers examined new graduate retention rates, six reporting pre- and post-program rates, and the remaining seven providing post-program rates only. Three were investigations utilizing quasi-experimental methodology. Of the four papers investigating new graduate turnover rates, half reported pre- and post-program rates, while the other half reported post-program rates only. In studies that examined pre- and post- program rates, every program resulted in improved retention or turnover figures. The thirteen papers that investigated new graduate retention had on average a rate of 90.1%, and the papers that examined turnover had on average a rate of 10.5%. These figures compare favorably to the Canadian new graduate attrition rate of 28% (Canadian Nurses Association, 2007), and U.S. national new graduate retention rates that on average range from 55% to 61% (Casey et al., 2004).

Cost Benefit of Transition Programs

Nine articles in the review reported that having a transition program resulted in a cost-benefit for the agency due to improved new graduate retention and decreased turnover. Four reported actual per

capita cost figures, and seven provided cost-savings information. However, although actual numerical figures were reported, the process for obtaining the figures was rarely detailed.

Transition program costs ranged from a low of \$2,023.91 to a high of \$12,125 US per new graduate (Adlam et al., 2009; Bratt, 2009; Fox, 2010; Pine and Tart, 2007). Figures regarding cost-savings from a transition program as a result of improved new graduate retention or turnover were provided by Fox (2010) who indicated an annual savings of \$1,040,153 US (organizational new graduate turnover improved from 32% to 16%), Marcum and West (2004) who reported a \$330,481 US annual return on investment (organizational new graduate retention improved from 60% to 89%), Lee et al. (2009) who stated their program resulted in a savings of \$186,102 US over a six month period (no specific retention or turnover data provided), and Pine and Tart (2007) who reported a cost savings of \$823,680 (new graduate turnover improved from 50% to 13%). Other studies providing estimated savings as a result of new graduate transition programs included Mills and Mullins (2008), who stated improved new graduate retention resulted in a three year cost savings of from 1.4 to 5.8 million dollars (based on their assumption that it costs 1.5 to 2 times a nurse's salary for an organization to recruit and orient a new nurse), Zucker et al. (2006), who indicated that every new nurse retained saves an organization \$40,000US or more, and Krugman et al. (2006), who reported data that demonstrated the average budget for managing their annual program is less than the cost to advertise and recruit two nurses.

Education (pre-registration)

Four articles that addressed retrospectively new graduates' undergraduate education were identified in the literature. A large US survey study of Healthcare agency administrators (n=410) and new graduates (n=7,497) identified that stronger nursing preparation programs appeared to include common education elements. These included faculty that taught didactic content and clinical activities, used information technology and evidence-based practice, integrated pathophysiology and critical thinking throughout the curriculum, and had content related to the care of specific client populations (eg. medical-surgical clients, clients with psychiatric disorders), and women's health as independent courses (Li and Kenward, 2006).

Three articles in the review focused on partnership models between educational institutions and healthcare organizations. An important outcome of partnerships between nursing education academic programs and healthcare organizations was the creation of human resources support. This support took a variety of forms including additional clinical practicum opportunities (Campbell et al., 2001), academic involvement in preceptor education (Pickens and Fargotstein, 2006), and access to academic offerings by staff (Roche et al., 2004). An additional benefit of these partnerships was improved new graduate nurse retention (Pickens and Fargotstein, 2006; Roche et al., 2004).

Education (practice)

Education opportunities during a formal transition program were described in thirteen articles. Education opportunities were delivered during, and at points beyond, unit specific orientation periods but few were specifically evaluated. Only two of the thirteen papers (Blanzola et al., 2004; Young et al., 2008), provided a breakdown of the time spent on each component (e.g. hours spent on practical education vs. hours spent on theoretical classroom type learning). Education was typically delivered via course work and classroom sessions and included clinical practice topics such as pain management, end-of-life care, medication errors, supporting the family during crisis, and pathophysiology (Blanzola et al., 2004; Gavlak, 2007; Strauss, 2009; Beyea et al., 2007). Further into the transition programs, professional development topics included managing the complex patient, conflict resolution, action-oriented learning, and leadership (Blanzola et al., 2004; Keller et al., 2006; Schoessler and Waldo, 2006). A 12-week transition program that included weekly human patient simulation as one component, in addition to weekly didactic sessions and preceptored time, enhanced new graduate confidence, competence, and readiness for independent practice (Beyea et al., 2007). Other education strategies and learning opportunities included journal assignments and professional portfolios but these were not well evaluated (Forneris and Peder-McAlpine, 2009; Keller et al., 2006).

Support/Satisfaction

The initial support provided to new graduates typically occurs during an orientation period, and is primarily provided by a preceptored experience. An orientation component is specifically described in eighteen papers within the transition program literature with periods ranging in length from less than 4 weeks to more than three months, and with preceptorship as a strong theme. An overwhelming majority

of the papers made specific reference to the importance of preceptorship and incorporated dedicated preceptored shifts, however, details were lacking about specific components such as if all shifts were preceptored for the entire unit orientation period. Seven studies discussed the importance of preceptors receiving formal education and reported outcomes that included enhanced preceptor satisfaction (Beecroft et al., 2008), preceptor retention (Baggot et al., 2005), improvement in new graduate critical thinking ($p < 0.05$) (Sorensen and Yankech, 2008), quality care (Lee et al., 2009), new graduate satisfaction with their preceptored experience (Baggot, et al., 2005), and new graduate retention (Pickens and Fargotstein, 2006). There was considerable variation in the length of preceptor training programs (from 3 hours to 3 days) and delivery methods. Common elements of preceptor training programs included adult learning principles, learning styles, conflict resolution, and Benner's (1984) novice to expert transition framework. Although the importance of preceptor matching was mentioned in two articles, there were no measurable outcomes. Nugent's (2008) qualitative investigation of 150 new graduates revealed that being assigned to different preceptors was difficult for some, but many new graduates also found this beneficial as it provided exposure to different approaches to prioritizing care and time management. Four of the eighteen articles discussing orientation within the transition program literature made specific reference to the use of 'supernumerary time,' or time to become immersed in their new role without workload pressures (Adlam et al., 2009). Supernumerary time ranged in length from 3 weeks (Leigh et al., 2005) to four months (Murphy et al., 2004), with one recommendation for 6 weeks as the ideal length (Adlam et al., 2009).

Increases in retention, job satisfaction, and comfort with skills are outcomes that have been reported in conjunction with orientation within a transition program. Longer orientation was shown in one US study ($n=329$) to decrease turnover rates. New graduates who had already left their first nursing job had on average an orientation two weeks less than new graduates who had not left their first nursing job (Scott et al., 2008). Further, new graduates who received a longer orientation that met all of their needs were more satisfied in their current position. Casey et al. (2004) demonstrated that 96% of new graduates ($n=270$) were not comfortable performing skills and procedures typically conducted by nurses during the orientation period. An orientation that included dedicated time for practicing specific skills (e.g. code blue, chest tubes, and advanced parenteral therapy) increased comfort with skill performance

(Gavlak, 2007). In another survey study (n=434) open-ended qualitative comments from new graduates revealed that orientation could be improved by including fewer formal classes (Fink et al., 2008).

New graduate satisfaction was examined in several studies and typically measured via self-report or inferred based on other variables such as retention. Bratt (2009) surveyed 1,100 new graduate nurses who participated in a nurse residency program in Wisconsin. The time period from six to nine months after hire was associated with the highest levels of stress, and the lowest levels of job satisfaction and organizational commitment. Both Krugman et al. (2006) and Williams et al. (2007) found that satisfaction decreased during the initial transition phase, but this was followed by a significant increase in satisfaction at the end of the one-year transition period ($p < 0.05$). The authors suggest these findings reflect that new graduates experience an initial level of reality shock during their transition to practice, but emerge from it towards the end of their residency. They conclude that new graduates may be vulnerable during the period around 6 months, and transition programs that end before one year may not provide sufficient support or time for new graduates to adjust. This finding is further supported by Casey et al.'s (2004) exploration of qualitative data in that nurses in the second six months of a residency program had higher job satisfaction ratings than in the first six months.

Competency and Critical Thinking.

Themes of competency and critical thinking were evident in all phases of new graduate transition, including retrospective examinations of undergraduate education. Six articles described new graduates' perceptions of their academic entry-level program's ability to prepare them for practice. A lack of preparation in the following areas was reported: administering medications to groups of clients (Li and Kenward, 2006; Smith and Crawford, 2003); pharmacology (Rydon et al., 2008); and nurse-physician interactions (Casey et al., 2004; Li and Kenward, 2006). Qualitative investigations noted that many groups of nurses - experienced practitioners, ward managers, and new graduates themselves – all felt that new graduates were not ready for independent practice on registration (Clark and Holmes, 2007). New graduates also felt there was a deficiency in clinical practice opportunities during undergraduate education (Ellerton and Gregor, 2003). The integration of critical thinking skills in nursing education programs has grown with the recognition that students cannot be prepared for every situation they may encounter in clinical practice (Kaddoura, 2010). Two studies from the transition program literature

investigated problem-based learning compared to traditional curriculum. New graduates educated via problem-based learning were able to solve problems with greater competency than those trained via traditional methods (Uys et al., 2004). Less than 5% of new graduates educated via traditional methods perceived their education to promote critical thinking skills (Applin et al., 2011).

The transition literature that addressed competency beyond the point of hire measured it differently across studies using both standardized and researcher developed tools. Standardized tools utilized to measure competency included the Performance Based Development System (Anthony and del Beuno, 2001), the Professional Judgment Rating Form (Facione et al., 1998), and the Casey-Fink Graduate Nurse Experience (Goode et al., 2009). Increased competency was found regardless of rater (self, peer, preceptor, manager, or administrator), duration, or type of transition program (Beyea et al., 2007; Goode et al., 2009; Komaratat and Oumtanee, 2009).

A qualitative investigation found new graduates (n=9) did not feel fully independent about their nursing work until after they had completed the one-year transition program (McKenna and Newton, 2008). New graduate nurses “did not see themselves as fully fledged registered nurses during the graduate program, rather they were ‘graduates’ somewhere between student and registered nurse” (p. 14). The authors concluded that the new graduate program acts as a shelter or umbrella.

Closely linked with competence in this body of literature is the new graduate's level of confidence. There is evidence to suggest a lack of confidence can negatively impact critical thinking and reasoning abilities (Haffer and Raingruber, 1998). Fourteen articles addressed the impact of a transition program on new graduate confidence, but there was no evidence of a standardized tool that specifically measured confidence. In the vast majority of cases, improved confidence was inferred by the author based on other outcomes such as retention (Blanzola et al., 2004), decreased level of anxiety (Kowalski and Cross, 2010, $p=0.004$), or emerged as a theme from qualitative data (Fink et al., 2008; Hayes and Scott, 2007; Beyea et al., 2007).

Workplace Environment

Workplace environment is a significant factor potentially impacting new graduate nurse transition, yet it is not heavily studied in the context of a formal transition program. The most comprehensive investigation regarding new graduate nurses (n=371) in a transition program and their workplace environment utilized a standardized tool to rank the health of the work environments of clinical units employing new graduates (Kramer et al., 2011). Results demonstrated that new graduates working on clinical units with work environments identified as 'Healthy' or 'Very Healthy' experienced less reality shock as they transitioned to practice than new graduates working on clinical units that 'Needed Improvement.' Also, new graduates working at academic-teaching hospitals anticipated higher quality work environments than their colleagues employed at other hospitals.

Anderson et al. (2009) investigated work place environment and its impact on new graduate job satisfaction in a group of 90 new graduates involved in an interactive nurse residency program. Qualitative data from the survey was classified into themes that described work environment 'satisfiers' as helping people and teamwork, and work 'dis-satisfiers' as poor teamwork, physician disrespect, and staffing/scheduling. Casey et al.'s (2004) investigation of qualitative data from new graduates in a transition program shed further light on workplace environment challenges faced during transition. New graduates described a lack of acceptance and respect, and an insensitivity of experienced nurses to their needs for continued development in time management skills.

Discussion

The 21% of literature in this review rated as strong evidence contributes more weight to the discussion and study conclusions. However, the number of conclusions that can be drawn about best practices in transition programs for new graduates was limited due to the overall variability in research designs and sample sizes. Few studies had designs with the degree of control necessary to rule out competing explanations. Although there was an overall lack of outcome measures in this area of study evidence shows benefit in selected areas of new graduate transition.

Improved new graduate retention as the result of a transition program was a well-supported theme, however, there were few rigorous designs comparing new graduate retention pre- and post-implementation of a transition program. There was also variability in measures utilized such as retention

rate, turnover rate, and attrition rate, with no evidence of a standardized definition or formula used when programs and organizations calculate these values. Consistency in the measurement of new graduate retention across provinces and states and national reporting would allow comparison across programs and identification of transition components that facilitate retention. The literature discussing the financial aspects of transition programs was similarly challenged by a lack of consistency in measurement, likely contributing to the broad range of findings regarding cost per capita and return on investment of transition programs.

Academic preparation, although not an emphasis of this review, was addressed in papers rated as weaker in evidence and accessed through new graduates' retrospective accounts that revealed their perceived lack of preparation in specific areas of practice. Education delivered to new graduates during their transition program typically occurred during the orientation period and by various delivery methods, although new graduates identified a preference for hands on education rather than formal classes. There was little discussion about why specific topics were selected, when in the transition program they should be delivered, and with what method of delivery. Dedicated time for skill practice and human patient simulation may hold promise in the development of new graduate competency, but within the context of a transition program need to be investigated in a more rigorous manner.

Support across the trajectory of new graduate transition typically consists of some form of 'people support,' and the preceptor is the first person to assume this support role. The evidence suggests several positive outcomes related to the new graduate-preceptor relationship, particularly when the preceptor receives a level of formal training. Other 'people resources' with a role in supporting new graduate transition included mentors, clinical coaches, transition program coordinators, and new graduate peers. Only the use of mentors was extensively evaluated, and there is some strong evidence to suggest mentors can be effective stress reducers and provide guidance and support in a transition program. Subjective reports from some of the qualitative investigations in this review revealed new graduates value the moral support provided by peer-support opportunities. The unit orientation phase of a transition program is when support is quite concentrated, yet the current evidence is inconclusive regarding recommended unit orientation length. There was some weaker evidence to suggest longer orientations resulted in better retention and new graduate satisfaction. Beyond unit orientation there was evidence to

suggest new graduates struggle with high levels of stress and low levels of job satisfaction in the period six to nine months post-hire, thus some level of support should be available to new graduates at least through this period. Differences in transition and needs for support between Baccalaureate and Associate degree nurses is another area of potential inquiry.

In general, many commonly addressed variables such as job satisfaction, confidence, and competency were measured via self-report, preceptor report, or inferred on the basis of another variable (i.e. satisfaction = retention). There are standardized tools available to measure such variables, and these were utilized by some of the stronger papers within this review. The timing of measurement and its interaction with new graduate nurses' consolidation of knowledge, skills and judgments bears further study.

Work environment is a significant variable impacting new graduate transition. Healthy work environments decrease new graduate reality shock and facilitate transition. It is critical for clinical units to foster such healthy work environments through the establishment of collegial/collaborative relationships with physicians and other disciplines. Healthy units enable nurses to work with other competent nurses in controlling the context in which nursing is practiced, and in functioning autonomously for the benefit of the patient (Kramer et al., 2011). Further, new graduates still experience a lack of acceptance and respect, and an insensitivity of experienced nurses to their needs for continued development in time management skills.

Future Research Recommendations

It is recommended that further research in the area of new graduate transition include more rigorous study designs. For example, there is a need for longitudinal studies to track the outcomes of transition programs over time and experimental investigations to clearly identify the benefits of a transition program compared to not providing such formal support. Further investigation to conclusively demonstrate a positive return on investment is necessary to validate for funding sources the importance of formal new graduate transition programs. The potential for partnerships between academia and agencies to facilitate smooth transition holds promise, but would benefit from attention to both process and outcomes measurements to appraise the impact.

Strong investigations evaluating the various components of transition programs are also warranted, such as the impact of other people supports (e.g. Transition Program Coordinators) and the type, delivery method, and timing of education opportunities. Continued study regarding orientation length, supernumerary periods, and the structure of preceptor support within new graduate transition programs would also be beneficial. To clearly identify evidence for best practice this future work should clarify conceptual ambiguity between program components such as the interchangeable use of orientation and transition program, and preceptorship and mentorship. Lastly, evidence-based strategies to improve clinical unit work environments would be very constructive for units employing new graduates.

Conclusions

There were few rigorously designed studies regarding transition but a strong theme throughout the literature was that formal transition programs improved retention. Further, new graduates benefit from the use of mentors to provide support and from the availability of peer-support opportunities. Preceptors should receive a level of formal training prior to working with a new graduate, and transition programs should provide support for at least 9 months to assist new graduates through a particularly difficult period of stress and decreased job satisfaction. Nursing stakeholders need to continue to work on improving the clinical unit work environments to make them more amenable to new graduate transition.

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Table 1. Summary of Studies

Study Descriptors				Program Elements				Outcomes	
Author(s)	Level of Evidence Score	Design	Sample Size	Transition Program Length (months)	Unit Orientation Length	NG Specific Education	Types of supports provided	Competency and Critical Thinking	Job Satisfaction
Adlam, K. A., Dotchin, M., & Hayward, S. (2009)	3	Descriptive	-	-	-			-	-
Almada, P., Carafoli, K., Flattery, J. B., French, D. A., & McNamara, M. (2004)	3	Descriptive	40	> 6 months	> 4 weeks, less than 3 months	Yes	Mentor for both preceptor and NG	-	↑
Altier, M.E., & Krsek, C.A. (2006)	6	Descriptive	111	> 6 months	-	Yes	Resident Facilitator	-	No change
Anderson, T., Linden, L., Allen, M., & Gibbs, E. (2009).	6	Quasi-experimental	90	> 6 months	-			↑	↓
Applin, H., Williams, B., Day, R., & Buro, K. (2011)	5	Descriptive	121	-	-			↑	-
Baggot, D. M., Hensinger, B., Parry, J., Valdes, M. S., & Zaim, S. (2005)	6	Longitudinal	526	-	-			-	-
Beecroft, P., Hernandez, A. M., & Reid, D. (2008)	5	Descriptive	88	4 - 6 months	> 4 weeks, less than 3 months			-	-
Beecroft, P. C., Santner, S., Lacy, M. L., Kunzman, L., & Dorey, F. (2006)	6	Descriptive	318	-	-		Mentor	-	-
Beyea, S., Kobokovich Van Reyn, L., & Slaterry, M.J. (2007)	4	Longitudinal	6 to 27	0-3	-	Yes		↑	
Bratt, M. M. (2009)	5	Descriptive	1500	> 6 months	-		Mentor (Clinical Coach)	-	-
Blanzola, C., Lindeman, R., & King, M. L. (2004)	5	Quasi-experimental	8	4 - 6 months	< 4 weeks	Yes	Mentor	↑	-
Campbell, S. L., Prater, M., Schwartz, C., & Ridenour, N. (2001)	3	Descriptive	-	-	-	Yes		-	-

Table 1. Summary of Studies

Study Descriptors				Program Elements				Outcomes	
Author(s)	Level of Evidence Score	Design	Sample Size	Transition Program Length (months)	Unit Orientation Length	NG Specific Education	Types of supports provided	Competency and Critical Thinking	Job Satisfaction
Casey, K., Fink, R., Krugman, M., & Propst, J. (2004)	6	Longitudinal	270	> 6 months	-	Yes	Resident Facilitator	↑	-
Clark, T., & Holmes, S. (2007)	5	Qualitative	110	-	-			-	-
Ellerton, M. L., & Gregor, F. (2003)	3	Descriptive	11	Mix of 0 - 3 months and 4 - 6 months	mix of < 4 weeks, and > 4 weeks but less than 3 months	Yes		-	-
Fink, R., Krugman, M., Casey, K., & Goode, C. (2008)	7	Longitudinal	434	> 6 months	-	Yes	Resident Facilitator	↑	-
Forneris, S. G., & Peden-McAlpine, C. (2009)	3	Qualitative	12	> 6 months	-			↑	-
Fox, K. C. (2010)	3	Descriptive	24	> 6 months	-		Mentor	-	↑
Gavlak, S. (2007)	5	Descriptive	126	0 - 3 months	< 4 weeks		Mentor	-	-
Goode, C.J., Lynn, M.R., Krsek, C. & Bednash, G.D. (2009)	7	Longitudinal	655	> 6 months		Yes	Resident Facilitator	↑	
Ho, B. (2006)	3	Descriptive	-	> 6 months	-		Mentor	-	-
Hayes, J. M., & Scott, A. S. (2007)	3	Descriptive	-	0 - 3 months	-		Single mentor for all residents	-	-
Kaddoura, M. A. (2010)	3	Qualitative	10		-			↑	-
Keller, J. L., Meekins, K., & Summers, B. L. (2006)	3	Descriptive	-	> 6 months	-			-	-
Komaratat, S., & Oumtanee, A. (2009)	5	Quasi-experimental	19	0 - 3 months	-		Mentor	↑	-
						Yes	Preceptor continues on in mentor role		
Kowalski, S., & Cross, C. L. (2010)	5	Longitudinal	55	> 6 months	< 4 weeks			↑	-
Kramer, M., Brewer, B. &	7	Longitudinal	371	4 - 6 months					

Table 1. Summary of Studies

Study Descriptors				Program Elements				Outcomes	
Author(s)	Level of Evidence Score	Design	Sample Size	Transition Program Length (months)	Unit Orientation Length	NG Specific Education	Types of supports provided	Competency and Critical Thinking	Job Satisfaction
Maguire, P (2011)									
Krugman, M., Bretschneider, J., Horn, P. B., Krsek, C. A., Moutafis, R. A., & Smith, M. O. (2006)	4	Descriptive	-	> 6 months	-	Yes	Resident Facilitator	-	↑
Lee, T. Y., Tzeng, W. C., Lin, C. H., & Yeh, M. L. (2009)	6	Quasi-experimental	58	> 6 months	-	Yes		-	-
Leigh, J. A., Douglas, C. H., Lee, K., & Douglas, M. R. (2005)	5	Quasi-experimental	34	> 6 months	< 4 weeks		Mentor	↑	-
Li, S., & Kenward, K. (2006)	5	Descriptive	7497	-	-			-	-
Marcum, E. H., & West, R. D. (2004)	5	Quasi-experimental	20	4 - 6 months	< 4 weeks	Yes	Mentor	↑	-
McKenna, L., & Newton, J. M. (2008)	3	Qualitative	24	-	-			-	-
Mills, J. F., & Mullins, A. C. (2008)	3	Descriptive	-	-	-		Mentor	-	↑
Murphy, M., Petryshen, P., & Read, N. (2004)	5	Descriptive	105	4 - 6 months	-	Yes		↑	↑
Nugent, E. (2008)	5	Qualitative	150	0 - 3 months	< 4 weeks			-	-
Pickens, J. M., & Fargotstein, B. P. (2006)	3	Descriptive	-	-	-			-	-
Pine, R.,& Tart, K. (2007)	3	Descriptive	48	> 6 months		Yes	Resident Facilitator		
Roche, J. P., Lamoureux, E., & Teehan, T. (2004)	4	Descriptive	67	-	> 4 weeks, less than 3 months			-	-
Schoessler, M., & Waldo, M. (2006)	3	Descriptive	-	> 6 months	-	Yes		-	-
Scott, E. S., Engelke, M. K., & Swanson, M. (2008)	5	Descriptive	329	-	-			-	-
Smith, J., & Crawford, L. (2003)	5	Descriptive	655	-	-			-	-
Sorensen, H. A., & Yankech, L. R. (2008)	5	Quasi-experimental	31	0 - 3 months	> 4 weeks, less than 3			↑	-

Table 1. Summary of Studies

Study Descriptors				Program Elements				Outcomes	
Author(s)	Level of Evidence Score	Design	Sample Size	Transition Program Length (months)	Unit Orientation Length	NG Specific Education	Types of supports provided	Competency and Critical Thinking	Job Satisfaction
					months				
Strauss, M. B. (2009)	3	Descriptive	-	0 - 3 months	> 4 weeks, less than 3 months	Yes	Program Coordinator	-	-
Williams, C. A., Goode, C. J., Krsek, C., Bednash, G. D., & Lynn, M. R. (2007)	6	Descriptive	679	> 6 months	-	Yes	Resident Facilitator	⬆	⬆
Young, M. E., Stuenkel, D. L., & Bawel-Brinkley, K. (2008)	5	Quasi-experimental	23	0 - 3 months	> 4 weeks, less than 3 months	Yes		-	-
Zucker, B., Goss, C., Williams, D., Bloodworth, L., Lynn, M., Denker, A., & Gibbs, J. D. (2006)	3	Descriptive	-	> 6 months	-			-	-

Table 2.

Retention and Turnover Rates									
Reference	Level of Evidence Score	Program type	Program length	Study sample size	Pre-program retention	Post-program retention	% change	Time when post-program rate measured	Cost Benefit
Almada, Carafoli, Flattery, French and McNamara (2004)	3	Un-named	12 mo.	40	60%	89%	39%	At 14 mo. post implementation of the program	
Anderson and Linden (2009)	6	Residency	12 mo.	90	60%	90%	30%	At one year post hire	
Leigh et al (2005)	5	Un-named	12 mo.	Not provided	76%	99%	23%	At one year post hire	\$186,102 US six months savings
Marcum and West (2004)	5	Un-named	9 mo.	20	60%	89%	29%	At 18 mo. post completion of the program	\$330,481 US annual return on investment
Zucker, Goss, Williams, Bloodworth, Lynn, Denker, and Gibbs (2006)	3	Mentorship	18 mo.	Not provided	77%	90%	13%	At 6 mo. program implementation	
Post-Program Retention Only									
Altier and Krsek (2006)	6	Residency	12 mo.	111	-	87%	-	At one year post hire	
Bratt (2009)	5	Residency	15 mo.	1,100	-	90%	-	15-18 mo. post program completion	
Gavlak (2007)	5	Un-named	12 mo.	120	-	94%	-	At one year post hire	
Keller, Meekins and Summers (2006)	3	Residency	12 mo.	72	-	89%	-	At one year post hire	
Kowalski and Cross (2010)	5	Residency	12 mo.	55	-	78%	-	At one year post hire	

Mills and Mullins (2008)	3	Mentorship	12 mo.	Not provided	-	Mentored = 92%; Control = 77%	-	No exact point provided, but within one year of hire	
Strauss (2009)	3	Un-named	3 mo.	Not provided	-	97%	-	At one year post hire	
Papers Using Turnover Rates									
Reference	Level of Evidence Score	Program type	Program length	Study sample size	Pre-program retention	Post-program retention	% change	Time when post-program rate measured	Cost Benefit
Fox (2010)	3	Mentorship	12 mo.	12	32%	16%	16%	At one year post hire	\$1,040,153 US annual savings
Pine and Tart (2007)	3	Residency	12 mo.	48	50%	13%	37%	At one year	\$823,680 US annual savings
Schoessler and Waldo (2006)	3	Un-named	24 mo.	Not provided	20%	6%	14%	3 years post program implementation	
Post Program Turnover Only									
Williams, Goode, and Krsek (2007)	6	Residency	12 mo.	679	-	12%	-	At one year post hire	
Krugman, Bretschneider, Horn, Krsek, Moutafis, and Smith (2006)	4	Residency	12 mo.	Not provided	-	8%	-	At one year post hire	