Office of Evidence Based Practice – Specific Question

Efficacy of Newly Licensed Registered Nurses Residency Program Critically Appraised Topic (CAT)

Specific Question:

What aspects of a Newly Licensed Registered Nurse Residency Program (NLRNRP) are instrumental in the transition and integration of NLRNs into the professional practice role evidenced by nurses' retention rates, competence and job satisfaction?

Question Originator:

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Summary from The Office of Evidence Based Practice:

This summary is a compilation of data to answer the above specific question. Data was obtained from primarily single studies. There is significant data to support the use of NLRNRPs to increase NLRNs' retention rates, competence and job satisfaction. This being said, there were no head to head studies comparing outcomes from a purchased NLRNRP (such as the Versant RN Residency Program or the University HealthSystem Consortium [UHC]/Association of Colleges of Nursing [AACN] Residency Program) or an NLRNRP developed by the organization.

The NRP elements that prove to be efficacious to retaining NLRNs, while at the same time increasing their competence and job satisfaction are: employing a Nursing Practice Development Facilitator responsible for the oversight of the entire new graduate experience, including the planning, implementation, and evaluation of the NRP; classroom orientation that includes organization and nursing department specific elements; a preceptor guided unit specific orientation; NR Development Days (NRDD) that allow for a peer support session, an educational module, a selected skill presentation with practice opportunity and a critical thinking application session using case studies. The NRDD educational modules used by other organizations have been divided into professional development, multicultural competency and end-of-life care. There is also data supporting the use of patient simulation labs during the NRDD.

In addition to the NRP it is critical to implement the use of valid and reliable measure instruments found in the literature for benchmarking purposes. There are many instruments found within the literature used to measure NRPs:

- Skills Competency Self-Confidence Survey, a self-rating (low, medium, and high) of performance on 36 generic nursing skills, α = not reported
- Control Over Practice Scale (Gerber et al., 1990), used to measure autonomy, α = .96
- Casey Fink Graduate Nurse Experience Survey (Casey et al., 2004), measures nine domains: skills, procedure performance including assessment of comfort/confidence, organizing-prioritizing ability, perceived support, patient safety, personal stress, communication leadership, professional satisfaction, and job satisfaction, alpha value ranges from .71 to .90
- The McCloskey–Mueller Satisfaction Survey (1990) measures eight domains of satisfaction: intrinsic rewards, scheduling, the balance between work and family life, coworkers, interaction opportunities, professional opportunities, praise and recognition, control and responsibilities; α = .89 and .82
- Competencies Instrument (Babenko-Mould et. al., 2004) measures self-reported readiness for independent practice; α= .98
- Pagana Clinical Stress Questionnaire (1989); alpha value ranges from .84 to .85
- Speilberger's State-Trait Anxiety Inventory (1983); α= .90
- Schutzenhofer's Nursing Activity Scale to measure professional nurse autonomy; Test-retest reliability using an r coefficient = .79
- Slater Nurse Competencies Rating Scale; alpha not reported
- Professional subscale from Corwin's Nursing Role/Self-Conception Scale assesses independence of practice, standards of excellence, membership in professional r coefficient = .59 in 2009, α = .82–.95
- Schwirian's Six-Dimensional Scale of Nursing Performance Measures grouped into 6 domains: leadership; critical care; teaching/collaboration; planning/evaluation; interpersonal relations and communication; professional development; α = .95
- The Organizational Commitment Questionnaire (Mowday, Steers, & Porter, 1979) includes acceptance of organizational goals and values, willingness to



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exert effort for the organization, and a desire to maintain membership; alpha value ranged between .82 and .93

- Organizational Commitment Questionnaire Meyer and Allen (1997); alpha value ranged from .82 to .93
- Halfer-Graf (2006) Job/Work Satisfaction Environment Nursing Satisfaction Survey Test-retest reliability at 3rd, 6th, and 12th months = .92
- The Anticipated Turnover Scale α = .84
- Recruitment, Retention and Turnover Rates; alpha not reported
- Return on investment; alpha not reported
- Preceptor Evaluation of Resident form (2007)

The instruments proceeded with a * symbol identify instruments used more than once in the reviewed literature.

Novel ideas discovered in the literature:

- Asking the NLRN and the preceptor to separately complete a standardized evaluation tool every other week and review tool together to identify differences in perspectives.
- Development of a Preceptor Council used as a care standardization, learning and support group.
- After orientation was complete, the preceptor assumed a mentor role for the orientee for the remainder of the residency program.

Additional figures that might prove useful to the end-user are found at the end of this document (see pages 15-18).

EBP Scholars responsible for reviewing and synthesizing the literature were :

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Search Strategy and Results:

PubMed search strategy: (("graduate nurse"[tiab] OR "graduate nurses"[tiab] OR "graduate nursing"[tiab] OR "nurse residency"[tiab] OR "nurse residents"[tiab] OR "nurse residents"[tiab] OR "nurse resident"[tiab]) AND residen*) OR (("Education, Nursing, Graduate"[Mesh] AND "Internship and Residency"[Mesh]))—101 articles discovered

CINAHL search strategy: ((MM "Interns and Residents") OR (MM "Internship and Residency")) AND ((MM "New Graduate Nurses") OR (MM "Students, Nursing, Graduate+") OR (MHM"Education, Nursing, Graduate+"))—155 articles discovered

Search outcome:

After removing duplicates from the two searches, the titles and abstracts were reviewed to determine articles that had the potential to answer the question. Twenty six articles were identified for further analysis. Sixteen articles answered the question and are included in this analysis. **Excluded studies:** To save paper excluded studies are not included here

Method Used for Appraisal and Synthesis:

The Cochrane Collaborative computer program, Review Manager (RevMan 5.1.7) was used to synthesize three of the studies. A majority of the studies were cohort studies in which the same cohort was measured pre- and post-intervention and therefore was not amiable to RevMan. These studies were appraised using the Critical Appraisal Skills Programme (CASP tools). The following pages provide an overview of each of the included studies reported in the Critically Appraised Topic (CAT) format.

Synthesis of relevant studies:

Author, date, country	Group Studied	Level of Evidence (Oxford) / Strength of Evidence (GRADE)	Research design	Significant results	Limitations
Altier, M. E., & Krsek, C. A. (2006). USA	Baccalaureate -prepared graduate nurses from six academic medical centers across the United States	2b	prospective, longitudinal design	McCloskey–Mueller Satisfaction instrument was used to assess satisfaction In comparing baseline and scores after one year, two of the 10 measurements, satisfaction with praise and satisfaction with professional opportunities, demonstrated a statistically significant decrease in score. After one year 13% of the population had left their respective organizations	188 study participants had missing data and therefore were not included in the analysis

Author, date, country	Group Studied	Oxford / GRADE	Research design	Significant results	Limitations
Beecroft, P, C., Santner, S., Lacy, M, L., Kunzman, L., Dorey, F. (2006). USA	new graduate nurses completing the NRP (n = 318)	2b	Quantitative, and qualitative cohort study	Mentor and resident requirements: (1) be from different work areas; (2) have a nonevaluative relationship; and(3) have similar clinical backgrounds 58% of all comments were positively coded, with 44% of the positive comments coded as satisfaction, 31% as support, 14% as program logistics and 11% as socialization. Of the negatively coded comments, 72% were related to program logistics, 19% to satisfaction, 7% to support and 1% to socialization ANOVA identified that if the orientee met with the mentor on a regular basis stress was reduced, the dyad "clicked," the mentor provided insightful guidance and feedback, the mentor would be recommended for future mentees, and no changes would need to be made to the mentor program. Regression of variables identified if mentees were the same age and met regularly with mentor but did not get their first choice of nursing unit, they were 5.8 times more likely to feel a reduction in stress than mentees who did get their first choice.	Did not identify how the mentor-orientee match occurred. There is no data about orientee retention.

Author, date, country	Group Studied	Oxford / GRADE	Research design	Significant results	Limitations
Bratt, M.M., & Felzer, H.M. (2011). USA	468 newly licensed registered nurses	2b	cohort, repeated measure design	New graduates' perceptions of their professional practice competency were measured with two instruments, the <i>Clinical Decision Making in</i> <i>Nursing Scale</i> (Jenkins, 1985) and the <i>Modified</i> <i>6-D Scale of Nursing Performance</i> , developed by Schwirian (1978) and revised by Marshalleck (1997). New graduates' perceptions of their work environ- ment were measured with three instruments: the <i>Nurse Job Satisfaction Scale</i> (Hinshaw & Atwood, 1985), <i>Job Stress Scale</i> (Hinshaw & Atwood, 1985), <i>Job Stress Scale</i> (Hinshaw & Atwood, 1985), <i>and Organizational Commitment</i> <i>Questionnaire</i> (Mowday, Steers, & Porter, 1979). <i>Clinical decision making</i> : scores were significantly higher at 12 months than at 6 months. No difference between baseline and 6 months or between baseline and 12 months <i>Quality of Nursing Performance:</i> consistent significant upward trend in mean scores seen over time between all measurement points. <i>Job satisfaction:</i> Total scores were significantly higher at 12 months than at baseline or 6 mo. <i>Job stress:</i> Scores were significantly lower at 12 months, than baseline and 6 months. (shift from personal stress factors related to job confidence, etc, to stress factors related to environment, staffing, etc.) <i>Organizational commitment:</i> Significantly higher at baseline than at 6 months or 12 months.	Over half of participants did not complete all surveys. Volunteer bias possible as participants were volunteers to nurse residency program

Author, date, country	Group Studied	Oxford / GRADE	Research design	Significant results	Limitations
Clark, C. & Springer, P. (2012). USA	37 of 83 (44.6%) NLRNs employed at a NW US hospital	4	Qualitative descriptive study	 The researcher moderated all nine focus groups using the same procedure. Validity was obtained through the researcher comparing the taped interviews to the recordings for accuracy, categorized keywords and phrases and organized them into themes and asked the interviewees to confirm the study findings. Findings that Nurse Residency Programs need to provide graduate nurses with: Effective strategies to help them organize and prioritize mentoring over a prolonged period of time to ensure they are competent practitioners related to communication, professionalism and teamwork Supportive and interested preceptors Dedicated time for careful consideration before determining a course of action for patient care Participants identified: Major contributors to job satisfaction were being valued by colleagues, patients, and supervisors Considerable stress stemming from the fear of making an error that may result in harm or death to a patient 	This would have been a stronger study if someone else reviewed the questions for bias and also presented the questions to the participants. The study does not mention if the only people in the room were the researcher and the new grads or where the focus groups were held. No comments are made in the study addressing if the research design was changed during the study. The author does not identify the contents of the NRP. No new areas where research is necessary were identified

Author, date, country	Group Studied	Oxford / GRADE	Research design	Significant results	Limitations
Fink, R., Krugman, M., Casey, K., Goode, C. (2008). USA	NLRNs that completed an NRP and completed surveys at baseline, 6 months, and 12 months The data from the open ended questions is reported here (n = 434)	5	Cross sectional qualitative cohort study	None of NRP participants believed they were independent in all skills at baseline Ten percent believed they were independent in all skills at 6 months Seven percent believed they were independent in all skills at 12 months Role transition difficulties and support and integration improvements are found in Figure 1 and 2, respectively. Work environment dissatisfiers were unrealistic ratios, tough schedule, futility of care in certain patient care situations, and perceived increased workload with decreased support from ancillary personnel Hospital system dissatisfiers were outdated facilities and equipment, lack of an aesthetically pleasing place to work, unfamiliarity with unit and other departments, and difficulty with charting using computerized documentation systems Interpersonal relations dissatisfiers were generational differences within the RN team, lack of respect and recognition from coworkers, gossipy and grumpy staff, and lack of teamwork	Forty-one percent completed the questionnaire (N = 434) for all three time periods Data was included only if the participant completed all three surveys
Hillman, L, and Foster, R. (2011). USA	NLRN's prior to and after the implementa- tion of a NRP (n = 221)	5	Before and after implementati on of NRP intervention	Provided a program evolution table In the first year of the NLRNNRP the retention was 93%; in the seventh, eighth, and ninth years of the program the retention rate at one year was 100%	Quasi-experimental study design Only one of six outcomes (retention) were reported

Author, date, country	Group Studied	Oxford / GRADE	Research design	Significant results	Limitations
Holland, C., Moddema n, G.R. (2012). USA	28 NLRN (12- BSN and 16- ADN graduates) with 6 month or less experience	2b	Cohort study: training and measureme nt tool questionnair e given over a 12 month time-frame	Two of the subscales: (1) organizing and prioritizing and (2) communication and leadership had significant results. The subscale measuring support was highest at the start of the program and decreased slightly over time. Additionally, mean scores for professional satisfaction showed a slight reduction over the duration of the program.	Study design Self report was used to measure competence.
Kowalski, S., & Cross, C.L. (2010). USA	36 BSN students and 19 ADN students	2b	cohort study measuring clinical competencie s, anxiety, stress, professional transition and retention of nursing students participating in a residency program	Preceptor Evaluation of Resident form consistently increased at each of the six measurement periods (at 3, 6, 8 weeks and 3, 6, 8 months). The mean of the 3-week evaluation was 78.1 and the mean at 8 months was 111.1 out of a possible 124 points. The Pagana Threat score significantly decreased; however, the challenge subscale score did not show a significant change. NRs had a greater challenge than threat scores at both measurement periods. Spielberger State-Trait Anxiety Inventory. Although the overall anxiety decreased, neither state anxiety nor trait anxiety showed a significant statistical decrease. Casey-Fink Nurse Experience Survey identified significant increases were found pre- to post-test for communication/leadership, but not for support, patient safety, or professional satisfaction. Retention: In the first year cohort eight residents left and the manuscript was submitted prior to the end of the second year.	Several residents did not attend all resident development days (RDD) because of child care issues when working nights, second jobs, enrollment in graduate classes and staffing conflicts on nursing units. The nurse preceptors were accustomed to the preceptor role, but the role of sponsorship needed strengthening. The educational modules have been adapted for a greater degree of resident interaction, hands-on skill development, expert speakers, critical thinking activities and patient simulation experiences.

Author, date, country	Group Studied	Oxford / GRADE	Research design	Significant results	Limitations
Krugman, M., Bretschnei der, J., Horn, P., Krsek, C., Moutafis, R. A., & Smith, M. O. (2006). USA	NLRN participants (N=unknown)	2b	cohort	Outcomes were measured by the following instruments: Resident job satisfaction McCloskey Mueller Satisfaction Scale* (Mueller & McClosky, 1990) identified that RN residents had a positive perception of future opportunities- the final outcome is a primary positive view. AutonomyGerber Control Over Practice Scale* (Gerber et al., 1990) identified participants rate themselves high in the beginning and lower at 6 months, then continue to report satisfaction by the end of the program GN experienceCasey–Fink Graduate Nurse Experience Survey* (Casey et al., 2004) stress reported as high at baseline and decreasing over time and resident perceived organizing and prioritizing outcomes reported improvement over time Program evaluationInvestigator Developed Residency Evaluation Form *= validated instruments Demographics identified that the NRP reported 8% turnover compared to 36% prior to the implementation of the NRP.	Identified that the clinical preceptor had attended training based on the national residency curriculum though this was not discussed further. Unknown whether all participants completed the program. Self-report of competency has the potential to introduce bias

Author, date, country	Group Studied	Oxford / GRADE	Research design	Significant results	Limitations
Kramer, M., Maguire, P., Halfer, D., Budin, W.C., Hall, D.S., Goodloe, L., Klaristenfe Id, J., Lemk, J. (2012). USA	NLRNs (n=330), Experienced RNs (n=401), Nurse Managers (n=138) and Nurse Educators (n=38). Eight organizations employed an established NLRNRP and 12 had developed their own NLRNRP.	5	Qualitative: Interviews and Participant observations	 Subthemes were quantified around five of the seven professional role responsibilities: 1. Delegation: related to accountability-responsibility, 2. Prioritization of patients and care, tasks, and activities and the unit's prioritization system, 3. Nursing care delivery systems: identified managing data intake / output, the therapeutic environment and concerned about missing data, 4. Autonomy: making the right decisions, doing no harm, 5. Collaborating with physicians: NLRN's lack competence, self-confidence, structure and opportunities to collaborate with physicians. NLRNRP strategies developed around the seven role responsibilities were highlighted: 1. Delegation: development of evidence based practice projects; powerpoint entitled What Is Safe Delegation? A New Grad Perspective and employing "Dead on" delegation game 2. Prioritization: acquisition and sharing of information, ideas, and prioritization systems (4 Ps, 5 Fs, and CURE technique) in preceptor and coaching councils 3. Nursing care delivery systems: no strategies were identified 4. Autonomy: Didactic presentations, computer simulations and clinical coaching presentations/discussions 5. Collaborating with physicians: understanding the parallel-influence power between medical staff and nursing staff; Physician-Nurse Collaboration Councils 	Two of the seven role responsibilities, constructive conflict feedback and obtaining feedback, had minimal discussion. Authors did not identify their content analysis process With over 900 participants there is a dearth of strategies identified by the participants which influences the validity of the study Author's role/influence not examined Contradictory data not reported on Credibility of the findings are not discussed

Author, date, country	Group Studied	Oxford / GRADE	Research design	Significant results	Limitations
Olsen-Sitki, K., Wendler, M. C., Forbes, G. (2012). USA	NLRNs that provided data at 6 and 12 months (N = 31) were include in the analysis.	2b	Nonexperi- mental, repeated measures, time series mixed- methods design	Used the Casey-Fink tool to evaluate the NRP at 6 and 12 months and found a significant difference in support, organization, and communication between the two timeframes but did not report the difference found. Positive comments about the NRP outweigh the negative responses with the overarching theme of "I see that I am not the only resident."	Authors elected to look at specific items on the Casey-Fink tool which is not the typical analysis.
Rosenfeld, P., Smith, M.O., Iervolino, L., & Bowar- Ferres, S. (2004). USA	NLRNs at New York University Hospitals Center from 1996-2001 (n=112)	2b	Mixed methods cohort study	Provided a list of NRP activities The Likert scale questions revealed that higher percentages of respondents were highly satisfied with the "experience as independent nurse" and "classroom orientation" and least satisfied with "recognition/parties" and "clinical education days on the unit." With ANOVA it was discovered that when the nurse residents were divided in half at the median, the residents with less than 44 months were more likely to find "access to leadership," "classroom orientation," "opportunity to interact with peers," and "supportive relationships with senior staff" the most valuable aspects of the program. Respondents with longer tenures at the institution were more likely to state that "clinical days <i>off</i> the unit" and "recognition, parties" were most valuable.	Survey did not have a theoretical underpinning The survey was piloted on 5 nurses and was found to be clear and easy to complete but validity and reliability was not mentioned Over-representation of the number of respondents who are still employed at the institution ($n = 104$) compared to the number of respondents who left the institution ($n = 8$)

Author, date, country	Group Studied	Oxford / GRADE	Research design	Significant results	Limitations
Setter, R, Walker, M, Connelly, L, & Peterman, T. (2011). USA	BSN nurses who had completed the NRP since its inception in 2003 and who were still employed at the University of Kansas Hospital in 2007 (n = 100)	2b	Descriptive mixed- methods cohort	 NRP Participant Retention Model Four different scales measured retention: Commitment Scale (Cronbach α = .904) Reasons for Staying Scale (Cronbach α = .839) McCloskey/Mueller Job Satisfaction Scale (Cronbach α = .922) Nurse Residency Satisfaction Scale (Cronbach α = .93) The survey does report that the top 5 things that are reasons for staying are: teamwork on my unit, ability to give quality care, liking my job, my relationship with coworkers and benefits. The study does mention that nursing leadership and unit atmosphere were the most variable responses. BSN Nurse retention: 2003 53/57 93% 2004 71/75 95% 2005 80/85 94% 2003, 2004 and 2005 were additionally reported out each following year and it should be noted that retention rates began to fall into the 50-60% after year 2 in these follow up reports	 Forty-nine percent completed the questionnaire (N = 100) There is no comparative study data on nurses that didn't complete the residency program. Data prior to the NRP initiation was not presented. There is no comparative data between nurses during NRP and a year later.

Author, date, country	Group Studied	Oxford / GRADE	Research design	Significant results	Limitations
Steen, J. E., Gould, E. W., Taingruber , B., & Hill, J. (2011). USA	NLRNs (n = 50)	2b	Descriptive, observation- al cohort Used Benner's Novice to Expert Model	 All subjects were given the same questionnaire. Two researchers reviewed the questions for content validity and relevance to the clinical setting. Thirty eight percent of the participants were interns who remained on the unit on which they interned. Eleven participants changed work location within the hospital upon graduation. Results showed knowing personnel on the unit eased nurses transition. Transition was eased by knowing specifics of unit functionality such as routines and location of supplies. Noted that subjects changed units upon graduation due to their preference for a different specialty of nursing. 82% indicated that they were encouraged by management to stay on the unit. Those interns that remained on the unit felt greater pressure of expectations. 	The questionnaire was not assessed for validity or reliability but was designed to specifically address the internship experience. Items on the questionnaire focused on assessment of camaraderie with peers, familiarity with the hospital system and culture, confidence, education and career advancement, and pressure to perform. Authors did not identify why 10 interns took jobs at other hospitals after their internship was completed. Research questionnaires were based on authors own experience. Article didn't address if the subject had enough follow up time. Limited to one hospital in one geographic area with a small population. They didn't have a control group due to the newness of the program at this hospital. All results were presented by percentages and graphs.
Trepanier, S., Early, S., Ulrich, B., Cherry, B. (2012). USA	NLRNs (n = 524)	2b	Cost benefit analysis	 Return on investment of an NRP on turnover and contract labor costs: a. 12-month turnover across the 15 hospitals went from a mean of 36.8% pre-residency to a mean of 6.41% post-residency. b. annual contract labor dollars per average daily census went from a mean of \$19,099 pre-residency to \$5,490 post NRP. 	The data analyzed was from 2008 and 2010. The overall US economy was not favorable and may have had a direct effect on the level of turnover and contract labor dollars. Updates/upgrades occurred to the data bases from 2007 to 2010 and this may have affected the data presented in the manuscript.

Author, date, country	Group Studied	Oxford / GRADE	Research design	Significant results	Limitations
Thomson, S. (2011). USA	ADN and BSN NLRNs (n = 84)	2b	descriptive prospective cohort study	Analyzed if the NLRNRP was effective in facilitating the transition of BSN and ADN prepared nurses. Measurement tools employed: McClosky Mueller Satisfaction Scale Casey-Fink Graduate Nurse Experience Survey Gerber Control Over Nursing Practice Scale Linking BSN NLRNs with BSN prepared preceptors could improve satisfaction.	Data analysis indicated significant differences between BSN NLRNs and ADN NLRNs; however, the authors did not identify if the differences were at the 1, 6, or 12 month comparison. Small number of study participants.





Figure 1. Graduate nurse resident role transition difficulties. NCLEX indicates National Council Licensure Examination; RN, registered nurse.



Figure 2. Improving graduate nurse resident support and integration.

Hillman and Foster (2011), in Table 2 provide the progression of the NLRNRP within their organization.

Table 2 Evolution of the orientation programmes

Components	Original RN/graduate nurse orientation programme (past-2004)	Contracted residency programme (2005–08)	Transitions residency programme (2008 to present)
Length of programme	5 class days	22 weeks	16 weeks
Structure of programme	Precepted on units Time on unit varied	Centralized class days -practicum Precepted on unit	Centralized class days Unit specific class days Precepted days on unit
Preceptors	Some identified Varied from unit to unit	Identified Preceptors Novice – expert model	Identified Preceptors Novice & expert preceptor workshops Lead Preceptor on each unit with job description development Preceptor recognition
Support mechanism	No formal mechanism identified	Mentor Circles –mentors identified for residents Debriefing sessions	Professional Development Circle – unit representative visits with their unit's residents to discuss areas of professional development & growth Commitment to Caring Series – presentations held during class day on topics involving Self Care, Conflict Resolution, Critical Incidence Stress Management
Hiring	Each unit hired monthly using traditional hiring process	Hired graduate nurses three times a year using traditional hiring process Did not require license prior to start	Hire graduate nurses three times a year using a formal structured process License required prior to start
Simulation experience	None	None	Simulation lab experience based on course content
Data	None collected	Evaluation tools & results provided by residency program	Evaluation tools selected by us Data analysis supported by Wayne State University
Other			Process/quality improvement project & community involvement experiences provided

Trepanier, Early, Ulrich, and Cherry, (2012) provided a Conceptual Model to provide a better understand of the relationships between the numerous variables in a NLRNRP.



Conceptual Model

Adapted from Beecroft et al., 2008; Benner, 1984.

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