Registered Nurse Transition-to-Practice Programs

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PREFACE

The VA Evidence Synthesis Program (ESP) was established in 2007 to conduct timely, rigorous, and independent systematic reviews to support VA clinicians, program leadership, and policymakers improve the health of Veterans. ESP reviews have been used to develop evidence-informed clinical policies, practice guidelines, and performance measures; to guide implementation of programs and services that improve Veterans' health and wellbeing; and to set the direction of research to close important evidence gaps. Four ESP Centers are located across the US. Centers are led by recognized experts in evidence synthesis, often with roles as practicing VA clinicians. The Coordinating Center, located in Portland, Oregon, manages program operations, ensures methodological consistency and quality of products, engages with stakeholders, and addresses urgent evidence synthesis needs.

Nominations of review topics are solicited several times each year and submitted via the ESP website. Topics are selected based on the availability of relevant evidence and the likelihood that a review on the topic would be feasible and have broad utility across the VA system. If selected, topics are refined with input from Operational Partners (below), ESP staff, and additional subject matter experts. Draft ESP reviews undergo external peer review to ensure they are methodologically sound, unbiased, and include all important evidence on the topic. Peer reviewers must disclose any relevant financial or non-financial conflicts of interest. In seeking broad expertise and perspectives during review development, conflicting viewpoints are common and often result in productive scientific discourse that improves the relevance and rigor of the review. The ESP works to balance divergent views and to manage or mitigate potential conflicts of interest.

ACKNOWLEDGMENTS

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Operational Partners

Operational partners are system-level stakeholders who help ensure relevance of the review topic to the VA, contribute to the development of and approve final project scope and timeframe for completion, provide feedback on the draft report, and provide consultation on strategies for dissemination of the report to the field and relevant groups.

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Technical Expert Panel

To ensure robust, scientifically relevant work, the technical expert panel (TEP) guides topic refinement; provides input on key questions and eligibility criteria, advising on substantive issues or possibly overlooked areas of research; assures VA relevance; and provides feedback on work in progress. TEP members included:

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Disclosures

This report was prepared by the Evidence Synthesis Program Center located at the **VA Greater Los Angeles Healthcare System,** directed by Paul Shekelle, MD, PhD and Isomi Miake-Lye, PhD and funded by the Department of Veterans Affairs, Veterans Health Administration, Health Systems Research.

The findings and conclusions in this document are those of the author(s) who are responsible for its contents and do not necessarily represent the views of the Department of Veterans Affairs or the United States government. Therefore, no statement in this article should be construed as an official position of the Department of Veterans Affairs. The final research questions, methodology, and/or conclusions may not necessarily represent the views of contributing operational and content experts. No investigators have affiliations or financial involvement (*eg*, employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties) that conflict with material presented in the report.

Executive Summary

KEY FINDINGS

- The systematic review literature search identified 140 potentially relevant reviews on RN transition-to-practice programs (RNTTPs), of which 19 were included in the final narrative synthesis. One systematic review met the standard of high confidence, 3 reviews, 1 systematic review, 1 scoping review, and 1 integrative review met the standard of moderate confidence, and the remaining reviews were appraised as low or critically low overall confidence in the review results.
- We prioritized reporting on the conclusions for outcomes included by 2 reviews that had high or moderate confidence in the review results and were scoped to address our Key Questions most directly. While the reviews we identified in our systematic review of reviews discussed critical organizational-level outcomes and some nurse-level outcomes, patient-level outcomes were absent from the identified reviews. Both reviews emphasized the methodological issues in the available evidence, which limited best-practice recommendations and conclusions. They found that the best quality evidence, which used a mix of methodological approaches, indicated a connection between RNTTPs and increased critical thinking, competency, and retention.
- To better understand the relationship between the identified syntheses and the whole of the identified original research landscape, we constructed a crosswalk that depicted the overlap between reviews. Despite having similar scopes, there was little overlap in the included literature of identified reviews. There was no seminal study or set of studies that all review authors included, and no single review that included the majority of identified original research studies was identified. Given the indicators that these reviews did not consistently and fully represent the existing evidence base of original research studies, we conducted our literature search, which identified additional original research studies not included in the prior syntheses.
- Multi-component (*ie*, bundled) RNTTPs may be helpful, but the specific arrangement of components and methods of choosing components to match specific contexts remain unclear. There appeared to be a set of key components represented in the published evidence syntheses, including a defined resource person (*eg*, mentor, clinical coach, navigator, preceptor), mentorship, peer support opportunities, education/professional development, assessment, and workplace environment.
- Many of the evidence syntheses discussed program length to some degree. However, since strong comparative studies or other rigorous evaluations were lacking, the evidence for program length was inconclusive, with published evidence syntheses suggesting similar lengths around 6-12 months.

First-year registered nurses (RNs) have the highest turnover rate of all hospital-based RNs. New graduate RNs often express that they experience many stages of internal conflict at the start of their nursing careers, despite having completed rigorous academic programs and extensive clinical experience. New graduate RNs can benefit from comprehensive RNTTPs that assist with becoming acquainted with the RN role and gaining an identity as a professional RN, which may help improve retention among new RNs.

Comprehensive RNTTPs are different from narrowly focused programs (*eg*, mentorships) or programs of shorter duration (*eg*, traditional orientations, preceptorships). Through accreditation, RNTTPs have continued to improve and advance, emphasizing evidence-based practice, quality improvement,

professional development, and competency-based evaluations. While multiple accrediting bodies exist, RNTTP characteristics and implementation practices vary, which has created uncertainty among nurse leaders and administrators about the best practices for training new graduate RNs.

When accreditation organizations were first established, the Institute of Medicine (IOM) published *The Future of Nursing: Leading Change, Advancing Health* in 2011, in which it recommended that the federal government, state boards of nursing, accreditation bodies, and health care organizations implement and support RNTTPs. The IOM also recommended that key outcomes (*eg*, retention, expanding competencies, and patient outcomes) be included in RNTTP evaluation efforts. Rigorously evaluating RNTTPs would allow for comparisons between different programs, which help decision-makers determine best practices.

CURRENT REVIEW

Review Purpose

Numerous reviews of RNTTPs have been conducted but often included a mix of RNTTPs, traditional orientations, and mentorship programs. In addition, the ever-growing number of reviews that looked directly at residency and RNTTPs need to be summarized. We conducted a systematic review of published evidence syntheses on RNTTPs to support the Office of Nursing Services (ONS) as they plan for the continued sustainment, evolution, and evaluation of VA's national RNTTP implementation.

Methods

The following key questions were the focus of this review:

- Key Question 1: Are RNTTPs for newly graduated, entry-to-practice RNs effective for improving organizational, nurse, and patient outcomes?
- Key Question 2: What are the characteristics of effective RNTTPs (*eg*, program components, program length) for newly graduated, entry-to-practice RNs?

We included literature evaluating RNTTP or nurse residency programs specifically designed for newly graduated, entry-to-practice RNs to provide support or preceptorship during the first 12 months of employment following graduation and/or licensure for entry-to-practice. Programs must be 6 months or longer, with some in-person component; entirely remote or online/virtual programs were not included. Syntheses including systematic reviews, integrative reviews, and other reviews using a formal review methodology were included in the systematic review of reviews.

Our team conducted searches using terms relating to "*transition to practice*" or "*new graduate nurse*" or "*transitional support*" or "*Education, Nursing, Graduate*" with a systematic review delimiter in PubMed/MEDLINE and CINAHL Plus from 1/1/15-12/15/22 for systematic reviews. We limited the search to published and indexed articles available in the English language. Additional citations were identified from hand-searching reference lists of identified evidence syntheses and consultation with content experts. English-language titles, abstracts, and full-text articles were independently reviewed by 2 investigators, and disagreements were resolved by consensus. All data were abstracted by 2 reviewers independently. Any discrepancies in data abstraction were resolved by group discussion.

The quality of each published evidence synthesis was assessed using a modified version of the A MeaSurement Tool to Assess Systematic Reviews 2 (AMSTAR2) criteria to critically appraise reviews and categorized the overall confidence in the results of each review as high, moderate, low, or critically low. No reviews were excluded from our analysis based on AMSTAR2 appraisal.

We synthesized findings of our systematic review of reviews using a narrative and visual approach. We first described the reviews we identified, their relevant findings for each key question, and how existing reviews' coverage of original research studies aligns with the breadth of evidence in this area.

Future Research

Future work for evidence synthesis could include:

- Quantitatively analyzing comparable data from original research studies to pool smaller studies across key outcomes, while rigorously appraising risk of bias and applying certainty of evidence to resulting conclusions.
- Systematically gathering data about program components, such as program length, instruments and measures used, size/scale of program implementation beyond single versus multi-site, and other key characteristics.

However, given the widescale methodological limitations of the existing original research evidence base, we recommend conducting strong, rigorous evaluations and new original research studies on RNTTPs that take into account the recommendations of many of the included reviews, such as:

- Standardized outcome measurement that is critical for assessing typical outcomes at the nurse and organizational levels.
- Rigorous and sophisticated evaluation study designs to incorporate comparator groups, longitudinal designs, and/or multiple sites, assess organizational context, test adaptations and components, and use both comparative and mixed methods design. The field of implementation science has many critical advancements that would be helpful for advancing the study of RNTTP programs.
- Patient outcomes and economic analyses to explore the potential benefits that RNTTP programs might offer.

CONCLUSIONS

Since the IOM report's call to action, RNTTPs have been piloted and developed in systems across the country. These programs now deserve rigorous evaluation using sophisticated methodology to answer critical questions about their implementation and sustainment. Because RNTTPs are touted as potentially alleviating critical RN staffing shortages and supporting the development of the nursing workforce's future, the benefits of these programs should be documented, and best practices should be ascertained so they can be scaled and sustained.

Main Report

Evidence Synthesis Program

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ABBREVIATIONS TABLE

Abbreviation	Definition
FT	Full text
IOM	Institute of Medicine
IR	Integrative review
NGN	New graduate nurses
NQN	Newly qualified nurses
NRP	Nurse residency programs
ONS	VA Office of Nursing Services
PICO	Population, intervention, comparator, outcome
REA	Rapid evidence assessment
RN	Registered Nurse
RNTTP	RN transition-to-practice residency/fellowship program
ScR	Scoping review
SysR	Systematic review
VHA	Veterans Health Administration

BACKGROUND

In 2021, a national registered nurse (RN) staffing survey found that first-year hospital-based RNs had the highest turnover rate (32.8%) among all surveyed RNs.[1] New graduate RNs often express that they experience many stages of internal conflict at the start of their nursing careers. A 2009 national survey of newly licensed RNs reported that they frequently felt stressed and insufficiently supported during the first 12 months of working in an acute care setting, despite having completed a rigorous educational program and clinical experience.[2] This experience is referred to as "transition shock" or "reality shock."[3] This describes the initial and intense stage in transitioning from the role of student to graduate nurse, where they may feel anxious, insecure, and inadequate when facing the many challenges and expectations they encounter in a new work environment. Comprehensive transition-to-practice programs (RNTTPs) (also referred to as RNTTP residency programs) are intended to assist new graduate RNs with the "process of professional role socialization" and may help to improve retention among new RNs.[3]

Comprehensive RNTTPs are different from more narrowly focused programs (*eg*, mentorships) or those of shorter duration (*eg*, traditional orientations, preceptorships). Through accreditation, RNTTPs have continued to improve and advance, emphasizing evidence-based practice, quality improvement, professional development, and competency-based evaluations. Although multiple accrediting bodies exist, such as the American Nursing Credentialing Center, the Commission on Collegiate Nursing Education, and the Accreditation Commission for Education in Nursing, there is variation in program characteristics, such as program length, and how RNTTPs are implemented.[4] This variability has created uncertainty among nurse leaders and administrators about the best practices for training new graduate RNs.[5]

> "Healthcare organizations that offer nurse residency programs and foundations should evaluate the effectiveness of the residency programs in improving the retention of nurses, expanding competencies, and improving patient outcomes."
>
> -IOM *Future of Nursing Report*

When accreditation organizations were first established, the Institute of Medicine (IOM) published *The Future of Nursing: Leading Change, Advancing Health*[6] in 2011, in which it recommended that the federal government, state boards of nursing, accreditation bodies, and health care organizations implement and support RNTTPs, through 1) collaborations among accreditation bodies to encourage RNs to complete RNTTPs, 2) actions of the Secretary of Health and Human Services to redirect funding from RN diploma programs to RNTTPs in rural and critical care access areas, 3) funding from Centers for Medicare and Medicaid Services and other health care organizations to develop and execute RNTTPs, and 4) health care organizations' assessments of the effectiveness of their RNTTPs.[7] The IOM also recommended that key outcomes, such as retention, expanding competencies, and patient outcomes, be included in RNTTP evaluations. Rigorously evaluating these outcomes would allow for comparisons between different RNTTP implementations, which would support nurse leaders and administrators to determine best practices.

Numerous reviews of RNTTPs have been conducted[8–10] but often included a mix of RNTTPs, traditional orientations, and mentorship programs.[11–13] In addition, the ever-growing number of reviews that looked directly at residency and RNTTPs need to be summarized. We conducted a systematic review of published evidence syntheses on RNTTPs to support the Office of Nursing Services (ONS) as they plan for the continued sustainment, evolution, and evaluation of VA's national RNTTP implementation.

METHODS

REGISTRATION AND REVIEW

A preregistered protocol for this systematic review can be found on PROSPERO (CRD42023418830). A draft version of this report was reviewed by external peer reviewers; their comments and author responses are located in Appendix A.

KEY QUESTIONS AND ELIGIBILITY CRITERIA

This systematic review of reviews sought reviews that addressed the following key questions:

Key Question 1	Are transition-to-practice programs for newly graduated, entry-to-practice RNs effective for improving organizational, nurse, and patient outcomes?
Key Question 2	What are the characteristics of effective transition-to-practice programs (*eg*, program components, duration of program) for newly graduated, entry-to-practice RNs?

Review eligibility criteria are shown in the table below.

	Eligibility Criteria
Population	Newly graduated, entry-to-practice nurses (excluding nurse practitioners) in the first 12 months of employment following graduation and/or licensure for entry to practice.
Intervention	RNTTP or nurse residency programs specifically designed for newly graduated, entry-to-practice nurses to provide support or preceptorship during the first 12 months of employment following graduation and/or licensure for entry to practice. Programs must be 6 months or longer, or they were considered orientations rather than full RNTTPs. Programs must include some in-person component. Entirely remote or online/virtual programs were not included.
Comparator	Any comparator (*eg*, usual care, active comparator, historical controls) or no comparator.
Outcomes	Organizational outcomes (*eg*, retention/attrition, quality of care), nurse outcomes (*eg*, confidence, competence, practice-readiness, satisfaction), patient outcomes (*eg*, patient satisfaction, adverse events), components (*eg*, preceptorships, simulations), implementation characteristics (*eg*, duration, recruitment strategies, settings, utilization, uptake, barriers/facilitators, collaboration with academic partners).
Timing	Any
Setting	Any health care setting was eligible, as long as contents of the program were not so specialized to that setting that it resembled specialized training instead of a more general transition-to-practice program (*eg*, mental health-specific training in an exclusively mental health care setting); programs implemented in 2022 Organization for Economic Co-operation and Development member countries to approximate US health care delivery context.
Study Design	Syntheses including systematic reviews, integrative reviews, scoping reviews, and other reviews using a formal review methodology were included in the systematic review of reviews.

SEARCHING AND SCREENING

To identify published evidence syntheses/reviews relevant to RNTTP, a research librarian conducted searches using a broad set of terms, including terms related to "*transition to practice*," "*new graduate nurse*," "*transitional support*," and "*Education, Nursing, Graduate*," with a systematic review delimiter in PubMed/MEDLINE and CINAHL Plus from 1/1/15-12/15/22. See Appendix B for the complete search strategy. The abstract and full text (FT) of each retrieved review were screened according to inclusion criteria.

DATA ABSTRACTION AND QUALITY ASSESSMENT

Two reviewers independently abstracted data from each included review. Abstracted data included review type (*ie*, systematic review, integrative review, or other review using a formal review methodology), whether the article described context/factors contributing to the success or failure of the program (*eg*, setting, participants, components), excerpted relevant findings, the total number of studies included, and search dates (see Appendix C). Any discrepancies in data abstraction were resolved by group discussion.

Each published evidence synthesis was assessed using a modified version of the A MeaSurement Tool to Assess Systematic Reviews 2 (AMSTAR2) criteria.[14] This 16-item tool is designed to assess the methodological quality of systematic reviews and meta-analyses and is considered the standard for this type of assessment. The tool includes domains such as descriptions of PICO (population, intervention, comparators, and outcomes) in both the inclusion criteria and results, PROSPERO registration, use of a comprehensive and timely literature search strategy, duplicate data abstraction, and analysis of the risk of bias. As some AMSTAR2 items concerned meta-analysis and did not apply to our set of reviews, we adapted the tool for this review, resulting in a 13-item tool. The full modified tool is available in Appendix D. We completed an assessment of published reviews using our modified tool in duplicate, with discrepancies resolved through group discussion.

AMSTAR2 is not intended to generate an overall numerical score, as high scores can mask critical weaknesses in domains, such as failing to assess the risk of bias.[14] To that end, we critically appraised reviews and rated our confidence level in each review's results according to AMSTAR2 categorization guidance, as shown in Table 1.[14] No reviews were excluded from our analysis based on AMSTAR2 scores.

Table 1. AMSTAR2 Guidance for Confidence Ratings and Criteria for Included Reviews

Rating	Criteria
High overall confidence	Review had 0 or 1 non-critical weakness and provided accurate and comprehensive summaries of the results available from included studies that addressed the research question of interest.
Moderate confidence	Review had 1 non-critical weakness but no critical flows and provided accurate summaries.
Low confidence	Review had a critical weakness and may not have provided accurate and comprehensive summaries.
Critically low confidence	Review had more than 1 critical weakness and should not be relied upon to provide accurate and comprehensive summaries.

SYNTHESIS

Main Synthesis Approach

We synthesized the findings of our systematic review of reviews using a narrative approach. We described the literature flow, identified reviews, and methodological quality findings. We narratively described the evidence for each key question.

Analysis of Identified Reviews' Coverage of the Original Research Evidence Base

During our analysis of the published reviews we identified, we became aware that these reviews might not have fully incorporated all published original research in this area. Heterogeneity in the scope, quality, and methodologies of the reviews made efforts to summarize the full breadth of the literature unfeasible. To better understand and contextualize the reviews, we conducted a brief overview analysis of the review coverage described here.

Firstly, we assessed the degree of overlap of included publications across the included reviews. The review team hand-searched reference lists of included reviews to identify included publications. We then constructed a crosswalk table that mapped each included publication to the reviews that had included it.

Secondly, the research librarian conducted a second search in PubMed/MEDLINE and CINAHL for original research studies published from 1/1/10 to 12/21/22 using the same search terms as the previous review search but without the systematic review delimiter. We limited the search to published and indexed articles available in the English language.

Two team members worked independently and in duplicate to screen and abstract data from each identified original research study. Eligibility criteria were identical to the review screening process, except for publication type. Original research studies of any design were included, such as randomized trials, nonrandomized trials, controlled before-after studies, interrupted time-series studies or repeated measures studies, prospective and retrospective cohort studies, uncontrolled before and after studies (*ie*, pre-post study), and any study using qualitative methods. Conflicts between the 2 team members were resolved through discussion with a third team member. Each novel original research study categorized as eligible was added to the crosswalk table. Because these additional activities aimed to summarize the coverage of the reviews in the systematic review of reviews, we did not abstract study outcome data or evaluate studies for risks of bias.

Thirdly, we screened all publications included in prior reviews using the same process we used for the database search results and documented the publications included in prior reviews that met our eligibility criteria.

We characterized the degree to which reviews' coverage overlapped with each other and with our database search for original research studies. We also described the literature flow of all original research studies through our screening process.

RESULTS

OVERVIEW OF INCLUDED REVIEWS

The systematic review literature search identified 140 potentially relevant citations, 34 of which were included for abstract screening. Of the 34 citations, 9 citations were excluded for the following reasons: only focused on 1 component of an RNTTP (*eg*, mentorship only, *N* = 5), no specific program described/evaluated (*N* = 2), nurse practitioners or other clinical professionals (*N* =1), specific clinical settings (*N* = 1), which resulted in 25 citations to be included for the FT screening. Six citations were excluded during the FT screening for ineligible publication types, such as commentaries or editorials. Overall, 19 reviews were included in this review (see Literature Flow Diagram, below).

Table 2 presents the details of included reviews, and key characteristics are described here. We categorized these reviews using the AMSTAR2 categories of overall confidence in a review's results and the resulting accuracy and comprehensiveness of its summary.

LITERATURE FLOW DIAGRAM

The literature flow diagram summarizes the results of the review selection process. A full list of excluded reviews is provided in Appendix E.

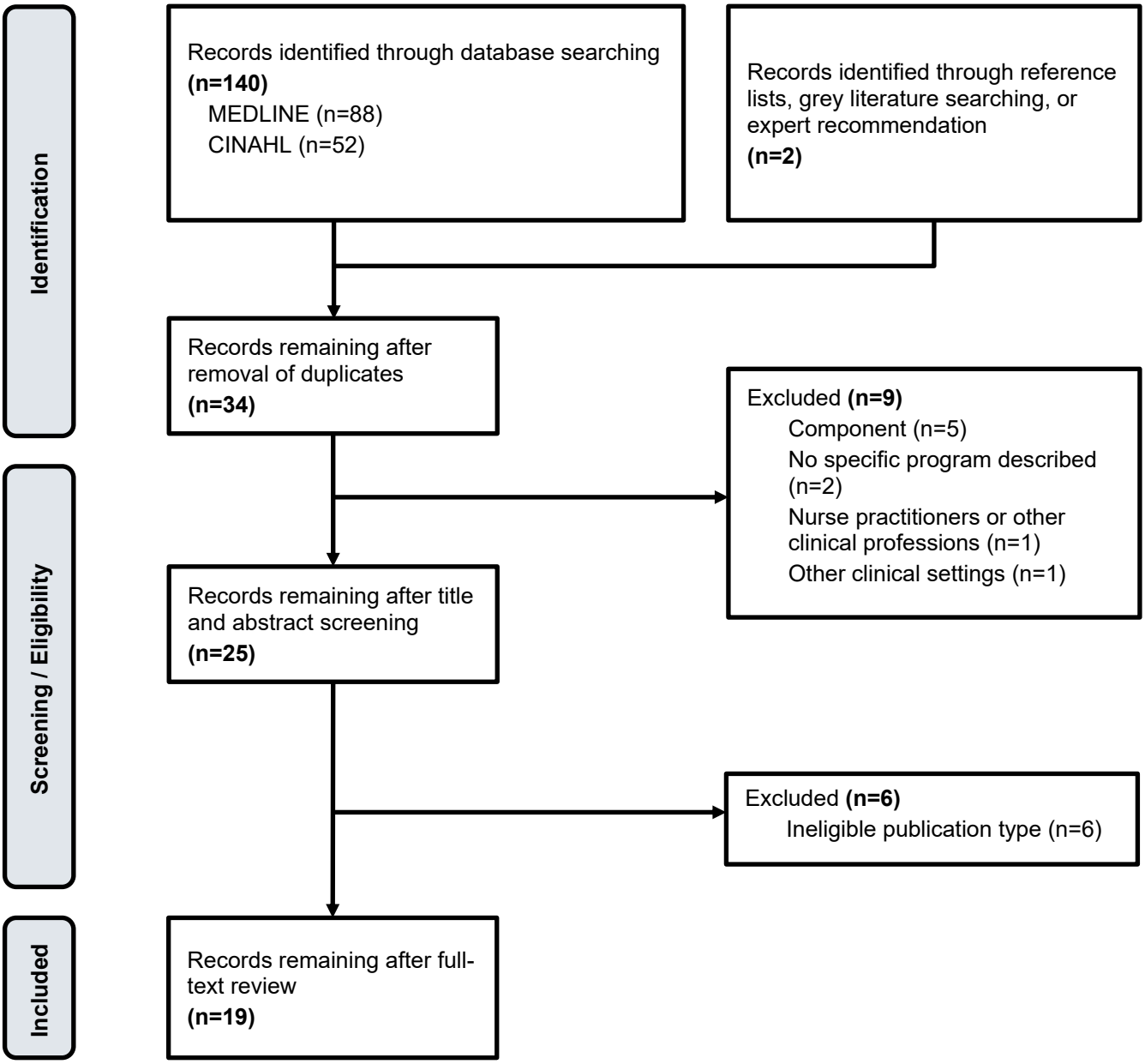


Table 2. Characteristics of Included Reviews

Author, Year	Type of Review Search Dates Included Studies	Excerpted Relevant Findings
High (N = 1)		
Brook, 2019[9]	Systematic review **Search dates:** January 2017-March 2017, repeated on April 2018 **Included studies:** 53	"A wide variety of interventions and components within those interventions were identified to improve nurse retention. Promising interventions appear to be either internship/residency programmes or orientation/transition to practice programmes, lasting between 27–52 weeks, with a teaching and preceptor and mentor component."
Moderate (N = 3)		
Aldosari, 2021[15]	Scoping review **Search dates:** Not reported **Included studies:** 60	"Evidence that nursing transition programmes positively impact the transition experience is inconclusive. Some studies suggest a positive impact on newly qualified nurses' competency, level of confidence and attrition rates; others reported no impact. There was a general consensus that newly qualified nurses still encounter difficulties when transitioning into professional practice. Most articles found were quantitative in nature, focusing on measurable outcomes of nursing transition programmes. Few investigated the experiences and perceptions of newly qualified nurses, preceptors, and managers regarding the transition to professional practice."
Ke, 2017[16]	Systematic review **Search dates:** Through June 2015 **Included studies:** 6	"The most adopted preceptorship was a fixed preceptor/preceptee model and one-on-one for 1–3-month duration. It showed that new nurses' overall competence increased significantly due to preceptorship. Only a few studies explored the effects of preceptorship on the job satisfaction and professional socialization of new nurses."
Rush, 2019[8]	Integrative review **Search dates:** Not reported **Included studies:** 76	"Most programs staggered education over time but the limited evidence showed no difference in new graduate nurse transition or satisfaction. New graduate nurse support was an important emphasis of all programs with preceptors the most common form of support and with beginning evidence showing quality vs quantity in preceptor support. Strengthening the quality of preceptor support was evident across studies with the bundling of concurrent strategies found to be helpful. Competency and confidence were found to increase over time for new graduate nurses in transition programs. Workplace environments influenced new graduate nurse transition and organizational commitment."

Author, Year	Type of Review Search Dates Included Studies	Excerpted Relevant Findings
Low (N = 6)		
Alshawush, 2022[17]	Scoping review **Search dates:** Not reported **Included studies:** 19	“This review found that most transition programmes provide support for new graduate nurses when dealing with workplace violence, bullying and stress. Transition programmes varied in length, content and implementation. Preceptors' support, educational sessions and safe work environments are the most beneficial elements of transition programmes for supporting new graduate nurses. Education sessions about resilience provide new graduate nurses with knowledge about how to deal and cope with stressful situations in the work environment. We found no studies that focused on nursing students.”
Asber, 2019[18]	Integrative review **Search dates:** conducted search Jan 2017 **Included studies:** 16	"The 1-year retention was higher than the national average for new graduate nurses ranging from 74% to 100%."
Chant, 2019[19]	Integrative review **Search dates:** 2007-? **Included studies:** 18	"Successful, sustainable nurse residency programs have a strong foundation with committed leadership to support transition; a structured program with defined outcomes to promote clinical competence, safe patient care, and professional development; and an evaluation process to guide continual improvement and meet organizational needs."
Eckerson, 2018[20]	Systematic review **Search dates:** 2012-2017 **Included studies:** 12	"Use of NRPs showed increased satisfaction and retention of new nurse graduates over a one-year period, leading to the conceptualization that this is a more effective method than traditional orientations for new nurse hires."
Hampton, 2020[11]	Integrative review **Search dates:** Not reported **Included studies:** 7	"Despite the significance of the studies' results that indicate interventions to ease the transition-to-practice experience are beneficial and can have a positive impact on areas such as job satisfaction and retention, overall findings from this integrative review suggest the need for greater standardization of concepts that should be evaluated and the instruments used to determine if new nurses are successfully transitioning into professional nursing."

Author, Year	Type of Review Search Dates Included Studies	Excerpted Relevant Findings
Wray, 2021[12]	Rapid evidence assessment **Search dates:** February 2018 **Included studies:** Unclear which includes mention residency	"Orientation and creating supportive environments were frequently reported as being effective in enhancing transition across a range of studies."
Critically Low (N = 9)		
Ackerson, 2018[21]	Other **Search dates:** 2006 through 5-9, 2016 **Included studies:** 26	"Established programs with at least a 12-month time frame were slightly more effective at retention. However, retention was not sustained at year two."
Aparicio, 2020[22]	Other **Search dates:** Unclear **Included studies:** 6	"Training (preceptorship and clinical supervision programmes) is effective in retaining NQNs, increasing satisfaction, improving skills and competency and staff engagement; however, more support for both preceptors/supervisors and NQNs is needed to maximise the success of these programmes in the future."
Bakon, 2018[10]	Integrative review **Search dates:** 2005-June 2016 **Included studies:** 30	"There are numerous transition programmes available yet there remains a lack of transparency regarding their aims/objectives, course content, support timeframe and the type of support provided. This inconsistency has resulted in a lack of clarity regarding efficacy or superiority of any one programme over another. Innovative multifaceted programs may assist in supporting the graduate registered nurse to transition effectively into the clinical environment."
Cochran, 2017[23]	Systematic review **Search dates:** Jan 2011-Sept 2014 **Included studies:** 15	"NRPs are a cost-effective method proven to reduce attrition rates of new nurses. The most effective programs are 12 months in duration and focus on mentor/preceptor support with structured didactic content to assist newly licensed registered nurses to develop successfully in their professional role."
Hoover, 2020[24]	Scoping review **Search dates:** Sep 2019 **Included studies:** 69	"Of the articles with sufficient data, they typically described small programs implemented in one facility (n = 23), with up to ten mentors (n = 13), with less than 50 mentees (n = 25), meeting at least once a month (n = 27), and lasting at least a year (n = 24). While over half of the studies (n = 36) described programs focused almost exclusively on clinical skills acquisition, many (n = 33) specified non-clinical professional development activities. Reflective practice featured to a varying extent in many articles (n = 29). Very few (n = 6) explicitly identified the theoretical basis of their programs."

Author, Year	Type of Review Search Dates Included Studies	Excerpted Relevant Findings
Kenny, 2021[13]	Systematic review **Search dates:** Not reported (included studies from January 1990 to April 2020) **Included studies:** 130	"The majority of authors reported outcomes for the graduate or the graduate and service, with only one reporting outcomes for the patient or client."
Letourneau, 2015[25]	Integrative review **Search dates:** 2006-July 2013 **Included studies:** 25	"Specifically, this review revealed an emphasis on organizational priorities pertaining to adjustment of the newly licensed nurse to the work environment and role. Consequently, the focus was on nurse retention, quality of nurse performance, and confidence. To date, no research has examined whether there is a link between participation in an NRP and patient outcomes that are determined to be nursing sensitive (*eg*, pressure ulcers, falls, intravenous infiltrations)."
Tyndall, 2018[26]	Integrative review **Search dates:** 2010-June 2017 **Included studies:** 20	"This integrated review affirms the lack of empirical evidence linking participation in transition programs with positive patient outcomes and increased patient safety. Self-reported competency improvement by NGNs is the most common variable used in studies asserting that transition programs improve patient safety."
Van Camp, 2017[27]	Systematic review **Search dates:** 2004-2016 **Included studies:** 22	"Results indicate increased retention rates for new graduates participating in residency programs and that residency participants experienced greater satisfaction with their orientation than those not participating in residency programs. Residency participants also perceived the residency as beneficial."

Notes. AMSTAR2 categories of overall confidence in the results of the review:

High: Zero or 1 non-critical weakness: The systematic review provides an accurate and comprehensive summary of the results of the available studies that address the question of interest.

Moderate: More than 1 non-critical weakness*: The systematic review has more than 1 weakness, but no critical flaws. It may provide an accurate summary of the results of the available studies that were included in the review.

Low: One critical flaw with or without non-critical weaknesses: The review has a critical flaw and may not provide an accurate and comprehensive summary of the available studies that address the question of interest.

Critically low: More than 1 critical flaw with or without non-critical weaknesses: The review has more than 1 critical flaw and should not be relied on to provide an accurate and comprehensive summary of the available studies.

*Note: Multiple non-critical weaknesses may diminish confidence in the review and it may be appropriate to move the overall appraisal down from moderate to low confidence.

Methodological Quality of Included Reviews

Table 3. Review Methodology and Confidence Categorization

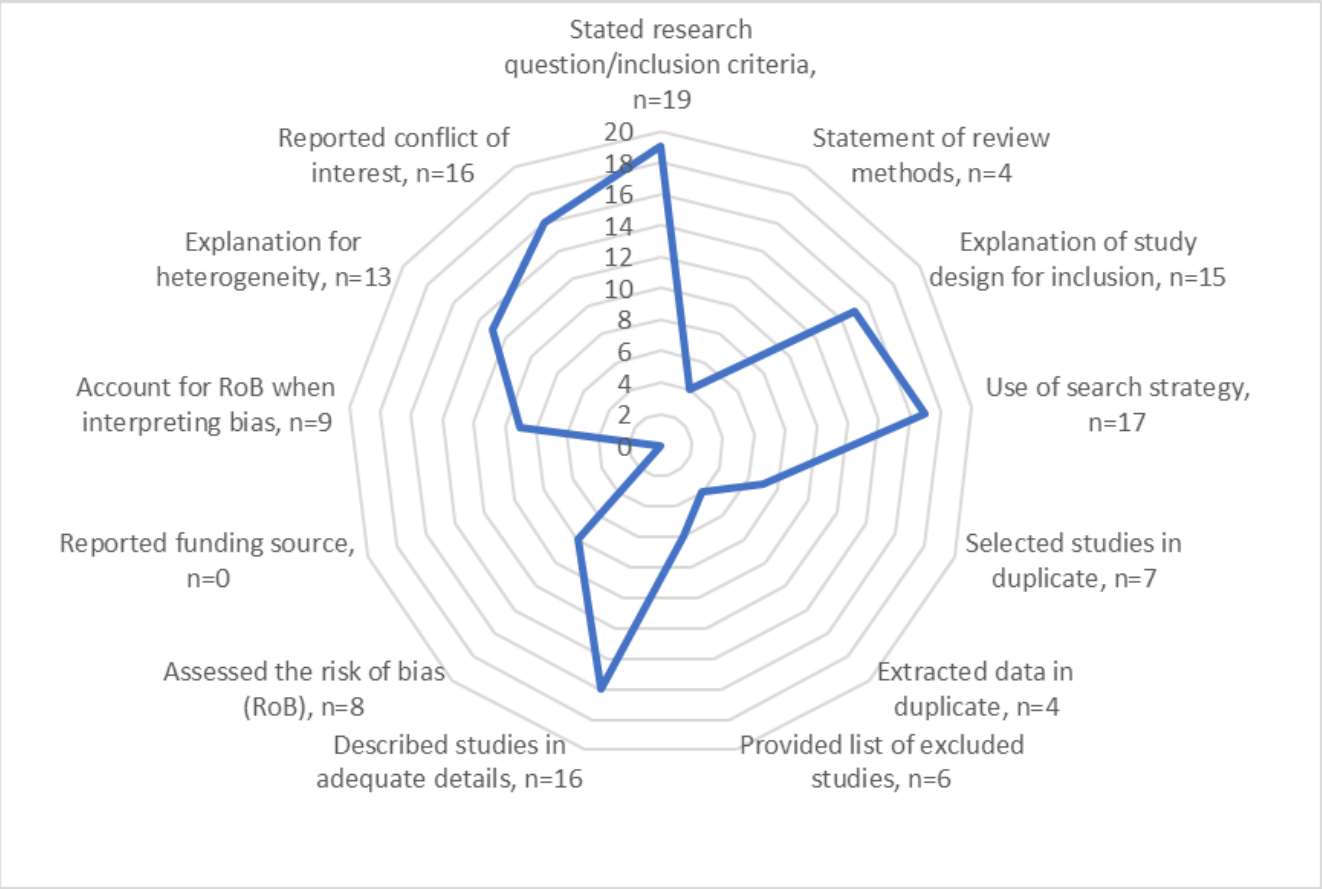
	SysR	IR	ScR	REA	Other
High	1				
Moderate	1	1	1		
Low	1	3	1	1	
Critically low	3	3	1		2

Abbreviations. IR=integrative review; REA=rapid evidence assessment; ScR=scoping review; SysR=systematic review.

One systematic review[9] met the standard of high confidence categorization (see **Error! Reference source not found.**). Three reviews, 1 systematic review,[16] 1 scoping review,[15] and 1 integrative review[8] met the standard of moderate confidence. We heeded the AMSTAR2 guidance that multiple non-critical weaknesses may diminish confidence in the review, and it may be appropriate to move the overall appraisal down from moderate to low confidence; our categorizations reflect this. Six reviews—1 systematic review,[20] 1 scoping review,[12] 1 rapid evidence assessment,[12] and 3 integrative reviews[11,18,19]—met the standard of low confidence. In addition, most reviews[10,13,21–27] were categorized as critically low confidence.

The highest AMSTAR2 score among the 19 included reviews was 11 points out of a possible 13 points on the modified criteria; the lowest score was 3. The median and the mode scores were both 7 points, indicating that fewer than half of the quality criteria were met. In the preceding overview section, we discuss how these scores translated into overall confidence in a particular review. Here, we describe patterns in the individual criteria that were met or not met across included reviews. Figure 1 presents the frequency that included reviews met each AMSTAR2 criterion. Appendix F shows the detailed AMSTAR2 scores for each review. All 19 reviews stated a research question or documented inclusion criteria, whereas no review reported a funding source. At least 50% of the reviews stated a research question/inclusion criterion, including an explanation of publication type for inclusion; used a search strategy; described studies in adequate detail; explained heterogeneity; and reported conflicts of interest. All the other criteria were met by less than half of the scored reviews.

Figure 1. Included Reviews (*N* = 19) Meeting AMSTAR2 Criteria



KEY QUESTION 1: ARE TRANSITION-TO-PRACTICE PROGRAMS FOR NEWLY GRADUATED, ENTRY-TO-PRACTICE REGISTERED NURSES EFFECTIVE FOR IMPROVING ORGANIZATIONAL, NURSE, AND PATIENT OUTCOMES?

Reviews' Coverage of Outcomes of Interest

The identified reviews discussed critical organizational-level outcomes and some nurse-level outcomes; however, patient-level outcomes were absent.

Due to a combination of methodological issues with the reviews themselves and/or with the literature they identified, no conclusions can be drawn with any level of certainty for specific outcomes.

Best Available Evidence for Key Question 1

Because this was a broad, high-level systematic review of reviews, we prioritized reporting on the conclusions for outcomes included by the 2 reviews rated as having high or moderate confidence in the findings based on AMSTAR2 scoring and scoped to address our key questions.[8,9] We also described findings from 6 reviews that were either rated as low confidence or had scoping differences but had salient information for this key question.[18,20,21,25,27,28]

The Rush and colleagues' 2019 integrative review that was published in the *International Journal of Nursing Studies* had 3 missing criteria and was therefore rated as having moderate confidence.[8] However, none of these missing criteria were critical or affected the transparency of reporting the results. In addition, the scope of the review, which was "to identify the best practices of formal new graduate nurse transition programs," was exceptionally aligned with the scope of our review of reviews. The authors included the most comprehensive overlap of original research studies; however, they included single-component programs, which fell outside our definition of multi-component RNTTPs, and thus had other studies we did not include. They found that the quality of evidence, which was low to moderate overall, limited best-practice recommendations. They focused on 4 main categories of outcomes—competency and critical thinking, confidence, job satisfaction, and retention and turnover—while also describing data that were related to cost-benefit analyses. They found that the best quality evidence, which used a mix of methodological approaches, consistently connected RNTTPs with increased critical thinking, competency, and retention.

The systematic review by Brook and colleagues,[9] also published in 2019 in the *International Journal of Nursing Studies*, was the only included review with a high confidence rating (*ie*, the review provided an accurate and comprehensive summary of the results of the available studies that addressed the question of interest).[9] With 53 included studies, it aimed "to evaluate the characteristics of successful interventions to promote retention and reduce turnover of early career nurses." Given its focus on quantitative analyses of retention and turnover, Brook and colleagues' findings aligned with those of Rush and colleagues, stating that methodological issues limited the conclusions they could draw. They found indications that RNTTPs were associated with improved retention, but the composition of the program and its components also had some bearing on these improvements, which is discussed in more detail in key question 2. The authors identified future research areas, some of which have particular salience for this key question, most notably standardizing outcome measures across studies and increasing rigorous evaluations of RNTTPs' cost effectiveness.

Four additional reviews, either published in 2019 or earlier, were rated as low or critically low confidence in the findings and had similar scopes that primarily focused on retention.[18,20,21,27] These reviews also reached similar conclusions, but with fewer included studies and more methodological issues than those found in the Rush and Brook reviews.[8,9]

An additional 2 reviews[15,25] included measurement-related findings that contributed to the discussion points raised by Brook and colleagues.[9] A moderate confidence review published in 2021 concurred, stating that "there was no general agreement as to which outcomes were important, and many studies used poorly validated measures."[15] A critically low confidence review published previously in 2015 detailed measures in its analysis,[25] which highlighted the Casey-Fink Graduate Nurse Experience Survey among a list of 6 other job satisfaction, performance, stress, and organizational commitment instruments. However, given the methodological issues and the 2015 publication date, this list was probably incomplete.

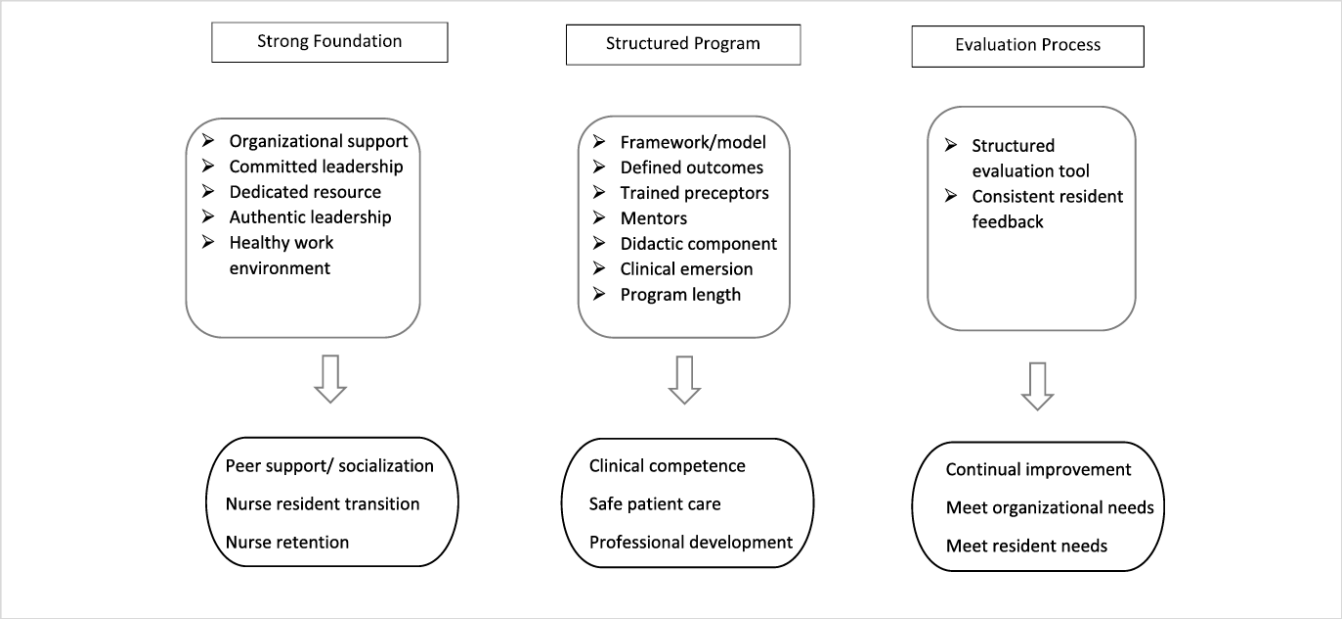
KEY QUESTION 2: WHAT ARE THE CHARACTERISTICS OF EFFECTIVE TRANSITION-TO-PRACTICE PROGRAMS (EG, PROGRAM COMPONENTS, DURATION OF PROGRAM) FOR NEWLY GRADUATED, ENTRY-TO-PRACTICE RNS?

The 2 best-evidence reviews discussed in key question 1 contributed insights related to characteristics of RNTTPs.[8,9] Each reviews' results section was dedicated to "common features of transition programs"[8] and "types of components"[9] where a few key components were discussed. The 3 common features identified by Rush and colleagues[8] included a defined resource person (*eg*, mentor, clinical coach, navigator), mentorship, and peer support opportunities. In addition, each review had separate sections dedicated to education and workplace environment. These align with Chant and colleagues' model of nursing residency programs, notably themes under strong foundation and structured program (Figure 2).[19]

Brook and colleagues[9] identified 5 unique program components, including preceptor, mentor, teaching/training, assessment (*ie*, evaluation of the program), and incentives components. These align with some of the model's structured program and evaluation process themes (Figure 2).

Two additional reviews rated low and very low confidence that identified and discussed program components also contributed to insights related to RNTTP characteristics.[10,19] The first of these, an integrative review rated low confidence, developed a model of RNTTP key components for sustainability (Figure 2).[19] The authors did not report methods according to AMSTAR2, or in some cases they reported alternative, less rigorous approaches. Yet their approach was acceptable for developing their model, which aligned well with the 2 best quality reviews in terms of the components they described. Finally, the very low-quality integrative review included a list of 17 suggested elements for graduate transition programs, which overlapped with the model's themes identified in Figure 2.

Figure 2. Chant and Colleagues' Model of Nurse Residency Programs: Key Components for Sustainability[19]



All 4 reviews,[8–10,19] in addition to other reviews mentioned in key question 1,[15,18,20,21,25,27,28] discussed program length to some degree. However, given the methodological issues of both the identified reviews as well as their included literature, any signal about ideal program length was not grounded in empirical comparisons between programs of different lengths, and as such we were unable to rely on their interpretations beyond the findings reached by Rush and Brook and their colleagues.

Rush concluded that bundled programs (*ie*, programs with multiple components) can be helpful but the evidence for program length was inconclusive. However, orientations longer than 4 months, and ideally up to 9 months were suggested.[8] Brook and colleagues agreed on both findings, suggesting that programs lasting 27-52 weeks with teaching, preceptor, and mentoring components appeared most promising.[9]

REVIEWS NOT DISCUSSED IN KEY QUESTIONS

Nine reviews were precluded from further discussion in the preceding key questions sections.[11–13,16,17,22–24,26] This was due to a combination of methodological issues and scope incompatibilities. Three systematic reviews,[16,22,24] an integrative review,[11] and a rapid evidence assessment[12] included a mix of RNTTPs and programs that focused on mentorships, preceptorships, and/or orientations. Because the reviews' findings were not separated by program type, we could not discern characteristics that were attributed to comprehensive RNTTPs versus single-component programs.

A scoping review describing transition programs' impact on workplace violence, stress, and resilience did not separate new RN graduates from nursing students.[17] One integrative review with critically low confidence focused on a conceptual model for patient safety.[26] Because this review was not relevant to our key questions and it contained multiple serious methodological flaws, it was not included in the key question sections.

Two other reviews[13,23] also had serious methodological issues and were not included in the key questions section. The first review did not present data for all included studies, nor did it identify them all.[13] We were unable to rely on its conclusions, despite it being the largest review in our review, purporting to include 130 studies. The second review, a "literature review," included a very limited description of methods but did not present sufficient information to support its conclusions.[23]

CURRENT SYNTHESES' COVERAGE OF THE EVIDENCE BASE

In this section, we present findings that empirically assess the identified reviews' coverage, including both overlap between reviews as well as coverage across the original research evidence base more broadly.

Overlap Between Existing Reviews

While many of the 19 identified reviews had similar objectives, the degree of overlap in original included literature was minimal (see Appendix G for full crosswalk). Of the 336 cumulative citations included in the 19 reviews, about two-thirds appeared only once, in a single review ($N = 217$, 65%). No study was included in every review; the most overlap for any single citation was inclusion in 10 reviews, which occurred twice.[29,30]

Coverage across the 336 studies was low for all included reviews. The largest review, which included 130 original research studies, did not specify all those citations: 88 of the 130 included studies were cited and were added to the crosswalk, which represented 26% (88/336) of all studies identified by prior reviews.[13] The Rush and colleagues' 2019 integrative review[8] also included roughly a quarter of identified studies (24%, 79/336 studies), while all other reviews included less than 20% of the total identified literature from reviews (see Appendix G).

Additional Findings from Independent Searches

Given the indicators that no individual review consistently and fully represented the existing evidence base of original research studies, we conducted our own literature search, which identified 25 additional relevant original research studies that were not included in any of the prior syntheses.

We also screened all 336 studies identified by the reviews, and the majority did not meet our own inclusion criteria ($N = 272$, 81%). Because many reviews did not provide information about their screening and selection methodologies, it was unclear how these studies were included, or in what ways their inclusion process differed from our own. By our criteria, the 2 most common exclusion reasons were that studies only discussed a single component program ($N = 98$) or studies did not present data or analysis of outcomes from a specific program ($N = 73$).

Summary of Coverage

There was no seminal study or set of studies that all review authors included, and the majority of literature identified by reviews was only included by a single review. No single review served as a reliable compilation of the evidence base, and all reviews included studies we would consider to be excludes by our eligibility criteria.

DISCUSSION

In this systematic review of reviews, we identified 19 published evidence syntheses, most of which were integrative reviews, and most of which were appraised as having low or critically low overall confidence in the results of their review. Two reviews were the most informative for our key questions: a systematic review appraised as high confidence in the results of their review that evaluated characteristics of a myriad of related interventions to increase early career RN retention,[9] as well as an integrative review that was directly overlapping in scope with our review, which sought to explore best practices for RNTTP programs.[8] Aside from the low confidence in many of the reviews, the other critical challenge for this systematic review of reviews was the lack of overlap between the identified original research within the reviews and the potential missing coverage across original research studies not included in reviews.

While the reviews we identified in our systematic review of reviews did discuss critical organizational-level outcomes and some nurse-level outcomes, patient-level outcomes were absent from the identified reviews. Both reviews we focused on emphasized the methodological issues in the available evidence, which limited best-practice recommendations and conclusions.[8,9] They found that the best quality evidence, which used a mix of methodological approaches, indicates a connection between RNTTPs and more critical thinking, competency, and retention, but that more rigorous evaluations are necessary to establish estimates of effect size with an acceptable strength of evidence.

Multi-component (*ie*, bundled) RNTTPs may be helpful,[8] but the specific arrangement of components and how to choose components to match specific contexts remains unclear. There appeared to be a set of key components that were represented in the published evidence syntheses, including a defined resource person (*eg*, mentor, clinical coach, navigator, preceptor), mentorship, peer support opportunities, education/training, assessment, and workplace environment. Many of the evidence syntheses discussed program length to some degree. However, because strong comparative studies or other published evidence evaluations were lacking, the evidence for program length was inconclusive, with published evidence synthesis reviews suggesting similar lengths around 6-12 months. Because good quality reviews did not include literature across the full span of original research we identified, or even half of the identified literature, how components and program length relate to program success is unclear. Our recommendations for future research aim to help improve this knowledge gap.

Limitations

Our systematic review of reviews aimed to orient readers to the large volume of published reviews and original research literature related to RNTTP programs. Most of the reviews we identified and the original research studies they included had substantial limitations. At the review level, the low methodological quality of the majority of the included reviews limited our confidence in their findings. Compounding the methodological quality issues were the underlying methodological limitations of the original research studies, including small sample sizes, lack of comparison groups, and other critical issues.

Aside from the limitations in the included literature, our review had 2 main limitations that deserve mention. The first limitation, inherent in all systematic reviews of reviews and umbrella reviews, is a reliance on prior synthesis efforts as the basis of our analysis. This was especially concerning given the critical methodological issues we observed in many of the identified reviews. While synthesizing data from original research studies would have been a more direct approach, this was not feasible due to the

volume of work in this space. Having now conducted both a systematic review of reviews and recognizing the lack of overlap of original research studies across reviews, the preliminary groundwork for a deeper analysis of original research studies has been accomplished. The second limitation is publication bias. Given the common use of RNTTPs in a variety of health care settings, the published literature in this space may not accurately reflect the total experiences with RNTTPs at large. The RNTTPs captured in published evaluations or research projects may be qualitatively different than those that remain unpublished.

FUTURE RESEARCH

Both new original research and additional evidence synthesis work could reap benefits in solidifying our understanding of RNTTPs. Future work for evidence synthesis could include:

- Quantitatively analyzing comparable data from original research studies to pool smaller studies across key outcomes, while rigorously appraising risk of bias and applying certainty of evidence to resulting conclusions.
- Systematically gathering data about program components, such as program length, instruments and measures used, size/scale of program implementation beyond single versus multi-site, and other key characteristics.

However, given the widescale methodological limitations of the existing original research evidence base, we recommend conducting strong, rigorous evaluations and new original research studies on RNTTPs that take into account the recommendations of many of the included reviews, such as:

- Standardized outcome measurement that is critical for assessing typical outcomes at the nurse and organizational levels.
- Rigorous and sophisticated evaluation study designs to incorporate comparator groups, longitudinal designs, and/or multiple sites, assess organizational context, test adaptations and components, and use both comparative and mixed methods design. The field of implementation science has many critical advancements that would be helpful for advancing the study of RNTTP programs.
- Patient outcomes and economic analyses to explore the potential benefits that RNTTP programs might offer.

Additionally, future implementation research that includes evaluation components may help us move beyond improving the standard outcomes addressed in the IOM report[6] and in many existing evaluations to impacting other nursing workforce issues, such as addressing and increasing equity and diversity within the nursing workforce.

CONCLUSIONS

Since the IOM report's call to action, RNTTPs have been piloted and developed in health care systems across the country. These programs deserve rigorous evaluation using sophisticated methodology to answer critical questions about their implementation and sustainment. Touted as having the potential to alleviate grave nurse staffing shortages and support developing the future of the nursing workforce, these programs benefits should be documented, and best practices ascertained so that they can be scaled and sustained.

REFERENCES

1. Colosi B. NSI national health care retention & RN staffing report. NSI Nursing Solutions, Inc.
2. Pellico LH, Brewer CS, Kovner CT. What newly licensed registered nurses have to say about their first experiences. *Nurs Outlook*. 2009;57(4):194-203. doi:10.1016/j.outlook.2008.09.008
3. Duchscher JE. Transition shock: the initial stage of role adaptation for newly graduated registered nurses. *J Adv Nurs*. 2009;65(5):1103-1113. doi:10.1111/j.1365-2648.2008.04898.x
4. Transition-to-Practice. Accessed October 22, 2024. https://www.acenursing.org/accreditation/transition-to-practice
5. White Meagan, Cosme Sheryl, Drown Stephanie. Revisiting the Impact of Accreditation on Transition to Practice Programs: Findings From a Replication Analysis. *J Contin Educ Nurs*. 2021;52(11):525-533. doi:10.3928/00220124-20211008-08
6. IOM. *The Future of Nursing: Leading Change, Advancing Health.*; 2010.
7. Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing at the I of M. *The Future of Nursing: Leading Change, Advancing Health*. National Academies Press; 2011.
8. Rush KL, Janke R, Duchscher JE, Phillips R, Kaur S. Best practices of formal new graduate transition programs: An integrative review. *Int J Nurs Stud*. 2019;94:139-158. doi:10.1016/j.ijnurstu.2019.02.010
9. Brook J, Aitken L, Webb R, MacLaren J, Salmon D. Characteristics of successful interventions to reduce turnover and increase retention of early career nurses: A systematic review. *Int J Nurs Stud*. 2019;91:47-59. doi:10.1016/j.ijnurstu.2018.11.003
10. Bakon S, Craft J, Wirihana L, Christensen M, Barr J, Tsai L. An integrative review of graduate transition programmes: Developmental considerations for nursing management. *Nurse Educ Pr*. 2018;28:80-85. doi:10.1016/j.nepr.2017.10.009
11. Hampton KB, Smeltzer SC, Ross JG. Evaluating the transition from nursing student to practicing nurse: An integrative review. *J Prof Nurs*. 2020;36(6):551-559. doi:10.1016/j.profnurs.2020.08.002
12. Wray J, Watson R, Gibson H, Barrett D. Approaches used to enhance transition and retention for newly qualified nurses (NQNS): A rapid evidence assessment. *Nurse Educ Today*. 2021;98:104651. doi:10.1016/j.nedt.2020.104651
13. Kenny A, Dickson-Swift V, McKenna L, et al. Interventions to support graduate nurse transition to practice and associated outcomes: A systematic review. *Nurse Educ Today*. 2021;100:104860. doi:10.1016/j.nedt.2021.104860
14. Shea BJ, Reeves BC, Wells G, et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. *BMJ*. 2017;358:j4008. doi:10.1136/bmj.j4008
15. Aldosari N, Pryjmachuk S, Cooke H. Newly qualified nurses' transition from learning to doing: A scoping review. *Int J Nurs Stud*. 2021;113:103792. doi:10.1016/j.ijnurstu.2020.103792
16. Ke YT, Kuo CC, Hung CH. The effects of nursing preceptorship on new nurses' competence, professional socialization, job satisfaction and retention: A systematic review. *J Adv Nurs*. 2017;73(10):2296-2305. doi:10.1111/jan.13317
17. Alshawush K, Hallett N, Bradbury-Jones C. The impact of transition programmes on workplace bullying, violence, stress and resilience for students and new graduate nurses: A scoping review. *J Clin Nurs*. 2022;31(17-18):2398-2417. doi:10.1111/jocn.16124
18. Asber SR. Retention Outcomes of New Graduate Nurse Residency Programs: An Integrative Review. *J Nurs Adm*. 2019;49(9):430-435. doi:10.1097/nna.0000000000000780

19. Chant KJ, Westendorf DS. Nurse Residency Programs: Key Components for Sustainability. *J Nurses Prof Dev*. 2019;35(4):185-192. doi:10.1097/NND.0000000000000560
20. Eckerson CM. The impact of nurse residency programs in the United States on improving retention and satisfaction of new nurse hires: An evidence-based literature review. *Nurse Educ Today*. 2018;71:84-90. doi:10.1016/j.nedt.2018.09.003
21. Ackerson K, Stiles KA. Value of Nurse Residency Programs in Retaining New Graduate Nurses and Their Potential Effect on the Nursing Shortage. *J Contin Educ Nurs*. 2018;49(6):282-288. doi:10.3928/00220124-20180517-09
22. Aparício C, Nicholson J. Do preceptorship and clinical supervision programmes support the retention of nurses? *Br J Nurs*. 2020;29(20):1192-1197. doi:10.12968/bjon.2020.29.20.1192
23. Cochran C. Effectiveness and Best Practice Of Nurse Residency Programs: A Literature Review. *MEDSURG Nurs*. 2017;26(1):53-63.
24. Hoover J, Koon AD, Rosser EN, Rao KD. Mentoring the working nurse: a scoping review. *Hum Resour Health*. 2020;18(1):52. doi:10.1186/s12960-020-00491-x
25. Letourneau RM, Fater KH. Nurse Residency Programs: An integrative Review of the Literature. *Nurs Educ Perspect*. 2015;36(2):96-101. doi:10.5480/13-1229
26. Tyndall DE, Firnhaber GC, Scott ES. The Impact of New Graduate Nurse Transition Programs on Competency Development and Patient Safety: An Integrative Review. *Adv Nurs Sci*. 2018;41(4):E26-e52. doi:10.1097/ans.0000000000000217
27. Van Camp J, Chappy S. The Effectiveness of Nurse Residency Programs on Retention: A Systematic Review. *Aorn J*. 2017;106(2):128-144. doi:10.1016/j.aorn.2017.06.003
28. Surveys — Casey-Fink Surveys. Accessed October 22, 2024. https://www.caseyfinksurveys.com/surveys
29. Kowalski S, Cross CL. Preliminary outcomes of a local residency programme for new graduate registered nurses. *J Nurs Manag*. 2010;18(1):96-104. doi:10.1111/j.1365-2834.2009.01056.x
30. Olson-Sitki K, Wendler MC, Forbes G. Evaluating the impact of a nurse residency program for newly graduated registered nurses. *J Nurses Staff Dev*. 2012;28(4):156-162. doi:10.1097/NND.0b013e31825dfb4c

Appendix

APPENDIX A. PEER REVIEW COMMENTS AND RESPONSES

Comment #	Reviewer #	Comment	Author Response
Are the objectives, scope, and methods for this review clearly described?			
1	1	Yes	None
2	2	Yes	None
3	4	Yes	None
4	5	Yes	None
5	6	Yes	None
6	7	Yes	None
7	8	Yes	None
8	9	Yes	None
9	12	Yes	None
10	14	Yes	None
Is there any indication of bias in our synthesis of the evidence?			
11	1	No	None
12	2	No	None
13	4	No	None
14	5	No	None
15	6	No	None
16	7	No	None
17	8	No	None
18	9	No	None
19	12	No	None
20	14	No	None
Are there any published or unpublished studies that we may have overlooked?			
21	1	No	None
22	2	No	None
23	4	No	None
24	5	No	None

Comment #	Reviewer #	Comment	Author Response
25	6	No	None
26	7	No	None
27	8	No	None
28	9	No	None
29	12	No	None
30	14	No	None
Additional suggestions or comments can be provided below. If applicable, please indicate the page and line numbers from the draft report.			
Key Findings			
31	2	Page V - Line 60 - Missing the word "of" between implementation and nurse	Language has been revised, aligned with comment 35 to read “implementing nursing residency programs.”
32	5	P v, line 54: Consider using another word for "tenure." "Tenure" is not usually associated with RN retention. Suggestion--First-year nurses have the highest turnover rate of all hospital-based RNs. The reference for this citation is only based on hospitals. In reference 1 see page 2, the first line under Methodology.	We have updated this language.
33	5	P. v, line 56: Consider changing "brand-new environment" to new work environment.	We have updated this language.
34	5	P. v, line 58: IOM report. Add the year, 2011. It will help clarify which of the two IOM reports on nursing are being cited.	We have added the year.
35	5	P. v, line 60: for consistency change to "implementing" nurse residency programs	We have updated this language.
36	5	P. vi, line 4: for consistency change to "improving patient outcomes"	We have updated this language.
37	5	P. vi, line 9: delete "train" and consider to "assist with the transition of ..."	We have made this revision.
			We have updated this language.
Background			
38	4	Pg 4 - Line 34 to 35 - May want to consider adding a comma after "In general"	We have made this revision.
39	5	P. 4, line 7: same comment as 1. (“*Consider using another word for "tenure." "Tenure" is not usually associated with RN retention. Suggestion--First-year nurses have the highest turnover rate of all hospital-based RNs. The reference for this*	We have updated this language.

Comment #	Reviewer #	Comment	Author Response
		citation is only based on hospitals. In reference 1 see page 2, the first line under Methodology.")	
40	5	P. 4, line 14: Delete the sentence and add, New nurse graduates can benefit from comprehensive transition to practice programs that assist with the "...process of professional role socialization..." and help improve retention. Citation-- Commission on Collegiate Nursing Education. (2021). Standards for accreditation if entry-to-practice nurse residency programs. Pg. 4. https://www.aacnnursing.org/Portals/42/CCNE/PDF/CCNE-Entry-to-Practice-Residency-Standards-2021.pdf	We have made this revision.
41	5	P. 4, line 41: delete "to train new graduate nurses" and add, "for these types of programs."	We have made this revision.
42	6	page 4, line 15 - citation? Seems out of place in this paragraph, consider connecting it back to the previous sentences	We have revised this section and referenced accordingly; this citation is now with the appropriate text about transition shock.
43	6	page 4, line 36 - first time using RNTTP, consider spelling out or referring to it as RNTTP when first mentioned in line 30	We have made this revision.
44	6	page 4, line 37 - "last longer" consider less causal language	We have made this revision.
45	6	page 4, line 38 - while the background delineates RNTTP and residency programs, all future mentions in the paper only refer to RNTTP. Consider mentioning this moving forward to ensure the capture of both programs	We have further described our RNTTP focus and its relationship to residency programs.
46	6	page 5 , line 6 - use abbreviation TTP vs spelling out	We have harmonized our acronym use throughout.
Methods – Searching and Screening			
47	6	page 7 searching and screening - any exclusion criteria based on country that the study took place?	Yes, we did restrict our focus to programs implemented in OECD member countries to approximate US health care delivery context. This is described in the eligibility criteria table in the Key Questions and Eligibility Criteria section.
48	7	The search terms used for screening the databases for literature did not include "nurse residency program" which the literature uses separately from "transition to practice". There could be more reviews out there that were missed in this analysis	Our search terms did include a number of terms listed in Appendix A that were variations on the terms listed in the report narrative, and one of these was "nurse residenc*" as appearing in either title or abstract of the citation. We have revised the text to be more clear about the terms in the report

Comment #	Reviewer #	Comment	Author Response
			narrative being examples from a broader set of terms.
49	14	In Methods- Searching and Screening (page 7), the authors stated that the search for systematic reviews was from 1/1/15 to 12/15/22, and the search for original research studies was from 1/1/10-12/21/22. It makes sense to me that the search for original research papers went to earlier years because the review papers contained studies prior to the review time. However, I wonder why the end time was different between the 2 searches? Additionally, when was the systematic review for this report conducted? Given we are already in the second half of 2024 right now, is it possible to include more recent studies from 2023?	The search for primary literature was conducted later, or more recently, because it was part of our analysis of the reviews, which we had already searched for and were in the process of synthesizing. We do hope to update our searches for future products, but that is currently out of scope for this report.
Results – Overview of Included Reviews			
50	14	1). In the first paragraph, the authors stated that 6 reviews were excluded at the full-text screening for ineligible study designs. Can the authors expand a little more on what "ineligible study design" means here?	We have revised this sentence to clarify with examples of ineligible publications, such as commentaries or editorials.
51	14	2). In the last paragraph on this page, the authors wrote that "Nine reviews were precluded from further discussion…". I am confused where these 9 reviews come from. From the earlier paragraphs in this section, I learned that 19 systematic reviews were included out of 140 reviews and the flow chart (Figure 1) was very clear on the exclusion step by step. But I am having a hard time connecting these "nine reviews" mentioned here with the 140 reviews.	We have revised and now discuss these nine reviews in a separate section, called "Reviews not discussed in Key Questions," to clarify that these are reviews that met inclusion criteria and were included in the gap analysis, but not specifically used as evidence for the two Key Questions.
52	14	For Table 2, can the authors give some information on the difference between scoping reviews, integrative reviews, and systematic reviews? Maybe in the footnote of the Table?	Distinguishing between these methodologies is tough because of the variability with how different authors interpret and operationalize them, and because there are various perspectives on each.
Results – Overview of Included Original Research			
53	2	Thank you so much for your effort and expertise! Suggestion: clarify Figure 4 on page 21. Only gray shaded shapes are described in the notes. Unsure what green and blue mean or if there are differences with the boxes, diamonds, and circles.	This figure was removed.
54	7	Additionally, the review of primary studies did not include some of the largest longitudinal studies in the literature from the	Reviewer did not respond to request for additional information that we sought to identify the literature

Comment #	Reviewer #	Comment	Author Response
		inception of nurse residency programs. Much of this research focused on the characteristics of effective programs including length, structure, etc. This could be because NRPs have only been growing in popularity since the IOM report so some of the seminal literature dates back further than the search included.	they describe, including these largest longitudinal studies. We have also further reorganized our report to emphasize the role our primary studies searches played in our analyses, namely, to better understand our review of reviews coverage of the evidence base.
Results – Key Question 1			
55	4	Pg 23 - Line 8 - Reads "Case-Fink" and I believe it should be Casey-Fink	We have updated this language.
56	7	Additionally, the key question 1 regarding the effectiveness of improving nurse outcomes is already well cited in the literature and not providing new information. A more effective question would be if the programs are impacting patient outcomes.	Our Key Questions are developed in collaboration with our operational partners, and are meant to reflect their needs. While we all agree that patient outcomes would be of interest, there were no published reports that our review identified that covered patient outcomes, and so we were unable to include them further.
57	14	Page 22, “Key question #1: ARE TRANSITION TO PRACTICE…”. I understand the authors were trying to first focus on the 2 reviews with relatively good quality and then talk about the 6 reviews with lower quality. However, the information was somewhat disconnected and it’s hard for me to reconcile the information contained in different reviews. The section may benefit from adding a summary paragraph and explicitly summarize the findings from different reviews.	We have substantially revised the Key Question 1 and other results section of the report to be more cogent, and to highlight our key findings.
Results – Key Question 2			
58	7	Key question 2 which included a review of primary research missed some research on this topic published in 2022 and some very seminal work out there on NRPs	We did not include primary research in this systematic review of reviews as evidence towards either Key Question. We have substantially revised the results section to increase clarity.
General Report Comments			
59	5	Please re-consider the use of the terms, training, brand new environment, and tenure. Registered nurses have to complete a rigorous educational program along with clinical experiences. While they need help with the transition to professional practice,	We have revised language throughout to improve this framing.

Comment #	Reviewer #	Comment	Author Response
		they are highly trained health professionals. These terms imply otherwise and do not accurately reflect the experience.	
60	7	Recommend expanding this search of primary research to help answer the questions to include seminal work and focusing more on nurse residency programs. Also recommend including a SME on this review to support the rigor of this analysis.	While we would love to continue this work and conduct a more rigorous (and up-to-date) analysis of the primary research, this was out of scope for the current systematic review of reviews. We originally identified a team of reviewers with appropriate expertise, however all reviewer participation is voluntary, and our SME focus was appropriately directed towards other professional priorities during the course of our project. We were unable to identify another team member with appropriate expertise and bandwidth for participation.
61	12	Thank you for the opportunity to review this timely and important work. I did a quick pubmed search with the listed search terms for 2022-2024 and pulled 81 pubs. Obviously not all would be included, but, that is many pubs on a niche topic. Your work once published will serve as a call to action for improved eval methods and program description in pubs.	As noted in response to comment 60, we would very much hope that future work would be able to do a rigorous analysis of the original research studies in this area.

APPENDIX B. SEARCH STRATEGIES

Search Date: 2015 – 2022		Search Statement	Results
PubMed/MEDLINE **[2015 – 2022]**	1	"new graduate nurs*"[tiab] OR "newly graduated nurs*"[tiab] OR "nurse graduate*"[tiab] OR "post graduate nurs*"[tiab] OR "newly qualified nurs*"[tiab] OR "newly licensed nurs*"[tiab] OR "new nurs*"[tiab] OR "novice nurs*"[tiab] OR "neophyte nurs*"[tiab] OR "early career nurs*"[tiab] OR "post-registration nurs*"[tiab] OR "newly registered nurs*"[tiab] OR "graduate nurse transition*"[tiab]	4,349
	2	transition*[tiab] OR internship*[tiab] OR extern*[tiab] OR mentorship*[tiab] OR preceptor*[tiab] OR "nurse residenc*"[tiab] OR NRP[tiab] OR train*[tiab] OR simulation[tiab] OR "simulator*"[tiab] OR orientation*[tiab] OR "inservice train*"[tiab] OR onboard*[tiab] OR "on-board*"[tiab] OR "clinical competenc*"[tiab] OR "professional competenc*"[tiab] OR "peer support*"[tiab] OR "support group*"[tiab] OR "transitional support"[tiab] OR "rotational train*"[tiab] OR transition-to-practice[tiab] OR "transition to practice"[tiab] OR "clinical supervis*"[tiab] OR "clinical mentor*"[tiab] OR "clinical practicum"[tiab] OR "academic-practice partnership*"[tiab] OR socialization[tiab] OR "Education, Nursing, Continuing"[Mesh] OR "Education, Nursing, Graduate"[Mesh] OR "Inservice Training"[Mesh] OR "Competency-Based Education"[Mesh]	2,023,346
	3	#1 AND #2	**2,276**
	4	(systematic*[ti] AND review[ti]) OR "systematic overview*"[ti] OR "Cochrane review*"[ti] OR "systemic review*"[ti] OR "scoping review"[ti] OR "scoping literature review"[ti] OR "mapping review"[ti] OR "umbrella review*"[ti] OR "review of reviews"[ti] OR "overview of reviews"[ti] OR meta-review[ti] OR "integrative review"[ti] OR "integrated review"[ti] OR "integrative overview"[ti] OR meta-synthesis[ti] OR "meta synthesis"[ti] OR metasynthesis[ti] OR "quantitative review"[ti] OR "quantitative synthesis"[ti] OR "research synthesis"[ti] OR meta-ethnography[ti] OR "systematic literature search*"[ti] OR "systematic literature research"[ti] OR meta-analy*[ti] OR (meta-analytic*[ti] AND review[ti]) OR meta-analysis[pt] OR systematic[sb]	381,667
	5	((search*[tiab] OR MEDLINE[tiab] OR PubMed[tiab] OR Embase[tiab] OR Cochrane[tiab] OR CINAHL[tiab] OR "Joanna Briggs"[tiab] OR "JBI"[tiab] OR Scopus[tiab] OR "Web of Science"[tiab] OR "sources of information"[tiab] OR "data sources"[tiab] OR "following databases"[tiab] OR "bibliographic database*"[tiab] OR hand-search*[tiab] OR "relevant journals"[tiab] OR manual search*[tiab]) AND ("study selection"[tiab] OR "selection criteria"[tiab] OR "eligibility criteria"[tiab] OR "inclusion criteria"[tiab] OR "exclusion criteria"[tiab])) OR "systematic review"[pt]	259,682
	6	(letter[pt] OR editorial[pt] OR comment[pt] OR "case reports"[pt] OR "historical article"[pt] OR report[ti] OR protocol[ti] OR protocols[ti] OR withdrawn[ti] OR "retraction of publication"[pt] OR "retraction of publication as topic"[Mesh] OR "retracted publication"[pt] OR reply[ti] OR "published erratum"[pt])	5,041,240

	7	(#4 OR #5) NOT #6	371,864
	8	#3 AND #7	108
	9	#8 AND ((2015/1/1:2022/12/31[pdat]) AND (english[Filter]))	89
	10	#9 AND (30965203 33751999 30204714) Sentinel articles: 30965203, 33751999, 30204714	2
CINAHL Plus **[2015 – 2022]**	1	**TI**(“new graduate nurs*” OR “newly graduated nurs*” OR “nurse graduate*” OR “post graduate nurs*” OR “newly qualified nurs*” OR "newly licensed nurs*" OR “new nurs*” OR “novice nurs*” OR “neophyte nurs*” OR “early career nurs*” OR “post-registration nurs*” OR “newly registered nurs*”) OR **AB**(“new graduate nurs*” OR “newly graduated nurs*” OR “nurse graduate*” OR “post graduate nurs*” OR “newly qualified nurs*” OR "newly licensed nurs*" OR “new nurs*” OR “novice nurs*” OR “neophyte nurs*” OR “early career nurs*” OR “post-registration nurs*” OR “newly registered nurs*”) OR **MM**(“New Graduate Nurses” OR “Novice Nurses”)	9,876
	2	**TI**(transition* OR internship* OR extern* OR mentorship* OR preceptor* OR “nurse residenc*” OR NRP OR train* OR simulation OR “simulator*” OR orientation* OR “inservice train*” OR onboard* OR “on-board*” OR “clinical competenc*” OR “professional competenc*” OR “peer support*” OR “support group*” OR “transitional support” OR “rotational train*” OR transition-to-practice OR “transition to practice” OR “clinical supervis*” OR “clinical mentor*” OR “clinical practicum” OR “academic-practice partnership*” OR socialization) OR **AB**(transition* OR internship* OR extern* OR mentorship* OR preceptor* OR “nurse residenc*” OR NRP OR train* OR simulation OR “simulator*” OR orientation* OR “inservice train*” OR onboard* OR “on-board*” OR “clinical competenc*” OR “professional competenc*” OR “peer support*” OR “support group*” OR “transitional support” OR “rotational train*” OR transition-to-practice OR “transition to practice” OR “clinical supervis*” OR “clinical mentor*” OR “clinical practicum” OR “academic-practice partnership*” OR socialization) OR **MM**("Transitional Programs" OR “Entry Into Practice”)	550,643
	3	S1 AND S2	**3,745**
	4	**TI**((systematic* AND review) OR "systematic overview*" OR "Cochrane review*" OR "systemic review*" OR "scoping review" OR "scoping literature review" OR "mapping review" OR "umbrella review*" OR "review of reviews" OR "overview of reviews" OR meta-review OR "integrative review" OR "integrated review" OR "integrative overview" OR meta-synthesis OR "meta synthesis" OR metasynthesis OR "quantitative review" OR "quantitative synthesis" OR "research synthesis" OR meta-ethnography OR "systematic literature search*" OR "systematic literature research" OR meta-analy* OR (meta-analytic* AND review)) OR **PT**(meta-analysis)	152,385
	5	**TI**((search* OR MEDLINE OR PubMed OR Embase OR Cochrane OR CINAHL OR “Joanna Briggs” OR “JBI” OR Scopus OR "Web of Science" OR "sources of information" OR "data sources" OR "following databases" OR “bibliographic database*” OR hand-search* OR "relevant journals" OR manual search*) AND ("study selection" OR "selection criteria" OR "eligibility criteria" OR "inclusion criteria" OR "exclusion criteria"))	150,857

		OR **AB**((search* OR MEDLINE OR PubMed OR Embase OR Cochrane OR CINAHL OR “Joanna Briggs” OR “JBI” OR Scopus OR "Web of Science" OR "sources of information" OR "data sources" OR "following databases" OR “bibliographic database*” OR hand-search* OR "relevant journals" OR manual search*) AND ("study selection" OR "selection criteria" OR "eligibility criteria" OR "inclusion criteria" OR "exclusion criteria")) OR **PT**("systematic review")	
	6	**PT**(letter OR editorial OR comment OR “case report*” OR “historical article”) OR **TI**(report OR protocol* OR withdrawn OR “retraction of publication” OR “retracted publication” OR reply OR “published erratum”)	916,682
	7	(S4 OR S5) NOT S6	201,531
	8	S3 AND S7	**174**
	9	S8 Limits: Published Date: 20150101-20231231; Language: English; Source Type: Academic Journals; Geographic: USA	128
		Total	140
		Total after deduplication	116

Search Date: 2010 – 2022		**Search Statement**	**Results**
PubMed **[2010 – 2022]**	1	"new graduate nurs*"[tiab] OR "newly graduated nurs*"[tiab] OR "nurse graduate*"[tiab] OR "post graduate nurs*"[tiab] OR "newly qualified nurs*"[tiab] OR "newly licensed nurs*"[tiab] OR "new nurs*"[tiab] OR "novice nurs*"[tiab] OR "neophyte nurs*"[tiab] OR "early career nurs*"[tiab] OR "post-registration nurs*"[tiab] OR "newly registered nurs*"[tiab] OR "graduate nurse transition*"[tiab]	4,354
	2	transition*[tiab] OR internship*[tiab] OR extern*[tiab] OR mentorship*[tiab] OR preceptor*[tiab] OR “nurse residenc*”[tiab] OR NRP[tiab] OR train*[tiab] OR simulation[tiab] OR “simulator*”[tiab] OR orientation*[tiab] OR “inservice train*”[tiab] OR onboard*[tiab] OR “on-board*”[tiab] OR “clinical competenc*”[tiab] OR “professional competenc*”[tiab] OR “peer support*”[tiab] OR “support group*”[tiab] OR “transitional support”[tiab] OR “rotational train*”[tiab] OR transition-to-practice[tiab] OR “transition to practice”[tiab] OR “clinical supervis*”[tiab] OR “clinical mentor*”[tiab] OR “clinical practicum”[tiab] OR “academic-practice partnership*”[tiab] OR socialization[tiab] OR “Education, Nursing, Continuing”[Mesh] OR “Education, Nursing, Graduate”[Mesh] OR “Inservice Training”[Mesh] OR “Competency-Based Education”[Mesh]	2,026,492
	3	#1 AND #2	2,281
	4	#3 AND ((2010/1/1:2022/12/31[pdat]) AND (english[Filter]))	1,501
	5	#4 AND (30965203 33751999 30204714)	3
CINAHL Plus **[2010 – 2022]**	1	**TI**(“new graduate nurs*” OR “newly graduated nurs*” OR “nurse graduate*” OR “post graduate nurs*” OR “newly qualified nurs*” OR "newly licensed nurs*" OR “new nurs*” OR “novice nurs*” OR “neophyte nurs*” OR “early career nurs*” OR “post-registration	6,424

	nurs*” OR “newly registered nurs*”) OR **AB**(“new graduate nurs*” OR “newly graduated nurs*” OR “nurse graduate*” OR “post graduate nurs*” OR “newly qualified nurs*” OR "newly licensed nurs*" OR “new nurs*” OR “novice nurs*” OR “neophyte nurs*” OR “early career nurs*” OR “post-registration nurs*” OR “newly registered nurs*”)	
2	**TI**(transition* OR internship* OR extern* OR mentorship* OR preceptor* OR “nurse residenc*” OR NRP OR train* OR simulation OR “simulator*” OR orientation* OR “inservice train*” OR onboard* OR “on-board*” OR “clinical competenc*” OR “professional competenc*” OR “peer support*” OR “support group*” OR “transitional support” OR “rotational train*” OR transition-to-practice OR “transition to practice” OR “clinical supervis*” OR “clinical mentor*” OR “clinical practicum” OR “academic-practice partnership*” OR socialization) OR **AB**(transition* OR internship* OR extern* OR mentorship* OR preceptor* OR “nurse residenc*” OR NRP OR train* OR simulation OR “simulator*” OR orientation* OR “inservice train*” OR onboard* OR “on-board*” OR “clinical competenc*” OR “professional competenc*” OR “peer support*” OR “support group*” OR “transitional support” OR “rotational train*” OR transition-to-practice OR “transition to practice” OR “clinical supervis*” OR “clinical mentor*” OR “clinical practicum” OR “academic-practice partnership*” OR socialization)	550,178
3	**MM**((“New Graduate Nurses” OR “Novice Nurses”) AND ("Transitional Programs" OR “Entry Into Practice”))	498
4	(S1 AND S2) OR S3	2,946
5	S4 Limits: Published Date: 20150101-20231231; Language: English; Source Type: Academic Journals	1,659
	Total	**3160**
	Total after deduplication	**2106**

APPENDIX C. FULL TEXT ABSTRACTION FORM

Full-Text Abstraction Form and Criteria Used in Quality Assessment

Full-Text Abstraction Form

1. Is the subject of this publication a transition to practice program(s) for early career nurses?
    a. Yes, CONTINUE
    b. No, no specific transition to practice program described - STOP SCREENING
    c. No, Ineligible Population - STOP SCREENING
    d. No, NPs or other clinical professionals - STOP SCREENING
    e. No, only one component of a specific transition to practice program specified (eg. simulation, orientation, preceptorship, mentorship, long-term care, other), STOP SCREENING (describe):
    f. Unclear/To discuss (explain here:)
2. Does this publication present data/results from an evaluation of an RNTTP?
    a. Yes, quantitative data and statistical analysis from a SINGLE site
    b. Yes, quantitative data and statistical analysis from MORE THAN ONE site
    c. Yes, qualitative data and analysis from a SINGLE site
    d. Yes, qualitative data and analysis from MORE THAN ONE site
    e. Yes, mixed methods from a SINGLE site
    f. Yes, mixed methods from MORE THAN ONE site
    g. No, commentary/editorial/no data analysis presented - STOP SCREENING
    h. Unclear/To discuss (explain here:)
3. What is program duration?
    a. Less than 6 months, STOP SCREENING
    b. 6 months
    c. 6-12 months
    d. 12 months
    e. Not reported/unclear
    f. Other (please type:)
4. Excerpted relevant findings
5. Sample size (n=?) – include units
6. What is the setting?
    a. General/MedSurg
    b. Specific clinical area, *eg*, ICU/NICU/PICU/OR, etc. (specify:)
    c. Unclear/not reported (explain here:)
7. Is program accredited?
    a. Yes
    b. No
    c. Not reported
8. What are the quantitative outcomes of the program? (Select all)
    a. Retention/attrition
    b. Satisfaction
    c. Competency
    d. Cost
    e. Confidence/“Readiness for Practice”

   f. Patient level outcomes
   g. Turnover
   h. Other
9. What are the components and implementation characteristics?
   a. Lectures
   b. Mentor
   c. Preceptor
   d. A project
   e. Other, specify here

APPENDIX D. AMSTAR2 FORM

1. Did the research questions and inclusion criteria for the review include the components of PICO?

PICO = population, intervention, comparator group, outcome

- Yes
- No
- Unclear/can't answer

2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?

For Yes: Authors state that they had a written protocol or guide that included ALL the following—review question(s), a search strategy, inclusion/exclusion criteria, a risk of bias assessment, a meta-analysis/synthesis plan, if appropriate, a plan for investigating causes of heterogeneity, a plan for investigating causes of heterogeneity, ***and*** *protocol should be registered.*

For Partial Yes: Authors state that they had a written protocol or guide that included ALL the following--review question(s), a search strategy, inclusion/exclusion criteria, a risk of bias assessment

- Yes
- Partial Yes
- No
- Unclear/can't answer

3. Did the review authors explain their selection of the study designs for inclusion in the review?

For Yes: the review should satisfy ONE of the following-- Explanation for including only RCTs, OR Explanation for including only NRSI, OR Explanation for including both RCTs and NRSI

- Yes
- No
- Unclear/can't answer

4. Did the review authors use a comprehensive literature search strategy?

For Yes, should have: searched at least 2 databases relevant to research question (one of the databases MUST BE CINAHL), provided key word and/or search strategy, and conducted search within 24 months of completion of the review, ***AND could have more than one of these****: justified publication restrictions(eg language), searched the reference lists / bibliographies of included studies, searched trial/study registries, included/consulted content experts in the field, where relevant, searched for grey literature.*

For Partial Yes (all of the following): searched at least 2 databases (relevant to research question), provided key word and/or search strategy, justified publication restrictions (eg language)

- Yes
- Partial Yes
- No
- Unclear/can't answer

5. Did the review authors perform study selection in duplicate?

For Yes, either ONE of the following: at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer

- Yes
- No
- Unclear/can't answer

6. Did the review authors perform data extraction in duplicate?

For Yes, either ONE of the following: at least two reviewers achieved consensus on which data to extract from included studies, OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer, OR data was extracted by one reviewer and agreed upon by another reviewer.

- Yes
- No
- Unclear/can't answer

7. Did the review authors provide a list of excluded studies and justify the exclusions?

For Yes, must have: provided a list of all potentially relevant studies that were read in full-text form but excluded from the review, justified the exclusion from the review of each potentially relevant study
For Partial Yes: provided a list of all potentially relevant studies that were read in full-text form but excluded from the review

- Yes
- Partial Yes
- No
- Unclear/can't answer

8. Did the review authors describe the included studies in adequate detail?

In an aggregated form such as a table, data from the original studies should be provided on the participants, interventions and outcomes. The ranges of characteristics in all the studies analyzed eg age, race, sex, relevant socioeconomic data, disease status, duration, severity, or other diseases should be reported.

- Yes
- No
- Unclear/can't answer

9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) or quality in individual studies that were included in the review?

For Yes, must have assessed RoB with a formal tool that addresses factors including: allocation sequence that was not truly random, and selection of the reported result from among multiple measurements or analyses of a specified outcome, unconcealed allocation, lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) ***for RCTS*** *and methods used to ascertain exposures and outcomes, and selection of the reported result from among multiple measurements or analyses of a specified outcome, from*

confounding, and from selection bias ***for NRSI (Non-Randomized Study of Intervention) where appropriate. Must also present data for all included studies (can be summary score only but must be able to tell each includes quality score)***
For Partial Yes: used appropriate quality assessment or risk of bias assessment for all included studies. Must specify tool and/or criteria used AND present data for all included studies (can be summary score only but must be able to tell each includes quality score)

- Yes
- Partial Yes
- No
- Unclear/can't answer

10. Did the review authors report on the sources of funding for the studies included in the review?

For Yes: Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information, but it was not reported by study authors also qualifies.

- Yes
- No
- Unclear/can't answer

11. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review?

For Yes: included only low risk of bias RCTs OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results.

- Yes
- No
- Unclear/can't answer

12. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?

For Yes: There was no significant heterogeneity in the results OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review.

- Yes
- No
- Unclear/can't answer

13. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?

For Yes: The authors reported no competing interests OR the authors described their funding sources and how they managed potential conflicts of interest

- Yes
- No
- Unclear/can't answer

APPENDIX E. STUDIES EXCLUDED DURING FULL-TEXT SCREENING

Citation	Exclude Reason
Abel, S.E. and H. Carter-Templeton, Implementing a Transition-to-Practice Program for Novice Clinical Nurse Specialists: A Pilot Project. Clinical Nurse Specialist: The Journal for Advanced Nursing Practice, 2020. 34(4): p. 162-169.	Ineligible Population
AbuAlRub, R. F. and M. G. Abu Alhaija'a (2019). "Perceived benefits and barriers of implementing nursing residency programs in Jordan." Int Nurs Rev 66(1): 43-51.	Ineligible Setting
Adamack, M. and K.L. Rush, Disparities in new graduate transition from multiple stakeholder perspectives. Nurs Leadersh (Tor Ont), 2014. 27(3): p. 16-28.	Unable to Locate FT
Al-Dossary, R.N., P. Kitsantas, and P.J. Maddox, Clinical decision-making among new graduate nurses attending residency programs in Saudi Arabia. Appl Nurs Res, 2016. 29: p. 25-30.	Ineligible Setting
Allanson, A.M. and P. Fulbrook, Preparation of nurses for novice entry to perioperative practice: evaluation of a short education program.. ACORN: The Journal of Perioperative Nursing in Australia, 2010. 23(2): p. 14-16.	Ineligible Population
Allen, S.R., P. Fiorini, and M. Dickey, A streamlined clinical advancement program improves RN participation and retention. J Nurs Adm, 2010. 40(7-8): p. 316-22.	Ineligible Population
Anderson, G., Hair, C., & Todero, C. (2012). Nurse residency programs: An evidence-based review of theory, process and outcomes. Journal of Professional Nursing, 28(4), 203–212.	Ineligible Setting
Beaty, J., et al., The Ontario new graduate nursing initiative: an exploratory process evaluation. Healthc Policy, 2009. 4(4): p. 43-50.	Ineligible Intervention
Blanzola, C., R. Lindeman, and M.L. King, Nurse internship pathway to clinical comfort, confidence, and competency. J Nurses Staff Dev, 2004. 20(1): p. 27-37.	Ineligible Intervention
Bolden, L., et al., The use of reflective practice in new graduate registered nurses residency program. Nurs Adm Q, 2011. 35(2): p. 134-9.	Ineligible Publication Type
Bratt, M.M., Retaining the next generation of nurses: the Wisconsin nurse residency program provides a continuum of support. J Contin Educ Nurs, 2009. 40(9): p. 416-25.	Ineligible Publication Type
Burr, S.G. and G. Malagon-Maldonado, Implementation of a Nurse Residency Program in a Women and Newborn's Specialty Hospital: A Magical Transformation. JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing, 2014. 43(Supp 1): p. S57-S57.	Ineligible Publication Type
Cadmus, E., et al., Academic practice partnership: transitions into practice for new nurses, part 2. Nurs Manage, 2014. 45(10): p. 12-4.	Ineligible Publication Type
Cadmus, E., et al., Academic practice partnership: transitions into practice for new nurses. Nurs Manage, 2014. 45(9): p. 10-2.	Ineligible Publication Type
Cantrell M.A., B.A.M., The impact of a nurse externship program on the transition process from graduate to registered nurse.. J. Nurses Staff. Dev., 2005. 6: p. 21.	Ineligible Intervention
Cleary, M., S. Matheson, and B. Happell, Evaluation of a transition to practice programme for mental health nursing. J Adv Nurs, 2009. 65(4): p. 844-50.	Ineligible Intervention

Citation	Exclude Reason
Dimino, K., et al., Exploring the Impact of a Dedicated Education Unit on New Graduate Nurses' Transition to Practice. J Nurses Prof Dev, 2020. 36(3): p. 121-128.	Ineligible Population
Edwards, D., et al., A systematic review of the effectiveness of strategies and interventions to improve the transition from student to newly qualified nurse. Int J Nurs Stud, 2015. 52(7): p. 1254-68.	Ineligible Publication Type
Failla, K.R., et al., Psychometric Testing of a Nurse Residency Program Stakeholder Evaluation Survey. Journal for Nurses in Professional Development, 2021. 37(6): p. 353-357.	Ineligible Intervention
Faron, S. and D. Poeltler, Growing our own: inspiring growth and increasing retention through mentoring. Nurs Womens Health, 2007. 11(2): p. 139-43.	Ineligible Population
Fielden, J.M., Managing the transition of Saudi new graduate nurses into clinical practice in the Kingdom of Saudi Arabia. J Nurs Manag, 2012. 20(1): p. 28-37.	Ineligible Publication Type
Flexibility in Competency-Based Workplace Transition Programs: An Exploratory Study of Community Child and Family Health Nursing. Journal of Continuing Education in Nursing, 2013. 44(3): p. 129-136.	Ineligible Intervention
Forde-Johnston, C., Developing and evaluating a foundation preceptorship programme for newly qualified nurses. Nurs Stand, 2017. 31(42): p. 42-52.	Ineligible Intervention
Fowler, S.B., P.R. Johnson, and J. Lewis, New Graduate Nurses' Art of Nursing Stories at Graduation From a Transition to Practice Program. Clin Nurse Spec, 2021. 35(2): p. 101-102.	Ineligible Publication Type
Gallagher, K.A. and A. Ricords, A Statewide Nurse Residency Model: Impacting the Transition of Newly Licensed Nurses. J Nurses Prof Dev, 2021. 37(3): p. 165-167.	Ineligible Publication Type
Garrison, E., Orienting the New Graduate Nurse to Floating: Ideas to Ease the Transition. J Nurses Prof Dev, 2018. 34(2): p. 112-115.	Ineligible Intervention
Haggerty, C., et al., 'We need to grow our own': an evaluation of nurse entry to practice programmes. Whitireia Nursing Journal, 2010(17): p. 16-20.	Ineligible Publication Type
Hall, S., et al., Transition to Practice: Onboarding Components for Establishing and Sustaining Healthy Work Environments. AACN Advanced Critical Care, 2019. 30(4): p. 416-420.	Ineligible Publication Type
Hall, S., S. Brady, and C. Altobar, Developing Organizational Capacity Through an Innovative Transition RN Fellowship. Journal for Nurses in Professional Development, 2020. 36(3): p. 170-173.	Ineligible Population
Hampton, K.B., S.C. Smeltzer, and J.G. Ross, Nonclinical Transition-to-Practice Courses: A Review of Course Content. Nurse Educ, 2021. 46(1): p. 54-58.	Ineligible Intervention
Healy, A., et al., An Evaluation of Traditional Versus Virtual Nurse Residency Programs on New Graduate Nurses' Perceptions of Preparedness to Provide Safe Patient Care. J Nurses Prof Dev, 2022. 38(4): p. 233-241.	Ineligible Intervention
Herdrich, B. and A. Lindsay, Nurse residency programs: Redesigning the transition into practice. J Nurses Staff Dev, 2006. 22(2): p. 55-62; quiz 63-4.	Ineligible Publication Type
Hillman, L. and R.R. Foster, The impact of a nursing transitions programme on retention and cost savings. J Nurs Manag, 2011. 19(1): p. 50-6.	Ineligible Intervention
Hooper, B. L. (2014). Using case studies and videotaped vignettes to facilitate the development of critical thinking skills in new graduate nurses. Journal for nurses in professional development, 30(2), 87-91.	Ineligible Intervention

Citation	Exclude Reason
Hosking, J., et al., Evidence Into Practice: Leading New Graduate Nurses to Evidence-Based Practice Through a Nurse Residency Program. J Perianesth Nurs, 2016. 31(3): p. 260-5.	Ineligible Intervention
Hu, F., et al., A transition programme to enhance ICU new graduate nurses' professional identity and intention to remain employed: A pre- and postevaluation. Nurs Open, 2022.	Ineligible Intervention
Hunsberger, M., A. Baumann, and M. Crea-Arsenio, The road to providing quality care: orientation and mentorship for new graduate nurses. Can J Nurs Res, 2013. 45(4): p. 72-87.	Ineligible Intervention
Innovation During Orientation: How Does Rhetoric Drive New Graduate Nurse Performance? Corrigendum. J Nurses Prof Dev, 2021. 37(2): p. E4.	Ineligible Intervention
Johansson, A., M. Berglund, and A. Kjellsdotter, Clinical Nursing Introduction Program for new graduate nurses in Sweden: study protocol for a prospective longitudinal cohort study. BMJ Open, 2021. 11(2): p. e042385.	Ineligible Publication Type
Jones, D. and N. West, Community-based transition programs: California's answer to the new-graduate hiring crisis. Journal of Nursing Regulation, 2010. 1(2): p. 14-17.	Ineligible Publication Type
Justus, P.D. and S.J. Appel, Simulation With Advanced Care Providers in a Nurse Residency Program. J Nurses Prof Dev, 2018. 34(4): p. 180-184.	Ineligible Intervention
Karen, L. and M. Donnya, New Graduate Transition Program Appraisal: Are We Bridging the Gap? Communicating Nursing Research, 2013. 46: p. 530-530.	Unable to Locate FT
Kennedy, M.S., Retaining Nurses in the Workplace. AJN American Journal of Nursing, 2013. 113(11): p. 7-7.	Ineligible Publication Type
Kram, S.L. and J. Wilson, Nurse residency program attracts and retains novice nurses. Nursing, 2016. 46(2): p. 15-6.	Ineligible Publication Type
Lambson, K., et al., BUILDING AN INNOVATIVE AND INDIVIDUALIZED NEW GRADUATE RN PROGRAM TO BOLSTER OUTPATIENT ONCOLOGY NURSING PRACTICE...47th Annual Oncology Nursing Society Congress, April 27–May 1, 2022, Anaheim, CA. Oncology Nursing Forum, 2022. 49(2): p. 21-22.	Ineligible Intervention
Larsen, R., et al., Development of a new graduate public health nurse residency program using the core competencies of public health nursing. Public Health Nurs, 2018. 35(6): p. 606-612.	Ineligible Intervention
Lesher, B.B., et al., New Graduate RN Perinatal Internship. J Contin Educ Nurs, 2021. 52(1): p. 47-52.	Ineligible Intervention
Letourneau, R.M. and K.H. Fater, Nurse Residency Programs: An integrative Review of the Literature. Nurs Educ Perspect, 2015. 36(2): p. 96-101.	Ineligible Publication Type
Lin, L.Y., & Tsai, S. F., Comparison of the effectiveness between two nursing competency training programs of newly employed nurse. VGH Nursing, 2010. 27: p. 231–239.	Unable to Locate FT
Lindfors, K. and K. Junttila, The effectiveness of orientation programs on professional competence and organizational commitment of newly graduated nurses in specialized health care: a systematic review protocol. JBI Database of Systematic Reviews & Implementation Reports, 2014. 12(5): p. 2-14.	Ineligible Publication Type
Lynn, M., UHC/AACN nurse residency program: 2014 outcomes report. 2014.	Unable to Locate FT
Lysaght Hurley, S., et al., Bridging the Gap: A Hospice Nurse Residency Program. J Contin Educ Nurs, 2020. 51(8): p. 371-376.	Ineligible Population

Citation	Exclude Reason
Manzano, W., R.R. Rivera, and R. Sullivan, What We Have Learned from a Model Nurse Residency Program: Ideas for Linking Service and Education. Nursing Education Perspectives (National League for Nursing), 2013. 34(6): p. 371-371.	Ineligible Publication Type
Maresca, R., et al., Lessons Learned: Accessing the Voice of Nurses to Improve a Novice Nurse Program. J Nurses Prof Dev, 2015. 31(4): p. 218-24.	Ineligible Intervention
Maryniak, K., Enhancing the New Nurse Experience: Creation of a New Employee Training Unit. Nursing Economic$, 2017. 35(6): p. 322-326.	Ineligible Publication Type
Mauro, A.M., L.A. Escallier, and M.G. Rosario-Sim, New Careers in Nursing Scholar Alumni Toolkit: Development of an Innovative Resource for Transition to Practice. J Prof Nurs, 2016. 32(5s): p. S59-s62.	Ineligible Publication Type
Maxwell, K.L., The implementation of the UHC/AACN new graduate nurse residency program in a community hospital. Nurs Clin North Am, 2011. 46(1): p. 27-33.	Ineligible Publication Type
McInnes, S., et al., Experiences of registered nurses in a general practice-based new graduate program: a qualitative study. Aust J Prim Health, 2019. 25(4): p. 366-373.	Ineligible Intervention
Mellor, P., et al., A Critical Review of Transition-to-Professional-Practice Programs: Applying a Standard Model of Evaluation. Journal of Nursing Regulation, 2017. 8(2): p. 23-30.	Ineligible Publication Type
Meyer, D., Transition to Practice. Teaching & Learning in Nursing, 2019. 14(4): p. 314-314.	Ineligible Publication Type
Missland, J. and H. Huizinga, DEVELOPMENT OF AN ONCOLOGY SPECIFIC NURSE RESIDENCY PROGRAM...47th Annual Oncology Nursing Society Congress, April 27-May 1, 2022, Anaheim, CA. Oncology Nursing Forum, 2022. 49(2): p. E84-E85.	Ineligible Publication Type
Morphet, J., et al., Transition to Specialty Practice Program characteristics and professional development outcomes. Nurse Educ Today, 2016. 44: p. 109-15.	Ineligible Population
Morphet, J., McKenna, L., Considine, J., The career development year: responding to the emergency nursing shortage in Australia.. Australasian Emerg. Nurs., 2008. 11: p. 32-38.	Ineligible Population
Morris, K., N. Morris, and S. Kinney, Nurses New to Paediatric Intensive Care: Knowledge Outcomes of a 12-week Transition to Specialty Practice Program...43rd Australian and New Zealand Annual Specific Meeting on Intensive Care and 24th Annual Pediatric and Neonatal Intensive Care Conference, 11-13 October 2018, Australia. Australian Critical Care, 2019. 32: p. S5-S5.	Ineligible Intervention
Morton, L., Halse, J., Cox, D., Preceptorship Framework. 2017, NHS England.	Ineligible Intervention
NETP programme attracts nurses from the community. Kai Tiaki Nursing New Zealand, 2011. 17(5): p. 7-7.	Ineligible Publication Type
Olson, R.K., et al., Nursing student residency program: a model for a seamless transition from nursing student to RN. J Nurs Adm, 2001. 31(1): p. 40-8.	Ineligible Population
Oosterbroek, T.A., Yonge, O., Myrick, F., Rural nursing preceptorship: an integrative review. Online J. Rural Nurs. Health Care 2017. 17(1): p. 23-51.	Ineligible Intervention
Orsini, C.H., A nurse transition program for orthopaedics: creating a new culture for nurturing graduate nurses. Orthop Nurs, 2005. 24(4): p. 240-6; quiz 247-8.	Ineligible Intervention

Citation	Exclude Reason
Parsh, B. and E. Taylor, CLINICAL QUERIES. Benefits of residency programs for new grads. Nursing, 2013. 43(12): p. 64-64.	Ineligible Publication Type
Peltzer, J.N., et al., The Kansas Nurse Leader Residency Program: Building Nurses' Capacity to Lead Change. J Nurses Prof Dev, 2018. 34(5): p. E1-e8.	Ineligible Publication Type
Pertiwi, R.I. and R.T.S. Hariyati, Effective orientation programs for new graduate nurses: A systematic review. Enfermería Clínica, 2019. 29: p. 612-618.	Ineligible Publication Type
Pillai, S., et al., Evaluation of a Nurse Residency Program. J Nurses Prof Dev, 2018. 34(6): p. E23-e28.	Ineligible Intervention
Pizzingrilli B, C.D., Implementation and evaluation of a mental health nursing residency program.. J Nurs Ed Pract., 2015. 5(1): p. 76-84.	Ineligible Intervention
Porter, V., C. Ham, and L. Grealish, Transition to Practice Program: A New Direction for Recruiting and Retaining Enrolled Nurses in Mental Health. J Nurses Prof Dev, 2016. 32(6): p. 299-305.	Ineligible Intervention
Ready, R.W., et al., The Transition of Newly Licensed Nurses Into the Workforce: Implementing a Designated Transition Unit in a Community Hospital Healthcare System. Nurse Leader, 2012. 10(4): p. 26-30.	Ineligible Intervention
Rhéaume, A., L. Clément, and N. Lebel, Understanding intention to leave amongst new graduate Canadian nurses: a repeated cross sectional survey. Int J Nurs Stud, 2011. 48(4): p. 490-500.	Ineligible Intervention
Rivera, E.K., H.J. Shedenhelm, and A.L. Gibbs, Improving Orientation Outcomes: Implementation of Phased Orientation Process in an Intermediate Special Care Nursery. J Nurses Prof Dev, 2015. 31(5): p. 258-63.	Ineligible Intervention
Roche, J., D. Schoen, and A. Kruzel, Human Patient Simulation Versus Written Case Studies for New Graduate Nurses in Nursing Orientation: A Pilot Study. Clinical Simulation in Nursing, 2013. 9(6): p. e199-205.	Ineligible Intervention
Saver, C., 12-week program prepares new nurses for the OR. OR Manager, 2017. 33(3): p. 1, 10-3.	Unable to Locate FT
Shinners, J., L. Africa and D. Meyer (2021). "The Nursing Professional Development Role in Fostering Professional Development, Leadership, and Academic Progression for New Graduate Registered Nurses." J Nurses Prof Dev 37(5): 260-267.	Ineligible population
Shope, B., et al., The Nurse Resident in the Pacu: Designing and Implementing a Program to Support the Transition of New Graduate Nurses into a Post Anesthesia Care Unit (PACU). Journal of PeriAnesthesia Nursing, 2016. 31(4): p. e41-e41.	Ineligible Publication Type
Smyth, W., P. Pianta, and R. Perkins, New Nurses' Positive Evaluation of Transition-to-Practice Programs. J Contin Educ Nurs, 2018. 49(11): p. 500-506.	Unable to Locate FT
Snow, T., Call for mandatory preceptorship programme for all new nurses. Nurs Stand, 2013. 27(19): p. 12-3.	Ineligible Intervention
Spector, N., et al., Transition to Practice in Nonhospital Settings. Journal of Nursing Regulation, 2015. 6(1): p. 4-13.	Ineligible Intervention
Teferra, A., Mengistu, D., Knowledge and attitude towards nursing clinical preceptorship among Ethiopian nurse educators: an institution-based cross-sectional study. International Journal of Africa Nursing Sciences., 2017. 7: p. 82-88.	Ineligible Intervention

Citation	Exclude Reason
The Effectiveness of Simulation Use in Transition to Practice Nurse Residency Programs: A Review of Literature from 2009–2018. Journal for Nurses in Professional Development, 2021. 37(6): p. E44-E45.	Ineligible Intervention
Torres, D.A., et al., Best Fit Orientation: An Innovative Strategy to Onboard Newly Licensed Nurses. J Nurses Prof Dev, 2022. 38(6): p. 350-359.	Ineligible Intervention
Trepanier, S., et al., Nursing Academic–Practice Partnership: The Effectiveness of Implementing an Early Residency Program for Nursing Students. Nurse Leader, 2017. 15(1): p. 35-39.	Ineligible Population
Tseng, M.Y. and S.L. Hwang, "SURVIVAL" intervention program effects on student nurses' transition to staff nurses: A quasi-experimental study. Nurse Educ Pract, 2021. 56: p. 103184.	Ineligible Intervention
Tuckett, A., R. Eley, and L. Ng, Transition to practice programs: What Australian and New Zealand nursing and midwifery graduates said. A Graduate eCohort Sub-Study. Collegian, 2017. 24(2): p. 101-108.	Ineligible Population
Valdes, E.G., M.C. Sembar, and F. Sadler, Onboarding New Graduate Nurses Using Assessment-Driven Personalized Learning to Improve Knowledge, Critical Thinking, and Nurse Satisfaction. J Nurses Prof Dev, 2021.	Ineligible Intervention
Varner, K.D. and R.A. Leeds, Transition within a graduate nurse residency program. J Contin Educ Nurs, 2012. 43(11): p. 491-9; quiz 500- 1.	Ineligible Publication Type
Vergara, J.Y., Implementation of a mentorship program to increase staff satisfaction and retention in critical care. Nurse Lead., 2017: p. 207-217.	Ineligible Intervention
Wallace, J., et al., Economic aspects of community-based academic-practice transition programs for unemployed new nursing graduates. J Nurses Prof Dev, 2014. 30(5): p. 237-41.	Ineligible Intervention
Warren, J.I., S. Perkins, and M.A. Greene, Advancing New Nurse Graduate Education Through Implementation of Statewide, Standardized Nurse Residency Programs. Journal of Nursing Regulation, 2018. 8(4): p. 14-21.	Ineligible Publication Type
Weathers, N.M. and L.A. Forneris, Innovation in Nurse Residency: Blazing a Trail With Online Technology. Nurs Educ Perspect, 2020. 41(5): p. 312-314.	Ineligible Intervention
Welding, N.M., Creating a nursing residency: decrease turnover and increase clinical competence. Medsurg Nurs, 2011. 20(1): p. 37-40.	Ineligible Publication Type
Weller-Newton, J.M., et al., Transition to Practice Programs in Nursing: A Rapid Review. Journal of Continuing Education in Nursing, 2022. 53(10): p. 442-450.	Ineligible Publication Type
Wilson, T., N. Weathers, and L. Forneris, Evaluation of Outcomes From an Online Nurse Residency Program. J Nurs Adm, 2018. 48(10): p. 495-501.	Ineligible Intervention
Windey, M., et al., Floating to the Top: Transition to Practice Program. Journal for Nurses in Professional Development, 2020. 36(2): p. 104-107.	Ineligible Publication Type
Windey, M., J. Houle, and D. Fleming, Legal Aspects of Transition to Practice Programs. Journal for Nurses in Professional Development, 2019. 35(4): p. 225-227.	Ineligible Intervention
Windey, M., M. Mullen, and S.O. Seiler, Escaping the Confines of Traditional Instruction: The Use of the Escape Room in a Transition to Practice Program. Journal for Nurses in Professional Development, 2019. 35(6): p. 354-356.	Ineligible Intervention
Young, M., A New Vision for Transition to Practice Programs. Journal for Nurses in Professional Development, 2021. 37(5): p. 301-304.	Ineligible Publication Type

Citation	Exclude Reason
Zhang, Y., et al., The effectiveness and implementation of mentoring program for newly graduated nurses: A systematic review. Nurse Educ Today, 2016. 37: p. 136-44.	Ineligible Publication Type

APPENDIX F. AMSTAR2 SCORES

Author, Year	Stated Research Question/ Inclusion Criteria	Protocol or PROSPERO	Explanation of Study Design for Inclusion	Use Search Strategy	Selected Studies in Duplicate	Extracted Data in Duplicate	Provided List of Excluded Studies	Described Studies in Adequate Detail	Assessed Risk of Bias	Reported Funding Source for Included Studies	Accounted for Risk of Bias in Interpretation	Explained Heterogeneity	Reported Conflict of Interest
Reviews Meeting Criteria	19	4	15	17	7	4	6	16	8	0	9	13	16
%	100%	21%	79%	89%	37%	21%	32%	84%	42%	0%	47%	68%	84%
High[a,b] (n=1)													
Brook, 2019[9]	X	X	X	X	X		X	X	X		X	X	X
Moderate (n=3)													
Aldosari, 2021[15]	X		X	X	X			X			X	X	X
Ke, 2017[16]	X		X	X	X	X		X	X		X	X	X
Rush, 2019[8]	X		X	X	X			X	X		X	X	X
Low (n=6)													
Alshawush, 2022[17]	X		X	X	X	X		X					X
Asber, 2019[18]	X		X	X				X	X			X	X
Chant, 2019[19]	X		X	X				X	X			X	X
Eckerson, 2018[20]	X		X	X				X	X		X	X	X
Hampton, 2020[11]	X		X	X				X			X	X	X
Wray, 2021[12]	X	X	X	X	X		X		X		X	X	X
Critically Low (n=9)													
Ackerson, 2018[21]	X			X				X				X	X
Aparicio, 2020[22]	X	X		X		X	X	X	X		X		X
Bakon, 2018[10]	X			X				X					X
Cochran, 2017[23]	X		X					X					
Hoover, 2020[24]	X		X	X			X					X	X
Kenny, 2021[13]	X	X	X	X	X	X	X						
Letourneau, 2015[25]	X							X				X	
Tyndall, 2018[26]	X		X	X			X	X					X
Van Camp, 2017[27]	X		X	X				X			X	X	X

Notes. [a]Partial yes was counted as "yes" and given 1 point; unclear/can't answer was counted as "no" and not given 1 point.

[b]Rating overall confidence in the results of the review:

High: Zero or 1 non-critical weakness: The systematic review provides an accurate and comprehensive summary of the results of the available studies that address the question of interest.

Moderate: More than 1 non-critical weakness*: The systematic review has more than 1 weakness, but no critical flaws. It may provide an accurate summary of the results of the available studies that were included in the review.

Low: One critical flaw with or without non-critical weaknesses: The review has a critical flaw and may not provide an accurate and comprehensive summary of the available studies that address the question of interest.

Critically low: More than 1 critical flaw with or without non-critical weaknesses: The review has more than 1 critical flaw and should not be relied on to provide an accurate and comprehensive summary of the available studies.

*Note: Multiple non-critical weaknesses may diminish confidence in the review, and it may be appropriate to move the overall appraisal down from moderate to low confidence.

APPENDIX G. RNTTP CROSSWALK

Please see Excel file for crosswalk.