ORIGINAL RESEARCH

Paid co-op models for health professional programs: A scoping review

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ABSTRACT

Background: Clinical learning is key for health professional students. As we face, worldwide, an aging healthcare workforce and widespread staff shortages, the urgency to adopt innovative and scalable models of clinical education has never been greater. These new approaches are essential not only to address the current capacity challenges but also to ensure the sustainability and quality of care, particularly as healthcare needs become more complex and patient populations continue to grow. Co-operative education (co-op) programs provide students with the opportunity to gain practical experiences in a clinical setting as part of their formal education while receiving some financial remuneration. Yet, little is known about the most effective ways to design, implement and evaluate these programs to best benefit patients, students, educational, and healthcare organizations. Our goal was to explore the available literature on paid co-op education models for students in health professional programs.
Methods: We conducted a scoping review following the six stages of the Arskey and O'Malley's scoping review framework and the PRISMA-ScR reporting format. This included defining the research question, developing the search strategy, conducting a two-step screening process, and performing data extraction and analysis of the included studies.
Results: A total of 30 articles were included. Studies were from the United States (n = 14), the United Kingdom (n = 8), Canada (n = 4), Ireland (n = 2), New Zealand (n = 1) and Iran (n = 1). Most studies aimed to describe or evaluate the paid co-op programs (n = 12), or aimed to explore the experience of students, preceptors or faculty members who participated in a co-op program (n = 10). The studies included a wide range of healthcare professionals, including nursing (n = 21), pharmacy (n = 3), midwifery (n = 1), medicine (n = 1), occupational therapy (n = 1), audiology (n = 1), social work (n = 1), and a combination of occupational therapy, physiotherapy, and speech-language pathology (n = 1).
Conclusions: The results of this scoping review contributed to the existing literature on paid co-op education programs for students in health professional programs. We explored the current state of these programs, the benefits and the challenges of these programs, and the potential directions for future planning, implementation, and research in this area. Health care leaders, program directors, clinical educators, and curriculum developers will be able to use these findings to inform future co-op programs that fosters mutual benefits for students, educational, and healthcare organizations.

Key Words: Apprenticeship, Clinical placement, Health professional programs, Internship, Paid coop

1. INTRODUCTION

Clinical learning is key for health professional students. As we face, worldwide, an aging healthcare workforce and staff shortages, new innovative models of clinical education are needed to meet the demands.[1] These new approaches are essential not only to address the current capacity challenges

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but also to ensure the sustainability and quality of care, particularly as healthcare needs become more complex and patient populations continue to grow. At the same time, university and college health professional programs are struggling to secure enough clinical placement opportunities for students, which are critical for providing a wide range of practical experiences. Without adequate placements, students may face challenges in fully transferring their academic learning into hands-on practice, potentially impacting their preparedness for real-world healthcare environments.

Co-operative education (co-op) programs, are a type of clinical placement or internship program, providing students with the opportunity to gain practical experience in a healthcare setting as part of their formal education and receive financial compensation at the same time. In the healthcare field, clinical placements provide students with the opportunity to gain hands-on experience, which can help them to better understand the real-world applications of their studies and develop valuable skills and knowledge. These placements also provide an opportunity for students to network with professionals in their field and make connections that can be valuable in their future careers.[2] Co-op programs can also provide financial support during their studies by allowing students to earn income through paid work placements, which can be particularly helpful for those with limited financial resources or who are seeking to offset the cost of tuition and other academic expenses.[3]

There is a growing body of research on the benefits of co-op programs for health professional students, including studies that have found that these programs can improve student retention, increase job placement rates, and enhance the overall quality of education.[4–7] A systematic review of financial incentives for return of services in underserved areas has identified different type of programs (such as service-requiring scholarships, educational loans with service requirements, service-option educational loans, loan repayment programs, and direct financial incentives) that have shown to be promising to help address health care workforce shortages.[8] Another review examined the contribution of paid employment for students (outside their pre-registration programs) to develop capabilities across personal growth and development, comprehensive practice, organisational capability and professional values and behaviours upon employment.[9]

However, there is still much to be learned about opportunities from paid co-op clinical placement models that are part of pre-licensure programs and the most effective ways to design, implement and evaluate these programs to best benefit patients, students, educational, and healthcare organizations. Our goal was to explore the available literature on paid co-op education models for students in health professional programs.

2. METHODS

2.1 Design

A protocol was developed following the six stages of the Arskey and O'Malley's scoping review framework:[10–12] (1) research question, (2) search strategy, (3) screening, (4) data extraction, and (5) data synthesis. We also followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Statement for the Scoping Reviews (PRISMA-ScR) reporting format.[13] The protocol for this scoping review was registered in Open Science Framework (https://osf.io/np8bf/).[14]

2.2 Stage 1-Research questions

The research questions identified to guide this scoping review were:

1) What are the existing paid co-op/internship models in health professional programs?

2) What is the impact of paid coop/internship models on outcomes for students (i.e., confidence, competence, readiness, entry to practice competences, satisfaction, etc.), for university/college programs, and for health care organizations (i.e., cost, recruitment, retention, quality of patient care, etc.)?

3) What are the challenges and benefits to the implementation of these models in health care organizations and in academia?

2.3 Stage 2-Search strategy

A peer reviewed search strategy[15] was conducted on February 14, 2023, in CINAHL (EBSCOhost), Embase (Ovid), ERIC (Ovid), MEDLINE (Ovid), and Scopus. No limits to language or publication date were applied. The main search concepts comprised of terms related to health professional students, co-operatives, and payment or compensation. Search results were exported to Covidence (Melbourne, Australia) and duplicates were removed using the platform's duplicate identification feature. The search strategies are in Supplemental file #1. In addition, we searched the grey literature using google as follows: university paid nursing coop site:.ca (Canada (.ca), United States (.edu), Australia (.au), United Kingdom (.uk)).

2.4 Stage 3-Screening

The eligibility criteria are defined by the Population-Concept-Context format as follows:

Population: We included all health professional students in pre-licensure programs (including health professional programs such as audiology, dentistry, medicine, midwifery,

nursing, nutrition, occupational therapy, paramedical, pharmacy, physiotherapy, social work, etc.).

Concept: We included paid co-op or internship models that were part of pre-licensure programs. Any paid employment outside of pre-licensure programs, or non-paid clinical placements, coop, internship, apprenticeship as part of pre-licensure programs were excluded.

Context: Programs in any healthcare settings (i.e., community, home care, hospitals, clinics, etc.) were included.

2.5 Stage 4-Data extraction

Two reviewers (GC and MC) independently extracted the data from the eligible studies. This data included: first author, year of publication, study location, purpose, theoretical framework (if any), study design, study population, description of paid coop/internship models used, setting (hospital, community, etc.), type of clinical service, funding source for the model, recipients of the funding, student payment (type and amount), and study results/outcomes (e.g. student, university university/college programs and health care organization outcomes), and challenges and benefits of the model.

2.6 Stage 5-Data synthesis

Included studies were described narratively, grouped by student type and by model. We reported all outcomes by students, university/college programs, and health care organizations. We also summarized the challenges and benefits to the implementation of these models.

3. Results

3.1 Search results

A total of 5,701 records were identified from the search strategies, and 2,757 duplicates were removed. We screened 2,944 records. Out of those studies 320 were sought for retrieval and assessed for eligibility at full text. We excluded 290 articles. From the published literature, a total of 30 articles were included in our study. In addition, we searched the grey literature and the content of 8 relevant websites were included (see Figure 1).

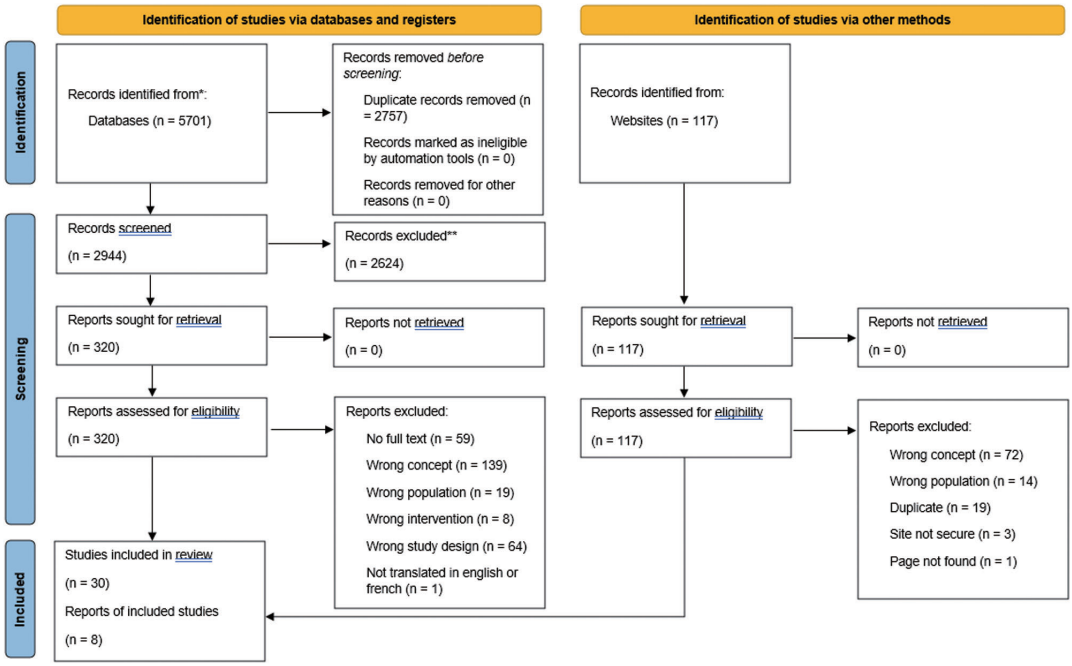

Figure 1. PRISMA flowchart

3.2 Study characteristics

Studies were primarily from the United States (n = 14).[16–29] Other studies were from the United Kingdom (n = 8),[30–37] Canada (n = 4),[38–41] Ireland (n = 2),[42,43] New Zealand (n = 1)[44] and Iran (n = 1).[45]

Most studies aimed to describe or evaluate a co-op program, or aimed to explore the experience of students, preceptors or faculty members who participated in a co-op program. The vast majority of the studies were program descriptions or evaluations (n = 12),[16,19–21,23–26,28,29,35,44] or qualitative research (n = 10).[30–34,37–39,42,45] The studies included a wide range of healthcare professionals, including nursing (n = 21), pharmacy (n = 3), midwifery (n = 1), medicine (n = 1), occupational therapy (n = 1), audiology (n = 1), social work (n = 1), and a combination of occupational therapy, physiotherapy, and speech-language pathology (n = 1) (see Table 1).

Table 1. Characteristics of the included studies

Lead author (year)	Country	Aim of study	Study design	Population of study	Total number of study participants
Ahluwalia (2014)	Canada	To use the WEIGHT Guidelines to evaluate an international clinical internship programme for Master-level rehabilitation students at a Canadian university.	Qualitative research	Occupational therapy (OT), physiotherapy (PT), and speech-language pathology (SLP)	n = 8 (2 OT, 3 PT and 3 SLP)
Allen (1994)	New Zealand	To describe the internship program at Christchurch School of Medicine	Program description	Medical students, undergraduate training	Not applicable
Black (2010)	United States	To describe an innovative statewide collaboration between schools of social work and public mental health departments to transform social work curriculum and address the workforce crisis in public mental health service systems.	Program description	Not applicable	Not applicable
Bradshaw (2018)	Ireland	To capture Irish midwifery students' experiences of internship and considers how these experiences promote safe and competent midwifery practice across two distal clinical sites within two geographical regions.	Qualitative research	BSc Midwifery programme, Midwifery students in the final year of their programme	n = 13
Cushen-Brewster (2021)	United Kingdom	To explore the experiences of third-year nursing students who completed their final clinical placement during the COVID-19 pandemic.	Qualitative research	Nursing students	n = 10
Cushen-Brewster, Barker et al., (2022)	United Kingdom	To explore the experiences of academics and Practice Education Facilitators (PEFs) supporting the nursing students and to identify examples of good practice.	Qualitative research	Practice educator facilitators (PEFs) and academics supporting adult nursing students	n = 8 (4 PEF, 4 academics)
Cushen-Brewster, Driscoll-Evans et al. (2022)	United Kingdom	To understand nursing apprentices' experiences halfway through their four-year program.	Qualitative research	Nursing apprentices, ward managers and practice education facilitators	n = 8 (7 nursing apprentices, 8 ward managers and 4 practice education facilitators)
Desmond (2007)	United States	To study the issue of licensure and payment of students who were completing their 4th year internships, to inform our members (Academy Board of Directors) and to encourage and stimulate discussion of this important topic.	Text and opinion	4th year students in the Doctor of Audiology degree	Not applicable
Donovan (2020)	Ireland	To ascertain the perspectives of pharmacists working in non-patient facing roles on the barriers to and facilitators of placements to aid in identifying placement recruitment strategies for non-patient facing placements.	Cross sectional study	Pharmacist employed in non-patient facing roles (Industry, Education and Regulatory)	n = 84
Godbold (2021)	United Kingdom	To record and learn from the experiences of students working on clinical placement in a pandemic.	Qualitative research	Final year nursing students	n = 16
Godbold (2022)	United Kingdom	To explore the experiences of nursing students in England who had worked through the first wave and transitioned to qualification in the ongoing pandemic.	Qualitative research	Newly qualified nurses	n = 12
Green (2022)	United Kingdom	To explore how nursing students experienced working as paid employees during their training in the context of the pandemic. The secondary aim was to use the findings to inform and guide the implementation of such roles if needed in the future.	Program evaluation	Students and nurse support workers	n = 28
Hernandez (2020)	United States	To evaluate whether the University of New Mexico College of Nursing Nurse Internship Program/University of New Mexico Hospitals Nurse Residency Program has been effective in increasing registered nurse retention.	Cross sectional study	Student nurses	n = 472
Hughes (1993)	United States	To describe an externship that was developed for academic credit but also offered financial remuneration for nursing students.	Program description	Not applicable	Not applicable
Keating (1994)	United States	To describe a specific work study program developed between a nursing department in a large urban medical center and a university nursing program.	Program description	Not applicable	Not applicable
Kee (2001)	United States	To describes a partnership between a baccalaureate nursing program and five medical centers and community hospitals located in Houston, Texas.	Program description and program evaluation	Not applicable	Not applicable
Keil (2021)	United States	To describes the potential cost savings of intern-led clinical services and provides a rationale for medical centers to expand clinical roles for pharmacy interns.	Retrospective review	Pharmacy students	n = 5
Leigh (2020)	United Kingdom	To report on the Greater Manchester Supervision and Delegation Framework and to provide practical guidance for students and practice staff (practice supervisor/practice assessor and registered nurse) on how to support student nurses who have opted into a paid (deployed) healthcare role.	Text and opinion	Not applicable	Not applicable
McSherry (2021)	United Kingdom	To evaluate the rationale of undergraduate final-year student nurses to undertake paid clinical placements during COVID-19.	Qualitative research	Third-year nursing students	n = 17
Nolet (2015)	United States	To report on development, implementation and evaluation of The Wisconsin Long Term Care Clinical Scholars Program, a nursing home internship for baccalaureate nursing students.	Program description and evaluation	Interns, preceptors, director of Nursing (DON) and administrator (ADM)	Focus group n = 10 (5 interns and 5 preceptors) Email survey n = 2 (preceptors) Interviews n = 4 (DON/ADM)
Oh (2021)	Canada	To examine pharmacy students' comfort with and ability to engage employers in negotiation over wage and other work-related considerations for mandatory and paid co-operative education work terms at the University of Waterloo.	Qualitative research	Pharmacy students	n = 15
Paul (2011)	Canada	To explore student and staff perceptions of extrinsic factors which promote or impede clinical learning in a nursing internship experience.	Mixed method exploratory design	Nursing students, faculty and staff from clinical settings	n = 44 (14 students, 14 faculty and 16 staff)
Phillips (1995)	United States	To describe a 12-month internship program for occupational therapy students, to analyze the motivational operations inherent to this alternative model of the Level II fieldwork experience, and to report on what we interns saw as advantages and disadvantages of the program.	Program description	Not applicable	Not applicable
Porter-Stubbs (1985)	United States	To identify the benefits of the implementation of work-study electives, cooperative education and service negotiation strategies, areas of clinical and/or didactic interests, course design and development, and the systematic selection and processing of nursing students.	Program description	Not applicable	Not applicable
Shahzeydi (2022)	Iran	To explore nursing faculty, managers, new graduates, and students' experiences of nursing internship program implementation.	Qualitative research	Nursing managers, newly graduated nurses, nursing internship students (final-year under-graduate), preceptors and faculty	n = 47 (17 students, 12 managers, 3 faculty members, 10 preceptors, and 5 newly graduated nurses)
Shajani (2023)	Canada	To illustrate the collaboration between a major health care organization in western Canada and 8 PSIs in developing an initiative and how this was evaluated by the students who participated in the initiative in response to the nursing workforce challenges caused by the COVID-19 pandemic.	Cohort study	Nursing students	Midpoint n = 225 Endpoint n = 108
Stout (2015)	United States	To describe an internship program for nursing students in the final semester of a Bachelor of Science in nursing program that was implemented with the collaboration of the University of Texas at El Paso and nurse leadership at Del Sol Medical Center.	Program evaluation	Nursing interns and preceptors	n = 53 (26 interns and 27 preceptors)
Vasquez (2022)	United States	To learn about students' perceived knowledge of geriatrics and dementia and to assess their attitudes about and barriers to working with these patient populations post-graduation. To understand if the recent changes in curricular content had been sufficient to overcome typical unfavorable attitudes and hesitancy to work with people living with dementia and encourage students to pursue geriatrics. To solicit information about the desired geriatrics and dementia-related content areas and clinical experiences among undergraduate nursing students.	Mixed: survey and focus group	Bachelor of Science in Nursing students	Survey n n = 76 Focus group n = 8
Wallace (2016)	United States	To describe a large integrated health system and five pre-licensure nursing programs partnering to conduct an innovative work-study internship program designed to address the education-to-practice gap for nursing students	Program description	Nursing students	Not reported
Young (2014)	United States	To outline briefly the activities undertaken related to curricular review and clinical placements, and to describe in detail the approach, challenges and results of the senior internship nursing program.	Program evaluation	Not applicable	Not applicable

3.3 Program descriptions

Some programs took place in the hospital setting (n = 14) and others were in multiple settings (for example, a hospital and a community health service) (n = 11). The programs targeted multiple types of clinical services, such as wards, community care, long term care and rehabilitation programs. The length of the programs varied between 5 weeks and 12 months and consisted of 6-40 hours per week. A total of 21 programs did not provide details of their duration (see the Appendix). However, most co-op programs happen within the last year or the final few semesters of their studies (n = 13).

Not all programs reported details of the funding sources (n = 20). Funding sources included mainly student tuition, donations, fundraising, and provider organisation funding. All programs reported that the student received payment. Compensation types included mainly hourly wages, salaries and stipends. However, must programs did not report on details of those payments such as the amount of the payment (n = 17).

Many articles discussed the recruitment process for the co-op program (n = 11).[18,19,21,23,24,26–28,39,40,44] A small number of articles only stated that the students needed to pass other clinicals and courses in the program to qualify.[18,44] Two other programs offered the co-op as an elective course.[27,40] However, must co-op models asked students to apply to the program.[19,21,23,24,26,28,39] In some cases, this process included an interview, a recommendation by a faculty member, a written essay/letter of motivation and/or the student had to demonstrate strong academic standing.[21,24,26,28,39]

Through our grey literature search, the nursing programs we found were in the United States (n = 6) (Drexel University, Lane Community College, University of Cincinnati, University of North Dakota, New England College, Northeastern University), Canada (n = 1) (St.Francis Xavier University) and the United Kingdom (n = 1) (University of Essex). The majority of the programs (n = 4) (Drexel University, University of Cincinnati, University of North Dakota, New England College) were set in a hospital setting, however some programs let students do their internship in clinics or various other healthcare institutions (n = 3) (Lane Community College, University of Essex, Northeastern University), and one study didn't report the setting (St.Francis Xavier University). Most programs assigned students to a setting or type of clinical service in their field of interest. The length of the coop varied based on the program. Some programs dictated the length of the program by hours (for example, 300 hours per semester, 600 hours total, etc.) and some by months (for example, 6 months, 12-16 months, etc.). Finally, not many details were found about the students' payment. All indicated that the students were paid, however no details about the amount or the source of funding were described (see Table 2).

3.4 Program outcomes

Many studies (n = 16) reported that students increased their self-confidence and competences, like time management and communication skills, during their co-op program. Students seemed to learn more quickly, more willing to learn and more prepared to practice. Two studies highlighted that those students in co-op programs learned in one place for longer compared to the regular students in clinicals, this helped students immerse themselves in the environment and provides for greater teamwork.[19–21,23,25,27–31,35,37,41,42,44,45]

In almost half of the articles (n = 12), authors discussed the importance of having a clear implementation process. For example, it would be important to have strong partnership between the academic and health institution, key stakeholders (students, preceptors, managers, professors, etc.) should be consulted during the development and implementation process, discussions about cost should be started early and transparent, scheduling and timeline are complicated to plan and should be considered early in the development process and policies should be clear for everyone involved.[24–27,32,33,35,36,38,41,43,45]

Ten studies explored factors that promote learning.[23,30–32,34,35,40–42,45] Some factors that were reported were: a strong communication between the students, the preceptors and the academic institution, having good support from the preceptor and the staff on the unit or in the health institution, feeling welcomed by the unit or the health institution, witnessing good teamwork on the unit or in the health institution, having knowledgeable preceptors available to teach and support students, and receiving constructive criticism and feedback from preceptors. However, some studies (n = 3) also explored factors that impeded learning. Having difficulties accessing staff, poor teaching culture on the unit, the lack of control over scheduling, inconsistent policies and protocols in the co-op program, issues regarding placement on different units, different placement length, competing demands and high expectation of staff could have a negative impact on the students learning.[23,40,42]

In a few studies (n = 6), students enjoyed earning money while learning to finance their education and basic monthly needs. Offering a salary or a stipend can encourage students to participate in a co-op program, reduce external pressure and show value for the students' work.[17,24,25,27,32,35] However, in one study, the authors said that students could receive a stipend to cover expenses, but they should not be entitled to wages.

Table 2. Finding from the grey literature search

Name of website	URL	Country	Student popular-tion in program	Description of paid coop model	Setting	Type of clinical service	Funding source(s) for the model	Recipients of the funding	Student payment
Drexel University-BSN	https://drexel.edu/cnhp/academics/undergraduate/BSN-Nursing-CO-OP/	United States	Nursing students	Two program available : The BSN-Co-op 4-year program includes one cooperative education experience in Acute and Chronic Illness resulting in a 6-month work-related experience, and the BSN-Co-op 5-year program includes three cooperative education experiences, the first as an Introduction to the Contemporary Healthcare Network; the second in Acute and Chronic Illness; and the third in a Specialty Nursing Concentration, which result in 18-months of diverse, work-related experiences that may be included on a resumé at the time of graduation.	Healthcare systems such as the Children's Hospital of Philadelphia, Thomas Jefferson University Hospital and Penn Medicine	Various clinical settings, specific units not reported.	Not reported	Nursing students	Paid employees, no details reported
Lane Community College	https://www.lanecc.edu/programs-academics/areas-study/health-medical-and-fitness/registered-nurse/cooperative-education	United States	Nursing students	Co-op is an elective course. Nursing cooperative education is a minimum of three credit hours. Each credit represents 36 hours of clinical work and attendance to 2 required seminars. It is a hands-on experience where students work with an assigned RN in a clinical area of their choice. Students need to complete two quarters of the nursing program, have a GPA of 2.8 or better in nursing courses and a statement from their current clinical instructor indicating that they are meeting the objectives of the current clinical course.	Any health facility	Any area. However, some areas such as ICU and NICU usually do not take first year students	Not reported	Nursing students	Paid employees, no details reported
St.Francis Xavier University	https://www.stfx.ca/department/human-nutrition/co-op-education	Canada	Nursing students	Students have the opportunity to obtain 12-16 months of paid professional work experience. Co-op students work a minimum of 35 hrs/week for 15-16 weeks in a 4-month semester.	Not reported	Not reported	Not reported	Students	Paid between $15-24 CAD/hr depending on location
University of Cincinnati-BSN	https://nursing.uc.edu/academic-programs/bsn/experiential-learning.html	United States	Nursing students	Co-op students are paid to participate in a minimum of 600 total hours of preceptor-guided experiences in clinical placements. The development of competencies is assured by their clinical preceptors, who are responsible for supervising each student's performance of nursing tasks. Students also participate in various committees and projects at their respective placement hospitals, introducing them to other important roles nurses hold within health care systems. The co-op program does not extend the traditional four-year degree timeline. Students apply in January of their third year and serve in the program from June through graduation.	Hospitals	Various clinical settings such as medical/surgical units, intensive care units, post-anesthesia care units, operating rooms, obstetrical units and emergency departments.	Not reported	Nursing students	Paid, no details reported
University of Essex	https://www.essex.ac.uk/apprenticeships/health-and-social-care-apprenticeships	United Kingdom	Nursing students	University based teaching will take place in blocks throughout the academic year. The rest of the time, apprentices will be in their usual place of work 15 hours a week. The pathways are designed to continuously interweave theory and practice; this is reflected in the learning and practice outcomes and assessment strategy for each module. There are four terms per year, each of 13 weeks and within each term.	Various institutions	Various units	Not reported	Nursing students	Students earn at least the minimum wage. No amount reported. Pay is determined locally; therefore, it may be higher, but it cannot be lower.
University of North Dakota	https://cnpd.und.edu/admissions-academics/nursing/undergrad-coop.html	United States	Nursing students	Students are paid employees of a North Dakota health care agency while they earn elective credit for this clinical experience. Students may elect to register for either 1 or 2 credits. 1 credit equates to 120 – 300 work hours per semester (8 – 20 hours per week) and 2 credits equates to 301 – 600 work hours per semester (21 – 40 hours per week). There are two types of cooperative education experiences: Academic Nursing Internship Student where students work part-time (often weekends) while attending regular classes during the fall or spring semester or summer Co-op where students are enrolled in a Co-op work experience rather than classes during the summer. Finally, to be eligible to participate in Cooperative Education, you must be admitted and enrolled in the Department of Nursing, have satisfactorily completed all first and second semester Nursing courses, and have a GPA of at least 2.75.	North Dakota health care agency	Various clinical settings	Not reported	Nursing students	Paid employees, no details reported
New England College	https://www.nec.edu/programs/nursing-bsn-program	United States	Nursing students	This program offers students the opportunity to complete 36 credits during three paid immersive clinical experiences as an employee of one of the partner organizations, meaning that nearly 30% of credits are earned in a hospital setting.	Various hospitals and medical centers	Various units	Not reported	Nursing students	Paid employees, no details reported
Northeastern University-School of Nursing	https://bouve.northeastern.edu/academics/school-of-nursing/experiential-learning-and-co-op/	United States	Nursing students	Students work in professional settings through the University's signature cooperative education program. Working on their own or in partnership with a faculty member, they gain new insights through research. All undergraduates are required to complete at least two full time 6-month cooperative education experiences.	Various health centers, teaching hospitals, community hospitals, and clinics	Field of interest of the student (i.e. Obstetrics and women's health, Pediatrics, Behavioral and mental health, Public health, and Management and leadership)	Not reported	Nursing students	Paid employees, no details reported

Four studies explored different concepts of a paid co-op developed during the COVID-19 pandemic. The authors of two of those studies explored the students' decision to opt-in or out of a co-op program during the COVID-19 pandemic. Students felt a sense of duty, wanted to help the health system, and could also gain experience and learn.[30,33,34,36] In three of those studies, students said that the constant changes in the clinical environment were stressful and that they felt overwhelmed and scared while working during a pandemic.[30,33,34]

Three studies (n = 3) highlighted that paid co-op programs were innovative, transformative and a great opportunity for students.[29–31] However, stress about scheduling, deadlines, providing complex care to patients and maintaining work-life balance were identified in four articles.[21,31,37,42]

In general, students had a positive experience while going through a co-op program and preceptors enjoyed it too. In two studies, students felt that the experience was transformative and that every student should be given the opportunity to participate in a co-op program.[21,29,31,32] In another study, preceptors were even looking forward to having co-op students with them and learned many important skills themselves. For example, preceptors felt more organized and confident after supervising a co-op student.[23]

One study reported that agencies meet their staffing needs with recruitment and retention through the co-op program.[25] And finally, one study[39] examined the comfort of student during the negotiation of wage for co-op programs and identified these themes: preservation of the relationship, institutional support and training, negative experience with negotiation and wage gaps, and the students of both genders felt poorly equipped and lacked confidence to engage in negotiation.

In two studies (n = 2),[21,26] students and staff have an overall high satisfaction with the internship program. Overall, for healthcare organizations, co-op programs seem to have a positive impact on recruitment and retention.[16,18,19,21] In articles that talked about healthcare organization-related outcomes, most students that successfully completed their program found employment in that organization after graduation. Three organizations also noted retention of those employees after 12-18 months or after their payback employment.[16,18,21] Some studies (n = 2)[22,26] highlighted cost saving as an organizational outcome. The main reduction of cost was during orientation when the graduates from the program started their employment at the same hospital or unit. Healthcare organizations seem to have saved time, money and/or human resources to train those who returned.

3.5 Challenges and benefits

Out of the 17 studies that reported on the challenges to the implementation of co-op programs, eight studies highlighted the monetary cost as a challenge.[17,20,21,25,29,35,38,43] Since the students were compensated, educational and health institutions had to find money to pay them with the help of government funds or other funds. It was also challenging for health institutions to find adequate human resources to develop and coordinate the co-op program (n = 4).[25,37,38,41] One study also noted that it was challenging to find resources to support preceptors and faculty members during the co-op program.[16]

Another key challenge identified by authors in the studies (n = 8) was the importance of communication about roles, responsibilities and commitments of all parties about the start of the co-op.[21,25,30–32,37,38,41] Since there were differences between other regular clinicals and time spent for their co-op, there was some confusion about roles and responsibilities of each person involved. Also, some studies (n = 2) noted that it was challenging to collaborate with different institutions to make sure the co-op program was implemented and running correctly.[16,32] Six articles also reported that it was hard to fit in another workload in an already busy course schedule.[21,25,27,29,31,33]

Four articles discussed the challenges in the student selection and eligibility process.[20,25,29,38] A few studies had specific diversity objectives.[20,29] However, they were unable to reach their goal because of the limited pool of students. It was also noted that it would be unethical to prohibit non-minority students from applying. Finally, these studies reported that institutions had difficulties trying to set clear guidelines during the selection process and this resulted in variations in that process according to health care professionals and clinical education sites.

Out of the 14 studies that reported on benefits to the paid co-op implementation, seven studies discussed the increase opportunities for recruitment and the reduction of formal orientation for the new graduate.[20,21,24–26,31,45] It was anticipated in a small number of studies that the student would build a loyalty to the health institution and would come work with them after graduating. Also, two other studies reported that the co-op program seemed to have increased recruitment because both the graduate and the institution already developed good communication and had realistic expectations.[21,25]

Students have also reported in three studies the clinical time during their paid co-op time was qualitatively different than other clinical rotation in their educational program since they were able to immerse themselves in the clinical culture

and gain a more profound understanding of nursing and the practice.[28,30,31] They felt more confident and competent after their co-op program. In one study, authors reported that the co-op program offered a more seamless transition from student to healthcare worker.[44] In fact, in two other studies, preceptors felt that the students took more ownership of their work and learning.[30,31] One study noted that students may have a more mature attitude because it is a paid program.[32] In general, students valued the payment (salary, stipend, etc) and felt more valued because of it (n = 7).[20,21,24,31–33,37] Students reported that the financial incentive encouraged them to apply to the co-op program and help tremendously with financial stress and external pressures.

4. Discussion

4.1 Summary of findings

In this review we explored the existing paid co-op models in health professional programs and the impact of these models on outcomes for students, university/college programs and for health care organizations. We also described the reported challenges and benefits to the implementation of these models. In general, the length of the programs and student payments varied across the different programs. Students, preceptors, employers and academics reported that paid co-op models increased self-confidence, knowledge and competences in students. These programs provided an opportunity for students to have hands-on experience while easing their financial burdens and fostering early integration into the workforce. Strong partnerships and clear communication between academic programs, healthcare organizations, and stakeholders were key to implementing paid co-op programs. However, securing sufficient funding and staff overall remains a challenge.

4.2 Strengths and limitations

Our scoping review had several strengths and limitations. We developed a priori protocol. Another major strength was the systematic search strategy that was employed to ensure a comprehensive and rigorous approach. This process included the review of both published and unpublished co-op program information, enhancing the breadth and depth of the findings. By incorporating grey literature alongside peer-reviewed studies, the review captured a better understanding of the available evidence and practices.

However, despite the strong methods used, there were some limitations. First, we limited the search strategy to include only co-op programs that specifically mentioned renumeration. It is possible that some co-ops were paid but were excluded because they did not explicitly mention the remuneration component in their publication. Second, we only searched a few databases, and as such, this review may not contain all the work completed on this topic. Third, since this was a scoping review, the risk of bias was not done on the included articles. Finally, we limited the search for grey literature to key countries due to time constraints and the funding available for this project. As a result, an international-wide website search could not be conducted, potentially leaving out other relevant programs or insights from regions not included in the scope of this review.

4.3 Implications for policy, practice, and research

The healthcare landscape is evolving rapidly in response to significant workforce shortages across jurisdictions.[46–48] Governments are introducing innovative incentives to attract and retain healthcare professionals, such as the Ontario's Learn and Stay grant in Ontario, Canada,[49] which offers financial support for students in high-demand health fields, provided they commit to working in underserved regions. These initiatives are complemented by expanded pathways for internationally educated nurses[50,51] to meet emerging demands. Additionally, structures like interprofessional collaboration and digital health integration[52–54] are transforming care delivery, aiming to optimize efficiency and enhance accessibility. Overall, a collective effort is needed to address workforce shortages while adapting to the dynamic needs of modern healthcare.

Supporting health care students in this changing landscape requires flexibility in learning models.[55] Partnerships between universities/colleges and healthcare organizations are paramount and initiatives such as paid co-ops could help students strengthen their clinical skills while easing staff shortages. Governments also have a role to play by investing in innovative solutions such as funding student employment opportunities or providing financial support for tuition fees. Ultimately, offering paid work opportunities tied to health care education could reduce students' financial burdens, improve retention, and address workforce shortages. This approach benefits both students and healthcare organizations, fostering a stronger, more sustainable health care workforce. Further research should focus on the design and integration of paid co-op programs and the evaluation of these programs to ensure that they meet the intended goals.

5. Conclusion

The results of this scoping review contributed to the existing literature on paid co-op education programs for students in health professional programs. We explored the current state of these programs, the benefits and the challenges of these programs, and the potential directions for future planning, implementation, and research in this area. These findings can

be used to inform future co-op programs that fosters mutual benefits for students, universities/colleges, and healthcare organizations. By investing in mutually beneficial initiatives, such as paid work experiences, students can complete their education while gaining valuable skills, and healthcare organizations can alleviate staffing pressures.

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AUTHORS CONTRIBUTIONS

Concept and design were done by GC, JK, KL, SL, and CB. VL was responsible for developing the search strategy. Data acquisition and analysis were performed by GC, MC, and CB. Drafting of the manuscript was done by GC and CB. All authors (GC, MC, JK, VL, KL, SL, CB) contributed to the critical review of the manuscript and approved its final version. CB is the guarantor of the review.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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