

Four Approaches to Canadian Physician Assistant Education: Does how we teach PAs make a difference?

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Abstract

The four Canadian Physician Assistant programs each use a unique approach to educate students to achieve the national Physician Assistant (PA) competencies. This descriptive analysis study used an online survey tool to determine if patterns existed from each institute's unique approach to PA Education. This study enquired if the different Canadian PA pedagogical and delivery designs influence the students' entry-to-practice comfort or transfer-of-learning to PA students. The survey collected 90 responses from graduates of the four PA programs to identify correlations between their program resources and those used to support their education.

When transitioning from didactic year to clinical rotations, most of the responding PA graduates from the University of Manitoba, McMaster University, the Consortium for PA Education (University of Toronto), and the Canadian Armed Forces felt confident in practicing medicine. On average, it took McMaster University graduates nine months to feel comfortable in their role as PAs, eight months for the University of Manitoba graduates, seven months for the University of Toronto graduates and twelve months for Canadian Armed Forces graduates. Notable PAs' transfer-of-learning trends were not noted across the PA programs in Canada despite each program's unique training design. A comparison of five years of national exam results indicated less than a 4% variation from the mean between programs.

Key Words:

Physician Assistant, Canada, PA-Education, Medical Education

Introduction

Canada has four approaches to PA Education, Graduate degree, Problem-based learning, Distributed Education, and Lecture-based Instruction. The four Canadian Physician Assistant Education Programs (PAEP) have different cultures, institutional structures, and missions, yet share the same goal of educating outstanding clinicians. Three of the PA programs are at civilian Universities, and one is a military program. This number contrasts to over 260 US accredited programs and the 35 British (1, 2, 3).

Each of the Canadian PA programs uses a unique approach to educating its students to meet the national competency standard. The Consortium for Physician Assistant Education (referred frequently to as the University of Toronto program) uses *distance learning* and *residency* blocks for their students. The Consortium is a BScPA degree program at the University of Toronto delivered in collaboration with [Northern Ontario School of Medicine](#) (NOSM) and [The Michener Institute of Education](#). McMaster University utilizes a *problem-based learning* curriculum for a BHSc-PA degree. The University of Manitoba is a *graduate course-based* program offering a Master in PA Studies (MPAS). And, the Canadian Armed Forces, building on prior qualifications and experiences, uses a *course-based lectures* approach for a degree granted in cooperation with the University of Nebraska Medical Centre.

All the Canadian PA education occurs over 24-25 months. The first year of academic or tutorial education is primarily classroom instruction, with a clinical second year with rotations in different specialties or services. This generalist medical practitioner's education is structured over a 104 week average. Canadian Medical Schools are 3 or 4 years, providing the 145 weeks required by the Association of American Medical Colleges, which accredits U.S. and Canadian medical schools (4). Medical and PA Education programs in Canada share common Undergraduate degree requirements for the entry or admission point.

PA educational curriculums use the CanMEDS-PA (2015) <https://capa-acam.ca/wp-content/uploads/2015/11/CanMEDS-PA.pdf> competency document to prepare medical generalist clinicians. The shared goal is to prime graduates for future clinical practice using a competency-based educational approach. This transfer-of-learning to practice philosophy affects multiple teaching dimensions, including learning objectives, curricular planning, instruction methods, assessment, and institutional support. Curriculum decisions must consider time and general practice qualifications in educational outcomes. Often decisions balance missing some foundational medical sciences such as embryology, laboratory medicine, or histology to focus on developing expertise in patient assessment, clinical knowledge and skill foundations. These foundations are defined as the Entrustable Professional Activities for Physician Assistants (EPA-PA) introduced to the Canadian PA Educators in 2018 at the Canadian Congress of Medical Educators (5) and found on Annex 1 of this article.

Training design is an integral component for the development of education models. Trainee characteristics and work-environment are subjective to change depending on the individual or the environment's climate. For example, trainee characteristics depend on the students' entry-point knowledge, skills, motivation, and personality (6). The Student background and time available changes the subject matter presented and also the depth of material. Similarly, learning environments and culture depends on the established supports, constraints or opportunities during training. Once

entered, pedagogy and andragogy design are relatively resistant to course change as approvals and oversight involve different committees, universities, or institutional regulations must be respected (7). Influencing the change process are the social, political and psychological development of institutions, instructors, and learners. Curriculum or educational programs tend to take on a life of their own where planning and implementation take a few years to implement as cohorts progress and new cycles begin. Curricular design and institutional culture impact understanding are essential when discussing the various strategies that Canadian PA programs have employed to train their PAs.

This paper explores if those different pedagogical approaches to educational delivery make a significant difference in the ability of PA-graduates to enter practice.

An Overview of the Physician Assistants Educational Curriculum

All four Canadian PA programs incorporate common elements in their training design. For example, all programs include medical informatics, life-sciences such as anatomy, medical symptoms, diseases and therapeutics for the different patient populations, introduction to the medical system, ethics, simulations and skills training. Various approaches emphasize case-based discussions, case presentation, and the use of standardized-patients. Although all programs offer similar core content in their curriculum, each program emphasizes a specific format and pedagogical delivery. For example, the University of Toronto (8) utilizes a distributed education model with students at home supported with mandatory residency blocks for teaching clinical skills and procedures. McMaster uses Problem-based Learning (9) to help students identify learning needs and understanding the problem, The small-group tutorial approach synthesize and applies information to the problem, and to begin to work effectively to learn from group members as well as tutors. Integrating science, communication, and medicine through standardized-patients experiences and clinical skills. It is important to note that all programs have a similar training design in the clinical second-year, where students rotate through multiple clinical environments. However, the length and placement options may vary, with some programs providing hospital obstetrics and other community based primary-care obstetrics.

McMaster University (BHSc-PA)

McMaster University delivers its education through problem-based learning (PBL) in small learning groups of eight individuals (8). PBL design involves a tutorial-style setting with students researching and presenting answers to assigned patient-based cases. These cases start with students determining the aspects of a symptom or complaint, which directs the student's investigation and learning. The conclusion of the case study is a tutorial session review. The Tutor, an experienced PA, MD or Health Professional,

provides the student group with feedback addressing knowledge gaps. The ultimate goal is to learn from group members and tutors the art of self-directed learning and clinical problem solving (9).

The Consortium for PA Education (the University of Toronto, et al.) (BHSc-PA)

Working together to provide PA education through a distributed learning model, a consortium of institutions, The University of Toronto, the Northern Ontario School of Medicine and The Michener Institute for Applied Health Sciences provides an educational model where students remain in their communities. The students learn together online while located in different parts of the province of Ontario. The program provides students with resources and function as independent learners. The flipped-classroom approach is supported with online lectures and assigned readings. Students supplement the material provided with electronic textbooks and medical journals from the virtual libraries, filling and bridging knowledge gaps. The training design also includes "residential blocks," where students must attend classes in person for specific periods during the year to learn and demonstrate clinical skills (8).

The University of Manitoba (MPAS)

The University of Manitoba uses in-person lecture-based instruction for most material, supplemented with case studies, and observational experiences in the first year. BioMedical or physician specialists deliver lessons to students within a course or as special-topics. The curricular design at the University of Manitoba is a horizontally integrated spiral curriculum where basic concepts are revisited with increasing complexity at various touchpoints throughout the curriculum. This approach allows new knowledge and ideas to be related to previously learned concepts. The courses approach the material at increasing difficulty levels throughout the academic year. The program presents the medical subjects from anatomy, pathophysiologic, pharmacology, or different medical specialty perspectives (10).

Canadian Armed Forces (BHSc-PA)

The Canadian Armed Forces use a Systems-Based Curriculum, with students in the pre-clinical year learning about each organ systems' diseases and treatments. While studying a particular organ system, a student understands basic medical sciences and clinical medicine. The uniqueness of the Canadian Health Services program is that each of the candidates brings extensive military medical experiences to further their classroom and clinical education (11, 12). Knowledge builds on real-world situations shared and presented by experienced PAs and Physicians.

Purpose of the Study

The purpose of this study was to determine how PA education delivery and teaching designs influence the transfer-of-learning of Canadian PAs from formal training to clinical practice. The significance of this study lies in its ability to inform PA educators, those involved in helping develop the PA profession, and those involved in developing PAs as clinicians about the influence that teaching designs have on the PAs' transfer-of-learning when transitioning from formal training into a clinical setting.

The study also investigated if the primary influences of PA-students academic first or the clinical second year influenced post-graduate learning? The study also sought to identify if PAs' average confidence learning curve varied from their respective institute. How confident and prepared do PAs feel in the training they received from their institute and in performing the twelve Entrusted Professional Activities (EPA-PAs)(10,5).

Methods

This descriptive study used an online survey tool (Survey Monkey ®) with participants recruitment through the Canadian Association of Physician Assistant's e-mail list, the Canadian PA Blog, and Facebook invitations. This study's target population were Canadian PA program graduates separated into the four alumni groups of McMaster University, University of Manitoba, University of Toronto, or the Canadian Armed Forces, all others were excluded. Ethics review approval was through the University of Manitoba Research Ethics Board – Bannatyne.

In terms of education level prior to starting PA school, holding a Bachelor of Sciences was a common amongst all participants, excluding the Canadian Armed Forces where qualifications as a military medic or paramedic prior to PA training is required. Questions were developed to exclude any PAs who do not meet the selection criteria, the aforementioned objectives of the study and control questions to address the limitations of this study. The questions were then narrowed down to nineteen questions to limit the length of the survey to ten minutes. The survey was then organized so that respondents answered the questions in the following order: demographic-based questions, questions related to the didactic year of their education, questions related to the clinical rotation year of their education, and lastly, questions related to previous healthcare experience (Table 1). A 4-point Likert scale was used to collect data from respondents.

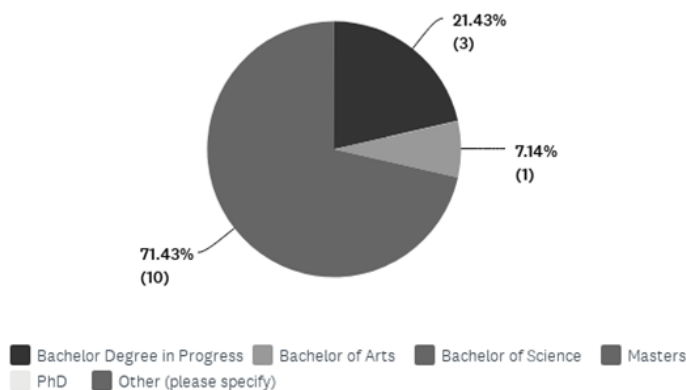
Results

The survey collected 90 responses in total. The responses' distribution was 43 responses were collected from McMaster University PA graduates, 26 from the

University of Manitoba, seven from the University of Toronto and 14 from the Canadian Armed Forces.

Respondents identified the resources available from their program to support their education during their didactic year. The questions asked respondents how often they used the resources to support their education during their didactic year. Program Graduates indicated using medical informatics and journals as primary resources, supported by patient-care conferences, simulation training, case-based discussions, and assigned online course work. All programs used specific skills training sessions for procedures or certification courses (e.g. BCLS, ATLS, ACLS, +/-PALS, suturing, casting, etc.). The clinical year education involved direct patient care experiences "clerkships or rotations" in community clinics or hospital settings with variations in length spent on a specialty service.

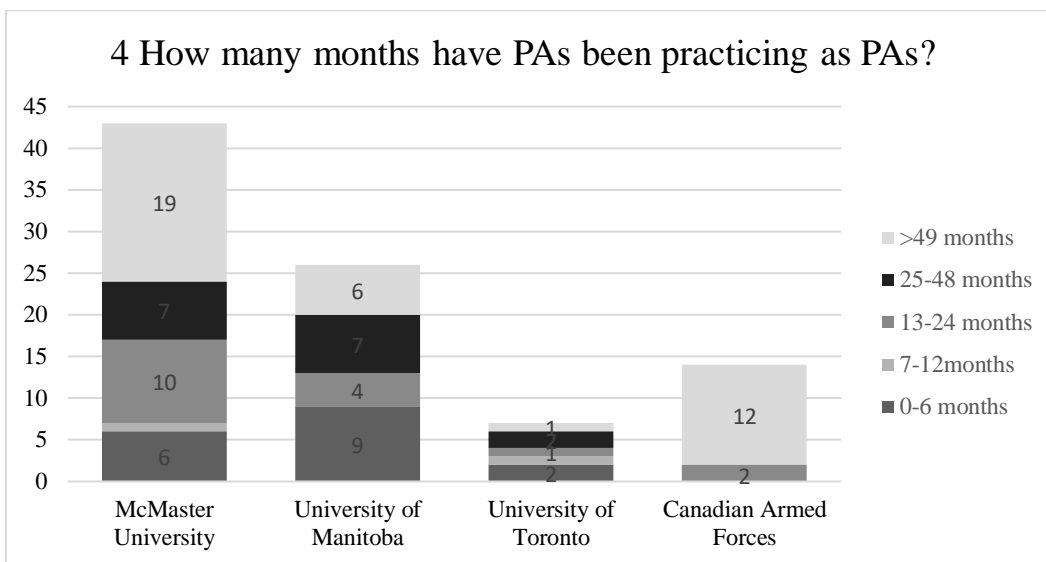
Q2 What was your education level prior to starting PA school?



Respondents were asked to agree on whether they felt confident in practicing medicine during their clinical rotations after their didactic education.

McMaster Univ.	UManitoba	Consortium	Canadian Armed Forces
44% of respondents disagreed with the statement, while 42% agreed with the statement. Of note, there were no respondents who strongly disagreed with the statement.	30% of respondents disagreed with the statement, while 58% agreed with the statement.	29% of respondents disagreed with the statement, while 57% agreed with the statement. Of note, there were no respondents that strongly agreed with the statement.	21% of respondents strongly agreed, 57% agreed, and 14% disagreed with the statement.

McMaster University	University of Manitoba	Consortium (University of Toronto)	Canadian Armed Forces
91% and 93% of McMaster respondents agree that the program employs case-based discussions and standardized patients, respectively, as a mode of education delivery. More than 60% of respondents agree that case-based discussions, case presentations and standardized patients were used frequently during their education.	100% and 96% of UManitoba respondents agree that the program employs case-based discussions and lectures, respectively, as a mode of education delivery. 100% of respondents agree that lectures were used frequently and 69% agree that case-based discussions were used frequently.	100% of PA Consortium (UofT) respondents agree that the program employs standardized patients, online courses and lectures as a mode of education delivery. More than 60% of respondents agree that lectures, online courses and case-based discussions were used frequently during their education.	100% of CAF respondents agree that the program employs certification training and lectures as a delivery mode. 86% of respondents agree that lectures were used frequently. 29% certification training was used frequently and 64% indicated that occasionally,



Asked if they felt confident to practice medicine on graduation, 14%-29% PAs indicated that felt strongly confident in their ability to practice medicine, the majority 57%-75% indicated they were confident in their ability to begin practicing, while 7%-29%

disagreed and report they were not confident, yet. Only 14% of the respondents from the University of Toronto strongly disagreed with the statement.

The respondents were asked which year had the largest impact on their ability to practice as a PA. 60% of McMaster University respondents believe that clinical rotations had the largest impact while 40% believed it was equally both the didactic and clinical years. 61% of the University of Manitoba respondents believed that clinical rotations had the largest impact while 38% believe it was equally both. 86% of the University of Toronto respondents believe that clinical rotations had the largest impact, while 14% believe it was equally both. 64% of Canadian Armed Forces believe that clinical rotations had the largest impact while 36% believe it was equally both. None of the graduate PAs believed that the education didactic phase alone had a large impact on their ability to practice as a PA.

A series of questions asked the graduates to rate their ability to perform the 12 identified EPA-PAs (appendix 1). The McMaster graduates indicated they strongly agree or agree with the ability to perform the stated EPAs. One graduate disagreed with their education's ability to recognize a patient requiring immediate care or provide appropriate management. Related to procedures, three respondents or 7% disagreed with their ability to perform procedures appropriately. One student disagreed, indicating their education did not support their ability to participate in continuing professional and patient quality improvement, life-long learning and scholarship. And, one student or 2% of respondents strongly disagreed with recognizing and advocating for the patient concerning cultural, community and social needs to support positive mental and physical health and wellness.

All respondents of the University of Manitoba, the University of Toronto, and the Canadian Armed Forces either strongly agreed or agreed with each EPA agreed or strongly agreed with each EPA. A student disagreed with their ability to participate in continuing professional and patient quality improvement, life-long learning and scholarship. Two students or 8% strongly disagreed with their preparation to recognize and advocate for patients concerning cultural, community and social needs supporting positive mental and physical health and wellness.

Survey respondents were asked how long they felt it took to feel comfortable transitioning from the academic setting as students to clinical practice as PAs? The respondents from McMaster University 16% (n=7) felt feeling comfortable in 0-3 months, with 40% (n=17) comfortable in 4-6 months, 33% (n=14) felt comfortable in 7-12 months, and 9% over 13-24 months. On average, it took nine months for McMaster University graduates to feel comfortable in their role as PAs in clinical practice.

The University of Manitoba 26 respondents reported that 19% (n=5) felt comfortable in the first three months, 23% in 4-6 months, 31% (n=8) felt comfortable inside 7-12 months, and 8% felt comfortable in the 13-24 month range. On average, it

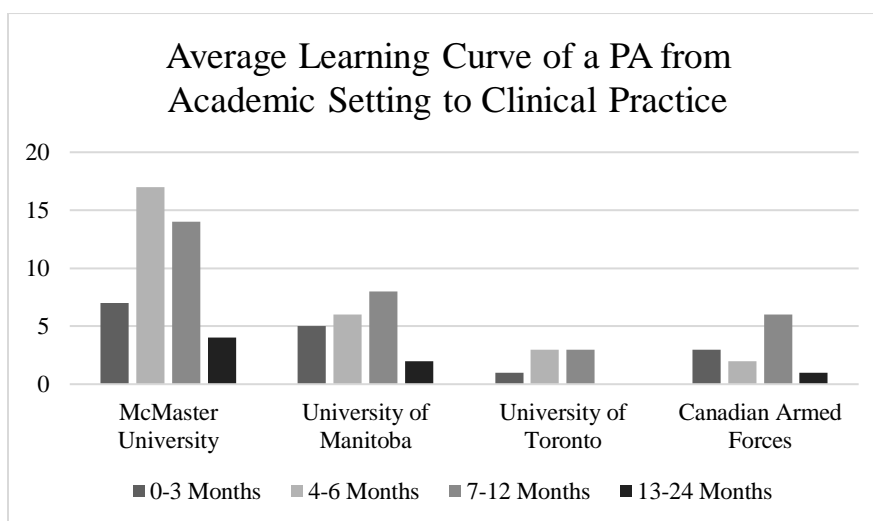
took eight months for the University of Manitoba graduates to feel comfortable in their PA clinical practice role.

The respondents from the University of Toronto reported 14% feeling comfortable in 0-3 months, 43% felt comfortable in 4-6 months, the remaining 43% in 7-12 months. The majority of the Consortium's Graduates who participated felt comfortable inside of seven months in their PA role in clinical practice. The low number of participants, seven of the ninety total participants, makes this number challenging to quantify.

On average, it took 12 months for 14 Canadian Armed Forces graduates to feel comfortable in their role as clinical PAs practice. The Canadian Armed Forces graduates indicated that 21% (n=3) felt comfortable inside of three months, while 14% (n=2) felt comfortable in 4-6 months, 43% (n=6) felt comfortable in 7-12 months, 7% (n=1) felt comfortable in 13-24 months and 7% felt comfortable in 36 months.

From the survey respondents, one graduate from McMaster University, five graduates from the University of Manitoba and one graduate from the Canadian Armed Forces were undecided for when, if ever they felt comfortable. The student who never felt comfortable accounts for the small discrepancy between percentage and student number used in the description of results.

An attempt was made to compare four years of the Canadian National PA Certification Examination (2016-2019) results. As the raw data is not shared or published, composite measures related to National Averages indicated a less than a 4% variation from the mean between programs reported average test scores. The small number of exam writers per year challenges the psychometricians in interpretation of trends. This 4% number was derived from the Accreditation report provide to each Program Director.



Discussion

There was a wide range of distribution of responses from each institute. Most respondents identified as McMaster University graduates, whereas the least number of respondents were from the PA Consortium (University of Toronto). This variation impacted the study results as it was difficult to attribute any trends with institutes that had lower response rates. Moreover, the low respondent rate made it difficult to compare responses across institutes. There was an expected normal distribution of institutes' responses with a more statistically significant number of responses from McMaster University and the University of Manitoba.

Respondents selected the resources made available to them by their program and to rank the frequency of each resource they used to support their education. The rationale behind this survey item was to determine if a PA program emphasized specific resources over others. The cut-off used for each survey item was that if more than 60% of respondents agreed on a survey item, it was deemed a resource emphasized by their program (12).

McMaster University and the UManitoba responding students agreed that case-based discussions and standardized patients were the most common resource emphasized by the program and frequently used as an educational resource. The Consortium for PA Education students indicated online courses and lectures were the program's most common resource. Understandable as reflective of the distributed education model for the bulk of the academic material. Standardized patients were not used frequently by the UofT Consortium effort, and their PA students indicated more case-based discussions occurred online. The Canadian Armed Forces Health Services respondents selected certification training and lectures as the program's most common resource.

The study's key element involved asking PAs about their confidence to practice medicine before their clinical rotations as all the PAs had different academic first-years designs. We were determining whether there was a difference in confidence levels before the PA program's second year. We expected similar response patterns when asking about confidence in practicing medicine at graduation. Regardless of their program, all PAs agree that their education was impacted mainly by clinical rotations. A smaller amount indicted both their clinical rotations and didactic education equally contributed. No respondent believed that their didactic phase alone had a large impact on their ability to practice as a PA. However, without baseline didactic knowledge, it is doubtful that the clinical year alone would have much value. When comparing their confidence in practicing medicine at graduation, most respondents felt confident in practicing medicine equally from all institutions.

Are PAs confident in performing the 12 EPA-PAs listed by the Canadian Association of Physician Assistants? Respondents rated their ability to perform the 12 EPA-PAs. The majority of respondents agreed or strongly agreed with their ability to

perform each identified EPA. There were no trends noted and no significant outliers in this study.

On average, it took McMaster University graduates nine months, UManitoba eight months, seven months for the Consortium (University of Toronto) graduates, and twelve months for Canadian Armed Forces graduates. Due to the varied number from each group and the different employment patterns of the civilian university and military graduates, it is not easy to attribute any significance of each program's training design to the length of time it takes to transition to clinical practice. The more extended comfort level for CAF graduates is likely related to the Military PAs' clinical environments. The high-pressure environment with remote practice and distant medical supervision are not comparable to most practicing civilian PAs. However, further research is required.

In summary, PAs from each program reported using the same teaching design emphasized by their program to support their ongoing practice education. PAs stated that their clinical rotations had the most considerable impact on their PA education. There was little observed difference between confidence or comfort in practicing medicine between academic year one to clinical year two and the transition from student to graduate PA clinical practice. Lastly, all PAs were confident in performing the EPA-PAs, suggesting that their training programs trained them adequately.

Study Limitations

This study examined how teaching designs influence PA learning and transfer-of-learning to clinical practice. The intention was to identify if any gross patterns emerged from each institute rather than each response.

The National PA Certification Exam Results are not public and that measures of academic performance restricted. Inability to access that statistical material and comparison of program results was influential in the approach taken in this study.

The respondent rate and variation from each institution were a limitation to this study. Forty-three McMaster University opposed seven from the PA Educational Consortium (Uof Toronto), making it challenging to attribute any significant data and generalize it to an entire program.

Another limitation is that the survey was unable to address trainee characteristics and work-environment factors, essential variables to consider when assessing transfer-of-learning and the outcomes of PA performance. For example, a student with high motivation, limited learning barriers, and a supportive environment when learning will have a different experience than a student who does not have the same variables. These variables can differ from student to student in the same class. Thus, it is difficult to capture these variables across a wide array of students, classes and programs if only a few graduates respond to the survey.

We acknowledge that this study data was subjective, relying on self-reporting data. This results in a variation or interpretation of experiences over time. New memories can replace or distort previous memories. There may be an unintended discrepancy for PAs who respond to the survey a year after graduation versus six years after graduation.

This study explored the PA's self-perception of clinical skills, rather than providing objective measures that can quantify a PA's clinical performance—correlating the perception of a PA's competency vs their supervising physician's perception of the PA's competency. Determining the supervising physicians' expectations of the PAs ability to transfer the skills learned from formal training into clinical practice. How confident are supervising physicians' with the medical knowledge, medical procedures and patient care competencies that the novice PA received from their respective institute?

Conclusion

In this study, even though each program has its unique training design, notable trends were not documented from across the PA programs in Canada. Currently, Canada has four approaches to PA Education, including a graduate degree, problem-based learning, distributed education, and traditional lecture-based approaches. This study of PA Graduates reports that those respondents feel their educational efforts successfully prepare them to enter clinical practice as a Physician Assistant.

PAs are well known to increase the efficiency of the healthcare system. However, Canada is lagging behind in employing PAs to maximize potential compared to other countries (13). Understanding PA education will help better understand the high-quality, yet condensed, training results in producing efficacious PAs. Shared resources and information can increase support for PA programs by providing evidence that many different educational approaches can share success in providing high-quality generalist medical care practitioners for our communities.

In summary, it appears that it matters less about how you are presented the material than the material presented. Canada's Four Physician Assistant Education Programs are unique in their individual approaches, but from a student perspective, united in their educational success.

The Entrustable Professional Activated for Physician Assistants (EPA-PA)

https://umanitoba.ca/faculties/health_sciences/medicine/education/paep/about_us/about.html

Physician Assistant education prepares a medical generalist adaptable to any clinical environment including primary health care, specialty practice, consulting or hospital-based roles. PAs will over time develop increased knowledge of a medical or surgical specialty, building their scope of practice to mirror that of the physician within a trust centred relationship.

- PA-Graduates must be ready for generalist medical practice within a formalized structure of indirect physician supervision.
- Graduate EPA-PAs are individually and longitudinally assessed over the course of the PA-Students' education.
- Observation of these EPA-PAs, performed while a student, have occurred in a variety of clinical encounters, across all patient populations, clinical environments, and cultural settings.
- The assessments of the PA-Graduate include multiple members of the medical, educational team.
- 1. Obtain a history and perform a physical examination adapted to the patient's clinical situation.
 2. Form clinical questions and gather clinical evidence that advances patient care, and communicate those results to the patient and medical team.
 3. Formulate and prioritize differential diagnoses.
 4. Develop and implement patient-centred therapeutic plans within the formalized physician and clinical team relationship.
 5. Accurately document and report clinical encounters with members of the patient care team.
 6. Collaborate as a member of an inter-professional team in all aspects of patient care and transition of care responsibility.
 7. Recognise a patient requiring immediate care, providing the appropriate management and seeking help as needed.
 8. Perform procedures identified in the CanMEDS-PA Medical Expert competencies.
 9. Participate in continuing professional and patient quality improvement, life-long learning, and scholarship.
 10. Engage and educate patients on procedures, disease management, health promotion, wellness, and preventive medicine.
 11. Recognise and advocate for the patient concerning cultural, community, and social needs in support of positive mental and physical health and wellness.
 12. Practise patient-focused safe, professional, competent medical care.

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SURVEY QUESTIONNAIRE**SECTION A: Demographic Information**

1. From which Physician Assistant Education Program did you graduate?
 - a. McMaster University
 - b. Consortium for PA Education (NOSM, UofT, Michener Institute)
 - c. University of Manitoba
 - d. Canadian Armed Forces
2. What was your education level prior to starting PA school?
 - a. Bachelor Degree in Progress
 - b. Bachelor of Arts
 - c. Bachelor of Science
 - d. Masters
 - e. PhD
 - f. Other: _____
3. What was your cumulative GPA percentage before starting the PA program?
 - a. 70%-75%
 - b. 75%-80%
 - c. 80%-85%
 - d. 85%-90%
 - e. 90%-100%
4. How many months have you been practicing as a Physician Assistant? _____ months
5. What healthcare setting are you currently working in?
 - a. Surgery
 - b. Family Medicine
 - c. Emergency
 - d. Psychiatry
 - e. Hospitalist
 - f. Rehabilitation or Long-term care
 - g. Rural – Generalist
 - h. Rural – Surgery
 - i. Pediatrics
 - j. Medical Specialty Clinic
 - k. Other (please specify):

SECTION B: Education Didactic Phase

1. Which of the following resources did your program use to support your education? Select all that apply:
 - a. Reading general medical/ PA journal
 - b. Certification training: ATLS, ACLS, PALS etc.
 - c. Lectures
 - d. Patient-care conferences
 - e. Online courses
 - f. Teaching rounds
 - g. Simulation training

- h. Skills training in anatomy lab
 - i. Case-based discussions
 - j. Case presentation
 - k. Standardized patients
2. How often did you use the following resources to support your education?
 - a. Reading general medical/ PA journal
 - b. Certification training: ATLS, ACLS, PALS etc.
 - c. Lectures
 - d. Patient-care conferences
 - e. Online courses
 - f. Teaching rounds
 - g. Simulation training
 - h. Skills training in anatomy lab
 - i. Case-based discussions
 - j. Case presentation
 - k. Standardized patients
 - i. Frequently
 - ii. Occasionally
 - iii. Rarely
 - iv. Never
3. Scale your agreement with the following statement: *At the end of the first year, I felt confident in practicing medicine during my clinical rotations (i.e. second year of PA school).*
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree

SECTION C: Education Clinical Rotation Phase

1. What percentage of your supervising physicians positively supported your growth and learning as a PA?
 - a. <50%
 - b. 50-75%
 - c. 75-90%
 - d. >90%
2. Scale your agreement with the following statement: *At graduation, I felt confident to practice medicine as a PA.*
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree
3. Which year had the largest impact on your ability to practice as a PA?
 - a. Education didactic phase
 - b. Clinical rotations
 - c. Equally both

d. Additional comments: _____

SECTION D: Current Clinical Site

1. How many months did it take for you to be comfortable in your first role as a certified PA:
_____ months
2. Scale your agreement with each of the following statements:
I feel confident and knowledgeable in performing the following tasks:
 - a. obtaining a history and performing a physical examination adapted to the patient's clinical situation
 - b. forming clinical questions and gathering clinical evidence that advances patient care, and communicating those results to the patient and medical team
 - c. formulating and prioritizing differential diagnoses
 - d. developing and implementing patient-centered therapeutic plans within the formalized physician and clinical team relationship
 - e. accurately documenting and reporting clinical encounters with members of the patient care team
 - f. collaborating as a member of an inter-professional team in all aspects of patient care and transition of care responsibility
 - g. recognising a patient requiring immediate care, providing the appropriate management and seeking help as needed
 - h. performing (the majority of) procedures identified in the CanMEDS-PA Medical Expert competencies
 - i. participating in continuing professional and patient quality improvement, life-long learning and scholarship
 - j. engaging and educating patients on procedures, disease management, health promotion, wellness and preventive medicine
 - k. recognizing and advocating for the patient concerning cultural, community and social needs in support of positive mental and physical health and wellness
 - l. practicing patient-focused safe, professional, competent medical care
 - (i) Strongly agree
 - (ii) Agree
 - (iii) Disagree
 - (iv) Strongly disagree
3. Scale your agreement with the following statement: in comparison, the first three months practicing at my clinical site with my supervising physician prepared me better than the education material from my PA program.
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree
4. Scale your agreement with the following statement: My current supervising physician should trust my competency.
 - a. Strongly agree
 - b. Agree

- c. Disagree
 - d. Strongly disagree
5. How much autonomy does your current supervising physician give you?
- a. Very little
 - b. The right amount
 - c. Too much

SECTION E: Previous Healthcare Experience

1. Were you a licensed healthcare provider with clinical experience before PA education?
 - a. Yes, please specify: _____
 - i. How many months did you assume this role? ____ months
 - b. No
2. Scale your agreement with the following statement: My previous healthcare profession helped better prepare me for practice as a PA.
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree
 - e. Additional comments: _____
3. Did you have any of these skill sets prior to PA school? Select all that apply:
 - a. obtaining a history and performing a physical examination adapted to the patient's clinical situation
 - b. forming clinical questions and gathering clinical evidence that advances patient care, and communicating those results to the patient and medical team
 - c. formulating and prioritizing differential diagnoses
 - d. developing and implementing patient-centered therapeutic plans within the formalized physician and clinical team relationship
 - e. accurately documenting and reporting clinical encounters with members of the patient care team
 - f. collaborating as a member of an inter-professional team in all aspects of patient care and transition of care responsibility
 - g. recognising a patient requiring immediate care, providing the appropriate management and seeking help as needed
 - h. performing (the majority of) procedures identified in the CanMEDS-PA Medical Expert competencies
 - i. participating in continuing professional and patient quality improvement, life-long learning and scholarship
 - j. engaging and educating patients on procedures, disease management, health promotion, wellness and preventive medicine
 - k. recognizing and advocating for the patient concerning cultural, community and social needs in support of positive mental and physical health and wellness
 - l. practicing patient-focused safe, professional, competent medical care

