

# PHYSICIAN ASSISTANT INVOLVEMENT IN HEALTH ADVOCACY, HEALTH PROMOTION AND DISEASE PREVENTION: A SCOPING REVIEW

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## ABSTRACT

**Introduction:** Physician Assistants (PAs) have been integrated into the Canadian healthcare system to improve patient access and clinical efficiency. The CanMEDS-PA framework describes the PA as a health advocate, but the current extent of PA involvement in health advocacy has not been delineated. A scoping review was conducted to investigate PA participation in health advocacy, health promotion and disease prevention initiatives.

**Methods:** An electronic literature search was conducted using Web of Science, PubMed, CINAHL, OVID (Embase and MEDLINE) and Cochrane databases. Broad eligibility criteria were used to include publications involving PAs or PA students who participated in health advocacy, health promotion and disease prevention initiatives globally.

**Results:** 297 records were identified; 14 met the inclusion criteria. Publications included cross-sectional studies, surveys, program evaluations, clinical framework development,

and patient education handouts. Topics included cancer screening, chronic disease management, adolescent health promotion and stroke prevention. All records were published in the United States. There was an overall positive contribution of PAs to health advocacy, health promotion and disease prevention. Several specific limitations were noted related to procedural techniques and continuity of practice.

**Conclusion:** Global research on PA involvement in health advocacy, health promotion and disease prevention is limited and focuses on a small subset of medicine (cancer screening) in one geographical area (United States). Data show that PAs are effective health advocates, but more reporting is needed to guide expansion of the PA role and to inform policy in Canada and globally.

**Keywords:** Physician Assistants; health promotion; health advocacy; disease prevention; health system; scoping review

## Introduction

Physician Assistants (PAs) are healthcare professionals who work collaboratively with physicians to provide medical care.<sup>(1)</sup> They work in a variety of healthcare settings conducting patient assessments, performing diagnostic and therapeutic interventions and counselling patients on preventive health care.<sup>(1)</sup> PA history dates back to the mid-1960s in the United States (U.S.), where military medics were integrated into a civilian role to address the issue of patient access to primary care.<sup>(2)</sup> The role has since expanded widely in the U.S. with over 100,000 PAs practicing in primary care, surgical subspecialties, emergency medicine and internal medicine subspecialties.<sup>(3)</sup> Globally, versions of the PA role have been adopted in

Canada, the United Kingdom, Australia, the Netherlands, Kenya, New Zealand, Nicaragua, Taiwan and Thailand, while several other nations continue to explore the role and create plans for implementation.<sup>(4)</sup> The PA role has a rich history within the Canadian Forces, &quot;but it is not until 2008-2010 that the first three civilian PA education programs launched at McMaster University, the University of Manitoba and The Consortium of PA Education (University of Toronto, Northern Ontario School of Medicine and The Michener Institute for Education).<sup>(5)</sup> One education program is within in the Canadian Forces. In 2018, there are over 800 Canadian Certified Physician Assistants (CCPAs)<sup>(6)</sup> and roughly 160 students enrolled<sup>(7)</sup> in the four Canadian PA programs. The PA role continues to grow and capture the interest of physician groups,<sup>(8,9)</sup> hospital associations<sup>(10)</sup> and government bodies<sup>(11,12)</sup> looking for innovative ways to improve healthcare access, quality of care, clinical efficiency and cost-effectiveness.

The Canadian Association of Physician Assistants (CAPA), with the support of The Royal College of Physicians and Surgeons of Canada (RCPSC) and the College of Family Physicians of Canada (CFPC), developed the CanMEDS-PA framework, which outlines the required competencies of Canadian PAs entering into practice. This framework defines the PA as a Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar and Professional.<sup>(13)</sup> Under the Health Advocate role, PAs participate in health promotion, disease prevention and advocacy initiatives to advance the health of patients, communities and populations. However, beyond the role description, the extent of this participation has not been delineated. The available, but limited, Canadian PA research has mainly focused on clinical efficiency and cost savings in relation to the implementation of the PA role.<sup>(14-18)</sup> This scoping review sought to identify and summarize publications reporting on PA involvement in health advocacy, health promotion and disease prevention initiatives across all areas of medicine globally to better understand how the PA role can be optimized in healthcare settings and to identify future avenues for research and practice.

## Methods

We conducted a scoping review<sup>(19)</sup> to examine the extent and nature of research activity and summarize findings on the topic of PA involvement in health advocacy, health promotion and disease prevention. Given the anticipated heterogeneity in study types and the paucity of randomized controlled trials, a scoping review design was chosen.<sup>19</sup> This design allows for a broader range of articles to be included and accounted for in the interpretation and would more effectively allow us to identify gaps in the literature. We utilized elements from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement and the Cochrane Effective Practice and Organization of Care (EPOC) tools as guides in our scoping review.<sup>(20, 21)</sup>

## Data Sources

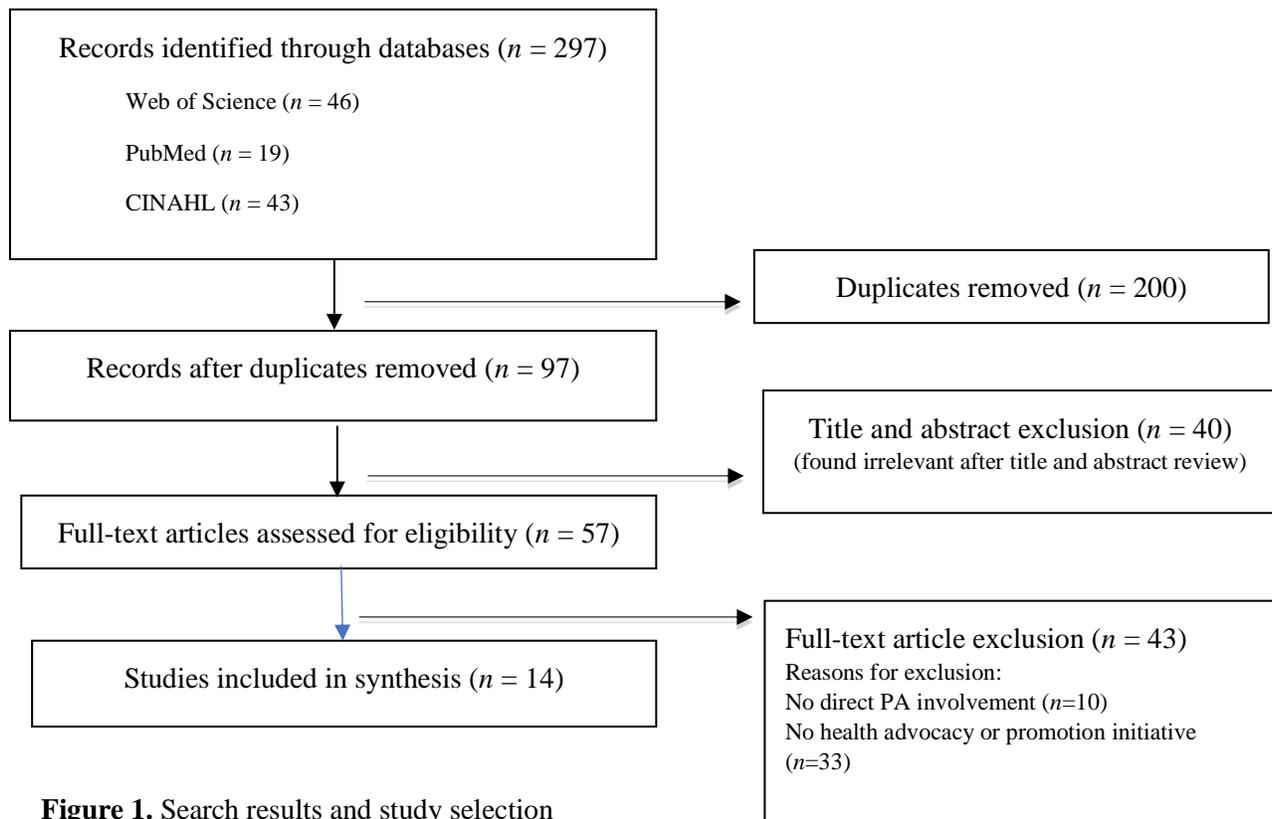
We performed an electronic literature search of Web of Science, PubMed, CINAHL, OVID (Embase and MEDLINE) and Cochrane databases from 1965 to July 13, 2016, corresponding to the earliest known introduction of PAs in the U.S. to the present. We used search terms to capture the PA role (e.g., physician assistant, physician associate, non-physician, mid-level, non-MD) and the nature of the intervention (e.g., health promotion, patient education, counseling, intervention, prevention, advocacy, information session, teaching, screening), appropriately modified for each database. Furthermore, German and Spanish-speaking healthcare practitioners were asked for terms identifying PAs in these languages, and Google translate was used to find other search terms. None of these yielded further articles

in test searches, so these were not added to the final search strategy. The search strategy is summarized in Appendix 1.

**Inclusion Criteria and Data Extraction**

We included all publications reporting PA or PA student involvement in health advocacy, health promotion or disease prevention initiative in any area of medicine globally. All study designs and publication types were included, whether or not direct outcomes were reported, to allow for a more thorough qualitative assessment. There were no exclusions based on language.

One author reviewed article titles and excluded irrelevant publications. Two authors independently reviewed abstracts and full texts of the remaining articles to determine eligibility for inclusion. A third reviewer was available to settle disagreements between the two independent reviewers. We used a standardized data extraction form adapted from Cochrane EPOC<sup>(21)</sup> to independently retrieve information from each article (this form is available from the authors upon request).



**Figure 1.** Search results and study selection

**Data Synthesis and Analysis**

For quantitative studies, we identified all outcome measures used. Due to the variation of study designs and reported outcomes, all outcome measures, where available, were listed. For qualitative studies, we looked for descriptions of the PA role in the intervention and summarized the PA’s involvement. The team reviewed the summaries of the findings and developed themes to group the data.

**Results**

**Study characteristics**

We identified 297 records through the electronic database searches; no additional records were identified through reference searches. Duplicates were removed. Forty articles were excluded based on the title and abstract review, and a further 43 articles were excluded based on the full-text review. Reasons for exclusion included no direct PA involvement and no health advocacy or promotion initiative described (Figure 1).

The 14 included studies varied in publication type: 7 were cross-sectional studies,<sup>(22-28)</sup> 4 were survey analyses,<sup>(29-32)</sup> one was a clinical framework,<sup>(33)</sup> one was an evaluation of a training program<sup>(34)</sup>, and the remaining publication was a patient education handout developed by a PA.<sup>(35)</sup> There were no Canadian studies; all 14 articles were produced in the United States. Topics addressed in the articles included cancer screening (n=10), chronic disease management (n=2), stroke prevention (n=1) and adolescent counseling (n=1). The characteristics of the included studies and outcomes, where available, are included in Table 1.

<b>Table 1.</b> Summary of the studies included in the scoping review						
<b>Study</b>	<b>Publication Type</b>	<b>Area of Medicine</b>	<b>Setting/ Year</b>	<b>Description of Initiative</b>	<b>Outcome Measures</b>	<b>Results / Conclusions</b>
Anonymous/ JAAPA (2005)	Patient handout	Stroke Prevention	USA, General Public, 2005	PA prepared a hand-out on stroke prevention.	none	PA discussed stroke risk reduction and role of PA as a partner in healthcare.
Grimstedt (2012)	Survey analysis	Chronic disease management	American Academy of NPs meeting and Arizona Association of PA meeting or surveys completed online, 2010	PA's (n=78) and NP's (n=240) primarily in Arizona completed a questionnaire about physical activity counselling practices.	Modified Promotion of Physical Activity by NPs Questionnaire, 34 items	NP's: 75% and PA's: 64% reported routinely counselling patients about physical activity. No differences were found in perceived knowledge or confidence. Most were interested in additional training.
Herman (2015)	Clinical framework	Chronic disease	The USA, AAPA Panel	AAPA convened a six-member panel including 5 PA's to develop a	none	Four-step diagnostic and treatment model proposed. PA's can be directly involved in

		management	Discussion, 2015	framework for overweight and obesity treatment.		implementing the model.
Horton (2001)	Cross-Sectional study	Cancer screening-colorectal	Harvard Vanguard Medical Associates, Massachusetts, 1995-1997	Average-risk patients (aged 50+) were screened by physicians and NP/PA endoscopists using flexible sigmoidoscopy. 9500 screening procedures were evaluated.	Differences in technique, detection and complications for exams performed by non-physicians (PAs and NPs) vs physicians	The small difference in depth of exam by physicians vs. non-physicians deemed not clinically significant. No difference in rates of polyp detection. Costs for performing flexible sigmoidoscopy by NPs and PAs 33% less than gastroenterologists. No major complications in exams performed by PAs and NPs compared to physicians.
Kepka (2014)	Cross-sectional study	Cancer screening-general	The USA, National Health Interview Survey (NHIS), 2010	NHIS analyzed to examine provider type and cancer screening practices (n=26716).	Patient compliance rates and rates of screening	Integrating APRN/PA into primary care can assist with delivery of guideline-consistent cancer prevention and screening services.
Lawvere (2006)	Cross-sectional study	Cancer screening-lung	Western New York State, USA, 2001	PAs (n=280) in New York completed cancer screening survey.	Demographics, practice characteristics, counselling practices	96-100% PAs would appropriately counsel tobacco users in ambulatory settings. PAs were interested in further counselling education.
Lin (2007)	Cross-sectional study	Cancer screening-general	New York State, 2003	The screening provided by physicians, PAs, NPs analyzed	Procedure coding system to determine	Mammograms and PAPS performed more frequently by NPs, PAs than by MDs only. PSA screening

				using Medicare Claims.	screening rates	rate higher in MDs only, than PAs and NPs (38.2% vs 26.8%). FOBT rates are similar.
Oliveria (2002)	Survey analysis	Cancer screening-skin	American Board of Medical Specialists Directory of Board Certified Medical Specialists, 1999	Survey of MDs (n=1363) to determine physician use and amenability to use of nonphysician providers in skin cancer screening.	The frequency of use and amenability	46% of physicians reported NP or PA involvement in skin cancer screening. 73-79% of family physicians and 60-70% of internists were amenable to use of nonphysician providers for skin cancer screening.
Pabby (2002)	Cross-sectional study	Cancer screening-colorectal	Boston, MA, USA, unknown period	Flexible sigmoidoscopy (FS) performed by gastroenterologist or NPE (PA or NP) endoscopist in general and elderly (75+ years) populations.	The technique, bowel preparation adequacy, procedure limitations, complications and endoscopic findings	NPE and MD performed an equivalent number of procedures in both general and elderly populations. NPE had more incomplete exams in elderly population than MD (18.8% vs 5.6%, p=0.05) & reported more limitations compared to physician endoscopists in elderly and general screening populations. There was no explanation provided for these deficiencies. There was no difference in complication rate and polyp/carcinoma detection rates between NPE and MD. NPE should remain an option for screening,

						but larger studies are needed.
Redwood (2009)	Training program evaluation	Cancer screening-colorectal	Alaska Native Medical Center Anchorage Alaska 2005-2007	NPs, PAs and osteopathic doctors (total n=6) trained to perform flexible sigmoidoscopy and returned to the home facility.	Training completion, flexible sigmoidoscopy screening clinic establishment at home facility, a continuation of screening services	All six trainees completed the training program. Five established screening clinic at home facility; one did not as facility preferred colonoscopy. Four programs were then discontinued due to provider leaving the state or other facility/clinical priorities. Training was the successful but regional implementation of services difficult. The shift has focused on providing rotating screening field clinics instead of maintaining trained providers in the community.
Ruff (2012)	Cross-sectional study	Adolescent counseling	Child Health Associate/ PA Program, Colorado High Schools '05-'10	PA students (n=268) presented health promotion topics to adolescents & young adults (n=791).	Qualitative analysis of comments, Likert scales	82% of attendees learned new information, 42% interested in topics, 60% requested future presentations.
Sansbury (2003)	Survey analysis	Cancer screening-colorectal	USA, National Cancer Institute (NCI) Survey of Colorectal Screening	PCPs, gastroenterologists and general surgeons estimated the prevalence and predictors of physicians' use of NPs and PAs for	Prevalence of use of NP or PA for FOBT screening, flexible sigmoidoscopy and colonoscopy	Results show the current use of PAs and NPs in different types of CRC screening is limited. 15% of general surgeons, 40% of PCPs and 60% of gastroenterologists agreed these providers

			Practices, 1999-2000	CRC screening with FOBT.		could perform flexible sigmoidoscopy.
Shaheen (2000)	Survey analysis	Cancer screening-colorectal	North Carolina, USA, 1997-1998	NPs (n=827) and PAs (n=1178) licensed by the Medical Board of the State of North Carolina surveyed.	Prevalence of NP or PA in performing CRC screening with flexible sigmoidoscopy and FOBT screening	95% of PAs and 92% of NPs reported performing FOBT screening. 3.8% of primary care PAs performed flexible sigmoidoscopy. PAs and NPs underutilized in CRC screening, but are interested in obtaining formal training in flexible sigmoidoscopy.
Wallace (1999)	Cross-sectional study	Cancer screening-colorectal	Outpatient CRC program at Harvard Vanguard Medical Associates, Massachusetts 1995-1997	Asymptomatic, negative FOBT/history offered sigmoidoscopy with nonphysicians or gastroenterologist. Data from 9500 screening procedures analyzed.	Prevalence of exams, differences in technique, detection and cost in nonphysicians vs. physicians	No significant differences in rates of polyp detection by physicians (23%) and non-physicians (27%). Total cost per exam was higher per physician (\$283 vs. \$186). Trained PA/NP performed flexible sigmoidoscopy with similar quality but lower cost.

AAPA= American Academy of Physician Assistants, APRN= Advanced Practice Registered Nurse, CRC= Colorectal Cancer, FOBT= Fecal Occult Blood Test, JAAPA=Journal of the American Academy of Physician Assistants, NP= Nurse Practitioner, NPE= Nonphysician Endoscopist, PAP= Papanicolaou test, PCP= Primary Care Physician, PSA= Prostate-Specific Antigen

This scoping review revealed the limited availability of research globally in the area of PA involvement in health advocacy, health promotion and disease prevention. The referenced studies were United States publications mainly from a small subset of medicine (cancer screening). There was a mix of quantitative and qualitative research at Level II or below using the Oxford Centre for Evidence-Based Medicine Guidelines quality index.<sup>(36)</sup> PA initiatives included: developing a patient education handout; counselling patients on physical activity; developing guidelines for chronic disease management; performing cancer screening procedures; counselling patients on smoking cessation; and presenting health promotion topics to adolescents.

Overall, the limited available quantitative results showed that PAs had similar health promotion

and disease prevention practices as physicians. Safety and efficacy profiles were similar to those of physicians while the cost of providing interventions, where reported, was lower for PAs. Qualitative studies indicated that PAs were engaged health partners to patients and healthcare providers, having the skills needed to participate in advocacy initiatives. This finding is consistent with the competencies outlined in the CanMEDs-PA framework.

Three publications reported three deficiencies in PA practice related to specific procedural techniques, practice continuity and screening test selection. One study<sup>(26)</sup> found that non-physician providers (including PAs) had incomplete flexible sigmoidoscopy exams in an elderly population and reported more limitations compared to physician endoscopists in both elderly and general screening populations. No further details were provided for the cause of these deficiencies. There was no difference reported in complication rate and polyp or carcinoma detection rates for completed studies. The study concluded that non-physician providers should remain an option for colorectal cancer screening. However, more extensive studies are required to confirm the findings. Another study<sup>(34)</sup> reported that although PAs were successfully trained to perform flexible sigmoidoscopy for colorectal cancer screening, they were unable to maintain the screening programs due to discontinuation of employment or facility restrictions. A third study<sup>(25)</sup> found that PAs and NPs effectively used mammograms, Papanicolaou (PAP) and Fecal Occult Blood (FOB) tests for cancer screening and indicated a lower rate of Prostate Specific Antigen testing compared to physicians. Notably, guidelines on PSA screening have changed since the publication of this article, changing the context of these findings.

## Discussion

Despite the limitations of these studies, the overall conclusion from our review is that PAs can be trained for and integrated into health advocacy, health promotion and disease prevention roles effectively. In several reports, PAs expressed an interest in accessing more health promotion training opportunities to enhance their skills. Through more specialized training, the discussed deficiencies can be addressed and minimized or eliminated. With regards to the financial and institutional restrictions impeding PA health advocacy and health promotion practices, sustainability and funding models should be introduced to allow for employment and maintenance of PA services. Several Canadian studies<sup>(14-18)</sup> demonstrated that PAs are clinically efficient and cost-effective medical providers; this data needs to be utilized more effectively to guide the expansion of the PA role in healthcare facilities.

We are not aware of any other scoping or systematic reviews looking specifically at PA involvement in health advocacy, health promotion and disease prevention. With the ongoing growth and expansion of the PA role in North America and globally, it is anticipated that more focused research will become available in the upcoming years, allowing for more rigorous reviews and detailed data analyses. Our review is limited mainly by two factors: the search terms may not have been broad enough to capture all relevant papers, and the limited available research base may have led to incomplete conclusions. Physician Assistants are identified differently in non-English languages so we may not have captured international studies on this subject, although the authors attempted to find other terms used.

## Conclusion

We conclude there is a need for more reporting on the involvement of PAs in health advocacy, health promotion and disease prevention. PAs and their supervising physicians need to take an active role, especially here in Canada where the PA profession is still in development, to report on daily practices of PAs in the areas of health advocacy, health promotion and disease prevention. Research should focus on observational studies or randomized-controlled trials examining the impact of the PA role on screening rates, patient access to counselling services, and chronic disease outcomes. It is anticipated that future data will show a positive trend of PA participation in health advocacy with cost-savings to the system, but documented accounts and published research are needed to inform provincial, national and global policy that would facilitate PA access to funding sources and expanded practice opportunities. Finally, PA education programs and continuing medical education administrators should focus on providing further focused health counselling and advocacy training opportunities for PAs to support their ongoing learning and professional development.

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