

**An Evaluation of the Impact of Physician Assistants on the Productivity and Quality of
Care in an Out-Patient Clinical Setting**

Kayla Campbell PA-S, BSc.

7891921

campb178@myumanitoba.ca

Supervisor: Gerald Brennan MD, FRCPC

A capstone project submitted to the Faculty of Graduate Studies of the University of Manitoba in
partial fulfillment of the requirements for the degree of MASTER OF PHYSICIAN
ASSISTANT STUDIES

Master of Physician Assistant Studies
University of Manitoba

May 15, 2026

Abstract

Background:

Increasing numbers of physician assistants (PAs) are being integrated into the Canadian healthcare system to improve efficiency and access to care. There is limited data in Manitoba and across Canada evaluating the productivity and quality of PAs in an out-patient setting.

Objective:

To evaluate PA productivity and quality in an outpatient urgent care style setting at “the Minor Illness and Injury Clinic” (“TMIIC”) in Winnipeg, Manitoba.

Methods:

A survey was used to collect quantitative and qualitative data from physicians comparing practice with and without a PA. Quantitative data including patient per hour and walk-in patient volume were collected over a two-year period and analyzed using the Wilcoxon signed-rank test. Qualitative data included Likert-scale assessments of PA productivity and quality, likelihood of accepting procedural patients and open responses that were analyzed using reflexive thematic analysis.

Results:

Working with a PA was associated with physicians managing 51% more patients compared to working alone ($p = 0.016$). Physicians were approximately twice as likely to accept a walk-in patient when working with a PA than if working alone ($p = 0.016$). Physician perception of PA productivity and quality was overall positive, with some variability in the formation of differential diagnoses and chronic disease management. Most physicians supported increasing the number of PAs in the healthcare system, citing *improved clinical efficiency and access to care* while identifying *challenges in PA training and retention* as the main barrier.

Conclusion:

This study demonstrates that the addition of PAs to an out-patient urgent-style clinic resulted in a significant increase in the number of patients seen. Physicians in this study perceived positive impacts on both productivity and quality of patient care when PAs were involved. PAs improve access to care for patients attending TMIIC and there would likely be similar outcomes in other out-patient settings. This supports the expansion of PA practice in Manitoba.

Table of Contents

Title Abstract	i
Abstract	ii
Table of Contents	iii
 1. Introduction	 5
1.1 The Challenge to Accessing Healthcare in Canada	5
1.2 Existing Evidence on the Impact of Physician Assistants on Healthcare	5
1.3 Purpose of the Study	6
1.4 Definitions	6
1.5 “The Minor Illness and Injury Clinic” (“TMIIC”)	7
 2. Study Objectives	 7
2.1 Primary Objective	7
2.2 Secondary Objectives	8
2.3 Research Questions	8
 3. Methods	 9
3.1 Study Design	9
3.2 Data Collection: Physician Survey	9
3.3 Data Collection: Patient Volumes	9
3.4 Data Analysis.....	10

4. Results	12
4.1 Physician Demographics	12
4.2 PA Productivity	12
4.3 Physician Perception of PA Productivity and Quality	14
4.4 Qualitative Themes	17
5. Discussion	18
5.1 Physician Demographics	18
5.2 PA Productivity	19
5.3 Physician Perception of PA Productivity and Quality	19
5.4 Physician Perception of PA Productivity and Quality	20
5.5 Qualitative Themes	22
5.6 Limitations.....	23
6. Conclusion	24
7. Funding	25
8. References	25
9. Appendix	26

1. Introduction

1.1 The Challenge to Accessing Healthcare in Canada

Canada is in a healthcare crisis; depending on the region, between 9.4% and 75% of Canadians lack access to a family physician (1). Of Canadians with a family physician, only 43% can get a same or next day appointment (1, 2). Beyond this issue, Canada has one of the longest wait times in accessing the emergency department and medical specialists (2). The integration of Physician Assistants (PAs) into Canadian healthcare is a strategy that can improve access to healthcare and combat barriers to care. Like physicians, PAs are licensed healthcare providers with the ability to practice medicine. While PAs must practice under the supervision of a physician, they can work in many medical areas including primary care, specialty, critical and community-based care. Given the versatility of PAs, there is significant potential for them to benefit the Canadian healthcare system. Developing an understanding of the productivity and quality of care that PAs may bring to Canadian healthcare is important to increasing their presence in the Canadian healthcare system.

1.2 Existing Evidence on the Impact of Physician Assistants on Healthcare

In the United States (“U.S.”), PAs are well-established. There, studies have shown that physicians report positive perceptions of PAs in relation to their clinical practice (3). U.S. research also demonstrates that PAs improve healthcare delivery, patient outcomes and physician workload (3). In Canada, limited data on physician perception of PA productivity and quality is available. One Ontario study evaluated physician perception of PAs and concluded that most physicians believe that PAs decrease patient wait times, improve physician well-being, increase productivity and improve the quality of care provided (4).

In Manitoba, there are few studies on the value of PAs. One study found that PAs increased access to healthcare, efficiency, quality of care, workplace morale, patient safety, and teamwork (5). It also found that adding PAs to the workplace decreased stress for physician supervisors (5). Given the limited number of Canadian studies on the value and productivity of PAs, additional studies will help validate the conclusions of existing studies on PA efficacy.

1.3 Purpose of the Study

This study uses a survey to evaluate the productivity and quality of PAs at an out-patient clinic in Winnipeg, Manitoba. Its results aim to evaluate the impact that PAs have on productivity and quality of care, as well as develop an understanding of the physician perception of PAs in an out-patient clinical setting. Ultimately, the results of this study may inform resource allocation, role expansion for PAs and provide insight into barriers PAs face in Manitoba.

1.4 Definitions

In this study, **productivity** is defined as the PA's effect on the physician's workload. It also considers the physician's perception of a PA's efficiency. **Quality** is defined as the physician's perception of the PA's clinical acumen in the accuracy of diagnoses, their communication and collaboration within the healthcare team, and the physician's estimate of patient satisfaction with each PA encounter.

1.5 “The Minor Illness and Injury Clinic” (“TMIIC”)

“The Minor Illness and Injury Clinic” (“TMIIC”) is an out-patient medical clinic in Winnipeg, Manitoba. TMIIC is an appointment-based, urgent care style clinic staffed by emergency room physicians and nurses who provide similar services to the emergency room or urgent care. Services provided include assessment, diagnostic imaging, minor surgical procedures and fracture management. TMIIC is targeted toward patients suffering from acute and acute on chronic illnesses and injuries for all ages, including elderly and pediatric patient populations, who would otherwise attend the emergency room. Patients schedule same-day or next-day appointments. Walk-ins can be accommodated based on a physician’s capacity. TMIIC is busy and focused on timely and efficient patient care with an annual census of over 45,000 patient visits. At TMIIC, several physicians employ PAs to work with them.

At TMIIC, both PAs and physicians work several shifts a month that are approximately five hours in length. At present, six PAs work at TMIIC, all with primary positions in adult urgent care, emergency medicine or intensive care. There are 34 physicians working at TMIIC, 23 working in adult emergency medicine, nine working in pediatrics and two in other specialties. Of the 23 physicians in adult emergency medicine, eight work with PAs at TMIIC.

2. Study Objectives

2.1 Primary Objective

The primary objective of this study is to quantitatively and qualitatively evaluate PA productivity and quality in an out-patient setting at TMIIC. For productivity, this study aims

to determine how patient volumes change when practicing with a PA. It will analyze how working with a PA impacts the number of walk-in patients a physician sees and the likelihood of the physician accepting a procedure. This study also seeks to evaluate the perception of PA productivity and quality. Together, these findings will be used to support the continuing integration and expansion of PAs in Manitoba. Moreover, this study will help validate other Canadian studies which highlight the productivity of PAs.

2.2 Secondary Objectives

The secondary objective of this study includes increasing the understanding of the benefits that PAs bring to physicians at TMIIC, and barriers that limit physicians from working with PAs in Manitoba. It also aims to determine if physicians support increasing the number of PAs due to their experience with PAs at TMIIC.

2.3 Research Questions

1. How do patient volumes change when practicing with a PA?
2. Does working with a PA increase the number of walk-in patients accepted?
3. Does working with a PA increase the likelihood of a physician accepting a patient with a procedure?
4. How do physicians generally perceive the productivity and quality of PAs?
5. How do PAs benefit the practice of a physician?
6. Do physicians support increasing the number of PAs in Manitoba?
7. What is the primary barrier that limits physicians from working with PAs?

3. Methods

3.1 Study Design

This study uses a survey to evaluate physician productivity, as well as the physician perception of productivity and quality of PAs. This survey was open for one month and was voluntary with informed consent. Physicians were not required to answer any question, except for their identification for patient volume tracking. All results were anonymized, and the received data was linked to individual physicians for patient volume calculations. Approval for this study was obtained through CHIPER Research Ethics Board.

3.2 Data Collection: Physician Survey

30 questions were provided to physicians working at TMIIC using Google forms (Appendix). The survey was broken into five sections: 1) physician demographics, 2) PA productivity, 3) physician perception of PA productivity, 4) physician perception of PA quality and 5) open responses. Inclusion criteria included physicians currently employed at TMIIC. Physicians at the clinic were recruited by an administrator who sent an email to physicians, which contained a link to the consent form and survey. Prior to completing the survey, physicians were required to complete this form.

3.3 Data Collection: Patient Volumes

Upon survey closure, a work scheduling application determined how many days, over a two-year period, that responding physicians worked with PAs. Since PAs at TMIIC work more casually than physicians, the study period was based on PA shifts- to ensure sufficient data

collection hours. For comparison, similar shifts where physicians worked alone were systematically selected from the same period to approximate the number of hours each physician worked with a PA.

Accuro is an electronic medical record used to manage scheduling, patient records and billing. The scheduler on Accuro was used to collect all data for patient volumes, including, the number of patients seen during shifts, both with and without PAs, as well as the length of each shift. The number of walk-in patients accepted by the physician within the shift was also recorded.

3.4 Data Analysis

Physicians were divided into two groups. Group one consisted of physicians that actively work with PAs at TMIIC. Meanwhile, group two consisted of physicians who have experience working with PAs (not at TMIIC) or physicians who have no experience working with PAs. The first group was included in all sections of the study. The second group was only included in physician demographics and question three of the open response section which asked about barriers that PAs face in integrating into the healthcare system.

Physician demographic data from the survey was quantitatively analyzed. The median number of years the responding physicians practiced for each group was calculated with an inter-quartile range (IQR). The group of physicians that work with

PAs at TMIIC was further characterized by how often they work with PAs- regularly (minimum once per week), casually (minimum once per month), or less than casual.

PA productivity was standardized as the number of patients seen per hour to account for variation in shift length. The median and IQR were calculated for the following data sets: 1) the number of patients per hour with versus without a PA, 2) the number of walk-in patients per hour accepted with versus without a PA. The rates were calculated using a total of 779 hours across all physicians in the study. This collected data was compared to the reported data by physicians in the survey. The Wilcoxon Signed-Rank Test was used for paired comparison to determine if there is a consistent difference between working with a PA versus without across all physicians. The test statistic was reported as V. Statistical significance was defined at $\alpha = 0.05$.

For physician perception of PA productivity, the 5-point Likert scale (not at all, little, somewhat, very likely, to a great extent) was used to assess the likelihood of each physician accepting a procedural patient when working with a PA versus without. Differences in the number of procedural patients accepted with versus without a PA were assessed using the Wilcoxon Signed-Rank test. For the survey questions addressing the physician perception of productivity and quality of PAs, the 5-point Likert scale (strongly agree, agree, neutral, disagree and strongly disagree) was used to assess both variables. Data was analyzed to determine the percentage of responses within each category. Cronbach's alpha was calculated to measure internal consistency between survey questions.

The open answer questions were thematically analyzed using reflexive thematic analysis. The survey responses were reviewed and coded for recurring patterns. Codes were then refined and classified into broader themes to represent the overall perception of physicians on benefits that PAs bring to practice and the barriers they face in integrating into the healthcare system. Themes were not pre-defined, but were generated inductively from the data.

4. Results of Physician Survey

4.1 Physician Demographics

12 physicians responded to the survey seven (58%) of which currently work with PAs at TMIIC. Two physicians work regularly (at least once a week) with PAs, three work casually (at least once a month) and two work less than once per month with PAs. Among these physicians, the median number of years in practice is 12 (IQR 8-15; range 5-23, n = 7). The median duration working with PAs is 9.5 years (IQR 7-11; range 5-12, n = 6).

Five physicians do not work with PAs at TMIIC. However, two of these physicians had direct experience working with PAs outside TMIIC. The remaining three did not have any experience working with PAs. Among these physicians, the median years in practice is 14 (IQR 9.5-35; range 9-50; n = 5).

4.2 PA Productivity

The median measured number of patients per hour is higher with a PA (8.3) than without a PA (5.5), with a median paired difference of 2.8 patients per hour (Table 1). This difference is

statistically significant (Wilcoxon signed-rank test, $V = 28$, $p = 0.016$). The median reported number of patients per hour is 8.5 with a PA, and 6.0 patients per hour without a PA with a median paired difference of 2.5 patients per hour. This difference is also statistically significant ($V = 28$, $p = 0.016$).

Table 1. Median (IQR) measured and reported patients per hour with and without a physician assistant (PA), and median paired differences ($n = 7$).

Measure	With PA	Without PA	Difference
Measured Patients Per Hour	8.3 (7.8-8.6)	5.5 (5.0-5.8)	2.8 (2.4-3.6)
Reported Patients Per Hour	8.5 (8.0-10.0)	6.0 (6.0-6.0)	2.5 (2.0-3.5)

The median measured number of walk-in patients with a PA is higher (0.13) than without (0.07), with a median paired difference of 0.06 patients per hour (Table 2). This difference is statistically significant (Wilcoxon signed-rank test, $V = 28$, $p = 0.016$). The median reported number of walk-in patients per hour is 0.5 with a PA and 0.3 without a PA, with a median paired difference of 0.2 patients per hour. This difference is not statistically significant ($V = 10$, $p = 0.063$).

Table 2. Median (IQR) measured and reported walk-in patients per hour with and without a physician assistant (PA), and median paired differences ($n = 7$ for measured values, $n = 6$ for reported values).

Measure	With PA	Without PA	Difference
Measured Walk-In Patients Per Hour	0.13 (0.12-0.24)	0.07 (0.05-0.10)	0.06 (0.02-0.19)
Reported Patients Per Hour	0.5 (0.4-0.7)	0.3 (0.2-0.6)	0.2 (0.0-0.4)

4.3 Physician Perception of PA Productivity and Quality

Figure 1 highlights the likelihood of the seven physicians accepting a patient requiring a procedure using the Likert scale (1-5) with and without a PA. Paired responses are shown for each of the seven physicians. Five of seven physicians reported one Likert unit higher when working with a PA (median = 5), compared to working alone (median = 4). This difference is not statistically significant (Wilcoxon signed-rank test, $V = 15$, $p = 0.063$).

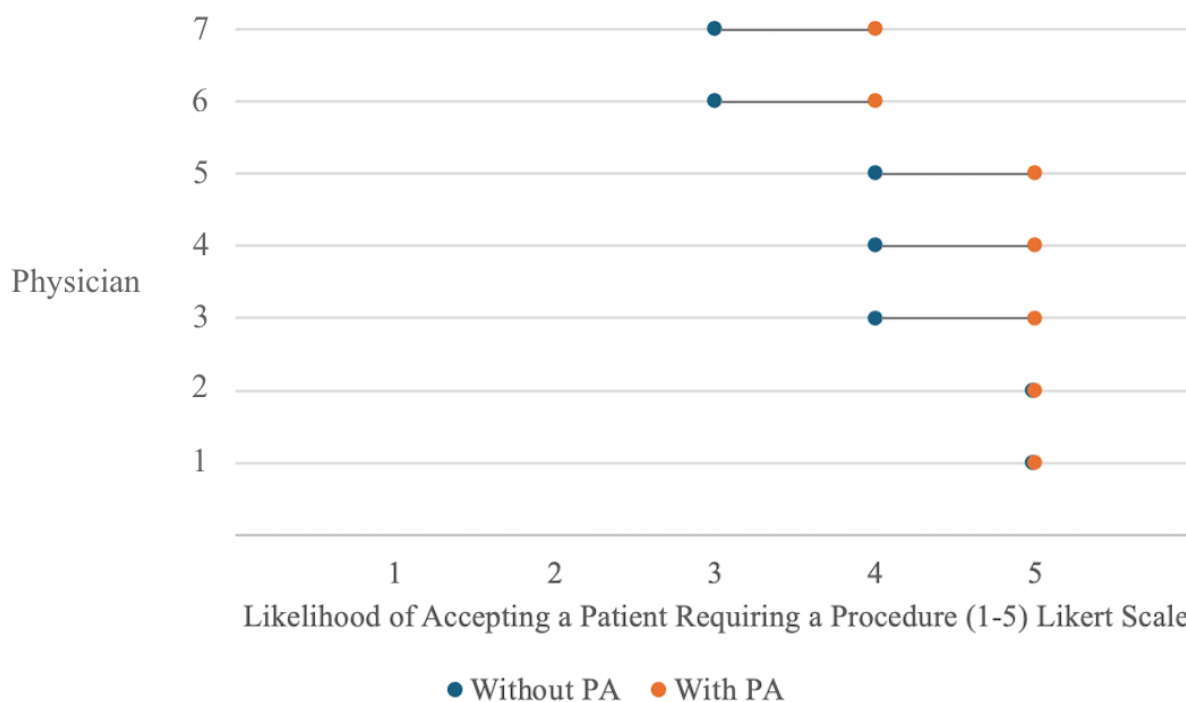


Figure 1. The likelihood of the seven physicians accepting a patient that requires a procedure with a PA (orange) versus without a PA (blue). The likelihood is measured using the Likert scale: 1- Not at all, 2- Little, 3- Somewhat, 4- Very Likely, 5- To a great extent. ($n = 7$).

All physicians surveyed agree or strongly agree that PAs work efficiently and improve access to high quality care (Table 3). Most physicians strongly agree that PAs are effective at performing procedures (57%), managing injuries (57%) and illnesses (43%), with the remainder in agreement. Less physicians support that PAs are effective at managing chronic conditions,

with 14% strongly agreeing that PAs are effective, 57% agreeing, and 29% remaining neutral.

Internal consistency of the responses was high (Cronbach's $\alpha = 0.87$).

Table 3. The percentage of physicians that strongly agree, agree, neutral, disagree or strongly disagree to several statements about PA productivity. (n = 7).

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)
PAs work efficiently	14	86	0
PAs improve access to high quality care	29	71	0
PAs are effective at procedures (casting, suturing)	57	43	0
PAs are effective at managing injuries	57	43	0
PAs are effective at managing illnesses	43	57	0
PAs are effective at managing chronic conditions	14	57	29

All surveyed physicians strongly agree or agree that PAs demonstrate good clinical acumen, order tests appropriately and make accurate diagnoses and treatment plans (Table 4). Similarly, most physicians strongly agree (43%) or agree (43%) that PAs form appropriate differential diagnoses, with a small proportion being neutral (14%). Regarding communication, all physicians strongly agree or agree that PAs communicate effectively with the healthcare team and treat patients with respect. Most physicians strongly agree or agree that PAs provide high quality care to patients and that patients managed by PAs tend to have a positive healthcare experience. In contrast, physicians were asked whether patients assessed by PAs receive better healthcare than if not. The results were varied, with 14% of physicians strongly agreeing, 29% in

agreement, 14% neutral and 43% disagreeing with this statement. Internal consistency of the responses was high (Cronbach's $\alpha = 0.93$).

Table 4. The percentage of physicians that strongly agree, agree, neutral, disagree or strongly disagree to several statements about PA quality (n = 7).

Statement	% Strongly Agree	% Agree	% Neutral	% Disagree
PAs have good clinical acumen	43	57	0	0
PAs form appropriate differential diagnoses	43	43	14	0
PAs order tests appropriately	14	86	0	0
PAs make accurate diagnoses and reasonable management plans	14	86	0	0
PAs communicate effectively with the healthcare team	43	57	0	0
PAs treat patients with respect	57	43	0	0
PAs provide high quality care to patients	57	43	0	0
Patients that are managed by PAs tend to have a positive healthcare experience	43	57	0	0
Patients assessed by PAs receive better healthcare than if the PA was not involved	14	29	14	43

4.4 Qualitative Themes

Table 5 highlights the percentage of physician support for increasing the number of PAs based off their experience with PAs at TMIIC. 57% responded yes, 43% depends and no physicians were unsupportive. Two main themes were identified from responses. First, *improved clinical efficiency and access to care*. This was reflected by survey responses that indicated that PAs help to increase the number of patients seen and improve workplace flow. One physician noted that “with good training, the quality of care [with PAs] can be excellent and overall can increase access for patients seeking treatment”. Similarly, several physicians described PAs as “enhancing the ability to provide care”. The second theme identified was *structural and resource constraints*. Physicians reported needing “additional time to review notes and imaging on patients seen by the PA” and the income generated not being worth the time investment.

Table 5. Physician support of increasing the number of PAs in the healthcare system based off their experience with PAs at TMIIC (n = 7).

Response	Percentage
Yes	57
Depends	43
No	0

Physicians were asked to identify the primary benefit that PAs bring to physicians at TMIIC. The first theme identified was *increased patient load*, with many physicians noting the ability to, “see more patients in a safe, rapid manner” and a resultant “increase in pace by helping in procedures”. Some physicians noted that efficiency was established after developing “a very

robust relationship over the span of 5-10 years” with the PA, allowing them to “understand each other and know how each other operate”. The second theme was *improved work environment* which reflected the positive impact PAs have on workplace experience. Several physicians note that the work environment is more enjoyable with a PA.

The main theme for the primary barrier that PAs face in being integrated into the healthcare system is *the challenges in PA training and retention*. Physicians emphasized that PAs require time and training to become proficient. PAs often need, “a high amount of effort on the physician’s part to train”. One physician reported that, “once some of our [their] PAs had been trained and proficient” they moved to other “more attractive positions with better work life balance,” thus requiring the physician to train new PAs.

5. Discussion

5.1 Physician Demographics

At TMIIC, most physicians work casually with PAs (less than once per week), with the majority having practiced for 8-15 years alongside PAs. The variation of physician experience and years of practice with PAs may have influenced the productivity and the perception of the productivity and quality of care measured in this study. Increased experience between a PA and physician facilitates improved collaboration and clinical efficiency. Given most physicians work casually with PAs, it could result in an underestimation of PA productivity.

5.2 PA Productivity

It can be concluded that PAs increase productivity at TMIIC. In a standard five-hour shift, the presence of PAs accounts for approximately 34% of total patient volume, corresponding to a 51% increase in patient volume compared to when working without a PA. Although limited literature on patient volumes of PAs in out-patient urgent style clinics exists, national U.S. data highlights that generalist PAs see on average 2.0 patients per hour when working independently (6). While data collected at TMIIC does not include the exact number of patients seen by PAs, it is comparable. It should be noted that physicians report a greater increase in both their productivity and PA productivity than measured. This is likely an overestimation and does not reflect the positive perception of PAs. In primary care, it is established that PAs are highly accessible to book same-day appointments (8). At TMIIC, PAs are associated with a statistically significant increase in access to same-day care. The presence of PAs accounts for approximately 46% of total walk-in patient volume, with an 86% increase relative to working without a PA. Physicians are almost twice as likely to accept a walk-in patient at TMIIC when working with a PA. Walk-in patient volumes are all higher than measured for with and without a PA likely due to overestimation, and are not statistically significant due to small sample size ($n = 6$) and less consistency in the reported data.

5.3 Perception of PA Productivity

Physician perception of PA productivity was overall positive, with an increase in the likelihood of physicians accepting patients in need of a procedure when working with a PA. However, it is not statistically significant due to the small sample size and limited variability. This trend may reflect the improved workflow that PAs bring to a physician's practice at TMIIC.

While the physician or PA performs the procedure, patient flow will be maintained by the other provider. All physicians strongly agree or agree that PAs work efficiently and improve access to quality care. These results are consistent with a Manitoba study which highlights that 73% of physicians reported PAs bring improved access to care and 74% reported increased efficiency (5). All physicians strongly agree or agree that PAs are effective at managing injuries, illnesses and performing procedures. This is supported by an Ontario study where 86.4% of physicians from different specialties perceive PAs as very good or excellent at planning and performing procedures (4). However, less physicians at TMIIC perceive PAs as effective at managing patients with chronic conditions compared to illnesses and injuries. Patients are more likely to seek care from a primary care physician than a PA for a chronic condition complaint or complex health concern (7, 8). PAs could be less familiar with chronic or complex care management in primary care due to less opportunity, which may explain why physicians at TMIIC perceive lower productivity of managing patients with chronic conditions.

5.4 Perception of PA Quality

Physician perception of quality was overall positive with physicians strongly agreeing or agreeing that PAs have good clinical acumen, form appropriate differential diagnoses, order tests appropriately and make accurate diagnoses with reasonable management plans. This is supported by an Ontario study where 82.6% of physicians surveyed rated PAs as excellent or very good at formulating comprehensive differential diagnoses and 86.0% for creating evidence-based management plans (4). In the current study, there was more variability in responses for the ability of PAs to form appropriate differential diagnoses with 14% of physicians being neutral. It has been shown that the ability of PA students to develop a differential diagnosis improves with

time, as they are more aware of possibilities and think more similarly to the physician (9). Clinical reasoning is complex, and is impacted by the PA's experience and skill level. The formation of differential diagnoses is also a difficult skill to assess since it is not directly observable. Physicians all strongly agreed or agreed that PAs communicate effectively with the healthcare team and treat patients with respect. The PA role is unique, as it relies upon communication and collaboration with the physician and healthcare team. It is expected that PAs have strong interpersonal skills given their role. This is supported by 89.4% of Ontario physicians that perceive that PAs have very good or excellent communication with patients and the medical team, as well as 79% of Manitoba physicians who perceive that respect is one value PAs bring to their practice (4, 5). Similarly, PAs provide high quality care to patients. All physicians strongly agree or agree that PAs provide high quality care, and patients managed by PAs tend to have a positive healthcare experience. Ontario physicians strongly agree or agree that PAs improve the quality of care for patients (90.5%) and improve patient satisfaction (89.2%) (4). The greatest variability in responses was observed for the statement regarding whether patients assessed by PAs receive better healthcare than if the PA was not involved. Most physicians disagree with this statement (43%), likely because the quality of care is multifactorial. It is difficult to attribute quality improvement to the PA alone when healthcare is collaborative. Some physicians at TMIIC still believe that PAs are responsible for the positive impact on the quality of care in their practice with 14% strongly agreeing and 29% agreeing with that statement.

5.5 Qualitative Themes

Overall, most physicians support increasing the number of PAs in the healthcare system given their experience at TMIIC, with no physicians unsupportive. A significant number of physicians responded that their support is circumstance specific. When asked to justify their response, the two main themes identified were *improved clinical efficiency and access to care* and *structural and resource constraints*. This study has demonstrated improved clinical efficiency through the quantitative and qualitative findings of increased patient and walk-in volumes. For the structural and resource constraints, one main concern was the time spent between the physician and PA reviewing cases. Where collaboration increases, so does the quality of care but sometimes at the expense of productivity. With time and experience, productivity will also increase. Concerns were also raised about the financial return with the increased time spent with PAs. Value in the healthcare system can be viewed as an economic or clinical outcome. This study did not focus on the economic impact of PAs on physicians or the healthcare system. It may still influence decisions for implementing new practices within the medical community. These findings emphasize the importance of team-based care which increases access to healthcare even where there is limited economic benefit for the physician.

The primary benefits that PAs bring to physicians at TMIIC is *increased patient load* and *improved work environment*. These findings support the increased patient load. The improved work environment is consistent with a Manitoba study that indicates that 79% of physicians report that PAs bring value by fostering a better workplace (5). When working with a PA, physicians can share workload, clinical responsibilities and have PAs manage more time-consuming cases. This can lead to an improved work environment and relieve stress that

physicians face when working alone. Working with a PA at TMIIC increases productivity and creates a more positive physician experience which is equally as valuable.

Physicians perceive that the primary barrier that PAs face in integrating in the healthcare system is *challenges in PA training and retention*. The main concern is that PAs require time to train, with many switching careers once trained. PAs in Canada undergo a two year (24-25 month), rigorous full-time program with one didactic and one clinical year. Due to its generalist curriculum and short duration, a new PA will not have every skill set needed for their area of practice. PA education continues after the program, with some positions requiring training at the outset. It is expected that PAs will require additional training to better adapt to their position. One aspect of the PA role that is attractive is the lateral mobility. PAs can change specialties during their career without additional training. This may result in retention concerns and frustration for physicians. However, the lateral mobility can also benefit physicians with PAs applying skills and knowledge from diverse areas of medicine to their practice. This can allow PAs to provide more comprehensive care to patients from different backgrounds.

5.6 Limitations

There are several limitations to this study, including that it largely focuses on the physician perspective of PAs. The perception of productivity and quality of PAs are measured both by the physician and patient perspective. Understanding the patient perspective of PAs would help to validate the findings of this study. Another limitation is that this study only considers one clinic where PAs do not work full time positions and are privately funded. Ideally, there would be a larger sample size of physicians from

multiple out-patient sites that work with multiple PAs. Another limitation is the manual collection of patient volumes, as there is a possibility of measurement error; however, this is unlikely to significantly impact the findings. Lastly, the survey was not anonymous which could bias the responses, but steps were taken to ensure all survey results were anonymized.

6. Conclusion

Based upon the findings of this study, it demonstrates that PAs increase the productivity of patient care at TMIIC, and physicians perceive that PAs positively impact productivity and quality of care. All physicians are supportive or potentially supportive of increasing the number of PAs in the healthcare system. Physicians also report that PAs improve clinical efficiency, access to care and foster a better workplace. While PAs face reported challenges in the healthcare system, this study supports increasing the number of PAs practicing in Manitoba, especially given the ongoing challenges with accessing healthcare in Canada. The expansion of Canadian PA education programs has contributed to a growing number of PA students. Ultimately, PAs increase patient volume and access, strengthen collaborative efforts, and play an integral role in team-based care. To further support this study, research on the patient experience with PAs in Manitoba is necessary to understand the impact that they have on patient care. It is important to further characterize the types of patients PAs are managing (i.e. injury, illness, chronic condition, etc.) to gain a better understanding of their role in out-patient care.

7. Funding

This study did not require any external funding. Data collection and analysis were completed using resources accessible through the University of Manitoba and TMIIC.

8. References

1. Li K, Frumkin A, Bi WG, Magrill J, Newton C. Biopsy of Canada's family physician shortage [Internet]. *Fam Med Community Health*. 2023;11(2):e001994. doi:10.1136/fmch-2023-002236
2. Vogel L. Canadians still waiting for timely access to care [Internet]. *CMAJ*. 2017 Mar 6;189(9):E375– E376. doi:10.1503/cmaj.1095400
3. Hu X, Coplan B, Barnes H, Smith N, Essary A, Dill M. Physicians working with physician assistants and nurse practitioners: Perceived effects on clinical practice [Internet]. *Health Aff Sch*. 2024;2(6):qxae070. doi:10.1093/haschl/qxae070
4. Burrows K, Nickell L, Krueger P. Physician ratings of physician assistant competencies and their experiences and satisfaction working with physician assistants: Results from the Supervising Physician Survey in Ontario, Canada [Internet]. *Healthc Manage Forum*. 2023;36(5):311-316. doi:10.1177/08404704231173612
5. Jones IW. How Manitoba Physicians see the Value of Physician Assistants: Manitoba MD views of the value of PAs. [Internet]. *Journal of Canadian Physician Assistants*. 2020;1(5):11-17. doi:10.5203/jcanpa.v1i5.868
6. Larson EH, Hart LG, Ballweg R. National estimates of physician assistant productivity [Internet]. *J Allied Health*. 2001;30(3):146–152. Available from: <https://pubmed.ncbi.nlm.nih.gov/11582977/>
7. de Lusignan S, McGovern AP, Tahir MA, Hassan S, Jones S, Halter M, et al. Physician associate and general practitioner consultations: a comparative observational video study [Internet]. *PLoS One*. 2016;11(8):e0160902. doi:10.1371/journal.pone.0160902.
8. Moschella A, Burrows K. Patient experience with primary care physician assistants in Ontario, Canada: impact of trust, knowledge, and access to care [Internet]. *J Patient Exp*. 2023;10:23743735231211782. doi:10.1177/23743735231211782.
9. Hunton RW, Potter D, Schuer KM. Defining differential diagnosis skill progression in physician assistant/associate students: a cross-sectional comparative analysis [Internet]. *J Physician Assist Educ*. 2025;36(4):390–394. doi:10.1097/JPA.0000000000000690.

9. Appendix

Survey Instrument

Physician Demographics:

1. What is your full name?
2. How many years have you practiced as a physician?
3. During your time in practice, have you had the opportunity to work directly with a PA? If you have not worked with a PA, please answer question 3 in the Open Response section (section 6) only.
4. Does your current practice include working with a PA on a casual (minimum once per month) or regular basis (minimum once per week)?
5. If yes to the question above, do you usually work with a PA casually (minimum once per month) or regularly (minimum once per week)?
6. How many years have you worked on a casual or regular basis with PAs?

Productivity:

1. When working alone at TMIIC, how many patients per hour do you typically see?
2. When working with a PA at TMIIC how many patients do you typically see?
3. When working alone at TMIIC, how many walk-in patients are you willing to accept per shift?
4. When working with a PA at TMIIC, how many walk-in patients are you willing to accept per shift?

The following two questions use this Likert scale from 1 to 5: 1- not at all, 2- little, 3- somewhat, 4- very likely, 5- to a great extent.

5. When working alone at TMIIC, how likely are you to accept an additional patient who requires a procedure (i.e. casting, sutures, etc.)?
6. When working with a PA at TMIIC, how likely are you to accept an additional patient who requires a procedure (i.e. casting, sutures, etc.)?

Physician Perceptions:

How much do you agree with the following statements on a scale from 1 to 5 (using the Likert scale). 1- strongly disagree, 2- disagree, 3- neutral, 4- agree, 5- strongly agree.

Productivity-

1. PAs work efficiently.
2. PAs allow physicians to provide high quality care to more people in need.
3. PAs are effective at managing patients that require procedures (casting, suturing, etc.).
4. PAs are effective at managing patients with injuries.
5. PAs are effective at managing patients with illnesses.
6. PAs are effective at managing patients with chronic conditions.

Quality-

1. PAs have good clinical acumen, take appropriate histories, and perform appropriate physical exams with each patient encounter.
2. PAs form appropriate differential diagnoses.

3. PAs order tests including diagnostic imaging and blood tests appropriately within context of the patient presentation.
4. PAs make accurate diagnoses and reasonable management plans.
5. PAs communicate effectively with the healthcare team?
6. PAs treat patients with respect.
7. PAs provide high quality care to patients.
8. Patients that are managed by PAs tend to have a positive healthcare experience.
9. Patients assessed by PAs receive better healthcare than if the PA was not involved.

Open Responses:

1. Would you support increasing the number of PAs working in the healthcare system given your experience at TMIIC with PAs. Why?
2. What is the primary benefit that PAs bring to your practice at TMIIC?
3. What do you think is the primary barrier that PAs face in being better integrated into the healthcare system?