The Canadian Armed Forces (CAF) physician assistant (PA) is a highly skilled medical resource that was introduced in 1984. Serving both domestically and internationally, the PA in uniform has grown in prominence and responsibility. Because of changes intended to improve the status of the CAF PA, a review of their history and development was undertaken. A narrative report was assigned to the authors by the CAF Royal Canadian Medical Services Branch Chief Warrant Officer. This undertaking builds on an earlier study of CAF PAs and provides needed information about the growing presence of military PAs in the civilian provincial sector.1

The first class of Canadian PAs graduated from the Canadian Forces Medical Services School in 1984. Spanning 3 decades, the CAF PA has modified and refined training consistent with contemporary military medicine and evolving missions. For the most part, training occurs at the Canadian Forces Health Services Training Center in Borden, Ontario. One of the core missions of this military base is to prepare medical care personnel for domestic or international operational environments.

METHODS
Supportive documents were sought from CAF Headquarters, and a library search report pertaining to the CAF PAs was undertaken. A brief questionnaire was sent to CAF PAs to collect details on history, training, and operations in order to clarify some of the reports. The surveyed PAs were identified through a database available through the Royal Canadian Medical Services.

RESULTS
Internal documents were obtained from the Canadian Forces Health Services Training Center, Royal Canadian Medical Services Headquarters, and J3 Health Services Operations Headquarters, and an external literature search training consistent with contemporary military medicine and evolving missions. For the most part, training occurs at the Canadian Forces Health Services Training Center in Borden, Ontario. One of the core missions of this military base is to prepare medical care personnel for domestic or international operational environments.

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RESULTS
Internal documents were obtained from the Canadian Forces Health Services Training Center, Royal Canadian Medical Services Headquarters, and J3 Health Services Operations Headquarters, and an external literature search
was performed. The questionnaire was sent to 120 PAs in July 2015. Of those sent, 63 were returned (rate of return, 53%) representing about one-third of all CAF PAs.

TRAINING
All CAF PAs are drawn from the medical technician noncommissioned member ranks. After completing basic training for entrance into the military, medical technicians attend an apprentice-level course. This begins with 20 weeks of clinical and field training at the Canadian Forces Health Services Training Center, as well as a 14-week primary care paramedic course. Graduated medical technicians are posted to a medical service unit where they gain on-the-job training under the supervision of PAs, medical officers, and senior noncommissioned members (Figure 1). After several years, the member returns to the Canadian Forces Health Services Training Center for the journeyman-level medical technician course, which consists of 12 weeks of clinical and field training as well as 5 weeks of advanced emergent care paramedic training. Upon completing this course, medical technicians are fully employable and deployable with a limited yet remote scope of practice (Table 1).

After additional time as journeymen medical technicians and through career progression, members return to the Canadian Forces Health Services Training Center for a third time for training in health assessments and medical administration. They are then eligible for promotion to the rank of sergeant and may apply for the PA course, which is also held at the Canadian Forces Health Services Training Center. The application process entails writing the CAF aptitude test, personality testing, threshold knowledge examinations, and written recommendation approved through the applicant’s chain of command. Completed applications are sent to a selection committee, and the top medical technician applicants are offered seats on the course.2

HISTORY
CAF PAs originated as sick berth attendants onboard Canadian naval vessels, trained and employed in the Royal Canadian Navy starting in 1911.3,4 Upon selection from the ranks, they were trained on the job by the fleet medical officers. With the demands for improved technical skills, the training evolved and the medical technician was born. These medical technicians would progress to the PA program.

### TABLE 1. Standard career progression of a CAF PA

<table>
<thead>
<tr>
<th>Year</th>
<th>Qualification level</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Recruitment/basic training</td>
<td>Recruitment through regional recruiting center followed by recruit training in St. Jean, Quebec</td>
</tr>
<tr>
<td>1</td>
<td>QL3 apprentice medical technician course</td>
<td>34 weeks. Training includes basic clinical history taking and examination skills, primary care paramedic course, basic patient care, and field skills.</td>
</tr>
<tr>
<td>2-4</td>
<td>Employed as QL3 medical technician</td>
<td>Can be employed in any health services unit but most serve in army units</td>
</tr>
<tr>
<td>5-6</td>
<td>QL5 Journeyman medical technician course</td>
<td>17 weeks. Training includes clinical and field training, and advanced emergent care paramedic training.</td>
</tr>
<tr>
<td>6-10</td>
<td>Employed as QL5 medical technician</td>
<td>Employed throughout the CAF, fully deployable, able to work remotely</td>
</tr>
<tr>
<td>10-12</td>
<td>QL6A medical technician course</td>
<td>12 weeks. Training focuses on: Administrative functions of senior noncommissioned member, learning to conduct periodic health assessments.</td>
</tr>
<tr>
<td>12-15</td>
<td>Employed as QL6A medical technician</td>
<td>Employed in a variety of administrative positions including: Recruiting Centers, Operations &amp; Training Departments, and Senior Medical Technician</td>
</tr>
<tr>
<td>12-16</td>
<td>PA program: Promoted to warrant officer on successful completion</td>
<td>Current PA program is 2 years, including 48 weeks of classroom training encompassing the basic sciences, pharmacology, physical examination, medical conditions, and a clinical rotation phase of 48 weeks including 13 rotations in multiple specialties in locations across Canada. Must pass PACCC national certification examination to complete program.</td>
</tr>
<tr>
<td>14-20</td>
<td>PA (warrant officer)</td>
<td>Remote duty as medical authority at units throughout Canada and deployed units outside of Canada</td>
</tr>
<tr>
<td>16-25</td>
<td>PA (master warrant officer)</td>
<td>Few clinical positions, majority administrative. May seek retirement at 25 years with 50% pension.</td>
</tr>
<tr>
<td>20 and up</td>
<td>PA (chief warrant officer)</td>
<td>Primarily an administrative role as part of command team in health services units across Canada. Eligible for selection for command chief warrant officer positions. These positions are outside health services.</td>
</tr>
</tbody>
</table>
The first official CAF PA program was developed in 1984. Autonomous medical practitioners were needed at sea, and the Navy turned to using the existing allied force models. As the CAF PA evolved and the education became more in line with the American model, it became apparent that accreditation by the Canadian Medical Association (the only accreditation body) was needed. A revised course was developed with the assistance of medical consultants and accreditation expertise through the Canadian Medical Association. This process was successful, and the initial course under the first accredited PA program graduated in 2004. Today, the CAF PA program is a formalized, accredited, university-level healthcare provider program. The University of Nebraska Medical Center bestows a bachelor’s degree on the graduates of this program, similar to what US military PAs receive. A memorandum of understanding was signed in 2009, and the next graduates were the first Canadian PAs to receive formal university-level degrees.

As Canadian military PAs were evolving, a professional organization and certifying body was needed. Funded by a grant given by the Treasury Board, in February 2010, via the CAF, the newly formed Canadian Association of Physician Assistants (CAPA) embarked on the long process that would eventually see a certification process in. To ensure legitimacy, the certifying body had to maintain distance from CAPA. The Physician Assistant Certification Council of Canada (PACCC) was created, and a national certification process was developed. The certifying examination is similar to the National Commission on Certification of Physician Assistants (NCCPA) Physician Assistant National Certifying Examination (PANCE), as many of the Canadian examination writers use US PANCE preparatory materials.

All PAs graduating from the Canadian Forces Health Services Training Center are eligible to take the national certification examination through PACCC. Those who pass are promoted to the rank of warrant officer. This differs from the US military system, as the warrant officer in the CAF is considered a senior noncommissioned officer. However, the PA occupation model in the CAF is under review, and a full commissioned status is being considered.

Today, the CAF PA program is conducted in several phases. Phase one consists of 48 weeks of didactic training in which the candidates focus on the foundations of the medical sciences. During phase two, the candidates complete 13 clinical rotations at locations across Canada. These rotations include a variety of settings to ensure that the CAF PA is capable of caring for any patient they are likely to encounter, including those seen in obstetrics, gynecology, and pediatrics. Candidates then return to the Canadian Forces Health Services Training Center for phase three, which consists of the final series of examinations, using objective structured clinical examinations. Phase four has the successful candidates posted to new clinical environments for service and to prepare for the national certification examination, which is held annually in concert with the annual CAPA conference. Candidates who pass are promoted into the ranks of PAs in the CAF.

The PACCC examination need only be successfully completed once in the career of a PA in Canada. To maintain good standing with CAPA and the PACCC certification, Canadian certified PAs must accumulate a total of 250 continuing professional development credits over 5 years.

**PA CAREER IN THE CANADIAN ARMED FORCES**

The length of service required before entering the PA program has varied over the years. In the early 1990s, the average was about 14 years of service. Over the ensuing decades, the average years of service rose to about 18. As shown in Figure 2, the average length of service has dropped to about 13 years for the class of 2014. This drop is due...
to many factors. One is that the retention rate has decreased as more PAs retire because of time in rank and offers of employment in the civilian healthcare system. Attrition statistics indicate that applicants placed on the course at an earlier point in their careers will realize a longer service career as a PA. Ideally for planning purposes, a CAF PA would retire (with full benefits) after 25 years of service (including about 12 years as a PA). Previously, the contracted period was 20 years, with members being placed on the course at an average of 18 years of service and thus having only 2 to 3 years of service as a PA (unless the member opted to extend his or her contract). Figure 3 shows the trend of graduates from the CAF PA program since 2004. Annually, 24 personnel are admitted into the CAF PA program. A new cohort will begin training as the previous cohort completes the didactic year and moves on to the clinical year.

Specialty courses that enhance the employability of a PA in the CAF also are available. The basic (2 weeks) and advanced (4 weeks) dive medicine courses prepare PAs to be deployed with divers in Army and Navy units. The submarine medicine course (3 weeks) instructs PAs with the necessary knowledge and skills to work in this specialized environment. The basic aviation medicine course (3 weeks) provides the knowledge necessary to look after Royal Canadian Air Force air crew.

To maintain skills and knowledge, PAs work in the civilian medical system under the Maintenance of Clinical Readiness Program. Under this program, 40 shifts per year are required, 20 of which must be in an acute care environment. The remaining 20 shifts must be done in a Royal Canadian Medical Service clinic with a supervising physician. Under this blended military-civilian program, PAs maintain currency in Advanced Cardiac Life Support, Advanced Trauma Life Support, the Airway Intervention and Management in Emergency course, pediatrics, and the Advanced Military Trauma Resuscitation Program (a military-run course).

DEPLOYMENT

PAs in the CAF are deployed in diverse settings. As clinicians in garrison, they spend the majority of their time seeing patients beginning with sick parade, a daily military form of a walk-in clinic. Patients with booked appointments are then seen, with appointments ranging from initial consultations and follow-up visits to periodic health assessments. Physical examinations are conducted on all CAF members at predetermined intervals based on age and carried out regardless of the unit.

Some PAs may be deployed to specialty environments. These positions have grown in number and complexity as the training received in specialty medicine has increased the demand for PA services. Specialty PAs may be tasked to provide medical examinations on divers and aircrew consistent with the US aeromedical PA. PAs qualified in advanced dive medicine can be employed at the fleet diving units, located on the East and West coasts, to treat diving emergencies. Those qualified in advanced dive medicine and submarine medicine are employed in the Royal Canadian Navy.

By virtue of their rank as warrant officers (senior non-commissioned officers), PAs can be assigned administrative positions. These positions may be with field ambulances as platoon warrant officer or in smaller medical clinics where they become the clinic warrant officer. Administrative positions have decreased in recent years in an attempt
to allow PAs to spend more time in the clinical setting. As a compromise, many PAs split their time between administrative and clinical responsibilities. If successfully ranked above their peers in the annual personnel evaluation process, PAs are then promoted to the rank of master warrant officer, a role that is mostly administrative. The highest rank for a PA is chief warrant officer, but only a select few PAs achieve this (Table 2). A PA with the rank of chief warrant officer holds the position of regimental sergeant major, is part of the command team, and advises the commanding officer on health services issues. The master warrant officers and chief warrant officers act as the professional technical network for medical technicians and PAs and advise on matters related to the profession.

PAs can be assigned to any branch of the CAF. The Army, Navy, and Air Force all have PAs serving in the uniform of their respective branch—that is, an Air Force PA may serve on a submarine or a Navy PA serve in a field unit. In 1959, the CAF blended their medical services to achieve more fluidity of roles between the three services.9 Officers and noncommissioned members work in their profession in a different environment if required. This practice also occurs with support services across the CAF and has led to the term “purple suit”: mixing green (Army), blue (Air Force), and black (Navy) creates a color somewhat resembling purple.

**DEPLOYMENT SETTINGS**

The CAF PAs have been involved in operations ranging from United Nations peacekeeping roles to refugee management to combat missions (Figure 4). As PA training evolved, so did PAs’ involvement in operations. Outside of Canada, PAs often function as the senior medical author-

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**TABLE 2. CAF PA numbers as of September 2016**

<table>
<thead>
<tr>
<th>Role</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warrant officer</td>
<td>149</td>
</tr>
<tr>
<td>Master warrant officer</td>
<td>41</td>
</tr>
<tr>
<td>Chief warrant officer (could be filled by any health services profession)</td>
<td>11</td>
</tr>
</tbody>
</table>

**TABLE 3. Example of PA staffing of a particular operation**

<table>
<thead>
<tr>
<th>Rotation number</th>
<th>Number of PAs deployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

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**FIGURE 4.** In this 2005 photo from the Provincial Reconstruction Team site in Kandahar, Afghanistan, senior medical technician Sergeant Bill Burfitt (left) and physician assistant Warrant Officer Shawn Best, both of 1 Field Ambulance Edmonton, treat an Afghan girl with first- and second-degree burns. Photo by Master Cpl. Robert Bottrill, Canadian Forces Combat Camera.

Ity. An example would be Operation attention, which was the CAF deployment to Afghanistan 2011-2014 (Table 3). Although this was a relatively small-scale deployment for the CAF, it involved almost 10% of available PAs.

During Operation athena, PAs were assigned to the multinational hospital at Kandahar Airfield, and more were deployed to forward operating bases in smaller facilities where they were the highest medical authority responsible for treating major injuries prior to evacuation. Concurrently they managed minor injuries and illnesses not necessitating evacuation. In these positions, the medical officer would be available only by telephone.

Domestic CAF PAs care for all personnel staffed in the operations, which can be quite variable. Such operations in 2011 provided assistance to provincial and municipal authorities. One in northwest Ontario, known as Operation FORGE, was for the emergency evacuation of more than 3,000 residents from communities threatened by forest fires; and another along the Souris River in Manitoba, known as Operation LYRE, was to reinforce flood-control barrier.10 CAF PAs also are called upon to assist crisis response organizations or local populations in need of medical attention. The civilian-military role is easy to operationalize because PAs are exposed to the various civilian provincial healthcare systems as part of their training.

**SCOPE OF PRACTICE**

The surgeon general in consultation with the clinical council defines and delegates a scope of practice for CAF PAs. This scope of practice details a particular list of medications the PA can prescribe, along with which diagnostic tests and specialty consultations may be ordered. Orders outside of this scope necessitate a cosignature from a medical officer. This scope of practice has evolved over
time to allow a greater breadth of clinical responsibilities reflecting an evolving role.

All CAF PAs use this scope of practice and physician supervision regardless of location. Because of the diversity of operation and employment of CAF PAs, this physician could be geographically colocated but often is only available for consultation via telephone.

PROVINCIAL RECOGNITION

All CAF PAs work under a federal umbrella. However, in order to maintain their skills or attend certain training, they require recognition by the residing provincial healthcare system. The movement to have any PA, military or civilian alike, recognized by the various provincial healthcare systems has had a turbulent history.11 As of 2015, Manitoba has a well-developed system in place for recognition and regulation of PAs. Other provinces, such as Nova Scotia and Ontario, have no mechanism in place. This makes maintenance of skills difficult as PAs who are posted in provinces with no recognition must travel to other provinces to attend shifts and certain courses. CAPA is working with the different provincial healthcare officials in an attempt to create awareness, in the hopes of establishing recognition and, ultimately, regulation.12

CONCLUSION

The CAF PA was created to deliver high-quality healthcare in a variety of settings, from home base clinics to naval vessels, the Arctic, and other remote locations. This profession has grown since its inception in 1984, and the role continues to evolve domestically and internationally. To date, the skills of PAs are well recognized in times of domestic crisis, but most provincial healthcare systems have yet to offer any regulation—a contradiction in federal and provincial policy. As a commissioned officer, the PA is becoming more integrated into senior ranks and decision-making roles. The military has shown how it can adapt and grow its own and offered a model of how other systems can assume similar educational capacities and capabilities. JAPA

REFERENCES