# Are the new PA students helpful to emergency medicine physicians in Israel?

**Oren Berkowitz, PhD, PA-C; Rina Maoz-Breuer, MSc; Eran Tal-Or, MD, MHA; Rachel Nissanholtz-Gannot, PhD**



## ABSTRACT

**Objective:** Physician assistants (PA) began training in Israeli EDs in 2016. Physician perspectives were measured to evaluate the clinical contributions of PA students.

**Methods:** Investigators surveyed members of the Israeli Association of Emergency Medicine Physicians in 2017 to rate whether PA students were helpful in patient care and to explore perceptions about PA students.

**Results:** Those working with a PA student felt they were *helpful* to *very helpful* in all of the clinical tasks measured. The majority (85%) of other physicians wanted to work with a PA student in the future. Ordering medications, administering IV fluid therapy, and suturing accounted for 60% of the tasks that physicians wanted to add to PA scope of practice.

**Conclusions:** PA students were helpful in the ED and were meeting expectations for clinical contributions. Most physicians would like to work with PAs and they would like to see PAs increase their scope of practice.

**Keywords:** physician assistant, health services, medical education, clinical training, healthcare workforce, emergency medicine

Physician assistants (PA) are a new role in the Israeli ED setting. Israel has suffered from overcrowding and heavy delays in its EDs. The waiting time to be seen by a physician can stretch for many hours for nonemergency cases.[1-3] Patients needing to be admitted to the hospital can sometimes wait for hours and even days on a hallway stretcher until a bed is available for them.[1-3]

These delays stem from multifactorial issues, and in 2013, the Israel Ministry of Health (MOH) adopted a national initiative to improve the quality of care in its nation's EDs.[4] Israel has good overall healthcare outcomes with a long life expectancy of 83 years, which is higher than the Organization for Economic Cooperation and Development average of 81 years.[5] Still, several weak points need to be addressed. Israel has a healthcare workforce shortage including an aging and shrinking physician workforce and a longstanding nursing shortage.[6,7] Israel also hovers at a 100% hospital bed occupancy rate, which inhibits turnaround and availability for new patients to be admitted from the ED.[4] The MOH plan to improve emergency services was to divide their approach into three areas: reducing need/preventing overuse of the ED, improving the services given within the ED, and facilitating hospital admissions and discharges to efficiently move patients out of the ED.[4]

Creating the new PA provider role to augment the healthcare workforce was one of the key initiatives to improve services in the ED. The project began with an apprenticeship model of education in 2016 that has been limited to the ED. Israel has about 60 PAs spread out across the country, with one practicing in nearly every ED and an average of two full-time PAs per ED as of 2018. Another 30 PAs were expected to begin MOH training in 2020, but the latest PA course was delayed due to the novel coronavirus pandemic. PAs consist mostly of highly experienced paramedics with a minimum of a bachelor's degree who would receive about 500 hours of classroom education and 2,000 hours of on-the-job clinical education in the ED. Education was not affiliated with an academic institution but rather was housed in the education branch of the MOH. The evolution of Israeli PAs has previously been described in detail.[8-10]

PA students immediately began working 4 days per week in their employment ED and received classroom education

**Oren Berkowitz** is a senior lecturer in the Department of Health Systems Management at Ariel University in Ariel, Israel. **Rina Maoz-Breuer** is a research associate in the Smokler Center for Health Policy Research at the Myers-JDC-Brookdale Institute in Jerusalem, Israel. **Eran Tal-Or** is director of the ED at Baruch Padeh Medical Center in Poriya, Israel. **Rachel Nissanholtz-Gannot** is chair of the Department of Health Systems Management at Ariel University and a research scholar in the Smokler Center for Health Policy Research at the Myers-JDC-Brookdale Institute. This study was funded by the Israel Ministry of Health. In addition, Dr. Berkowitz received partial funding for his faculty position by the Israel Ministry of Integration, Center for Absorption in Science. The authors have disclosed no other potential conflicts of interest, financial or otherwise.

**Acknowledgment:** The authors would like to thank **Eyal Jacobson, Idit Segal,** and **Udi Gelbshtein** from the Israel Ministry of Health for their cooperation and support of this project.

DOI:10.1097/01.JAA.0000723936.22396.08

1 day per week.[8] This blended education model shares similarities with the original US MEDEX education model and the Dutch PA education model, among others.[11,12] Having PA students hired and placing them in the clinical environment of their employer at the beginning of their education timeline is a model that was widely developed in the 1970s by Richard A. Smith, MD, of the MEDEX program at the University of Washington.[11] The Pacific Northwest region has expansive rural areas and the desire at the time was to get PAs (or as they were called, MEDEXs) into rural underserved clinics as soon as possible. This blended, early clinical integration model has more recently been demonstrated to work well in the Netherlands. A Dutch PA student typically has significant previous healthcare experience and during the 2.5 years of PA school, works nearly full-time in their new clinical PA job and attends classes 1 day per week.[12,13] In contrast, PA training in the United States is structured similarly to medical school models of general didactic education followed by clinical education. The Israeli PA course has a blended early clinical integration model. Key differences are that the MOH does not confer an academic degree and was focused on emergency medicine rather than general medicine.[8,9] The Netherlands and United States also have a broader scope of practice in which PAs are legally authorized to diagnose illnesses and prescribe medications, which is not the case in Israel.[13,14]

Israeli ED PAs (and PA students) are used to provide the initial patient encounter and workup and then help coordinate care. They elicit detailed history and physical examinations, present new patients to the ED attending physician, discuss a differential diagnosis, and can recommend a treatment and management plan and facilitate the patient's care. PAs and PA students perform routine ED procedures (such as casting, wound care, managing mechanical ventilation, IV perfusion, and urinary catheterization), provide emergency resuscitation with the full scope of their paramedic framework (medication delivery, defibrillation, intubation), and can sometimes obtain diagnostic bloodwork and chest radiographs depending on their hospital privileges. They act as a go-between for the patients, physicians, nurses, and other ED staff and often will stay and monitor unstable patients or transfer unstable patients between units in order to free physicians for other tasks.[10]

The Israel Association of Emergency Medicine supported and cooperated with the creation of ED PAs and helped the MOH education branch with the construction of curricula and with the initial rollout. In contrast, the general concept of PAs in Israel was met with some skepticism by other physician groups. PAs also faced strong opposition from nursing groups that are simultaneously advocating for the development of NPs in Israel.

The goal of this study was to evaluate the initiation of the ED PA project by surveying the ED physicians' opinions and attitudes toward PA students during their education time and their opinion of the budding ED PA role. The PA students were toward the end of their education at the time of the survey, with about 3 months left until graduation. Unlike a PA in the United States, who graduates from PA school and is *then* ready to work, the Israeli model asked employers to hire PA students at the beginning of their education and take an active role in their training without knowing how long it would take for them to become productive team members.

## METHODS

The authors constructed a survey for Israeli ED physicians that combined Likert-scale questions and open-ended questions. After completing the Likert-scale questions, participants were given the option to respond to the open-ended questions. The survey was performed in Hebrew. Israel had only 129 ED physician members of the Israel Association of Emergency Medicine, so potentially identifying questions were avoided in order to protect respondent anonymity.

**Survey construct** The Likert-scale questions related to specific ED tasks and how helpful the PA students were in completing those tasks, with responses ranging from 1 = not very helpful to 5 = extremely helpful (**Table 1**). The same questions were asked to both those with and without a PA student working in their ED. For those without a PA student, respondents were asked to give their attitudes toward how helpful a PA *should* be in completing the same tasks and those responses were compared with responses from physicians who were working with PA students. The open-ended question for respondents who worked with a PA student asked them to, "Please cite some tasks that you believe PAs should be authorized to perform in the ED that they are not currently authorized to perform." The open-ended question for respondents who did not work with a PA student asked, "Would you be interested in having a PA in your department? Why?" All respondents were given the option to provide additional comments.

**Survey collection** We conducted the survey between June and August 2017 with the cooperation of the Israel Association of Emergency Medicine. The president of the association sent an email to all of the association members with an explanation about the survey objectives and a survey link. Researchers switched the survey method from email to telephone following a low response rate to the electronic survey, and the telephone data were ultimately reported. A research assistant telephoned all participants and collected the information in a secured dataset. The research assistant deidentified the data by deleting contact details and replacing all personal identifying information with a random number identifier before distributing the data to the researchers for analysis. Research analysts only had access to deidentified data and all results were reported anonymously in aggregate. Participation in the survey was voluntary. This study was approved by the Myers-JDC-Brookdale Institute internal review board.

**TABLE 1.** ED physician ratings of how helpful PA students are (or a prediction of how helpful they should be if no PA was present) 1 = not helpful, 2 = somewhat helpful, 3 = helpful, 4 = very helpful, 5 = extremely helpful

| Helpfulness of PA students in each clinical task | PA student present, n = 60 (62%) Mean (SD) | No PA student present, n = 37 (38%) Mean (SD) | *P* value* |
|---|---|---|---|
| New patient workup and presentation | 3.98 (1.11) | 3.69 (1.14) | .23 |
| Formulating management plan | 3.46 (1.21) | 3.34 (1) | .62 |
| Treatments and procedures | 3.97 (0.92) | 3.81 (1.41) | .55 |
| Patient care coordination | 3.81 (1.25) | 3.78 (1.29) | .91 |
| Monitoring unstable patients | 3.84 (1.25) | 4 (1.02) | .53 |
| Escorting patient transports | 4.31 (0.89) | 3.94 (1.13) | .1 |

*Based on independent samples *t*-test

**Data analysis** We analyzed Likert-scale questions using mean score and standard deviation. Inferential group scale comparisons were done using ANOVA. The responses were stratified by whether participants had a PA student working in their ED. We analyzed the qualitative portion of the survey through open coding of the text to make sense of the data and to recognize nascent response themes. We reviewed the texts separately and all responses were categorized into themes. We compared and discussed their qualitative analyses to arrive at consensus. Themes were presented with their frequencies and cumulative relative frequencies.

## RESULTS

We contacted all of the physician members of the Israel Association of Emergency Medicine for the survey; 106 of the 129 registered members responded. Ninety-seven respondents completed the entire survey, for a response rate of 75%. Nine respondents who began but did not complete the survey were removed from the analysis. Most (92%) respondents were attending physicians; the remainder were resident physicians in training. Of the attending physicians in the ED, two-thirds (66%) held additional managerial responsibilities in the ED such as shift supervisor, unit manager, or director. Nearly two-thirds (62%) of respondents had a PA student working in their ED.

**ED physician perceptions and attitudes toward PA student contributions** All response items had an average score ranging from 3.46 to 4.31 (on a scale of 1 to 5), indicating that physicians believed the PA students were *helpful* to *very helpful* in each task. There was very little variation between categories. Mean survey results for PA student helpfulness were as follows: the initial patient workup and case presentation (3.98, SD 1.11), management plan (3.46, SD 1.21), treatments and procedures (3.97, SD 0.92), coordination of care (3.81, SD 1.25), monitoring acutely ill patients (3.84, SD 1.25), and escorting patient transports (4.31, SD 0.89) (**Table 1**).

The survey also asked those who *did not* work with PA students to rate to what degree they believe PAs *should* be helpful in each of the same items listed. Physicians who *did not* work with PA students responded in nearly identical fashion to those who *did* work with PA students, in all categories. The small variations were not statistically significant between groups on ANOVA testing (**Table 1**).

**What additional tasks should PAs be allowed to perform in the ED?** Respondents who worked with PA students were given the option to describe additional tasks that they believed PAs should be allowed to perform in their ED above and beyond what they were being permitted to perform. This was an open-ended question transcribed in free text and answered by 47 of 60 respondents (78%) who were working with a PA student. Upon qualitative analysis of the responses, nine additional themes were identified that went above and beyond what PAs were typically allowed to perform: Ordering or administering medication was the most commonly requested task, accounting for 29% of responses. Initiating IV fluid therapy and wound suturing were the next two most commonly requested items. When combined, ordering medication, starting IV fluid therapy, and wound suturing accounted for over half of the responses (60%). The remaining items were discharging patients, ordering and drawing bloodwork (this was limited in some EDs), casting, central line placement, ordering radiographs (this was limited in most EDs), and point-of-care ultrasound (**Figure 1**).

**Would ED physicians who do not work with a PA like to work with PAs? Why?** A large majority (85%) of ED physicians who were not working with a PA stated that they would like to do so. This was an open-ended question transcribed in free text and answered by 27 out of 37 respondents (68%) who were not working with a PA student. Half of respondents stated in a general fashion that they wanted to have a PA in their ED to reduce the overall burden/workload on physicians (48%). The other half of the response themes were more specific examples,

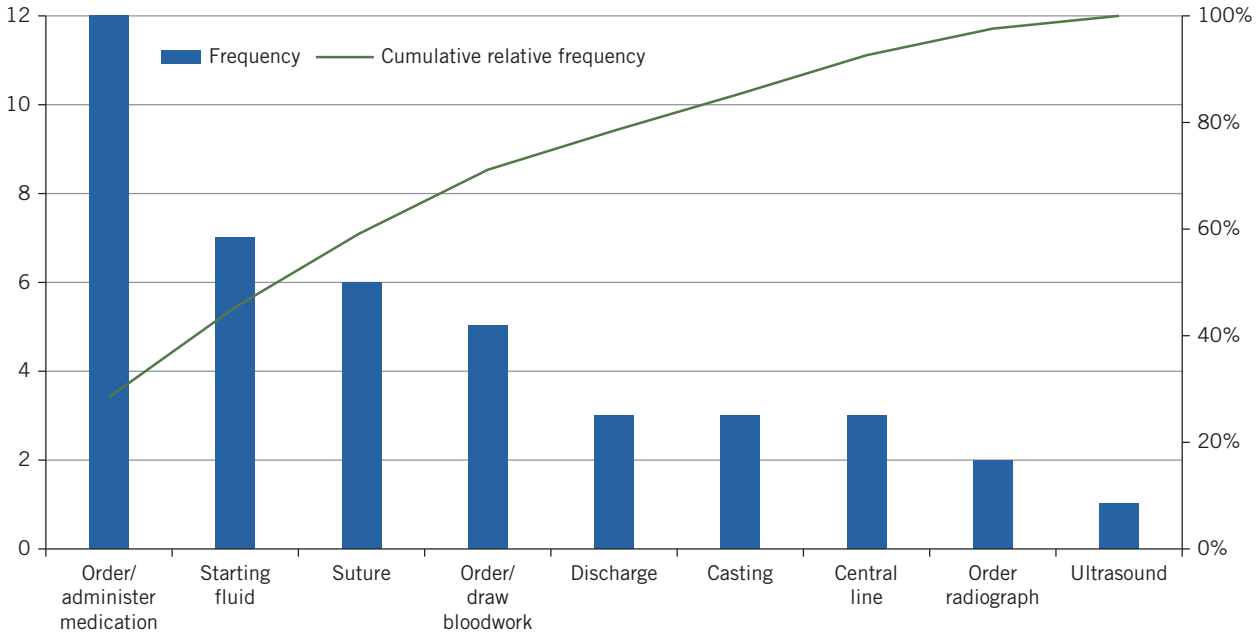



**FIGURE 1.** Pareto chart of additional scope of practice items that ED physicians believe PAs should have

stating that they wanted to work with PAs for help with procedures, administrative work and managing the ED, for help with resuscitation in the ED, for patient monitoring and transportation, for increasing the workforce, for improving quality and speed of care, and for creating permanent staff members (**Figure 2**).

Of the four respondents (15%) who stated that they did not want to work with a PA, the three reasons given were: the desire for more nurses instead, the desire for more physicians instead, and the belief that PAs would not be helpful. Additional responses from the general comments section revealed two new nascent themes: a general feeling among some respondents that the PA rollout was rocky with unclear role definitions and that PA education should be more extensive to increase PAs' medical knowledge.

## DISCUSSION

The PA profession has existed for more than 50 years in the United States, with even older historical models elsewhere.[15-21] The modern PA role has experienced a global expansion in recent years due to many countries' desire to tackle their healthcare delivery gaps. PAs often are deployed in understaffed settings such as primary care, rural medicine, and emergency medicine.[15-21]

The large majority of ED physicians who were not working with a PA would like to do so. The reasons here were similar to the reasons for which we see PAs being developed around the world. Physicians want PAs to reduce their overall workload and health policy leaders want to increase access to care. Countries create a PA role based on an understanding that their physician workforce is or will be inadequate to meet their population's needs.[15,16,21] Many of these countries also have a concurrent nursing shortage and feel that creating a new and different profession is a good way to move beyond an antiquated care delivery model based on the physician-nurse dyad, as well as to expand toward modern service delivery models of team-based healthcare.

**Helpfulness in the ED** Physicians in the ED felt that the PA students were *helpful* to *very helpful* in all of the listed tasks. This positive response in their education phase was probably a result of the good fit between paramedics and the ED and also that only students with significant experience were admitted. Many PA programs in the United States no longer require healthcare experience as a prerequisite and indeed, inexperienced students might not be clinically productive in a blended early clinical integration model that puts them to work right away.

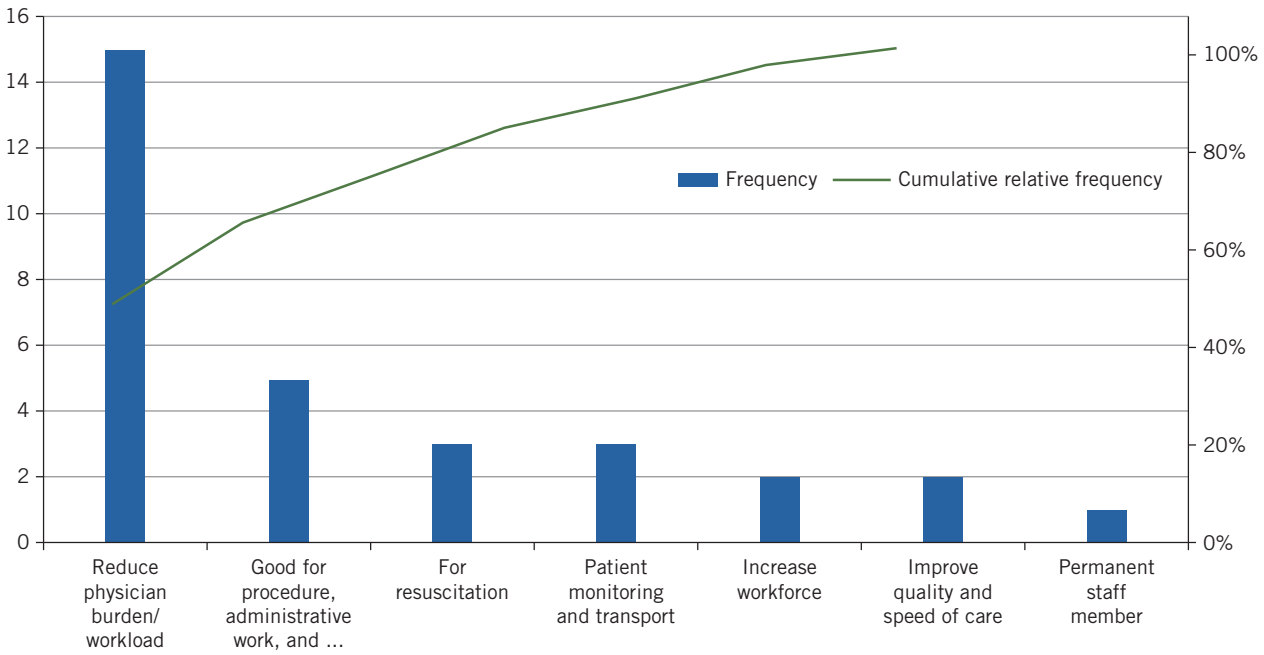
An interesting finding in this study was that ED physicians who *did not* work with PA students predicted that they *should* be helpful in each clinical task at the same level that was reported by ED physicians who *did* work with PA students. This comparison between groups serves as a type of cross-sectional validation that the PA students are meeting the expectations of ED physicians. The physician-PA relationship is built upon what medical sociologists have coined *mutually negotiated autonomy*.[22,23] This is a stepwise delegation of authorities based on a gradual acquisition of clinical competencies. For the survey results between groups to be so strikingly similar, it appears that

ED physicians had formulated an accurate idea of how the new PA clinician could contribute. The MOH had recommended that PAs eventually be rolled out to other medicine and surgical specialties, and this finding may have implications for planning future PA roles.

**Ordering medication and additional tasks** Ordering medication for ED patients was the most commonly cited task that ED physicians would like in an expanded PA scope of practice. Note that there can be a difference between ordering medication within a hospital system for ED treatment purposes only versus full medication prescribing privileges. The survey did not explicitly differentiate between the two, but the context would suggest that physicians were referring to the former rather than the latter. A recent survey of physicians in the United Kingdom, where PAs have existed for more than 10 years and also do not have medication prescribing rights, showed that physicians thought that PAs not being able to prescribe medicine was an obstacle in care delivery.[24] Recently, in Israel, there has been significant debate over medication prescribing privileges in light of a push by pharmacists to obtain the right to renew chronic medication prescriptions on their own, and a different push from nurses to develop primary care NPs with medication prescribing rights.[25,26] This has caused debate and strong opposition from the Israel Medical Association as well as the Israeli Association of Family Physicians and the Israeli Pediatric Association (these issues are still in contention and have yet to be resolved).[25-27] Right now, PAs cannot order any medications in the ED and have no prescriptive authority. Even if a medication is recommended by the PA, the order must be signed by a physician. This survey suggests that ED physicians believe PAs should have the ability to order at least some types of medications in the ED (such as analgesics and bronchodilators) to improve workflow and expedite patient care. Several medications and therapies were already within the PA's previous scope of practice as a paramedic in the prehospital setting. In the Netherlands, PAs existed for several years without the ability to prescribe medications before the country decided to perform a 5-year trial of medication prescriptive authority (among other expanded privileges). This structured trial and evaluation process was completed in 2017 and led to legislation that permanently granted these authorities.[14]

Several respondents had critical comments about the logistical nature of the project's rollout and the unclear role definitions for the new Israeli PAs. Also, it was mentioned that their education should be more medically advanced. These PA students were specialty trained in emergency medicine and although they received a sizable number of instructional hours, they did not follow the typical PA educational model seen in other countries. The United States and most other countries educate PAs in general medicine at the master's degree level for a length of just over 2 years.[15,19] There are discussions to further the Israeli PA project at an academic institution and transition PAs to a general medicine education. This would allow PAs to be educated in all aspects of allopathic medical care and be flexible to enter the workforce and fill gaps in any specialties where they would be needed.

**FIGURE 2.** Pareto chart of reasons that ED physicians would like to work with PAs



## LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

This was a cross-sectional study of ED physicians' attitudes and perceptions of new PA students at a single point in time. Although ED physicians are a good source of information about how well PA students are contributing, the survey is subjective and based on self-reported responses that were transcribed by a research assistant. We did not collect ED location data in this survey for the sake of anonymity, but future research may find differences in physician perceptions from one hospital to another based on personnel, ED patient load, and workforce resources. Future research also should look at nurse and patient perceptions of PAs. This study occurred during PA training and could only include information about the performance of PA students. Now that the first group has been graduated, future studies also should look at PAs with varying years of professional experience. Future studies also should attempt to look at clinical outcomes related to the quality of PA care and how PA contributions improve the overall quality of services received in the ED.

## CONCLUSIONS

Israeli ED physicians believed that PA students helpfully contributed to ED services during their educational time. PA students were meeting expectations and performing at the level at which ED physicians predicted they should be contributing. Most ED physicians who were not working with a PA would like to work with one. Physicians would like to see PAs increase their scope of practice in the ED with interventions such as ordering medications, suturing, initiating IV fluid therapy, and writing discharge orders. Some physicians believed that better role definition is needed for the new PAs and that their medical education should be broadened. This study has revealed early clinical benefits from this blended education model that immediately integrates Israeli PA students into their clinical environments. **JAAPA**

## REFERENCES


1. Israel Ministry of Health. Survey of patient experiences in emergency departments—2015. www.health.gov.il/UnitsOffice/HD/HQD/publicComplains/Quality_Service/surveys/emergency/Pages/satisfaction_patients_malrad2015.aspx. Accessed October 6, 2020.
2. Landau SF, Bendalak J, Amitay G, Marcus O. Factors related to negative feelings experienced by emergency department patients and accompanying persons: an Israeli study. *Isr J Health Policy Res*. 2018;7(1):6.
3. Israel Ministry of Health. Visits to the department of emergency medicine characteristics 2016. www.health.gov.il/PublicationsFiles/emergency_2016.pdf. Accessed October 6, 2020.
4. Israel Ministry of Health. Final Report of the Committee for the Advancement of Emergency Medicine in Israel. www.health.gov.il/PublicationsFiles/OR_committy.pdf. Accessed October 6, 2020.
5. Organisation for Economic Cooperation and Development. OECD economic surveys: Israel 2018. www.oecd-ilibrary.org/economics/oecd-economic-surveys-israel-2018_eco_surveys-isr-2018-en. Accessed September 29, 2020.
6. Horowitz PK, Shemesh AA, Horev T. Is there a doctor in the house? Availability of Israeli physicians to the workforce. *Isr J Health Policy Res*. 2017;6(1):31.
7. Aaron EM, Andrews CS. Integration of advanced practice providers into the Israeli healthcare system. *Isr J Health Policy Res*. 2016;5(1):7.
8. Berkowitz O, Gelbshtein U, Segal I, Jacobson E. The new Israeli PA. *JAAPA*. 2018;31(7):46-48.
9. Berkowitz O, Jacobson E, Fire G, Afek A. Physician assistants in Israel. *JAAPA*. 2014;27(12):7-8.
10. Maoz-Breuer R, Berkowitz O, Nissanholtz-Gannot R. Integration of the first physician assistants into Israeli emergency departments—the physician assistants' perspective. *Isr J Health Policy Res*. 2019;8(1):4.
11. Ballweg R, Wick KH. MEDEX Northwest: workforce innovations. *J Physician Assist Educ*. 2007;18(3):30-39.
12. Spenkelink-Schut G, ten Cate OTJ, Kort HSM. Training the physician assistant in the Netherlands. *J Physician Assist Educ*. 2008;19(4):46-53.
13. van den Driesschen Q, de Roo F. Physician assistants in the Netherlands. *JAAPA*. 2014;27(9):10-11.
14. De Bruijn-Geraets DP, Van Eijk-Hustings YJL, Vrijhoef HJM. Evaluating newly acquired authority of nurse practitioners and physician assistants for reserved medical procedures in the Netherlands: a study protocol. *J Adv Nurs*. 2014;70(11):2673-2682.
15. Ballweg RM, Hooker RS. Observations on the global spread of physician assistant education. *J Physician Assist Educ*. 2017;28(suppl 1):S75-S80.
16. Cawley JF, Hooker RS. Determinants of the physician assistant/associate concept in global health systems. *Int J Healthc*. 2018;4(1):50.
17. Cobb N, Meckel M, Nyoni J, et al. Findings from a survey of an uncategorized cadre of clinicians in 46 countries—increasing access to medical care with a focus on regional needs since the 17th century. *World Health Popul*. 2015;16(1):72-86.
18. Mullan F, Frehywot S. Non-physician clinicians in 47 sub-Saharan African countries. *Lancet*. 2007;370(9605):2158-2163.
19. Hooker RS, Hogan K, Leeker E. The globalization of the physician assistant profession. *J Physician Assist Educ*. 2007;18(3):76-85.
20. Dehn RW, Everett CM, Hooker RS. Research on the PA profession: the medical model shifts. *JAAPA*. 2017;30(5):33-42.
21. Dehn RW. Global physician shortages and the PA profession. *JAAPA*. 2008;21(10):46-50.
22. Cawley JF, Bush E. Levels of supervision among practicing physician assistants. *JAAPA*. 2015;28(1):61-62.
23. Schneller ES. *The Physician's Assistant: Innovation in the Medical Division of Labor*. Lexington, MA: Lexington Books; 1978.
24. Williams LE, Ritsema TS. Satisfaction of doctors with the role of physician associates. *Clin Med (Lond)*. 2014;14(2):113-116.
25. Israeli Medical Association. Position paper on the modification of pharmacist regulations to allow medication prescription by pharmacists. www.ima.org.il/userfiles/image/pharmacist2016.pdf. Accessed September 29, 2020.
26. Israeli Medical Association. Expanding the authority of nurses, pharmacists and para-medical professionals. www.ima.org.il/eng/ViewContent.aspx?CategoryId=4479. Accessed October 6, 2020.
27. Israeli Association of Family Physicians, Israeli Pediatric Association. Community nurse practitioner in Israel—position paper, literature review, analysis, and recommendations. https://cdn.mednet.co.il/2018/05/1285936-1.pdf. Accessed September 29, 2020.