

International Experience of US Pediatricians and Level of Comfort Caring for Immigrant Children and Children Traveling Internationally

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Objective To determine whether international experience is associated with greater comfort in providing care to US children who are immigrants, refugees, and traveling internationally.

Study design Following enrollment into the 2018 American Board of Pediatrics Maintenance of Certification program, general pediatricians and subspecialists received a voluntary, online survey with questions about their experience and self-reported comfort caring for immigrant, refugee, and internationally traveling children and previous international experiences. Using multivariable logistic regression, we examined how previous international experiences, and other personal characteristics, were associated with self-reported comfort.

Results A total of 5461 eligible participants completed the survey; 76.3%, (n = 4168) reported caring for immigrant children, 35.8% (n = 1957) cared for refugee children, and 79.8% (n = 4358) cared for children traveling internationally. High levels of comfort caring for immigrant children were reported by 68.5% (n = 3739), for refugee children by 50.1% (n = 2738), and for children traveling internationally by 72.7% (n = 3968). One-third of respondents (34.1%, n = 1866) reported past international experiences. In multivariable analysis, respondents with previous international experience and of Hispanic origin were significantly more likely to report high levels of comfort caring for all 3 populations.

Conclusions The majority of pediatricians report caring for children in the US who are immigrants, refugees, and traveling internationally, and previous international experience was associated with greater comfort with care. Training programs and professional organizations should consider ways to encourage a more diverse workforce and to support all pediatricians in achieving the skills and confidence required to care for children in our highly mobilized society. (*J Pediatr 2020;225:124-31*).

ediatricians in the US are caring for a more diverse, mobile population than ever before. Every day, the US Customs and Border Protection has almost 1 million interactions with travelers entering the US¹ and nearly 2.8 million people fly in and out of US airports daily.² One in four US infants, children, and adolescents (hereafter "children") now live in immigrant families³ with either the child or a parent having been born outside of the US.⁴ A smaller number of children arrive in the US as refugees, a legal designation obtained before entry into the US for immigrants fleeing violence, war, or persecution in their home countries,⁴ with 941 000 US children younger than 10 years of age living in refugee families between 2009 and 2013.⁵ Some children arrive with asylum-seeking families who have not been officially designated a refugee or as unaccompanied minors. For many reasons, ranging from leisure travel to forced migration, this high volume of transit affects all demographic

groups and regions in the US and has led to shifting patterns of diseases. Pediatricians today must recognize and distinguish childhood illnesses common in the US from diseases like measles, zika, Ebola, and coronavirus and be prepared for the complex psychosocial dynamics experienced by these populations of children, whether due to the fear of parental deportation, traumatic life events, or the long-term impact of acculturative stress for those living in immigrant and refugee families.

Little is known about how frequently pediatricians provide care to immigrant, refugee, and internationally traveling children or how well-prepared they are to do so. Some pediatricians deliberately increase their exposure to diverse patient populations and diseases via global health experiences, although the numbers of pediatricians seeking out these experiences and whether they are better equipped to care for children in their US-based practices is not well-understood.

AAP-PS American Academy of Pediatrics' Periodic Survey of Fellows
ABP American Board of Pediatrics

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0022-3476/\$ - see front matter. © 2020 Elsevier Inc. All rights reserved https://doi.org/10.1016/j.jpeds.2020.06.026 Given the relative paucity of national data about practicing pediatricians' involvement with today's mobile, globalized population, we sought to explore this issue within the pediatric workforce in a nationally representative sample of practicing pediatricians. This article aims to describe the experience and self-reported comfort of board-certified practicing pediatricians in providing care for 3 groups of children in the US—immigrants, refugees, and those traveling internationally, describe their participation in international global health experiences, and determine whether international global health experience is associated with greater comfort in providing care to these children in the US.

Methods

In 2017, the American Board of Pediatrics (ABP) Global Health Task Force developed and pilot-tested a 5-question survey targeting the experience and comfort of pediatricians caring for immigrant, refugee, and internationally traveling children and their experience working internationally. These questions were embedded in a voluntary "Pediatrics Training, Workforce, and Career Survey" made available to all participants enrolling in the ABP Maintenance of Certification program in 2018. The survey was open from January through December 2018. Participants were informed that survey participation had no bearing on their certification status or their re-enrollment. The ABP's institutional review board deemed the survey exempt from human subjects review.

Survey Elements

Participants were asked if they had cared for immigrant children, refugee children, children planning to travel internationally, or children who have traveled internationally in their practice in the last 12 months (response options: yes, no, not sure). Definitions of these populations were not provided. Using a 5-point Likert scale, they were asked to indicate their self-reported comfort caring for these same patient populations (not at all comfortable, a little comfortable, somewhat comfortable, very comfortable, or extremely comfortable). Respondents were also asked to report any time spent in a professional capacity in a low- or middleincome country (hereafter, "international experience") including but not limited to clinical care, advocacy, research, education, or administration—and whether this experience had occurred in the last 5 years. The survey did not explicitly define when an international experience in a professional capacity could have occurred (ie, work conducted in or before medical school, during graduate medical training, or work following completion of training).

Independent Variables

Our primary independent variable was past international experience (yes or no) regardless of time frame. We also examined the following individual and practice characteristics as covariates: age, sex, race/ethnicity (mutually exclusive

categories; Hispanic race/ethnicity includes all respondents reporting Hispanic ethnicity; all other categories represent non-Hispanic respondents), years since completion of training, medical school location (American medical school vs international medical school), current practice setting (urban inner city, urban not inner city, suburban, or rural), clinical role (general pediatrics, subspecialist, hospitalist, or other), and academic appointment (yes or no).

Outcomes

We examined 2 primary outcomes for 3 pediatric population groups—immigrant children, refugee children, and children traveling internationally; traveling to or returning from international travel were merged into one group, given the similarity in responses to these survey questions. First, we examined pediatrician-reported experience caring for each of these 3 populations as a binary outcome (yes or no). Second, we examined self-reported comfort level in providing care. For this analysis, we also created binary variables, with high levels of comfort defined as "very comfortable" or "extremely comfortable," and lower levels of comfort defined as "not at all comfortable," "a little comfortable," and "somewhat comfortable." To create these outcomes for children traveling internationally, respondents were required to have provided affirmative responses to questions about caring for children planning to travel internationally as well as those who had traveled internationally.

Statistical Analyses

To identify demographic and professional characteristics associated with past international experience, we calculated differences in these characteristics between respondents' with and without international experience using χ^2 tests and t tests as appropriate. We then examined differences between these groups in their reported clinical experience and level of comfort with the 3 pediatric population groups.

We used logistic regression to identify factors associated with reporting high levels of comfort providing care for these populations. Initial models were unadjusted. To examine our hypothesis that international experience is associated with comfort providing care for immigrants, refugees, and international travelers, we then developed multivariable models, adjusting for age, sex, race/ethnicity, years since training completion, medical school location, practice setting, clinical role, and academic appointment. All analyses were conducted using Stata 15 (StataCorp LLC, College Station, Texas), using 2-sided tests and defining *P* values <.05 as statistically significant.

Results

Of the 9615 pediatricians enrolling in Maintenance of Certification in 2018, 5537 responded to the Global Health Task Force survey questions, representing a response rate of 57.5%. After we excluded respondents practicing outside of the US and those not practicing clinically, a sample of 5461

Table I. Demographic and professional characteristics of survey respondents, overall and stratified by previous
international experience

	Full sample ($n = 5461$)	International experience ($n = 1866$)	No international experience ($n = 3595$)	<i>P</i> value
Respondent characteristics	n (%)	n (%)	n (%)	
Age, y (mean, SD)	47.6 (9.0)	47.9 (9.5)	47.5 (8.9)	.13
Sex, female	3534 (64.7)	1212 (65.0)	2322 (64.6)	.79
Race/ethnicity	, ,	,	, ,	<.001
White	3164 (57.9)	920 (49.3)	2244 (62.4)	
Hispanic, Latino, or Spanish origin	423 (7.8)	198 (10.6)	225 (6.3)	
Black or African American	282 (5.2)	114 (6.1)	168 (4.7)	
Asian	990 (18.1)	405 (21.7)	585 (16.3)	
Other	48 (0.9)	20 (1.1)	28 (0.8)	
More than one race	97 (1.8)	51 (2.7)	46 (1.3)	
Medical school location	` '	,	, ,	<.001
American	4243 (77.7)	1194 (64.0)	3049 (84.8)	
International	1218 (22.3)	672 (36.0)	546 (15.2)	
Years since training completion	,	,	,	<.001
<5	830 (15.2)	332 (17.8)	498 (13.9)	
5-10	1254 (23.0)	452 (24.2)	802 (22.3)	
≥10	3377 (61.8)	1082 (58.0)	2295 (63.8)	
Practice setting	((****)	(<.001
Urban, inner city	1444 (26.4)	571 (30.6)	873 (24.3)	
Urban, not inner city	1613 (29.5)	583 (31.2)	1030 (28.7)	
Suburban	1934 (35.4)	546 (29.2)	1388 (38.6)	
Rural	470 (8.6)	166 (8.9)	304 (8.5)	
Clinical role	(6.6)	. 55 (5.5)	33 (3.3)	<.001
General pediatrics	2940 (53.8)	924 (49.5)	2016 (56.1)	1.001
Hospitalist	368 (6.7)	144 (7.7)	224 (6.2)	
Subspecialist	2013 (36.9)	748 (40.1)	1265 (35.2)	
Other	140 (2.7)	50 (2.7)	90 (2.5)	
Academic appointment	(=)	33 (2)	55 <u>(</u> 2.5)	<.001
Yes	3084 (56.5)	1109 (59.4)	1975 (54.9)	1.001
No	2377 (43.5)	757 (40.6)	1620 (45.1)	

participants remained (Table I). Respondents were primarily female, white, and American medical school graduates; most had been in practice more than 10 years. Respondents represented diverse practice settings and clinical roles; approximately one-half worked as general pediatricians, and just more than one-half reported having academic affiliations; 56% worked in urban settings, with the remainder working in suburban and rural environments. There were no significant differences between survey respondents and nonrespondents with respect to sex. Differences between respondents and nonrespondents with respect to age and initial year of ABP certification year were small (ages of 47.6 years and 47.2 years respectively, P = .02; initial certification year of 2004 and 2003, P < .01). Survey respondents were more frequently graduates of American medical schools (77.7% of survey respondents, 73.8% of nonrespondents, P < .001). In comparing respondents with nonrespondents, we were unable to examine race/ethnicity as this information was not available for nonrespondents.

The **Figure** shows the experience and self-reported comfort in caring for immigrant, refugee, and internationally traveling children reported by respondents. Three-quarters of respondents (76.3%, n = 4168) reported experience caring for immigrant children, 35.8% (n = 1957) reported experience caring for refugee children, and 79.8% (n = 4358) reported experience caring for children traveling internationally. High levels of comfort providing care for these same populations

were reported by 68.5% (n = 3739), 50% (n = 2738), and 72.7% (n = 3968) of respondents, respectively.

One-third of respondents (n = 1866, 34.1%) reported ever having past international experience; of those, 670 (35.9%) reported experience in the past 5 years. In unadjusted bivariate analyses, there were no significant differences between respondents with and without international experience with respect to sex or age (Table I). However, respondents with past international experience were more likely to report their race/ethnicity as Hispanic, black or African American, Asian, or more than 1 race. Those with past international experience were also more likely to be graduates of international medical schools, work in urban settings, and have completed their training in the last 5 years. Subspecialists and respondents with academic appointments were also more likely to report international experience.

Physicians with and without international experience reported notable differences in experience and comfort with the 3 patient populations. Respondents with international experience were significantly more likely to report experience caring for immigrant children (79.8% compared with 74.5% without international experience, P < .001) and for refugee children (41.4% compared with 33.0% without international experience, P < .001). The proportion of respondents who reported providing care to children traveling internationally was not significantly different between those with and

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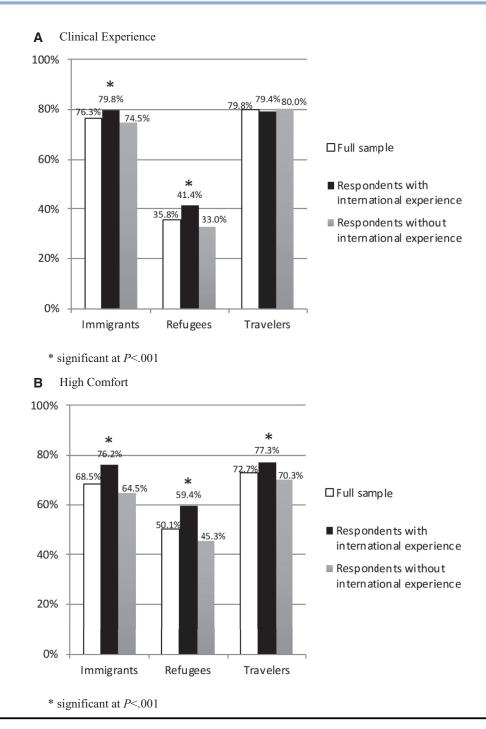


Figure 1. Respondent-reported **A,** clinical experience and **B,** high level of comfort caring for immigrant children, refugee children, and children traveling internationally in the full sample and among respondents with and without international experience. *Significant at P < .001.

without international experience. Respondents with international experience were significantly more likely than respondents without international experience to report high levels of comfort in providing care for these 3 populations of children. The differences were the most marked for comfort in taking care of refugees and immigrants and somewhat less so in the care of children traveling internationally (**Figure**, B).

When we controlled for all covariates via logistic regression, international experience remained independently associated with reporting greater levels of comfort providing care to these populations of children (Table II). In addition, in all 3 multivariable models, older age and Hispanic ethnicity were independently associated with high levels of comfort, and female sex was consistently associated with lower levels of reported comfort. Hispanic ethnicity demonstrated the

Table II. Odds of reporting high levels of comfort in providing care to immigrant children, refugee children, and children traveling internationally

Respondent characteristics	Immigrant children	Refugee children	Children traveling internationally
International experience	1.41 (1.23-1.61)*	1.40 (1.24-1.59)*	1.37 (1.20-1.57)*
Age, y	1.02 (1.01-1.03)*	1.03 (1.02-1.05)*	1.02 (1.01-1.03)*
Sex, female	0.76 (0.67-0.86)*	0.67 (0.59-0.76)*	0.79 (0.69-0.90)*
Race/ethnicity	,	,	,
White	reference	reference	reference
Hispanic, Latino, or Spanish origin	2.68 (1.99-3.61)*	1.75 (1.38-2.21)*	1.35 (1.04-1.75)*
Black or African American	1.52 (1.15-2.03)*	1.33 (1.02-1.73)*	0.97 (0.73-1.29)
Asian	1.40 (1.17-1.67)*	0.94 (0.80-1.10)	1.06 (0.89-1.26)
Other	0.80 (0.43-1.48)	0.85 (0.47-1.55)	0.66 (0.35-1.22)
More than one race	1.46 (0.90-2.36)	1.21 (0.79-1.86)	1.66 (0.99-2.78)
Medical school location	,	,	,
International	reference	reference	reference
American	0.53 (0.44-0.64)*	0.48 (0.41-0.57)*	0.70 (0.59-0.84)*
Years since training completion	,	,	,
<5	reference	reference	reference
5-10	0.88 (0.72-1.08)	0.89 (0.74-1.08)	0.90 (0.74-1.10)
≥10	0.79 (0.62-1.01)	0.69 (0.55-0.87)*	0.96 (0.75-1.22)
Practice setting	,	,	,
Urban, inner city	reference	reference	reference
Urban, not inner city	0.61 (0.51-0.72)*	0.64 (0.55-0.75)*	0.90 (0.77-1.06)
Suburban	0.48 (0.40-0.57)*	0.51 (0.43-0.59)*	1.00 (0.84-1.19)
Rural	0.48 (0.38-0.61)*	0.60 (0.47-0.75)*	0.78 (0.61-0.999)*
Practice type	,	,	,
General pediatrics	reference	reference	reference
Hospitalist	1.06 (0.83-1.36)	1.46 (1.15-1.85)*	0.49 (0.39-0.63)*
Subspecialist	1.25 (1.07-1.46)*	1.75 (1.52-2.01)*	0.70 (0.60-0.81)*
Other	1.17 (0.83-1.36)	1.56 (1.09-2.23)*	0.47 (0.33-0.68)*
Academic appointment (no is reference)	1.01 (0.89-1.15)	1.01 (0.89-1.14)	0.99 (0.87-1.13)

Multivariable models adjusted for all respondent characteristics shown—a0R (95% Cl). *Significant at P < .05.

largest OR of all covariates examined in our 3 models. Graduating from an international medical school and working in urban inner-city practices also were independently associated with high levels of comfort providing care for immigrant and refugee children. The odds of reporting high levels of comfort providing care to immigrant and refugee children were greatest among subspecialists. However, subspecialists and hospitalists were both significantly less likely to report comfort caring for children traveling internationally relative to general pediatricians. Having an academic appointment was not independently associated with reported comfort level in providing care to these pediatric populations in any model.

Discussion

In this sample of US pediatricians, the majority reported that they provide care for immigrant children and children traveling internationally. Many pediatricians also reported previous international experience themselves. Fewer pediatricians reported exposure to, or high levels of self-reported comfort with, caring for refugee children compared with immigrant children or international travelers. Pediatricians with previous international experience were more comfortable caring for all 3 populations.

More than one-quarter of all US children are immigrants.³ Despite robust descriptions of their unique health considerations and available clinical resources to support their

care, ^{4,6-8} we found that not all pediatricians are comfortable caring for this group of patients. This finding aligns with a study by Sisk et al, who examined preparedness to care for children in immigrant families among pediatricians participating in the 2017 American Academy of Pediatrics' Periodic Survey of Fellows (AAP-PS). Given the recent treatment of children at the US border and the mental health impact of immigration policies, ¹¹ pediatric organizations like the AAP have advocated for policies that promote the health and well-being of immigrant children. ^{4,12,13} In addition to policies that support the well-being of immigrant children, addressing the gap between practice and comfort in caring for immigrant children is important, as pediatricians may be initial points of contact with the healthcare system for a large number of immigrant children.

Refugee children make up a small subset of all immigrant children, and the number of refugees accepted for resettlement in the US has declined in recent years. ¹⁴ These children have been forced to flee their home due to violence, war, or persecution and their families have sought refugee status through an official organization like a government or the United Nations Refugee Agency. Fewer pediatricians reported caring for refugee children than immigrant children and children traveling internationally; self-reported comfort was also significantly lower for this patient population. These lower rates of experience and comfort are likely multifactorial—potentially attributable to volume of patients, lack of knowledge of refugee status, and/or the specific needs of

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different refugee populations. However, refugees face some distinct challenges, and pediatricians caring for this population should be familiar with their specific health needs, the refugee resettlement process, and the importance of trauma-informed care. 8,10,15,16 Special attention also should be paid to 2 groups of immigrating children who share risk factors with children in refugee families: those who are a part of asylum-seeking families who did not obtain legal designation as a refugee before entry to the US and unaccompanied minors.

In 2017, the US Department of Commerce reported more than 38 million US travelers visited overseas destinations and 8% of international trips included children. ¹⁷ Issues affecting children traveling internationally range from pre-travel counseling¹⁸ to post-travel symptoms such as fever or diarrhea.¹⁹ We found that pediatricians, particularly those in general practice, reported both more experience and comfort with children traveling internationally than either immigrant or refugee children. Given that these children are most likely to present before travel in ambulatory settings when they are well, it is perhaps not surprising that general pediatricians overall are most comfortable with this population. Although the majority of children travel internationally for tourism, proportionally more children than adults travel to visit friends and relatives abroad, particularly in younger age groups. 19-21 This subset of children is more vulnerable to travel-related illness due to lower rates of pretravel care. 20,22 Pediatricians may consider providing anticipatory guidance about the importance of pretravel care with families in their practice who have relatives abroad.

Just more than one-third of pediatricians in this survey reported having previous international experience, one-third of these in the last 5 years. These data are consistent with pediatric resident exposure²³ and 2017 AAP-PS data.²⁴ Extrapolating our data to the full workforce of board-certified pediatricians (74 490 as of December 2017²⁵), our findings suggest that upwards of 25 000 pediatricians have international experience and nearly 9000 have spent professional time abroad in the last 5 years. These pediatricians are traveling to regions of the world where there may be fewer than 1 physician per 1000 patients and significantly lower numbers of pediatricians; this type of travel, if wellcoordinated, could potentially address gaps in care in those regions.²⁶ Conversely, this could pose a significant potential burden to resource-limited health care settings if pediatricians are not well-prepared or experiences are undertaken in isolation.²⁷

There has been increased attention around an emerging concept of "local global health." Although there is no consensus definition, this construct links local health disparities with disparities in some international settings and recognizes the shared skillset used in caring for populations at home and abroad. ²⁸ There has been growing support for this paradigm among global health educators from undergraduate through graduate medical education. ²⁹⁻³¹ In addition, returning trainees have reported increased interest in working with underserved domestic populations. ³² We

found that pediatricians with previous international experience reported interacting with immigrant, refugee, and traveling children more frequently than those who had no international experience, supporting this connection. Further, those with previous international experience had a narrower gap between types of patients cared for and their comfort level across all 3 population groups. In the 2017 AAP-PS, Sisk et al⁹ did not find an association between preparedness to care for immigrant children and international experience in the preceding 12 months; however, this might be explained by difference in both sample size and how international experiences were defined in the AAP-PS.

There has been a call for pediatricians, pediatric departments, and professional societies to recognize the needs of underserved patients, whether international or local.³³ Our data suggest that pediatricians are seeking out international experiences, and that these experiences are associated with achieving a greater comfort in providing care to these populations of children. The greatest levels of comfort in caring for these populations was found among pediatricians reporting Hispanic ethnicity, supporting the value of recruiting a more diverse workforce. 34,35 This may reflect greater exposure to diverse patient populations or a more diverse life experience. Being a graduate of an American medical school was associated with lower levels of comfort in caring for all three population groups, highlighting a potential gap in training of current US medical students. Pediatric training programs should consider ways in which the care of immigrant and refugee children may be enhanced in their current curricula through both content delivery and experiential

Given that pediatricians with past international experience were more likely to have academic appointments and subspecialty training, academic health centers have even more cause to embrace educational opportunities like international experience as part of their mission. Professional societies also may consider evaluating their content for what is currently included to address issues of cultural humility, the use of interpreters, trauma-informed care, promotion of protective factors in immigrant and refugee children, and the specific health needs of these 3 populations of patients. 4,34,35

This study was not without limitations. Survey respondents were asked to self-report what types of patients they cared for in their practice and not the volume of those patients, introducing the possibility of response bias and inconsistencies in distinguishing among immigrant and refugee populations, leading to possible over- or under-reporting of experience with these populations. Pediatricians self-reported their relative comfort levels, and although comfort could be seen as a proxy for competence, we are unable to evaluate the quality of care provided. Regarding international experience, although we are able to describe the number of pediatricians who report previous professional experience in low- or middle-income countries, we are unable to comment on the quality, duration, timing (training vs practice), or outcome of those experiences. Our data describe an

association and not causation; it is unclear if international experiences in turn lead to greater comfort caring for diverse populations or if pediatricians who are already comfortable with diverse populations purposefully seek out these types of experiences and self-select to care for diverse populations. Last, our data are compatible with but not confirmatory with our hypothesis and our subsequent recommendations.

The majority of pediatricians report that their patient populations reflect our highly mobilized society and those with experience traveling in a professional capacity themselves appear more comfortable caring for patients who have traveled or are affected by globalization. Some pediatricians still are not comfortable caring for these populations of children. Training programs and professional organizations should consider ways to support the needs of pediatricians to achieve the skills and confidence required to care for all children and encourage recruitment of diverse into pediatrics to provide care for under-represented minorities.

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Data Statement

Data sharing statement available at www.jpeds.com.

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Appendix

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