

# COVID-19 Pandemic Impact on Pediatricians Entering the Pediatric Workforce

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## ABSTRACT

**OBJECTIVE:** Determine extent of impact of coronavirus disease 2019 (COVID-19) pandemic on career choice and employment of pediatricians entering pediatric workforce.

**METHODS:** A national, cross-sectional electronic survey of pediatricians registering for the 2021 American Board of Pediatrics initial general certifying examination on the impact of the COVID-19 pandemic on 3 aspects of career (career choice, employment search, employment offers) was performed. Data were analyzed using descriptive statistics and multivariate logistic regression to determine factors associated with the pandemic's impact on career. Thematic analysis was used to generate themes for open-ended survey questions.

**RESULTS:** Over half (52.3%, 1767 of 3380) of pediatricians responded. Overall, 29.1% reported that the pandemic impacted their career (career choice [10.4%], employment search [15.6%], or employment offers [19.0%]); applicants to general pediatrics (GP) (52.9%) or pediatric hospitalist (PH) positions (49.3%) were most affected. Multivariate logistic

regression modeling found those applying to GP (odds ratio [OR]: 3.83, 95% confidence interval [CI]: 2.22–6.60), PH (OR: 9.02, 95% CI: 5.60–14.52), and International Medical Graduates (IMGs) (OR: 1.90; 95% CI: 1.39–2.59) most likely to experience any career impact.

**CONCLUSIONS:** Almost one third of pediatricians registering for the initial general pediatrics certifying examination reported their careers were impacted by the COVID-19 pandemic, with 10% of respondents reporting the pandemic impacted their career choice. Half of new pediatricians seeking employment reported being impacted by the pandemic, particularly IMGs. As the pandemic evolves, career advising will continue to be critical to support trainees in their career choices and employment.

**KEYWORDS:** career choice; coronavirus disease 2019; pediatricians; workforce

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## WHAT'S NEW

Almost one third (29%) of pediatricians registering for the initial general pediatrics certifying examination reported their careers were impacted by coronavirus disease 2019 pandemic, with 10% reporting impact on career choice. Half of new pediatricians seeking employment reported being impacted.

THE CORONAVIRUS DISEASE 2019 (COVID-19) pandemic has disrupted health care broadly, including the training of over 9100 categorical pediatric residents across 212 training programs in the United States.<sup>1–4</sup> In both inpatient and outpatient settings, clinical volumes dropped dramatically during the pandemic, resulting in fewer in-person patient encounters, a change in the range of

diagnoses seen, and, at some programs, redeployment to care for adults.<sup>3,5–7</sup> Hospital financial constraints due to decreased patient volume,<sup>8,9</sup> potential attrition of physicians retiring early,<sup>10</sup> and the pediatric subspecialty deficit may have impacted potential positions available during the pandemic, and, in turn, may have impacted career and employment decisions of pediatricians entering the workforce. The impact of the COVID-19 pandemic on employment opportunities and decisions among graduating pediatric residents has not been well described.

Changing patterns within the pediatric workforce have important implications for the field and are of significant concern in the pediatric community.<sup>11</sup> The US Bureau of Labor Statistics predicts 1% growth in pediatric employment through 2031, which is slower than the average for all occupations (5%), and slower than the average for all

physicians and surgeons (3%).<sup>12</sup> Due to critical workforce shortages exacerbated by the pandemic, the Association of Medical School Pediatric Department Chairs recognized the importance of understanding recent trends in their 2025 pediatric workforce initiative project.<sup>13</sup> We sought to better understand the impact of the COVID-19 pandemic on pediatricians entering the workforce during the COVID-19 pandemic. Therefore, we conducted a national survey of pediatricians entering the pediatric workforce to determine extent of the pandemic's impact on career choice and employment.

## METHODS

We performed a national, cross-sectional, electronic survey of pediatricians registering for the 2021 American Board of Pediatrics (ABP) initial general certifying examination for the first time. Registration for the 2021 ABP examination took place between January and May 2021, approximately 1 year after the COVID-19 pandemic began. We received institutional review board (IRB) exemption from the ABP's IRB of record.

The survey was developed based on a literature review and revised based on feedback from cognitive interviews and pilot testing with several recent graduates with different career plans, including chief residents and graduates who pursued general pediatrics (GP) and fellowship careers. During the cognitive interviews, the investigator (S.T.L.) had the graduates talk through their understanding of the questions and their responses. Responses to the pilot testing were not included in the analysis.

Pediatricians registering for the 2021 ABP exam were asked to complete the 5-minute survey, which included questions about demographic characteristics, postresidency position, and impact of COVID-19 pandemic on career (*career choice* [fellowship, GP, other]; *employment search* [full-time, part-time, locum tenens, per diem, moonlighting, modified due to family commitments, other], and *employment offers* [unable to secure position in chosen location, practice type, full/part-time, benefits, start date, contract cancelled/rescinded/modified]). Respondents were asked about total personal current educational debt including undergraduate debt ("I have no personal educational debt," \$1 to <\$25,000, \$25,000 to <\$50,000, \$50,000 to <\$100,000, \$100,000 to <\$200,000, \$200,000 to <\$300,000, >\$300,000, unsure, I prefer not to answer). We included one optional open-ended question: "Please provide any additional comments on how the COVID-19 pandemic has impacted your postresidency employment."

Analysis primarily included descriptive statistics and multivariate logistic regression to determine factors associated with impact of COVID-19 pandemic on overall career (career choice, employment search, or employment offers). Educational debt was categorized as <\$200,000 and ≥\$200,000 as the median education debt for indebted medical school graduates was \$200,000.<sup>14</sup> The primary outcome of interest was any impact of COVID-19 pandemic on overall career (any impact on career choice,

employment search, or employment offers). In addition, impact of COVID-19 pandemic on career choice, employment search, or employment offers was examined separately.

In order to better understand the impact on pediatricians seeking employment, respondents were categorized into those out of the GP/pediatric hospitalist (PH) job market (those indicating their postresidency position was fellowship, chief residency, military, outside of the United States, pediatric subspecialty, positions caring for adults) and those in the GP/PH job market (outpatient GP, outpatient/inpatient GP, PH, newborn nursery, neonatal hospitalist, urgent care, emergency medicine, locum tenens, per diem, moonlighting, unknown, and unable to secure a job yet). A subanalysis restricted to only categorical pediatric graduates was performed to better understand the COVID-19 pandemic impact on pediatricians seeking pediatric positions, as Medicine-Pediatric physicians have the option to seek adult positions which may be differently impacted by the pandemic. We performed analyses using SAS version 9.4 (SAS, Cary, NC).

Three authors with expertise in qualitative research (S.L., E.A., and A.W.) performed thematic analysis of the qualitative data. All 3 of these authors met together to develop a coding framework. Each author subsequently coded each free text response independently before meeting together to discuss and reconcile any differences. The authors then discussed how the different codes and concepts interacted with each other to generate larger themes. These themes with illustrative quotes were then discussed with the larger research team to gain final consensus.

## RESULTS

A total of 52.3% (1767 of 3380) of pediatricians registering for the ABP initial GP certifying examination responded. Most respondents were female (72%; 1275 of 1767) and American medical graduates (73%; 1290 of 1767); half (49%; 857 of 1767) had <\$200,000 debt; all regions were proportionally represented (South 37%, 645 of 1767; Northeast 27%, 469 of 1767; Midwest 22%, 393 of 1767; West 15%, 260 of 1767). Excluding outliers who left the browser open, the average time to complete the survey was 1.8 minutes. There were no differences between respondents and nonrespondents except there were slightly more graduates of Medicine-Pediatrics programs who responded (11.5% vs 9.4%;  $P = .0437$ ) (Table 1). Most (82%; 1444 of 1767) respondents were current residents or chief residents; 89% (1564 of 1767) attend/attended categorical pediatric residency programs. In a "select all that apply" question, most respondents reported postresidency positions in fellowship (48.4%; 772 of 1767), outpatient GP (32.4%; 431 of 1767), PH non-fellowship positions (8.5%; 74 of 1767), or chief residency (12.2%; 214 of 1767).

Overall, 29.1% (512 of 1767) of respondents reported the COVID-19 pandemic affected their overall pediatrics career (career choice [10.4%; 183 of 1767], employment search [15.6%; 276 of 1767], and/or employment offers

**Table 1.** Demographic Characteristics of Respondents Compared to Nonrespondents

Characteristic	Respondents N = 1767 N (%)	Nonrespondents N = 1613 N (%)	P Value
Gender			.341
Female	1275 (72.2%)	1140 (70.7%)	
Male	492 (28.6%)	473 (29.3%)	
Medical school location			.438
American medical graduate	1286 (72.8%)	1392 (86.3%)	
International medical graduate	327 (18.5%)	375 (23.2%)	
Training program area			.0935
Midwest	393 (22.2%)	386 (23.9%)	
Northeast	469 (26.5%)	436 (27.0%)	
South	645 (36.5%)	526 (32.6%)	
West	260 (14.7%)	265 (16.4%)	
Training program type			.0437
Categorical pediatrics	1564 (88.5%)	1432 (90.6%)	
Medicine-Pediatrics	203 (11.5%)	151 (9.4%)	
Number of years out of residency			
<1 year	151 (8.5%)	N/A	
≥1 year or more	172 (9.7%)	N/A	
Current resident/chief resident	1444 (81.7%)	N/A	
Debt			
<\$200,000	857 (48.5%)	N/A	
≥\$200,000	820 (46.4%)	N/A	
Unknown/declined/missing	90 (5.1%)	N/A	

N/A indicates not available.

[19.0%]). A minority (10.4%; 183 of 1767) of participants felt that the COVID-19 pandemic affected their career choice, with 3.3% (59 of 183) deciding to pursue a subspecialty fellowship instead of GP, 4.4% (78 of 183) deciding to pursue a GP position instead of subspecialty fellowship, and 2.6% (46 of 183) deciding to do something else, such as practice adult medicine.

Table 2 shows the impact of the COVID-19 pandemic restricted to participants who were in the US GP/PH job market. Participants whose postresidency position was fellowship, chief residency, outside of the United States, military, included adult medicine, or was in a pediatric subspecialty were excluded. For respondents who were seeking employment in the US GP/PH job market, 54.7% (393 of 719) reported their overall pediatrics career was affected by the pandemic. The group with the highest proportion affected were those whose postresidency positions were unknown (73.9%; 85 of 116), followed by those with postresidency positions in GP (52.9%; 228 of 431) or PH (49.3%; 36 of 74). However, even among pediatricians outside of the US GP/PH job market, including those completing a chief residency or a fellowship, 11.4% (119 of 1048) reported their career was affected (Table 3).

A minority (14.9%; 107 of 719) of pediatricians in the US GP/PH job market indicated that the COVID-19 pandemic impacted their employment search because they modified their decisions based on family commitments. There was no association between participants who modified their decisions based on family commitments and participant gender (14.4% [79 of 549] female; 16.5% [28 of 170] male;  $P = .51$ ). In addition, for some participants, the COVID-19 pandemic made them decide to work part-

time instead of full-time (3.3%; 24 of 393), work full-time instead of part-time (2.0%; 14 of 393), or pursue locum tenens/per diem/moonlighting positions (5.4%; 39 of 393). The impact of the COVID-19 pandemic on employment offers included being unable to secure a position in their chosen location (22.9%; 156 of 680), type of practice (eg, academics, outpatient care, PH: 16.2%; 110 of 680), or type of position (full-time position: 11.9%, 81 of 680; part-time position: 4.3%, 29 of 680). Some pediatricians experienced a delayed start of employment (4.9%; 33 of 680), had their contract cancelled/revoked (1.3%; 9 of 680), or were only able to secure positions without benefits (2.5%; 17 of 680).

Using multivariate logistic regression modeling on the entire dataset (Table 4), we found those who obtained GP positions (odds ratio [OR]: 3.83; 95% confidence interval [CI]: 2.22–6.60) and PH positions (OR: 9.02; 95% CI: 5.60–14.52) were more likely to be affected compared to those out of the US GP/PH job market. International Medical Graduates (IMGs) (OR: 1.90; 95% CI: 1.39–2.59) and Medicine-Pediatrics graduates also were more likely to be affected (OR: 1.53; 95% CI: 1.04–2.25). Findings with GP and PH were even more pronounced when categorical pediatric graduates were analyzed separately. We found no association with gender, debt, or geographic location.

Themes with representative quotations to the qualitative question “Please provide any additional comments on how the COVID-19 pandemic has impacted your postresidency employment” are described in Table 5 and help contextualize the quantitative results. Multiple respondents described limited job availability attributed to hiring

**Table 2.** Impact of COVID-19 Pandemic on Pediatric Career for Pediatricians Entering US General Pediatrics or Pediatric Hospitalist Job Market

Area of Career Impact of COVID-19 Pandemic	Number	%
Overall impact (career choice, employment search, or employment offer)	393	54.7
Employment search*		
a. No impact	455	63.3
b. Not applicable (postponed employment search, secured employment prior to COVID-19 pandemic, fellow/chief)	18	2.5
c. Not applicable, as I secured employment prior to the COVID-19 pandemic	21	2.9
d. Decided to work part-time instead of full-time	24	3.3
e. Decided to work full-time instead of part-time	14	2.0
f. Decided to do locum tenens / per diem/ moonlighting	39	5.4
g. Modified decisions based on family commitments	107	14.9
h. Other	81	11.3
Total	719	100
Employment offers* <sup>†</sup>		
a. No impact	312	45.9
b. Have not applied yet	69	10.2
c. Unable to secure a position in chosen location	156	22.9
d. Unable to secure a position in chosen type of practice (eg, academics, outpatient care, hospitalist)	110	16.2
e. Unable to secure a full-time position	81	11.9
f. Unable to secure a part-time position	29	4.3
g. Only able to secure position without benefits (eg, locum tenens, per diem, moonlighting)	17	2.5
h. Contract cancelled/revoked	9	1.3
i. Contract modified	5	0.7
j. Delayed start of employment	33	4.9
k. Earlier start of employment	8	1.2
l. Other	66	9.7
Total	680	100

COVID-19 indicates coronavirus disease 2019.

\*These questions are multiselect questions and percentages are out of those who did or did not select the item. Percentages will not add up to 100%.

<sup>†</sup>39 participants skipped this question via an intentional skip pattern.

This table includes participants entering US general pediatrics or pediatric hospitalist job market. This table excludes participants pursuing fellowship, chief residency, military, outside of the US, pediatric subspecialty, or positions caring for adults only.

freezes and employer financial insecurity, that, in turn, led to anxiety over securing employment. Others experienced concerns about Visa sponsorship, which resulted in failure to obtain employment. The timing of career-related decisions was also impacted; some respondents reported delays in securing a position, others decided to forgo opportunities such as locum tenens work in order to secure permanent employment, some reported pursuing fellowship early for enhanced stability, and others reported an urgency to sign employment contracts.

The pandemic also led to changes in overall career choice, with respondents reporting pursuing a fellowship, in part due to stability afforded by fellowship and the devastating impact of the pandemic on many private practices. Unfortunately, some graduates perceived applying to fellowship more competitive than anticipated and remained unmatched. Lastly, some respondents reported prioritizing aspects of their life outside of work, such as choosing to move closer to family, focusing on lifestyle benefits, and more heavily considering childcare options in their employment search.

## DISCUSSION

Almost a third of pediatricians registering for the initial GP certifying examination reported their careers were

affected by the COVID-19 pandemic; half of new pediatricians seeking employment in the US GP/PH job market reported being affected by the pandemic, and IMGs and Medicine-Pediatrics graduates were more likely to be affected.

Our findings are supported by a survey-based study of 291 pediatric residency graduates from 2019 showing that over 50% of graduates entering the workforce perceived that their post residency employment was impacted by the COVID-19 pandemic.<sup>4</sup> It is unsurprising that a year later, and in light of the continued pandemic, pediatricians registering for the GP certifying examination, including many 2020 pediatric residency graduates, continued to indicate that their employment was affected by the pandemic. Studies from other residency specialties, such as surgery and plastic surgery, and pediatric subspecialties, such as pediatric gastroenterology, also indicate a negative impact on employment by the COVID-19 pandemic on some graduates.<sup>15–17</sup> Studies showing an unprecedented 60% decrease in outpatient pediatric visits<sup>9</sup> and 45% decrease in pediatric hospital admissions<sup>8</sup> compared with prepandemic years support our finding that the COVID-19 pandemic affected 50% of new pediatricians seeking US GP/PH positions. Our findings are also supported by studies showing decreases in patient volume affecting physicians reporting full-time work, and slightly

**Table 3.** Impact of COVID-19 Pandemic on Pediatric Career by Postresidency Position for Pediatrics and Medicine-Pediatrics Graduates

Postresidency Position (Mutually Exclusive Categories)	Total N = 1770 N (%)					Categorical Pediatrics N = 1564 N (%)					Medicine-Pediatrics N = 203 N (%)				
	No Impact	Overall	Career Choice	Employment Search	Employment Offers	No Impact	Overall	Career Choice	Employment Search	Employment Offers	No Impact	Overall	Career Choice	Employment Search	Employment Offers
Out of US gen peds/PH job market* n = 1048	<b>929 (88.6)</b>	119 (11.4)	79 (7.5)	51 (4.9)	36 (3.4)	<b>822 (90.8)</b>	83 (9.2)	59 (6.5)	31 (3.4)	20 (2.2)	<b>107 (74.8)</b>	36 (25.2)	20 (14)	20 (14)	16 (11.1)
Fellowship n = 772	<b>696 (90.2)</b>	76 (9.8)	54 (7.0)	25 (3.2)	19 (4.5)	<b>642 (91.1)</b>	63 (8.9)	44 (6.2)	21 (3.0)	17 (4.5)	<b>54 (80.6)</b>	13 (19.4)	10 (14.9)	4 (6.0)	2 (5.3)
Chief residency n = 214	<b>192 (89.7)</b>	22 (10.3)	17 (7.9)	10 (4.7)	3 (1.9)	<b>175 (89.7)</b>	20 (10.3)	15 (7.7)	10 (5.1)	3 (2.1)	<b>17 (89.6)</b>	2 (10.5)	2 (10.5)	0 (0)	0 (0)
Adult position n = 53	<b>32 (60.4)</b>	21 (39.6)	8 (15.1)	16 (30.2)	14 (28.6)	<b>0 (0)</b>	0 (0)	0 (0)	0 (0)	0 (0)	<b>32 (60.4)</b>	21 (39.6)	8 (15.1)	16 (30.2)	14 (28.6)
Other n = 9	<b>9 (100)</b>	0 (0)	0 (0)	0 (0)	0 (0)	<b>5 (100)</b>	0 (0)	0 (0)	0 (0)	0 (0)	<b>4 (100)</b>	0 (0)	0 (0)	0 (0)	0 (0)
In US general pediatrics/ pediatric hospitalist job market† n = 722	<b>326 (45.1)</b>	393 (54.4)	104 (14.4)	225 (31.2)	299 (41.4)	<b>286 (43.3)</b>	373 (56.6)	99 (15.0)	210 (31.9)	289 (43.9)	<b>40 (66.7)</b>	20 (33.3)	5 (8.3)	15 (25.0)	10 (16.7)
Outpatient general pedi- atrics n = 431	<b>203 (47.1)</b>	228 (52.9)	48 (11.1)	126 (29.2)	175 (46.2)	<b>184 (45.7)</b>	219 (54.3)	44 (10.9)	119 (29.5)	173 (11.1)	<b>19 (67.9)</b>	9 (32.1)	4 (14.3)	7 (25)	2 (8)
Outpatient and Inpatient pediatrics n = 69	<b>45 (66.2)</b>	23 (33.8)	4 (5.9)	13 (19.1)	16 (28.1)	<b>40 (65.6)</b>	21 (34.4)	4 (6.6)	11 (18)	15 (15)	<b>5 (71.4)</b>	2 (28.6)	0 (0)	2 (28.6)	1 (16.7)
Pediatric hospitalist n = 74	<b>37 (50.7)</b>	36 (49.3)	15 (20.6)	27 (36.5)	29 (43.9)	<b>27 (47.4)</b>	30 (52.6)	15 (26.3)	24 (42.1)	23 (23)	<b>10 (62.5)</b>	6 (37.5)	0 (0)	3 (18.8)	6 (40)
Newborn nursery / neonatal intensive care unit staff n = 11	<b>3 (27.3)</b>	8 (72.7)	5 (45.5)	7 (63.6)	6 (60)	<b>3 (27.3)</b>	8 (72.7)	5 (45.5)	7 (63.6)	6 (6)	<b>0 (0)</b>	0 (0)	0 (0)	0 (0)	0 (0)
Urgent care / emergency medicine n = 17	<b>6 (35.3)</b>	11 (64.7)	2 (11.8)	4 (23.5)	10 (66.7)	<b>6 (35.3)</b>	11 (64.7)	2 (11.8)	4 (23.5)	10 (10)	<b>0 (0)</b>	0 (0)	0 (0)	0 (0)	0 (0)
Locum tenens / per diem / moonlighting n = 4	<b>2 (50)</b>	2 (50)	2 (50)	2 (50)	1 (25)	<b>1 (25)</b>	1 (25)	1 (25)	1 (25)	0 (0)	<b>1 (25)</b>	1 (25)	1 (25)	1 (25)	1 (25)
Unknown, unable to secure a job yet n = 116	<b>30 (26.1)</b>	85 (73.9)	28 (24.4)	46 (40)	62 (76.5)	<b>25 (23.2)</b>	83 (76.9)	28 (25.9)	44 (40.7)	62 (62)	<b>5 (71.4)</b>	2 (28.6)	0 (0)	2 (28.6)	0 (0)

COVID-19 indicates coronavirus disease 2019.

Bold values delineate values in the "No Impact" column.

\*Respondents out of US general pediatrics/pediatric hospitalist job market included respondents who indicated their postresidency position was fellowship, chief residency, adult position, or other.

†Respondents in US general pediatrics/pediatric hospitalist job market included respondents who indicated their postresidency position was outpatient general pediatrics, outpatient and inpatient general pediatrics, pediatric hospitalist, newborn nursery/neonatal intensive care unit staff, urgent care/emergency medicine, locum tenens/per diem/moonlighting, or unknown, unable to secure a job yet.



**Table 4.** Factors Associated With Impact of COVID-19 Pandemic on Pediatric Career in Multivariate Regression Model\*

Factor	Categorical Pediatrics and Medicine-Pediatrics		Categorical Pediatrics Only	
	Adjusted Odds Ratio	95% Confidence Interval	Adjusted Odds Ratio	95% Confidence Interval
Postresidency plans				
Out of general pediatrics/pediatric hospitalist job market	Reference	Reference	Reference	Reference
Outpatient general pediatrics	3.83	2.22–6.60	4.87	2.73–8.70
Outpatient/inpatient general pediatrics	9.36	7.12–12.29	12.39	9.16–16.76
Pediatric hospitalist	9.02	5.60–14.52	13.49	7.87–23.12
Unknown, unable to secure a job yet	23.97	15.00–38.31	35.57	21.31–59.36
Gender				
Female	Reference	Reference	Reference	Reference
Male	0.94	0.72–1.24	1.00	0.74–1.35
Medical school graduate location				
American Medical Graduate	Reference	Reference	Reference	Reference
International Medical Graduate	1.90	1.39–2.59	1.94	1.39–2.70
Debt				
<\$200,000	Reference	Reference	Reference	Reference
≥\$200,000	1.09	0.85–1.4	1.01	0.77–1.32
Unknown/declined/missing	1.47	0.86–2.49	1.56	0.87–2.80
Geographic location				
South	Reference	Reference	Reference	Reference
Midwest	0.84	0.61–1.16	0.89	0.62–1.28
Northeast	0.76	0.55–1.04	0.72	0.51–1.02
West	1.15	0.80–1.66	1.13	0.76–1.68
Training area				
Categorical pediatrics	Reference	Reference		N/A
Medicine-Pediatrics	1.53	1.04–2.25		

N/A indicates not applicable; COVID-19, coronavirus disease 2019.

\*Respondents were considered impacted by the COVID-19 pandemic if they indicated any impact on their career choice, employment search, or employment offers.

increased unemployment during the pandemic.<sup>18,19</sup> There are no prior prepandemic data on how often pediatricians entering the workforce or fellowship needed to modify their initial ideal position to which we could directly compare our results.

IMGs and Medicine-Pediatrics graduates were more likely to be affected. IMGs who are immigrants may be more severely affected by COVID due to visa-based work restrictions, with some IMGs in our study commenting that “Visa sponsorship is affected by COVID and budget cuts.”<sup>20,21</sup> As IMGs are more likely to work in underserved communities,<sup>21</sup> the pandemic may lead to further lack of pediatricians in underserved communities, further widening health disparities. While our multivariate logistic regression model found that Medicine-Pediatrics graduates reported their careers were more likely to be affected by the pandemic, this may reflect adult medicine circumstances, as findings with GP and PH were even more pronounced when categorical pediatric graduates were analyzed separately.

We found that approximately 15% of pediatricians entering the pediatric GP/PH workforce indicated that the COVID-19 pandemic impacted their employment search because they modified their career decisions based on family commitments. While we explicitly asked participants how the COVID-19 pandemic impacted their decisions about their employment search to try to better understand the additional impact of the COVID-19

pandemic on employment search, it is challenging to understand how much the COVID-19 pandemic contributed to their decision to modify their employment search. Prior to the pandemic, spousal or family commitments, in addition to lifestyle, were cited by both female and male new pediatricians as the most important factors in the choice of their first job.<sup>22</sup> While we did not find a gender difference in pediatricians who modified their career decisions based on family commitments, it is important to consider that the COVID-19 pandemic may affect female and male physician careers differently; specifically, existing inequalities may be further exacerbated in times of crises.<sup>23,24</sup> In addition, prior studies found that spousal or family commitments or lifestyle affected female pediatricians more than male pediatricians (69% vs 55%,  $P < .0001$ ).<sup>22</sup> While we did not ask participants to indicate if they had children, studies have shown that pediatric residents who are parents faced additional challenges during the COVID-19 pandemic.<sup>25,26</sup> Future studies should explore the differential impact by gender of the COVID-19 pandemic on career for those with children. Similarly, future studies should explore the differential impact of ethnicity and race on pediatric careers to address potential inequities.

Unsurprisingly, pediatricians entering fellowship reported that the pandemic affected their career less frequently than those entering the GP/PH workforce. This is supported by available National Resident Matching Program (NRMP)

**Table 5.** Qualitative Themes and Example Quotes on How COVID-19 Pandemic Affected Postresidency Employment

Theme	Example Quotes
Limited job availability	<p>I am hearing from recruiters that a lot of seasoned physicians are returning to the applicant pools due to changes in their employment status from the impact of the pandemic. Some are also citing budget cuts due to loss they have endured from the effect of the pandemic.</p> <p>Unable to stay at my planned academic institution despite their desire for me to stay secondary to hiring freeze from funding lost 2/2 COVID-19</p> <p>I had a job lined up throughout my entire residency training and when COVID hit they had to take the job offer back since they could not meet their RVU during COVID.</p>
Anxiety over employment	Significant anxiety related to current unemployment and the prospect of loan repayment.
Visa sponsorship	Visa sponsorship is affected by COVID and budget cuts in institutions and currently unable to secure a job.
Timing	<p>There was a delay with credentialing because there was a longer wait time to obtain DEA and license.</p> <p>I was planning on several locum tenens jobs prior to a permanent position but opted for permanent for stability.</p> <p>Contract was rescinded briefly during pandemic and then employer reached out again.</p> <p>No one is hiring so pursued fellowship earlier than anticipated.</p> <p>Smaller pool of potential employers, more urgency in signing contract when opportunities arose.</p>
Change in career choice	<p>Due to increased competition for pediatric emergency medicine fellowship, which I believe was COVID related, I did not match and will be seeking a full time job instead of proceeding to fellowship.</p> <p>Has made me think about the importance of doing a PICU fellowship.</p> <p>I am going to be an academic general pediatrician, and I am starting AGP fellowship this cycle. Part of the reason I pursued this fellowship is because I understand there is more stability in terms of job securement within a hospital system, as opposed to private practice. The lockdowns devastated many private practices.</p>
Fellowship more competitive	The fellowship match was unprecedented and difficult, and [I] found it beyond difficult to connect with people, and I was told I was knocked down lists due to not having a fellowship at my current (large, academic) institution.
Prioritized life outside of work	<p>COVID-19 has made me realize that I want to be closer to my family for Fellowship and accordingly will likely apply primarily in the South Eastern US.</p> <p>I've decided to prioritize lifestyle [and] time with family and friends over work.</p> <p>Limited options available, especially with limited options for reliable and affordable childcare.</p>

COVID-19 indicates coronavirus disease 2019.

data from the pediatric fellowship match in 2021–2022 indicating a 7% increase in the number of fellowship applicants and a 6.6% increase in the number of fellowship spots filled compared with 2020–2021.<sup>27</sup> Similarly demographic data of first-year fellows from ABP in 2022 show an increase in number of first-year pediatric subspecialty fellows and do not clearly indicate any differences by gender, medical degree, medical school graduate type, or training program region, outside of more longstanding trends.<sup>28–32</sup> Some respondents perceived the COVID-19 pandemic made fellowship match more competitive than anticipated and remained unmatched. However, general trends in fellowship applications did not change, with 14.1% of applicants overall unmatched; some specialties such as pediatric emergency medicine and PH medicine remained highly competitive, with 37.2% pediatric emergency medicine applicants and 32.9% PH medicine applicants remaining unmatched.<sup>31</sup>

It is also important to consider potential downstream impacts on the pediatric workforce. Approximately 10% of respondents made a career change due to the COVID-19 pandemic. The downstream impact of practicing in a career or job that is not one's first choice may be associated with higher burnout, job dissatisfaction, and shorter

duration in a position.<sup>33,34</sup> While our study focused on pediatricians entering the pediatric workforce, the COVID-19 pandemic also affected medical student career choice. A national cross-sectional survey of US allopathic medical students found that 20% felt the COVID-19 pandemic would affect their choice of specialty.<sup>35</sup>

Limitations to our study include the potential for nonresponse bias related to who registered for the ABP examination and completed the survey, a lack of historical data for comparison purposes, cross-sectional nature of the study, and a reliance on self-reported outcomes. By surveying only those registering for the ABP examination, our survey captures the experience of only early career pediatricians/trainees and is unable to assess the impact of the COVID-19 pandemic on board-certified practicing pediatricians. In addition, our qualitative question asked respondents to "Please provide any additional comments on how the COVID-19 pandemic has impacted your post-residency employment" and it is possible that some respondents may have focused on providing "additional comments" that were not asked about in our survey rather than addressing how the COVID-19 pandemic impacted their postresidency employment. Finally, our results reflect one time-point, not capturing the ongoing

pandemic impact on the pediatric workforce (eg, those who are interested in pediatrics currently in medical school or before).

The lasting impacts of the COVID-19 pandemic are unclear. In this study, many trainees reported their careers were affected by the COVID-19 pandemic. It is still too early to determine whether the impact of these disruptions are merely short-term impacts or will result in longer-term changes in career trajectories of early pediatricians. Given concerns related to the pediatric workforce even pre-pandemic, future studies should focus on objective changes to the workforce, impact to career in subsequent years, and strategies to support trainees through their career search, including tailored career advising by faculty and residency program leadership that balances individual preferences with the reality of the changing job market.

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