Immigrants in Healthcare Occupations

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KEY FINDINGS

This study compares the sociodemographic and occupational characteristics of native-born U.S. citizens, naturalized citizens, and noncitizens in the U.S. healthcare labor force. We analyzed data from a three-year pooled sample (2011 to 2013) of the American Community Survey. The following were key study findings:

- Immigrants constituted 15.7% of the healthcare labor force. There were about twice as many naturalized citizen (10.5%) as noncitizen (5.3%) immigrants in healthcare.
- Unemployment in healthcare was lower for naturalized citizens (3.5%) compared with native born citizens (4.8%) and noncitizens (6.0%).
- Most common birthplaces for naturalized citizens were Asia, the Caribbean, Europe, and Africa. For noncitizens, most common birthplaces were Asia, the Caribbean, Mexico, and Africa.
- Naturalized citizens were older than native-born citizens and noncitizens; noncitizens were the youngest. Naturalized citizens had immigrated into the U.S. at a younger age and had lived in the U.S. about 10 years longer than noncitizens.
- Immigrants were more likely than native-born citizens to be married.
- Over 97% of immigrants lived in metropolitan counties.
- More naturalized citizens (53.2%) had a bachelor's degree or higher than native-born citizens (44.4%) and noncitizens (41.1%).
- Unemployment rates were higher for individuals with less than a bachelor's degree versus those with a bachelor's degree or higher, regardless of immigration or citizenship status.
- Most common healthcare jobs of naturalized citizens included registered nurse (19.8%); nursing/psychiatric/home health aide (18.4%); and physician/surgeon (11.4%). The most common healthcare jobs of noncitizens included allied health occupations such as nursing/psychiatric/home health aide (27.3%) and personal/home care aide (17.6%), as well as registered nurse (12.7%).

These findings suggest that noncitizens in the healthcare labor force are likely to experience greater social and labor market vulnerability than either naturalized citizens or native born citizens. Further study is needed to understand life course and work history patterns of different immigrant groups, how these patterns affect health career pathways, and how U.S. recruitment of immigrants into allied health careers affects the labor market and population health of the sending countries. Policymakers in the U.S. and other countries need a more thorough understanding of healthcare worker migration and occupational outcomes to make more rational use of scarce and valuable human resources for health.

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BACKGROUND

The United States (U.S.) draws a large number of immigrants in search of better economic opportunities. Much attention has been paid to the migration of highly skilled health professionals, such as physicians,[1] but a recent study found that international recruitment firms were also increasingly recruiting five types of allied health professionals: physical therapists, occupational therapists, speech-language pathologists, pharmacists, and laboratory technicians.[2]

As skilled professionals move from less to more developed countries, this "brain drain" may put the migrants' home countries at risk by depleting human resources available for public health and healthcare systems.[3,4] The Code of Practice on the International Recruitment of Health Personnel, promoted by the World Health Organization (WHO),[5] responds to global health inequities caused in part by this migration by calling on the WHO's Director General to solicit member nation reports every three years on the migration of healthcare workers and monitor potential imbalances. The scope of the problem is difficult to measure, however, because data on the migration of health workers are largely unavailable or limited in scope.

Studies of foreign-born physicians yield mixed results on the quality of care they provide compared with U.S.-born physicians.[6,7] We know even less about immigrants to the U.S. who make up a large share of lower-skilled allied health occupations, such as home care and therapy aides.[8,9] Extending the work of Pittman and colleagues,[2] this study helps fill in the picture of healthcare worker migration by exploring a broader set of occupations. We pay particular attention to the allied health professions and provide more details on the characteristics of immigrants that occupy these jobs.

The purpose of this study was to provide a national snapshot of immigrants in the U.S. healthcare system, including the jobs they fill and their personal and social characteristics, compared with the U.S. native born. This study addressed three primary questions:

1. What are the birthplaces and sociodemographics of immigrants employed in healthcare occupations?
2. How do the characteristics of immigrants employed in healthcare vary by the level of educational attainment?
3. What are the most common jobs occupied by immigrants, and to what extent are immigrants concentrated in allied health versus other occupations?

METHODS

This descriptive study used a three-year pooled sample (2011 to 2013) of the American Community Survey (ACS), an annual household survey conducted by the U.S. Census Bureau and extracted from the Integrated Public Use Microdata Series (IPUMS) data tool.[10] We selected a sample of noninstitutionalized individuals ages 18 to 75 years living in the U.S. and in the labor force, which resulted in a sample of 155,746,157 individuals. The subsample of those employed in a healthcare occupation consisted of 15,490,310 individuals. We used replicate sample weights such that our results are nationally representative. See the Appendix for further information on the classifications of healthcare occupations used in this analysis.

Because of sample size limitations, some immigrant birthplace countries were suppressed in the ACS data. We therefore report birthplace as regions, which generally correspond to continents: Africa, Asia, Australia/New Zealand/Pacific Islands, Europe, and South America. When possible, we report specific countries that a high number of immigrants reported as their birthplaces. Birthplaces in North America are reported more specifically as Canada, Mexico, the Caribbean, and Central America.

We compared native-born U.S. citizens with (1) naturalized citizens and noncitizens or (2) immigrants collectively (combining naturalized citizens and noncitizens into one category). (See the Appendix for more detail on the categorization of respondents' citizenship status). We examined several sociodemographic characteristics including age, gender, marital status, residence in a metropolitan or non-metropolitan area, highest level of educational attainment, and current state of residence. Among immigrants, we also examined the number of years they had lived in the U.S. and the age at which they immigrated. Among naturalized citizens, we examined age at naturalization. Given that many healthcare occupations, especially those in allied health, require less than a bachelor's degree, we compared healthcare workers with less than a bachelor's degree with those having a bachelor's degree and higher on the above sociodemographic characteristics. Statistical significance was calculated using a two sample (unpaired) t-test for all comparisons. All differences reported here were statistically significant at the $p<0.001$ level unless otherwise noted.

FINDINGS

In our sample of the entire U.S. labor force from the ages of 18 to 75 years, 11,982,281 (7.7%) were naturalized citizens and 13,870,521 (8.9%) were noncitizens. In the healthcare sector, immigrants—naturalized citizens and noncitizens—constituted 15.7% of the labor force, which includes both employed and unemployed persons seeking work in a healthcare occupation (Table 1; all pair-wise comparisons are significant except where noted). Similarly, among those employed in healthcare, 15.8% were immigrants. Except where noted, our findings focus on this employed group.

Table 1. Sociodemographic Characteristics of U.S. Healthcare Workers

	Native-born U.S. Citizen	Naturalized U.S. Citizen	Noncitizen
N (Healthcare labor force)[1]	13,683,180	1,682,168	874,585
Unemployed	4.8%	3.5%	6.0%
N (Employed only)	**13,044,080**	**1,623,717**	**822,513**
Female	78.0%	73.9%[2]	74.5%
Age (mean)	42.2	46.1	41.0
Age at immigration (mean)	NA	21.8	27.2
Years in U.S. (mean)	NA	24.4	13.9
Age at naturalization (mean)	NA	31.9	NA
Married	52.6%	64.0%	57.1%
Bachelor's degree or higher	44.4%	53.2%	41.1%
Live in metropolitan county	86.6%	98.2%	97.2%

Source: Author calculation of data from American Community Survey 2011-2013 extracted from: Ruggles S, Genadek K, Goeken R, Grover J, Sobek M. Integrated Public Use Microdata Series: Version 6.0 [Machine-readable database] Minneapolis: University of Minnesota, 2015.
Note: All differences are statistically significant at p<0.001 using two sample (unpaired) t-test for all comparisons unless otherwise noted.
1. The healthcare sector subset of the entire U.S. laborforce of 155,746,157
2. No statistically significant difference between naturalized citizens and noncitizens

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BIRTHPLACE

Figure 1 shows the birthplaces of immigrants employed in healthcare occupations. The top four birthplaces for naturalized citizens were Asia, the Caribbean, Europe, and Africa. For noncitizens, the top birthplaces included Asia, the Caribbean, Mexico, and Africa. The top birth countries for naturalized citizens included Mexico (7.6%), the Philippines (15.4%), and India (8.5%), and for noncitizens the same countries: Mexico (13.8%), the Philippines (12.8%), and India (6.8%), which in total contributed about a third of all immigrants in healthcare occupations (not shown). Naturalized citizens were more likely to have been born in Asia, the Caribbean, and Europe compared with noncitizens, and noncitizens were more likely than naturalized citizens to have been born in Africa, Mexico, Canada, and the Australia/New Zealand/Pacific Islands region.
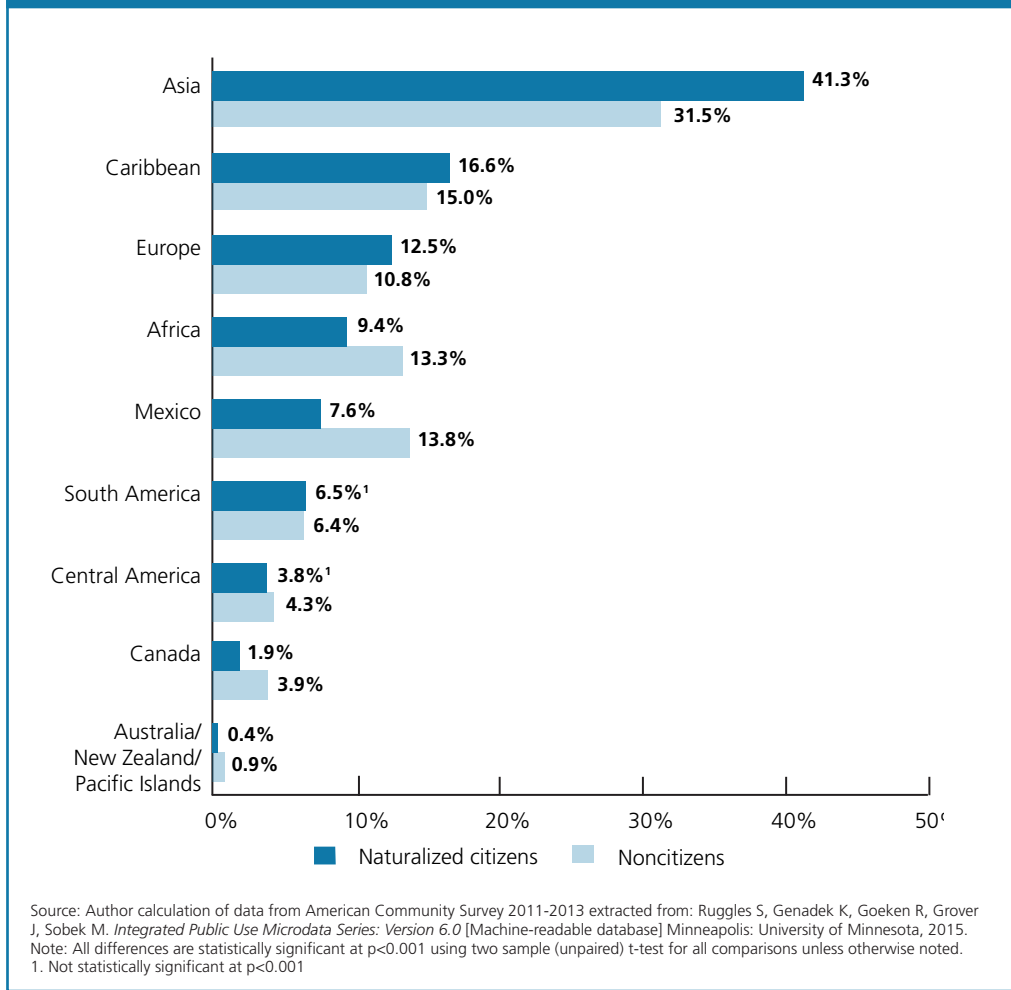
SOCIODEMOGRAPHICS

Table 1 displays sociodemographic characteristics of U.S. healthcare workers by citizenship status. Of those in the healthcare labor force, unemployment was lower for naturalized citizens (3.5%) compared with the native born (4.8%) and noncitizens (6.0%). Of the 15,490,310 individuals employed in a healthcare occupation, there were about twice as many naturalized citizens (1,623,717; 10.5%) as noncitizens (822,513; 5.3%).

Figure 1. Birthplace of Immigrants in U.S. Healthcare Occupations

Asia — Naturalized citizens: 41.3%, Noncitizens: 31.5%
Caribbean — Naturalized citizens: 16.6%, Noncitizens: 15.0%
Europe — Naturalized citizens: 12.5%, Noncitizens: 10.8%
Africa — Naturalized citizens: 9.4%, Noncitizens: 13.3%
Mexico — Naturalized citizens: 7.6%, Noncitizens: 13.8%
South America — Naturalized citizens: 6.5%[1], Noncitizens: 6.4%
Central America — Naturalized citizens: 3.8%[1], Noncitizens: 4.3%
Canada — Naturalized citizens: 1.9%, Noncitizens: 3.9%
Australia/New Zealand/Pacific Islands — Naturalized citizens: 0.4%, Noncitizens: 0.9%

Legend: Naturalized citizens, Noncitizens

Source: Author calculation of data from American Community Survey 2011-2013 extracted from: Ruggles S, Genadek K, Goeken R, Grover J, Sobek M. *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] Minneapolis: University of Minnesota, 2015.
Note: All differences are statistically significant at p<0.001 using two sample (unpaired) t-test for all comparisons unless otherwise noted.
1. Not statistically significant at p<0.001

Regardless of citizenship or immigration status, about three quarters of employed healthcare workers were women. A higher proportion of native-born citizens than immigrants were women. Mean ages ranged from the early- to mid-forties across citizenship categories; naturalized citizens were older than native-born citizens and noncitizens, while noncitizens were the youngest.

Naturalized citizens had immigrated into the U.S. at a younger age than noncitizens and obtained their citizenship approximately 10 years after immigrating. The average time living in the U.S. for naturalized citizens was 24.4 years, about 10 years longer than the 13.9 years for noncitizens. Naturalized citizens were 31.9 years old on average at naturalization. Immigrants as a whole were more likely than native-born citizens to be married. Naturalized citizens had the most education: 53.2% had a bachelor's degree

or higher compared with 44.4% of native-born citizens and 41.1% of noncitizens. Over 97% of immigrants lived in metropolitan counties. The percentages of each immigrant category residing in the five most common states (not shown) were as follows: California (naturalized: 24.9%; noncitizen: 22.6%), New York (naturalized: 16.1%; noncitizen: 16.1%), Florida (naturalized: 10.0%; noncitizen: 8.4%), Texas (naturalized: 6.9%; noncitizen: 8.5%), and New Jersey (naturalized: 5.9%; noncitizen: 4.4%).

Differences by level of education. Table 2 compares sociodemographic differences across citizenship categories between those with at least a bachelor's degree and those with less education. Unemployment rates were higher for individuals with less than a bachelor's degree versus those with a bachelor's degree or higher, regardless of citizenship status. Analyzing workers employed in healthcare only, we found that a greater proportion of the native born were women (71.2%) compared with immigrants (66.3% of naturalized citizens and 63.8% of noncitizens) among those with a bachelor's degree or higher. By contrast, more than 80% of workers with less education were women, and this proportion varied little across citizenship statuses. Naturalized citizens were older on average than native-born citizens (at p<0.001) and noncitizens (at p=0.003) regardless of level of education. At both levels of education, noncitizens had immigrated at an older average age and had spent less time in the U.S. compared with naturalized citizens. Noncitizens with a bachelor's degree had spent the least amount of time in the U.S. of all, 11.7 years. Naturalized citizens with a bachelor's degree or higher were younger by 1.4 years at naturalization than those with less than a bachelor's degree. Healthcare workers were more likely to be married if they had more education regardless of citizenship status. Naturalized citizens with a bachelor's degree were the most likely to be married, at 70.2%, while just 45.4% of the native born with less than a bachelor's degree were married. Native-born citizens with less than a bachelor's degree were the least likely to live in a metropolitan area, at 83.3%, but there were no significant differences in metropolitan residence between naturalized citizens or noncitizens by education level.

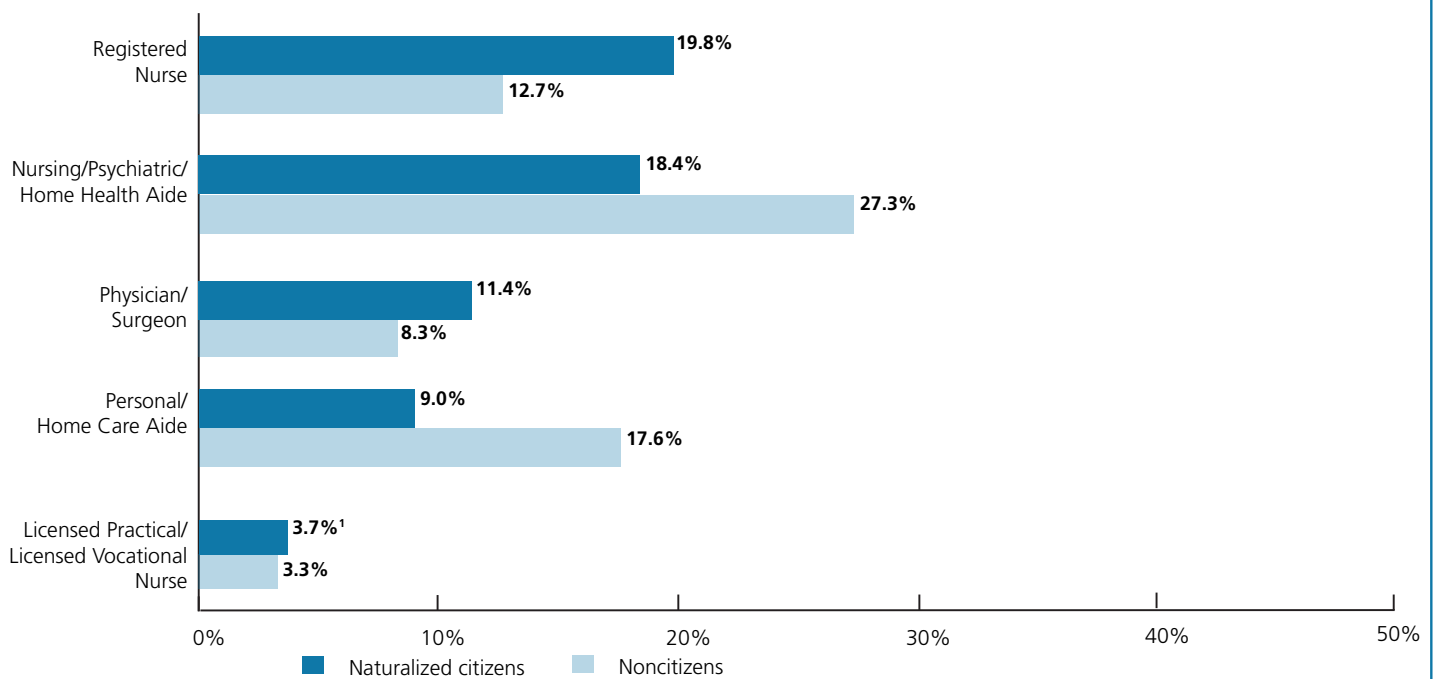**Table 2. Sociodemographic Characteristics of U.S. Healthcare Workers by Education Level**

	Native-born U.S. Citizen		Naturalized U.S. Citizen		Noncitizen	
	Less than bachelor's degree	Bachelor's degree or higher	Less than bachelor's degree	Bachelor's degree or higher	Less than bachelor's degree	Bachelor's degree or higher
N (Healthcare labor force)	*7,700,217*	*5,982,963*	*798,000*	*884,168*	*523,056*	*351,529*
Unemployed	6.5%	2.4%	4.7%	2.3%[1]	7.5%	3.6%
N (Employed only)	**7,202,100**	**5,841,980**	**760,222**	**863,495**	**483,635**	**338,878**
Female	83.8%	71.2%	82.6%[2]	66.3%	81.9%	63.8%
Age (mean)	41.1	43.5	45.8	46.4	41.4[3]	40.5
Age at immigration (mean)	NA	NA	22.0[4]	21.7	26.1	28.8
Years in U.S. (mean)	NA	NA	23.9	24.9	15.4	11.7
Age at naturalization (mean)	NA	NA	32.6	31.2	NA	NA
Married	45.4%	61.0%	56.9%	70.2%	51.1%	65.6%
Live in metropolitan county	83.3%	90.5%	98.2%[4]	98.3%	97.1%[5]	97.5%

Source: Author calculation of data from American Community Survey 2011-2013 extracted from: Ruggles S, Genadek K, Goeken R, Grover J, Sobek M. *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] Minneapolis: University of Minnesota, 2015.
Note: All differences by education level are statistically significant at p<0.001 using two sample (unpaired) t-test for all comparisons unless otherwise noted.
1. No statistically significant difference between native-born citizens and naturalized citizens with a bachelor's degree or higher
2. No statistically significant difference between naturalized citizens and noncitizens with less than a bachelor's degree
3. Significant difference between native-born citizens and noncitizens with less than a bachelor's degree at p=0.003
4. No statistically significant difference among naturalized citizens by education level.
5. No statistically significant difference among noncitizens by education level

Figure 2. Most Common Healthcare Job Categories of U.S. Immigrants

Registered Nurse: Naturalized citizens 19.8%, Noncitizens 12.7%

Nursing/Psychiatric/Home Health Aide: Naturalized citizens 18.4%, Noncitizens 27.3%

Physician/Surgeon: Naturalized citizens 11.4%, Noncitizens 8.3%

Personal/Home Care Aide: Naturalized citizens 9.0%, Noncitizens 17.6%

Licensed Practical/Licensed Vocational Nurse: Naturalized citizens 3.7%[1], Noncitizens 3.3%

Legend: ■ Naturalized citizens ■ Noncitizens

Source: Author calculation of data from American Community Survey 2011-2013 extracted from: Ruggles S, Genadek K, Goeken R, Grover J, Sobek M. *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] Minneapolis: University of Minnesota, 2015.
Note: All differences are statistically significant at p<0.001 using two sample (unpaired) t-test for all comparisons unless otherwise noted.
1. Not statistically significant at p<0.001
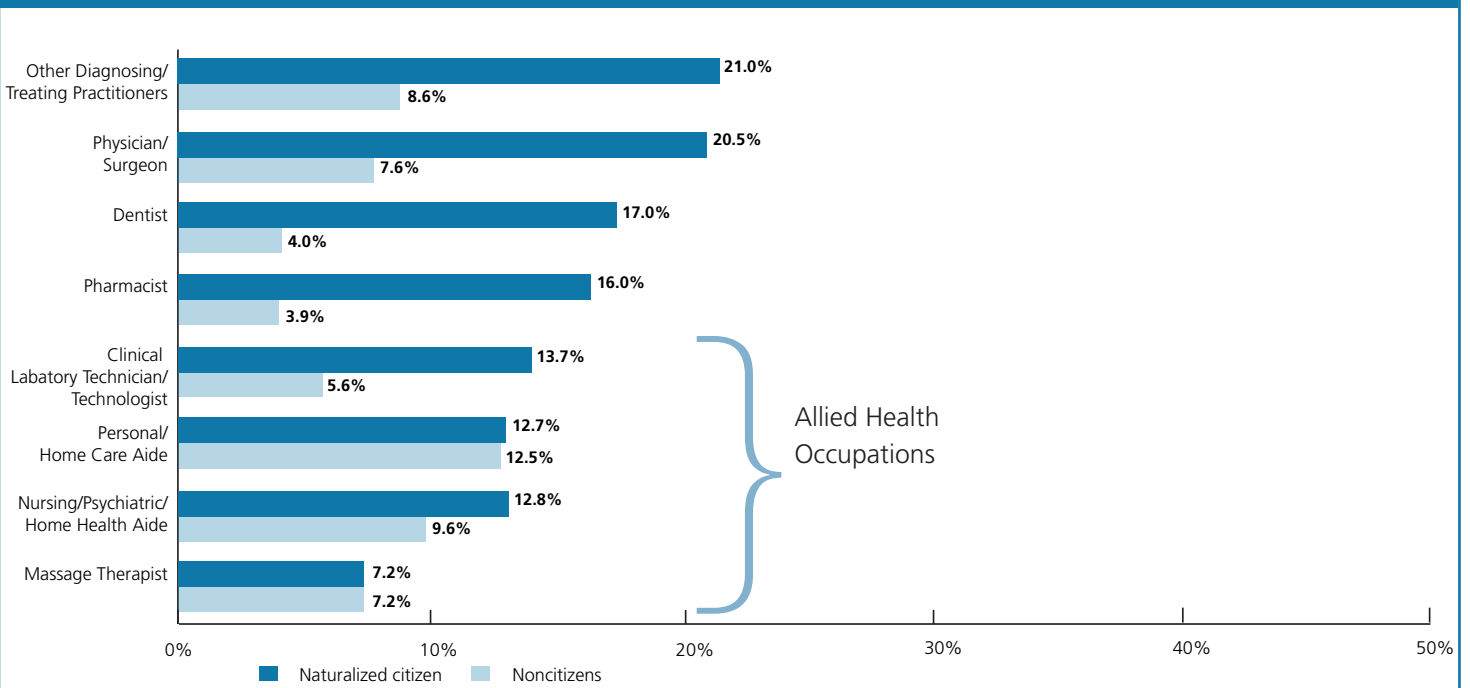
OCCUPATIONAL CHARACTERISTICS

Figure 2 shows the most common healthcare job categories that immigrants held over the study period. The most common healthcare jobs of naturalized citizens included registered nurse (19.8%); nursing/psychiatric/home health aides (18.4%); and physicians and surgeons (11.4%). The most common noncitizen jobs were in allied health, including nursing/psychiatric/home health aides (27.3%) and personal/home care aides (17.6%). Registered nurse was also a common noncitizen job (12.7%).

Figure 3 shows the healthcare job categories with the highest proportions of immigrants. Job categories with the highest share of naturalized citizens were as follows: other diagnostic and treating practitioners (21.0%, including jobs such as acupuncturists, naturopathic physicians, and hypnotherapists), physicians/surgeons (20.5%), dentists (17.0%), and pharmacists (16.0%). For noncitizens, the top categories were personal/home care aides (12.5%); nursing/psychiatric/home health aides (9.6%); and other diagnostic and treating practitioners (8.6%). Compared with naturalized citizens, noncitizens appeared to make up a greater share of workers in allied health occupations.

DATA LIMITATIONS

The ACS data has some limitations. First, we were unable to disaggregate some grouped occupations, such as "nursing/psychiatric/home health aides" or "medical assistants and other healthcare support occupations," which made ranking occupations challenging. Our approach, however, should be considered a first step in identifying common clusters of occupations. Second, although ACS is the largest available data source to track healthcare occupations in the U.S., the sample size within an occupation by gender and immigrant status may be small, especially for relatively less common occupations, possibly leading to slightly biased estimates. Third, we are not able to report birthplace by country given the coding practices of the Integrated Public Use Microdata

Figure 3. U.S. Healthcare Job Categories with the Greatest Shares of Immigrants

Job Category	Naturalized citizen	Noncitizens
Other Diagnosing/Treating Practitioners	21.0%	8.6%
Physician/Surgeon	20.5%	7.6%
Dentist	17.0%	4.0%
Pharmacist	16.0%	3.9%
Clinical Labatory Technician/Technologist	13.7%	5.6%
Personal/Home Care Aide	12.7%	12.5%
Nursing/Psychiatric/Home Health Aide	12.8%	9.6%
Massage Therapist	7.2%	7.2%

Allied Health Occupations

Source: Author calculation of data from American Community Survey 2011-2013 extracted from: Ruggles S, Genadek K, Goeken R, Grover J, Sobek M. *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] Minneapolis: University of Minnesota, 2015.

Series (IPUMS), which groups countries with a small number of respondents. The data allow us to identify the most common source regions and countries, but it is possible that a particular country in Africa or South America, for example, that plays an important role as a source of U.S. immigrants in healthcare occupations, may be masked. Fourth, ACS does not provide information on why a person moved to the U.S., and thus we cannot assess the extent to which healthcare employment opportunities drive that decision.

DISCUSSION AND CONCLUSIONS

This study explored the types of occupations that immigrants held in the U.S. health workforce, their birthplaces, and demographic characteristics compared with their U.S.-born citizen counterparts. Immigrants exhibited several differences depending on whether or not they had become citizens. Naturalized citizens as a group appeared to enjoy certain advantages over both native-born citizens and noncitizens in the healthcare labor force: they had the lowest level of unemployment, highest level of education, and highest rate of marriage (a form of social capital). In contrast, though more likely to be married than the native born, noncitizens were the youngest and least educated overall, with higher rates of unemployment. Furthermore, while the occupational profile of naturalized citizens was a mix of more and less skilled occupations, noncitizens were more concentrated in less skilled allied health occupations. Nearly half of noncitizens worked in various types of entry-level healthcare aide jobs.

These findings suggest that noncitizens in the healthcare labor force are likely to experience greater social and labor market vulnerability than either naturalized citizens or the native born. Further study is needed to tease out the extent to which differences in education and employment levels could be a function of the fact that noncitizens overall were younger and had spent less time in the U.S., though we found that more highly educated noncitizens had spent the least amount of time in the U.S. of all immigrant subgroups examined. Gender and metropolitan residence do not appear to explain the differences we found between naturalized

citizens and noncitizens, as the two groups did not differ significantly on these characteristics. A related component of job quality that needs further study is wage differentials between naturalized citizens, noncitizens, and the native born, as there appear to be variations by type of occupation in the rate at which foreign-born workers achieve parity with the native born.[11]

Longitudinal study is also needed to understand which noncitizens eventually join the ranks of naturalized citizens, immigrant life course patterns by birth country, and the motivations that underlie the pathways taken by different groups. It is well known that the attraction of highly skilled healthcare careers in medicine and nursing in the developed world contributes to the "brain drain" of developing countries. Do allied health careers similarly attract immigrants to the U.S. and away from less-developed countries, and what is the impact on the sending countries? Or do immigrants in allied healthcare prepare for and enter these generally less skilled jobs after arrival? Answering these questions would require more detailed data on source countries for those continents or regions whose information is suppressed in the ACS data used for this study.

We do not know how many immigrants in healthcare jobs have higher levels of international training and experience in healthcare than they are permitted to exercise in their current healthcare jobs because their foreign credentials are not recognized in the U.S. We also do not know how many immigrants are foreign-trained health professionals who are not in the U.S. healthcare labor force at all for the same reason. Given shortages of healthcare professionals in underserved communities in the U.S., and the loss of healthcare talent in immigrants' home countries, the extent of the mismatch between immigrants' skills and the jobs they occupy is an issue of great concern that deserves much more investigation. Policymakers in the U.S. and other nations need a more thorough understanding of these dynamics of healthcare worker migration and occupational outcomes to make more rational use of scarce and valuable human resources for health.

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APPENDIX: METHODS

This descriptive study used a three-year pooled sample (2011 to 2013) of the American Community Survey (ACS), an annual household survey conducted by the U.S. Census Bureau and extracted from the IPUMS data tool.[i] We selected a sample of noninstitutionalized individuals ages 18 to 75 years living in the U.S. and in the labor force, which resulted in a sample of 155,746,157 individuals. The subsample of those employed in a healthcare occupation consisted of 15,490,310 individuals. We used replicate sample weights such that our results are nationally representative.

We defined healthcare occupations using the four-digit 2000 Census codes (which crosswalk to the more commonly known Standard Occupational Classification codes). ACS coded occupations using 2000 Census codes for surveys through 2011. These codes were used to assign respondents to an occupation based on their described title and roles. We focused on the most detailed level of occupation description provided in ACS for the following two major occupation categories: "Healthcare Practitioners and Technical Occupations" and "Healthcare Support Occupations." Because these two categories do not define the universe of healthcare occupations, we also included a select number of additional occupations that could deliver direct patient care: medical/health services managers (Census code #0350), social/community service managers (#0420), psychologists (#1820), social workers (#2010), counselors (#2000), miscellaneous community and social services specialists (including health educators and community health workers) (#2020), personal/home care aide (#4610), and medical/dental/ophthalmic laboratory technicians (#8760).[ii]

Over the 2011 to 2013 study period, the ACS questionnaire asks "Is this person a citizen of the United States?" The answer choices are: (1) yes, born in the U.S.; (2) yes, born in Puerto Rico, Guam, the U.S. Virgin Islands, or Northern Marianas; (3) yes, born abroad of U.S. citizen parent or parents; (4) yes, U.S. citizen by naturalization; or (5) no, not a U.S. citizen.[iii] Foreign nationals can become naturalized citizens if they meet one of three main requirements (and additional eligibility requirements): if they had been a Legal Permanent Resident (LPR, otherwise known as a "green card" holder) of the U.S. for at least five years, had been a LPR for at least three years and a spouse of a U.S. citizen, or had qualifying service in the U.S. armed forces. Other immigrants or visitors, including non-naturalized LPRs, are captured in the category "no, not a U.S. citizen" (referred to in this report as "noncitizens"). For analysis, we combined the first three categories of respondents into one category of native-born U.S. citizens.

For immigrants only, we analyzed birthplace region. Birthplace was asked in the 2011 to 2013 ACS questionnaire as, "Where was this person born?" For those born outside the U.S., the respondent reported the name of the country; however, due to coding practices and sample size considerations by IPUMS, specific country names were not all publicly available.[iv] For example, countries in the continent of Africa were not individually reported; birthplace is simply reported as "Africa." For this reason, we report birthplace as regions, generally continents: Africa, Asia, Australia/New Zealand/Pacific Islands, Europe, and South America. Birthplaces in North America are reported more specifically as Canada, Mexico, the Caribbean and Central America. When possible, we report specific countries that a high number of immigrants reported as their birthplaces. For more details on mapping the countries to continents, please refer to the IPUMS website.[v]

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