Acknowledgement

The authors thank Woodruff Inc. for their financial support through the grant titled “Transforming Quality and Safety in Healthcare through Nursing Workforce Planning and Implementation” (McCauley & Hertzberg, PIs).
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### Background

Nurses, including registered nurses (RNs) and advanced practice registered nurses (APRNs) are the largest segment of the health care workforce in Georgia. Nurses play a pivotal role in the delivery of health care services by practicing in a variety of settings and providing a wide range of services. The need for nurses is likely to increase as we develop new care delivery models to address the needs of an aging population with multiple chronic diseases, and the shortage and maldistribution of physicians. In fact, the Health Resources and Services Administration (HRSA) projects that Georgia will have a shortfall of 6,700 nurses in 2025. Therefore, it is imperative that we understand the dynamics of Georgia’s nurse workforce to enhance future nurse workforce planning.

This report developed by the Nell Hodgson Woodruff School of Nursing provides a 10-year longitudinal overview of the nurse workforce in Georgia. Included are nurse demographic and employment characteristics, as well as details on compensation (salary) obtained from the American Community Survey (ACS) and the Bureau of Labor Statistics, Occupation Employment Survey from 2009-2018.

### Methods

For this report we used 1-year data estimates from the ACS in an effort to describe the actively employed Georgia nurse workforce. As the largest ongoing household survey of the U.S., the ACS samples 3.5 million households annually and provides individual and household-level data on demographics, jobs and occupations, level of education, veterans, housing, and other socio-economic characteristics. Compared to other national census data, such as Current Population Survey (CPS), the ACS includes an exceptionally large sample of RNs that allowed us to analyze nurse workforce trends with a high degree of accuracy. Data for this report were retrieved from the Public Use Microdata Sample (PUMS) files for all individuals residing in Georgia and working as an RN or APRN (i.e., nurse practitioner [NP], certified registered nurse anesthetist [CRNA], and certified nursing midwife [CNM]). Average nurse salaries in U.S. dollars were obtained from the Bureau of Labor Statistics, Occupational Employment Survey.

Data from the ACS were weighted for all analyses to provide state-wide estimates of the nurse workforce in Georgia. Descriptive analyses were conducted using STATA/MP version 15.1. Maps were created using ArcMap 10.6 (Environment System Research Institute, Redlands, CA).

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Results

The estimated total number and density of RNs per 100,000 in Georgia has increased by 3 percent annually over the past decade (2009-2018) from 72,873 to 97,068 and 743 to 923, respectively (Tables 1 and 2). The density of NPs and CNMs per 100,000 population increased by 12 percent annually (28 to 62), while the density of CRNAs has increased by 35 percent (5 to 9).

Table 1. Estimated Number of Nurses by Specialty

<table>
<thead>
<tr>
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<th>RNs</th>
<th>NPs and CNMs</th>
<th>CRNAs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>72873</td>
<td>2817*</td>
<td>510*</td>
<td>72873</td>
</tr>
<tr>
<td>2018</td>
<td>97068</td>
<td>6518</td>
<td>963</td>
<td>104549</td>
</tr>
</tbody>
</table>

*Data are from 2010

Table 2. Estimated Density of Nurses per 100,000 Population

<table>
<thead>
<tr>
<th></th>
<th>RNs</th>
<th>NPs and CNMs</th>
<th>CRNAs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>743</td>
<td>28*</td>
<td>5*</td>
<td>743</td>
</tr>
<tr>
<td>2018</td>
<td>923</td>
<td>62</td>
<td>9</td>
<td>994</td>
</tr>
</tbody>
</table>

*Data are from 2010

Age

The estimated age of the entire Georgia nurse workforce has been relatively constant over the past decade (Figure 1). However, there was a 1.63 percent increase in the percentage of nurses older than 65 years of age (1.95% vs 3.58%) (Figure 2) and a 4.22 percent increase in the percentage of nurses between 26 and 35 years of age (18.78% vs 23%).

Figure 1. Estimated average age of nurses
The gender distribution of nurse workforce in Georgia has not changed during the past decade, with the proportion of male nurses in the workforce consistently less than 10% (Figure 3).
Race

There has been slight changes noted in the racial composition of the Georgia nurse workforce over the past decade (Figure 4). There was a 5.94 percent decrease in the percentage of nurses who are white, non-Hispanic (69.04% vs 63.10%) and a 5.18 percent increase in the percentage of nurses who are black/African American (23.72% vs 28.90%). There was a slight decrease in the percentage of Asian nurses (3.88% vs 3.23%), a slight increase in the percentage of Hispanic nurses (1.44% vs 2.35%), and a 1 percent increase in the percentage of nurses of other races (1.44% vs 2.44%).

Figure 4. Distribution of nurses by racial group
Level of Education

There has been a 5.03 percent decrease of the number of nurses educated at the diploma level (8.78% vs 3.75%) and a 5.51% decrease in the percentage of nurses with an associate degree (34.51% vs 29%) over the past decade (Figure 5). There was a 5.68 percent increase in the percentage of nurses with a bachelor’s degree (43.83% vs 49.50%), and a 4.41 percent increase in the percentage of nurses with a master’s degree (12.59% vs 17%). There was a slight increase in the percentage of nurses with a doctoral (PhD or DNP) degree (0.3% vs 0.7%); yet, doctorally prepared nurses represent only 1% of the Georgia nurse workforce.

Figure 5. Estimated number of nurses by level of education
Employment Setting

Roughly 3 out of 5 Georgia nurses are employed in hospitals, but there was 3.3 percent decrease in the percentage of hospital-based nurses (62.60% vs 59.30%) over the past decade (Figure 6). During the same time period, however, there was a 5.66 percent increase in the percentage of nurses employed in community-based care (14.84% vs 20.50%). There was a slight decrease in the percent of nurses employed in nursing care facilities (6.43% vs 5.78%) and other settings (16.14% vs 14.50%).

Figure 6. Estimated number of nurses by employment setting
The ACS changed urban/rural definitions in 2012 that made 10-year trending impossible. From 2009 to 2011 there was no change noted in the percentage of nurses residing in rural (46.4% vs. 46.0%) or urban (53.6% vs. 54.0%) areas. However, data from 2012 to 2018 shows a 2.5 percent decrease in the percentage of nurses residing in rural areas (33.4% vs 30.9%) (data not shown).²

Using the 2018 Public Use Microdata Area (PUMA) we estimated the number of available RNs and APRNs in urban and rural areas (Figure 7 & 8). There were no APRNs in 10 rural and 18 urban areas (Figure 8).

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**Figure 7. Estimated number of RNs per PUMA in Georgia 2018**

2. The definition of urbanized areas (UA) for 2009-2011 were based on city limits; for 2012-2018 UAs were based on population density.
Figure 8. Estimated number of APRNs per PUMA in Georgia 2018

Legend
- Rural
- Urban
Using salary data from Occupational Employment Statistics 2012-2018, the average salary of an RN increased by 13 percent ($60,770 vs $68,950). The average salary of a CRNA has been stable ($156,800 in vs $151,070), but the salaries of an NP and CNM increased by 26 percent ($84,930 vs. 106,750) and 19 percent ($92,460 vs. $109,640), respectively.

The current estimated average salaries of RNs and APRNs were mapped using the ACS 2018 data file (Figures 9 & 10). For the most areas, the estimated average RN salary ranged from $42,186 to $58,751. RNs in large urban areas, such as the cities of Atlanta and Savannah, on average reported a salary greater than $75,615. For APRNs, the estimated average salary was relatively low in central Georgia compared to other geographic areas, such as west and north Georgia and the coastal areas (Figure 10).
Figure 10. Estimated average salaries of APRNs by PUMA in Georgia 2018
Discussion

This report is a decade-long overview of actively employed nurses in Georgia. Though there has been an increase noted in the supply of RNs and APRNs, these numbers are overshadowed by the overall increase in Georgia’s population. A nationwide report on RN density shows that Georgia ranks 49th out of the 50 states and the District of Columbia, where Georgia’s RN density (790/100k) pales in comparison to states like South Dakota (1,247/100k), Montana (1,135/100k), and the District of Columbia (1,666/100k).³

We also noted a gradual increase in the number of Georgia nurses over 55 years of age, which is concerning if we expect to have a sustainable nurse workforce. The racial composition of the nurse workforce is similar to the population of Georgia. However, the Hispanic group remains underrepresented. Although there has been a slight increase in the number of nurses working in community-based care, hospitals have continued to be the primary employer of nurses over the past decade. Based on data from the U.S. Bureau of Labor Statistics the current median national salary for RNs is $71,730 annually. In comparison, Georgia RN salaries remain quite low but do reflect cost of living estimates with more competitive salaries reported in the metropolitan areas. There has been no change in the geographic distribution of nurses in Georgia.

The ACS allowed us to report detailed information on nurses with an active nursing license and residing in Georgia. However, a few limitations should be noted. First, the occupation data in the ACS are self-reported and there is the possibility of misclassification. Second, we were not able to identify nurses who are licensed but not working in Georgia, or nurses who hold an inactive license and could potentially return to the workforce. Despite these limitations, the ACS provides the most accurate up-to-date data available for reports on the nurse workforce. More comprehensive data sources are needed to better understand the supply, demand, and distribution of Georgia’s nurse workforce. Such data could allow for further exploration of the distribution of our nurse workforce at the regional and county level in an effort to better understand the overall delivery of nursing care.

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Suggested Citation

Li, Y., Cimiotti, J. P., Yoshihara, M., Hertzberg, V. S., McCauley, L. A. Georgia Nurse Workforce 2009-2018. Atlanta, GA: Center for Data Science, Nell Hodgson Woodruff School of Nursing, Emory University, April 2020