



Washington 2021 Nursing Workforce Supply Data Report:

Characteristics of LPNs, RNs, and ARNPs



Washington 2021 Nursing Workforce Supply Data Report:

Characteristics of LPNs, RNs, and ARNPs

Washington Center for Nursing 16300 Christensen Rd, Suite 310 Tukwila, WA 98188 206.787.1200



The Washington Center for Nursing is a non-profit 501(c)(3). This report was funded by nursing licensing surcharge fees as allowed under RCW 18.79.202.

WCN supports a healthy Washington by engaging nurses' expertise, influence, and perspective and by building a diverse, highly qualified nurse workforce to meet future demands.

Report Citation Information: Moulton Burwell, P. and Flores- Montoya, Angelina (2022). *Washington 2021 Nursing Workforce Supply Data Report: Characteristics of LPNs, RNs, and ARNPs*. Published at Washington Center for Nursing.

This report was prepared by Angelina Flores-Montoya, PhD, RN, Research Associate for Nursing Workforce Research at the Washington Center for Nursing and Patricia Moulton Burwell, PhD, Research Consultant for Nursing Workforce Research at the Washington Center for Nursing.



Acknowledgements

The Washington Center for Nursing would like to thank the interested parties for their technical support and collaboration. This report would not be possible without their partnership and guidance.

Nursing Care Quality Assurance Commission

National Forum of State Nursing Workforce Centers

Washington Center for Nursing Board Members

Healthcare Enforcement and Licensing Management System (HELMS) Nursing Data Committee



Summary of Key Findings

Washington (WA) LPNs are more racially and ethnically diverse, are less likely to have a license or practice outside of WA and are more likely to have been licensed more than 10-years when compared to RNs and ARNPs. Most WA LPNs indicate that they are only actively practicing in WA (90.9%). Of those WA LPNs that indicated they are actively practicing in another state, the greatest indicated Oregon (3.7%) and California (3.5%).

WA RNs are younger than WA LPNs and ARNPs, are most likely to have only one employment position, and most likely to work between 20-40 hours. Most WA RNs indicate that they are only actively practicing in Washington (82.8%). Of those WA RNs that indicated they are actively practicing in another state, the greatest indicated Oregon (4,9%), California (3.3%) and Texas (2.70%).

WA ARNPs includes more male nurses but are less racially and ethnically diverse, are most likely to be licensed less than 10-years, are more likely to hold a license and practice in more than one state, are more likely to have more than 1 position, and are most likely to work less than 20 hours or more than 40 hours a week. Most WA ARNPs indicated that they are only actively practicing in WA (79%). For those ARNPs that are actively practicing outside WA, 6.10% practice in Oregon, 2.8% in California and 2.8% in Idaho.

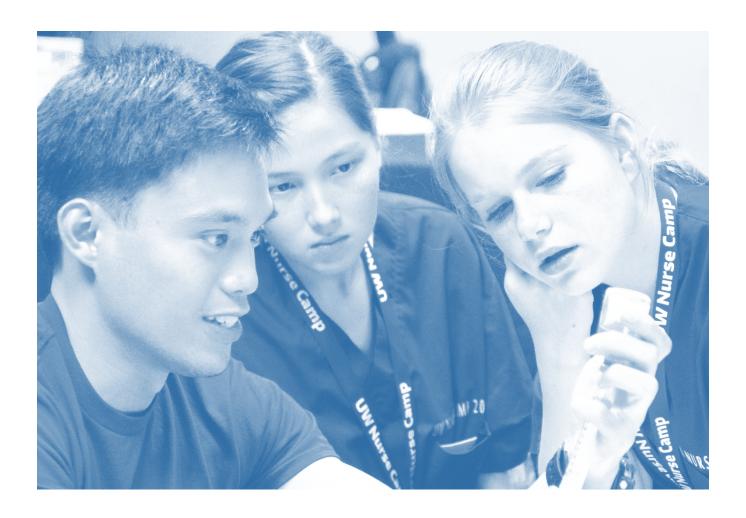
Table 1: Demographic and Employment Characteristics

	LPNs	RNs	ARNPs	
Gender: % Male	14% male	13% male	12.7% male NP, 52.9% male	
			CRNA, .6% male CNM, 8.7%	
			male CNS	
Average Age	47 years	44.69 years	46 years	
20% Projected to Retire	2028	2029	2028	
White/Caucasian	66%	75%	78%	
Largest Race/Ethnicity	11% Black/African	9% Asian	11.5% Asian CNS	
Categories	American	6% Black/African American	8.8% Asian NP	
	10% Asian	5% Hispanic/Latino	6.9% Asian CRNA	
	6% Hispanic/Latino			
Education Level/Credential	78% Diploma or	64.8% BSN or higher	85.3% MSN NP	
	Certificate		60.8% MSN CRNA	
			81% MSN CNM	
			93% MSN CNS	
Licensed Less than 10 years	53%	62%	69%	
% Actively Practicing in Other	8.9%	17.13%	21%	
States	3.7% in Oregon	4.9% in Oregon	6.1% in Oregon	
Employed Full-Time in Nursing	89.4%	89.4%	72%	
Position Description	79% Staff Nurse	78.1% Staff Nurse	80.5% Advanced Practice	
			Nurse	
Employment Setting	33% Nursing	52.4% Hospital	32.3% Hospital	
	Home/Extended	13.5% Other	26.4% Ambulatory Care	
	Care/Assisted Living	12.9% Ambulatory Care	Setting	
	20% Other			
	15% Ambulatory Care			
Employment Specialty	24.5%	12.9% Acute Care/Critical Care	15% Family Health	
	Geriatric/Gerontology	9.7% Medical Surgical	13.6% Psychiatric/Mental	
	8.5% Other Clinical	7.5% Other Clinical Specialty	Health/Substance Abuse	
	Specialty		11% Anesthesia	
Average 32-40 Hours Worked per Week	68.6%	66.5%	55.7%	



Table of Contents

I.	Background	5
II.	Introduction	5
III.	Overall Active Licensed Practical Nurses Analysis	6
IV.	Overall Active Licensed Registered Nurse Analysis	18
	Overall Active Licensed Advanced Registered Nurses Analysis	
VI.	Methods	50
VII.	Data Recommendations and Limitations	51
/111.	Future Studies	52
IX.	References	





Background

The COVID-19 pandemic has placed an unprecedented strain on our contemporary health care system. The backbone of that system is nurses. Nursing supply data is critical to help plan for potential nursing workforce shortages, develop recruitment and retention strategies, and develop policy. A nationwide study found the proportion of nurses planning to retire over the next 5-years is rising, and this may be even greater with the burnout and stress from the pandemic (Smiley et al., 2021).

The nursing workforce also experienced rapid changes during the pandemic, such as increased use of telehealth, regulatory changes including license waivers and temporary licensing, and increased mobility of nurses through the rise of travel nursing (Chan et al., 2021). A survey of Washington nurses examining the impact of the pandemic found that 51% of nurses were laid off or furloughed from their nursing or health care jobs, and 42% had thought about or made plans to leave the field of nursing (Survey Analytics, 2021).

This report provides the supply information as Washington migrates to the new Healthcare Enforcement and Licensing Management System (HELMS). This bridge report provides information for policy until data from the new HELMS is available for analysis in 2023 or 2024. This report was also provided to the HELMS nursing workgroup to help finalize the list of questions for the new system. Click to see more information about HELMS

Introduction

This report was developed by the Washington Center for Nursing in collaboration with the Nursing Care Quality Assurance Commission (NCQAC). The report was designed to analyze existing licensure supply data to determine 1) what information is already available about the nursing supply with an emphasis on diversity, and 2) identify gaps for future supply research at the Washington Center for Nursing. This report has been informed by a survey of nursing workforce interested parties in the Spring of 2021.

The report provides a summary of 2021 data obtained from the NCQAC. This includes the licensure database which includes date of birth, gender, and mailing zip code, and Nursys e-Notify data which is collected by the National Council of State Boards of Nursing. This includes demographics, education, licensure, and employment information collected through the required online survey. More information, including limitations of these primary data sources, are included in the Methodology and Limitations section later in the report.

The report is organized into three sections:

- Licensed Practical Nurses- includes a total of 10,792 LPNs with an active Washington license.
- Registered Nurses- includes a total of 101,239 RNs with an active Washington License, excluding those with an active ARNP license.
- Advanced Registered Nurses- includes a total of 9,334 ARNPs with an active Washington license

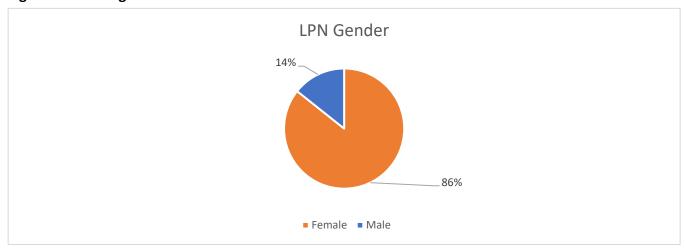


Overall Active Licensed Practical Nurses Analysis

Demographics

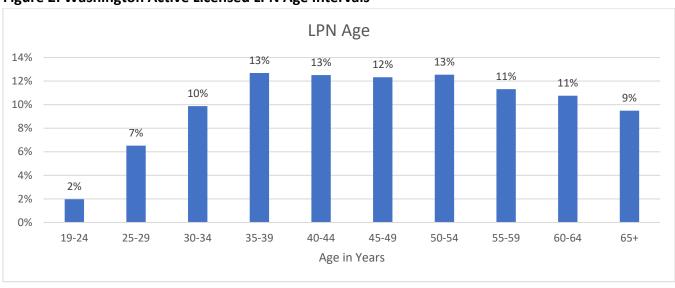
In Washington, 14.3% of LPNs are male which is greater than the national average of 8.1% (NCSBN/Forum, 2020).

Figure 1: Washington Active Licensed LPN Gender



The average age of active licensed Washington LPNs is 47 years old which is younger than the national median age of 53 years (NCSBN/Forum, 2020). There is a relatively equal distribution of LPNs (12-13% for each age interval) ranging in age from 35 years to 54 years.

Figure 2: Washington Active Licensed LPN Age Intervals





Assuming retirement at age 67, Washington will lose 20% of the current Active Licensed LPN population by 2028 and 40% by 2037. Nationally 20.2% of LPNs plan to retire within the next 5 years (NCSBN/Forum, 2020).

Figure 3: Washington Active Licensed LPN Retirement at Age 67

Nationally, the largest percentage of active licensed male LPNs are between 40 and 59 years (NCSBN/Forum, 2020). The greatest percentage of Washington male LPNs are 55-59 and 45-49.

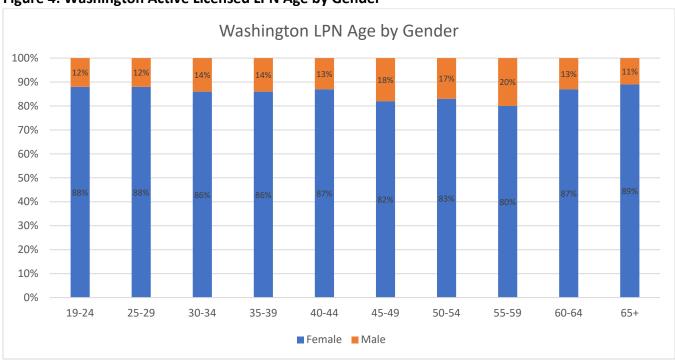


Figure 4: Washington Active Licensed LPN Age by Gender



Most active licensed LPNs identify as White or Caucasian at 66%. Nationally, 69.5% of LPNs are White or Caucasian.

The second-largest race category is Black or African American (11%), followed by Asian (10%). Nationally, 17.2% of LPNs are Black/African American, 10% are Hispanic/Latinx, and 5% Asian (NCSBN/Forum, 2020). In 2019, 9.2% of Washington LPNS identified as Black or African American followed by 8.7% as Asian (Stubbs & Skillman, 2020).

LPN Race and Ethnicity

American Indian/Alaska Native

Asian

Black/African American

Native Hawaiian/ Other Pacific Islander

White/ Caucasian

Hispanic/ Latino

Other

Figure 5: Washington Active Licensed LPN Race and Ethnicity

Washington Hispanic/Latino LPNs have the lowest age and White/Caucasian LPNs have the oldest average age. Nationally, LPNs younger than age 50 account for the largest proportion of minority nurses (NCSBN/Forum, 2020).

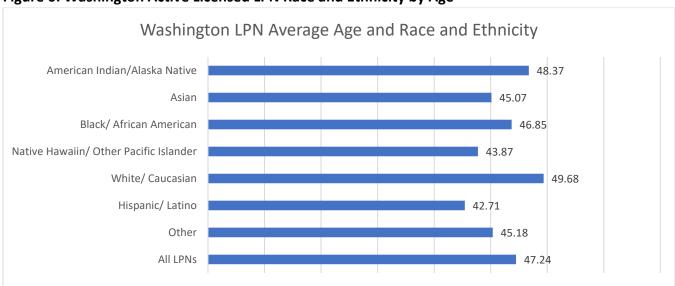


Figure 6: Washington Active Licensed LPN Race and Ethnicity by Age



Education

Most active licensed LPNs earned a diploma or certificate in nursing at 78%, while 16% have an associate degree, and 5% reported having a bachelor's degree. Please note that LPNs could indicate all that apply for degrees so there are some duplicate counts. National data is collected by initial education and highest level of education, so it is difficult to compare with the current data set.

LPN Education

7%

9%

78%

Figure 7: Washington Active Licensed LPN Education

Bachelor of Science in Nursing

Most Washington LPNs received their entry-level education in the United States (97.16%). This is slightly less than the 98.7% found nationally. The greatest percentage of LPNs from outside the United States were from the Philippines at 1.25% which is greater than the .6 nationally (NCSBN/Forum, 2020).

Bachelor's Other Field

■ Associate Degree Other Field

■ Master's Degree Other Field

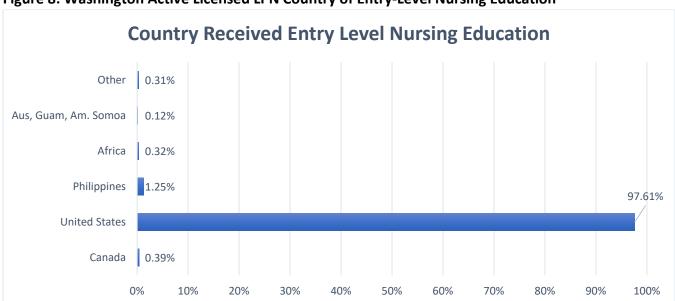


Figure 8: Washington Active Licensed LPN Country of Entry-Level Nursing Education

■ Diploma or Certificate in Nursing ■ Associate Degree in Nursing



The county with the greatest concentration of Active Licensed LPNs according to mailing zip code was Pierce County. The mailing zip codes included 13% from out of state and less than 1% invalid zip codes.

Table 2: Number of Active Licensed LPNs Residing in Washington by County

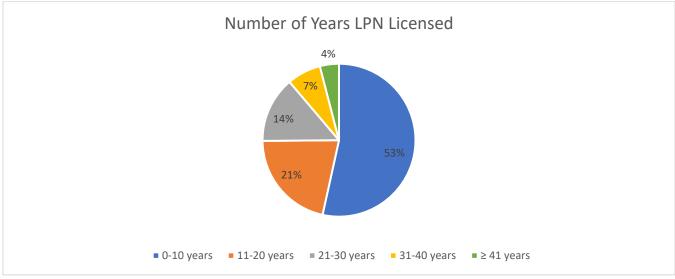
	LPN Mailing Zip		LPN Mailing Zip
County	code	County	code
Adams	10	Lewis	141
Asotin	25	Lincoln	15
Benton	146	Mason	126
Chelan	71	Okanogan	46
Clallam	72	Pacific	33
Clark	601	Pend Oreille	8
Columbia	12	Pierce	2279
Cowlitz	200	San Juan	12
Douglas	39	Skagit	179
Ferry	7	Skamania	7
Franklin	39	Snohomish	815
Garfield	4	Spokane	498
Grant	75	Stevens	48
Grays Harbor	130	Thurston	555
Island	155	Wahkiakum	4
Jefferson	30	Walla Walla	51
King	1809	Whatcom	310
Kitsap	435	Whitman	27
Kittitas	30	Yakima	259
Klickitat	18		
		<u> </u>	Washington Total 9,321
			Other States 1,411
			Not Valid 60
			Total 10,792



Licensure

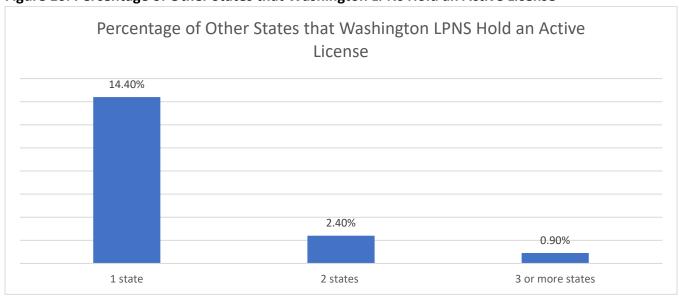
The greatest percentage of Washington LPNs (53%) were licensed in the last 10 years. This is higher than 43.7% nationally. Only 4% of Washington LPNs have been licensed for greater than 41 years which is lower than the 7.2% found nationally (NCSBN/Forum, 2020).

Figure 9: Washington Active Licensed LPN Number of Years Licensed



Most Washington LPNs (81.8%) indicate that they only have an active license to practice in Washington. A few LPNs (14.40%) have an active license in one other state.

Figure 10: Percentage of Other States that Washington LPNs Hold an Active License





Of those Washington LPNs that indicate they have a license in another state, the greatest indicated Oregon (6%), followed by California (3.5%), and Texas (2.0%). States with less than 1% are not included on the graph.

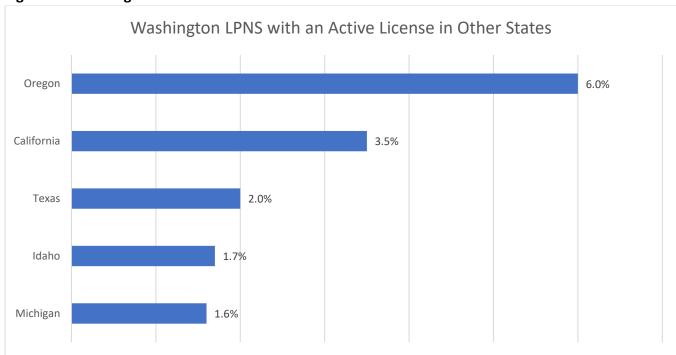


Figure 11: Washington LPNs with an Active License in Other States

Most Washington LPNs indicate that they are only actively practicing in Washington (90.9%). A few LPNs (8.10%) actively practice in one other state.

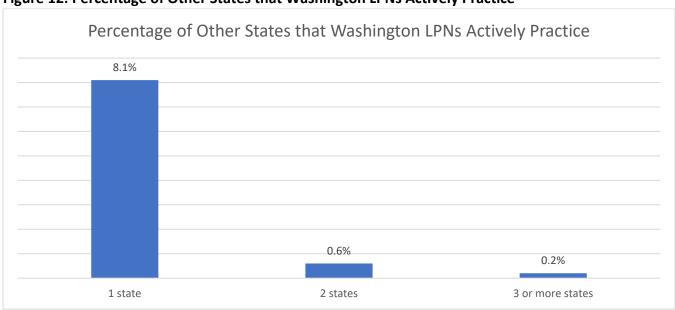


Figure 12: Percentage of Other States that Washington LPNs Actively Practice



Of those Washington LPNs that indicate they are actively practicing in another state, the greatest indicated Oregon (3.7%) and California (3.5%). All other states not listed on graph were less than 1%.

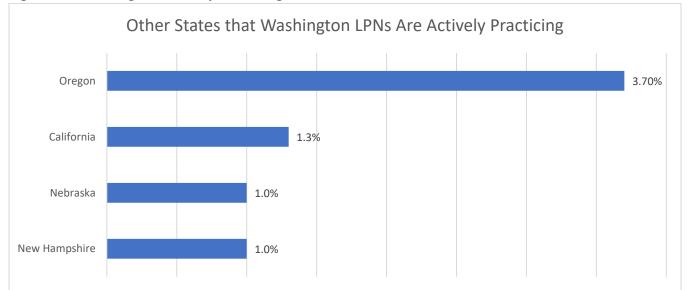


Figure 13: Washington Actively Practicing LPNs in Other States

Employment

Most Washington LPNs (89.4%) are employed which is greater than the 82.4% nationally (NCSBN/Forum, 2020). In 2019, 87.9% of Washington LPNS were employed (Stubbs & Skillman, 2020).

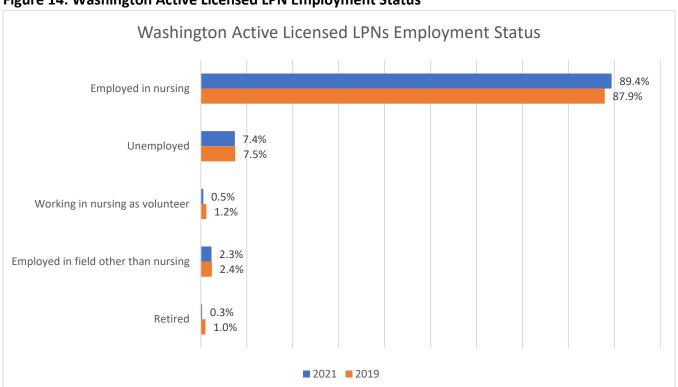


Figure 14: Washington Active Licensed LPN Employment Status



The most frequent reason for Washington LPN unemployment was taking care of home and family (30%) which is less than the 43.3% found nationally (NCSBN/Forum, 2020). However, many LPNs indicated an "other" (38%) reason which is unknown. In 2019, 29.6% of Washington LPNs indicated they were taking care of home and family (Stubbs & Skillman, 2020).

Reason for Unemployment

38%

30%

Taking care of home and family
Inadequate Salary

Disabled
School
Other

Figure 15: Washington Active Licensed LPN Reasons for Unemployment

The majority of LPNs (79%) described their position as a staff nurse, 10% reported other health-related position, and 8% as a nurse manager. This is similar to national data with 72.8% staff nurses, 15.6% other health-related position, and 5.5% as a nurse manager (NCSBN/Forum, 2020).

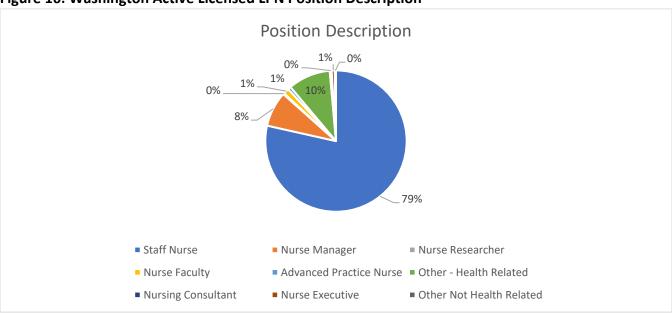


Figure 16: Washington Active Licensed LPN Position Description



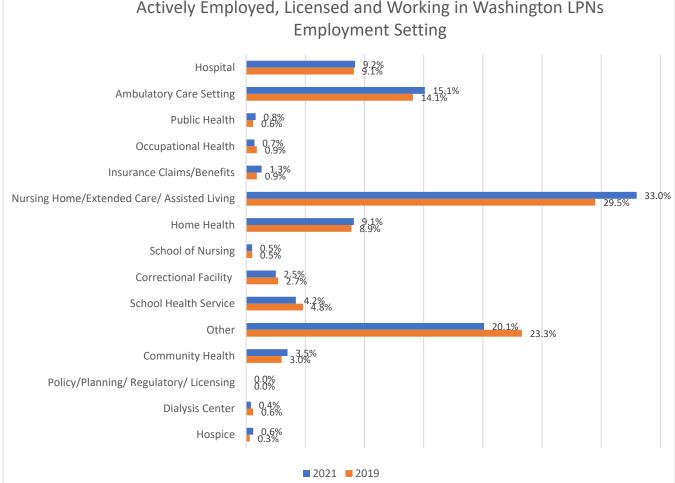
Subset Analysis of Licensed Practical Nurses Actively Employed in Nursing and Practicing in WA

The remainder of the analysis for Washington LPNs analyzes a subset of Active Licensed LPNs. This analysis focuses on those that indicate they are actively employed in Nursing (either full or parttime) and indicated they are practicing in Washington State. This includes 4,930 LPNs out of 10,792 **Active Licensed LPNs.**

The largest employment setting for LPNs actively practicing in Washington is in a nursing home, extended care, or assisted living at 33%. There were slightly more LPNs in a nursing home, extended care, or assisted living in 2021 than in 2019 (Stubbs & Skillman, 2020). This is more than the 27.5% working in a nursing home or extended care in national data (NCSBN/Forum, 2020).

Actively Employed, Licensed and Working in Washington LPNs **Employment Setting**

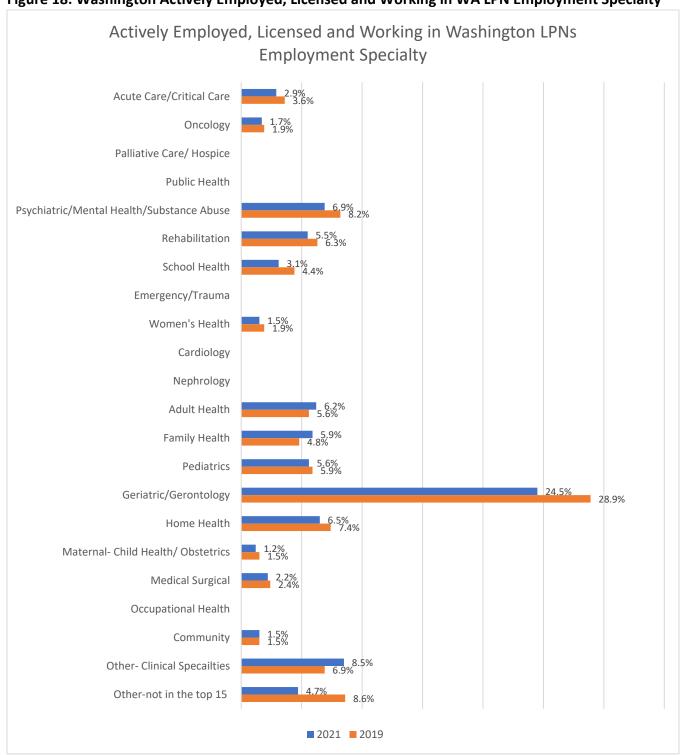
Figure 17: Washington Actively Employed, Licensed and Working in WA Employment Setting





The greatest percentage of Washington LPNs indicated geriatrics as their employment specialty (24.5%). This is similar to the 26.6% nationally for geriatric/gerontology (NCSBN/Forum, 2020) and less than in 2019 (Stubbs & Skillman, 2020).

Figure 18: Washington Actively Employed, Licensed and Working in WA LPN Employment Specialty





Most Washington LPNs (68.6%) worked 32 to 40 hours in an average week. Nationally, 58.6% of LPNs work 32-40 hours a week (NCSBN/Forum, 2020).

Actively Employed, Licensed in Washington LPNs Hours Worked Per Week

41+ hours/week

32-40 hours/week

20-31 hours/week

4.50%

4.50%

Figure 19: Actively Employed, Licensed in Washington LPN Hours Worked per Week

For those LPNs that are actively licensed, employed, and working in Washington, the largest minority is Black/African American followed by Asian.

Table 3: Race and Ethnicity of LPNs that are Actively Licensed, Employed and Working in Washington

-				
		2021 WA		2019 WA
	2021 LPN	Population	2019 LPN	Population
American Indian/Alaska Native	2.40%	2.00%	1.00%	1.80%
Asian	11%	10%	8.70%	8.70%
Black/African American	12.00%	4.00%	9.20%	4.10%
Native Hawaiian/ Other Pacific Islander	1.70%	1.00%	0.90%	0.80%
White/ Caucasian	72.70%	65.00%	73.20%	79.50%
Hispanic/ Latino	6.60%	13.00%	6.30%	13%
Other or Mixed Race or 2 or more	3.60%	5.00%	7.10%	5.10%

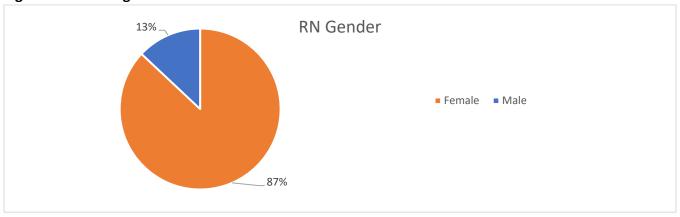


Overall Active Licensed Registered Nurse Analysis

Demographics

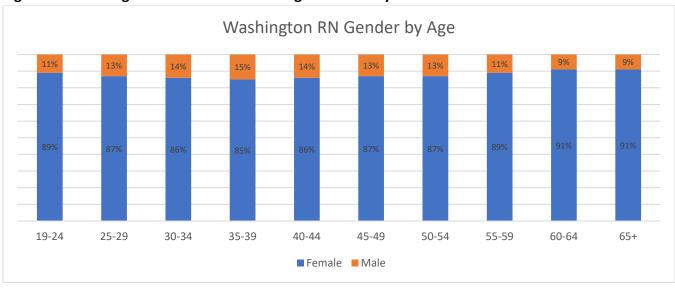
In Washington, 13% of RNs are male which is greater than the national average of 9.4% (NCSBN/Forum, 2020). In 2018, 9.6% of RNs were male (U.S. Department of Health and Human Services, 2020).

Figure 20: Washington Active Licensed RN Gender



Nationally, the largest percentage of male RNs are between 35 and 54 years and there is more than double the proportion of females to males ages 65 and older (NCSBN/Forum, 2020). The greatest percentage of males in Washington are between 35 and 39 years of age.

Figure 21: Washington Active Licensed RN Age Intervals by Gender





Assuming retirement at age 67, Washington will lose 20% of the current RN population by 2029 and 40% by 2039. Nationally, 22.1% of RNs plan to retire within the next 5 years (NCSBN/Forum, 2020).

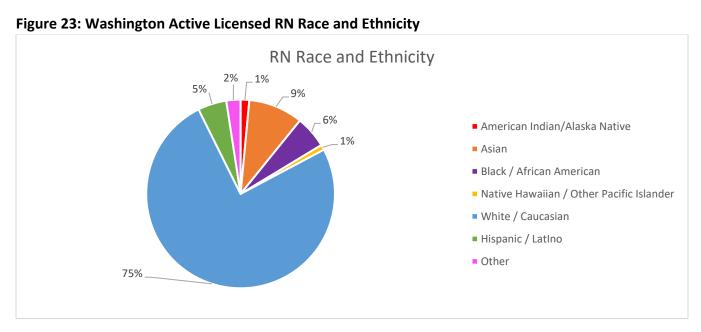
Washington RN Retirement Age at 67

100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0

Figure 22: Washington Active Licensed RN Retirement at Age 67

Most RNs identify as White or Caucasian at 75%. Nationally, 81% of RNs are White/Caucasian.

The second-largest race category is Asian (9%) followed by 6% Black/African American and 5% (Hispanic/Latino). Nationally, 7.2% of RNs are Asian, 6.7% Black/African American, and 5.6% Hispanic/Latino (NCSBN/Forum, 2020). In 2018, 73.3% of RNs were white, non-Hispanic, 10.2% Hispanic/Latino, 7.8% Black/African American, and 5.2% Asian (U.S. Department of Health and Human Services, 2019).





The average age of Washington RNs is 44.69 years old which is younger than the national median age of 52 years (NCSBN/Forum, 2020). In 2018, the national average age was 47.9 years (U.S. Department of Health and Human Services, 2019). Hispanic/Latino, Asian and Native Hawaiian/Other Pacific Islander are Washington's youngest RNs. Nationally, RNs between 30 and 49 account for the largest proportion of minority nurses (NCSBN/Forum, 2020).

Washington RN Average Age by Race and Ethnicity American Indian/Alaska Native 46.01 Asian 41.84 Black/ African American 44.79 Native Hawaiin/ Other Pacific Islander 41.74 White/ Caucasian 47.08 Hispanic/Latino 41.6 Other 44.72 All RNs 44.69

Figure 24: Washington Active Licensed RN Age and Race and Ethnicity



Education

The greatest percentage of Washington RNs have earned a bachelor's degree in nursing (45.5%) followed by 38.3% with an associate degree and 6.4% with a master's degree in nursing. Please note that RNs could indicate all that apply for degrees so there are some duplicate counts. Nationally, in 2018, 43.4% had a bachelor's degree, 29.6% had an associate degree, 17.5% had a master's degree, 6.4% had a diploma, and 1.9% had a doctoral degree (U.S. Department of Health and Human Services, 2020).

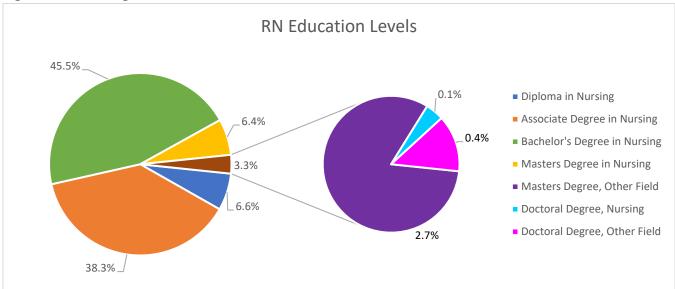


Figure 25: Washington Active Licensed RN Education

The greatest percentage of Washington RNs indicated that they obtained their first US nursing license with a bachelor's degree in nursing (45.9%) followed by 40.5% with an associate degree.

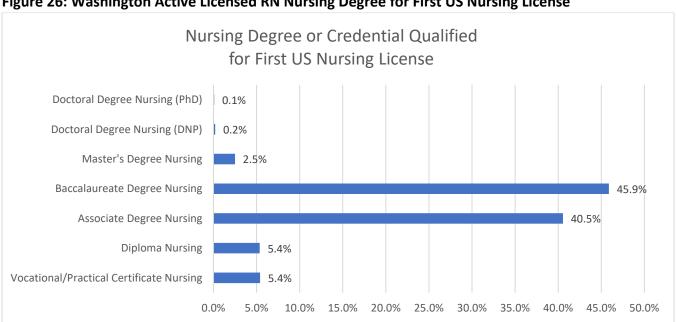


Figure 26: Washington Active Licensed RN Nursing Degree for First US Nursing License



The greatest percentage of Washington RNs (62%) were licensed in the last 10 years. This is much higher than 30.5% nationally. Only 2% of Washington RNs have been licensed for greater than 41 years which is lower than the 14.1% found nationally (NCSBN/Forum, 2020).

RN Number of Years Licensed 6% 10% 20% ■ 0-10 years ■ 11-20 years ■ 21-30 years ■ 31-40 years ≥ 41 years

Figure 27: Washington Active Licensed RN Number of Years Licensed

Most Washington RNs received their entry-level education in the United States (96.4%). This is more than the 93.9% found nationally. The greatest percentage of RNs from outside the United States were from the Philippines at 1.60% which is greater than the .6 nationally (NCSBN/Forum, 2020).

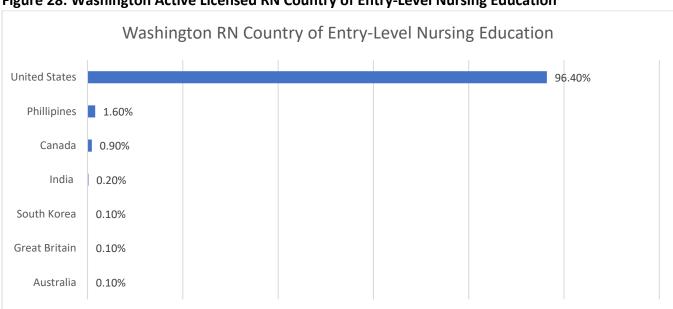


Figure 28: Washington Active Licensed RN Country of Entry-Level Nursing Education



The county with the greatest concentration of Active Licensed RNs according to mailing zip code was King County. The mailing zip codes included 30% in other states and 2% invalid zip codes.

Table 4: Number of Active Licensed RNs Residing in Washington by County

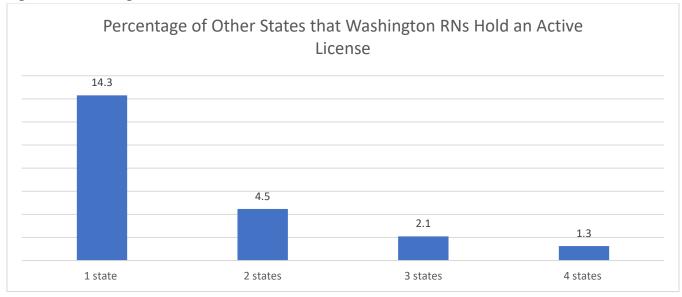
County	RN Mailing Zip code	County	RN Mailing Zip code		
Adams	94	Lewis	695		
Asotin	254	Lincoln	86		
Benton	2,067	Mason	382		
Chelan	986	Okanogan	358		
Clallam	842	Pacific	175		
Clark	4,893	Pend Oreille	84		
Columbia	49	Pierce	9,402		
Cowlitz	1,190	San Juan	109		
Douglas	441	Skagit	1,259		
Ferry	45	Skamania	50		
Franklin	694	Snohomish	8,533		
Garfield	26	Spokane	6,821		
Grant	543	Stevens	510		
Grays Harbor	618	Thurston	3,084		
Island	801	Wahkiakum	28		
Jefferson	286	Walla Walla	957		
King	22,951	Whatcom	2,356		
Kitsap	2,789	Whitman	266		
Kittitas	320	Yakima	1,987		
Klickitat	145				
	Washington Total 77,177				
Other States 33,232					
Invalid Zip code 1,790					
Total 112,159					

23



Most Washington RNs indicated that they only had an active license to practice in Washington (71.1%). A few RNs (14.3%) have an active license in one other state, two states (4.5%), and three states (2.1%). A few RNs (.1% or 152 RNs) have a license to practice in all 50 states.

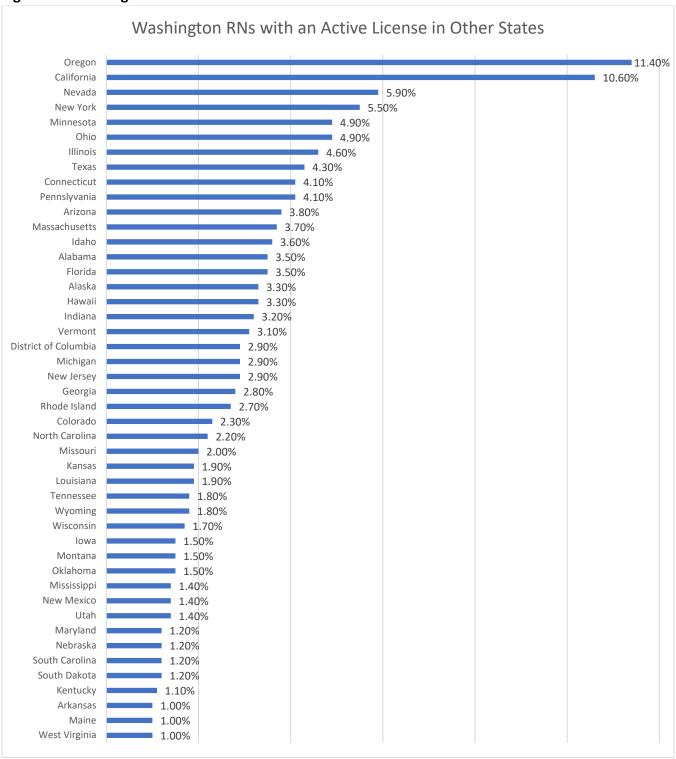
Figure 29: Washington RNs with Active License to Practice in Other States





Of those Washington RNs that have an active license outside Washington, 11.4% have an Oregon License, 10.60% a California license, 5.9% a Nevada license, and 5.5% a New York license. States with less than 1% are not included on the graph.

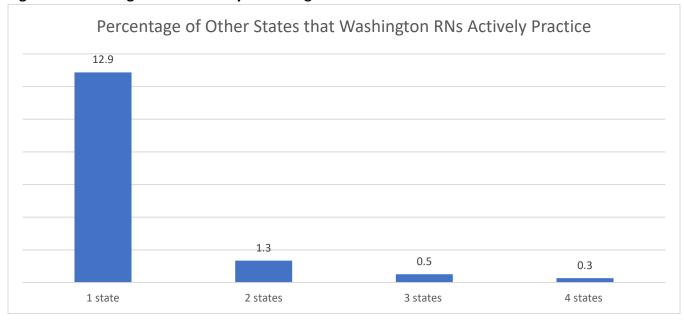
Figure 30: Washington RNs with an Active License in Other States





Most Washington RNs indicate that they are only actively practicing in Washington (82.8%). A few RNs (12.9%) actively practice in one other state.

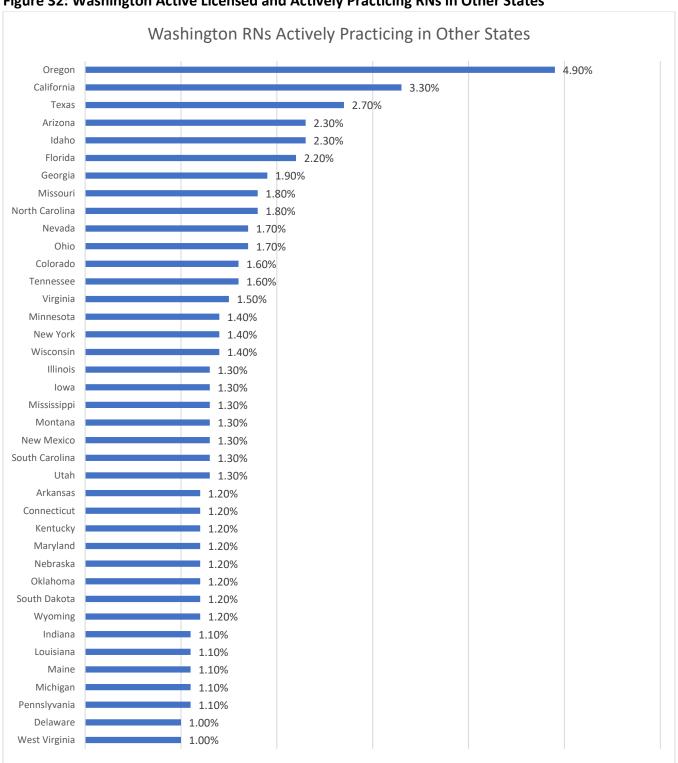
Figure 31: Washington RNs Actively Practicing in Other States





Of those Washington RNs that indicate they are actively practicing in another state, the greatest indicated Oregon (4.9%), California (3.3%), and then Texas (2.70%). States with less than 1% are not included on the graph.

Figure 32: Washington Active Licensed and Actively Practicing RNs in Other States





Employment

Most Washington RNs (89.4%) are employed full-time which is greater than the 84.1% nationally (NCSBN/Forum, 2020). In 2018, 73% of RNs nationally were employed in nursing, and 15.9% were not employed in nursing (U.S. Department of Health and Human Services, 2020).

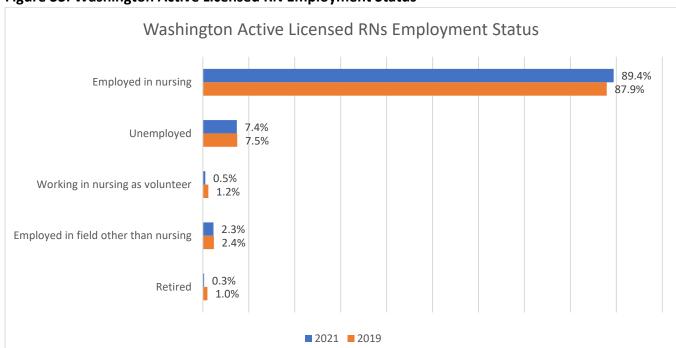


Figure 33: Washington Active Licensed RN Employment Status

The most frequent reason for Washington RN unemployment was taking care of home and family (32%) which is less than the 49% found nationally (NCSBN/Forum, 2020). However, many RNs indicated an "other" (39%) reason which is unknown.

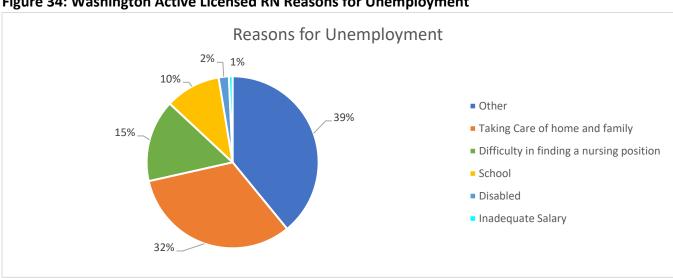
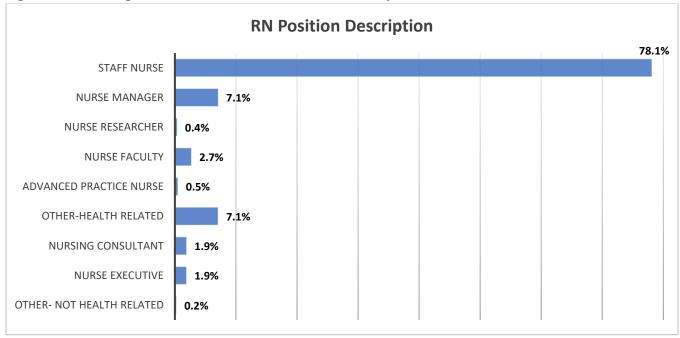


Figure 34: Washington Active Licensed RN Reasons for Unemployment



The majority of RNs (78.1%) described their position as a staff nurse, 7.1% as nurse manager, and 7.1% reported other health-related position. Nationally 60.1% of RNs are staff nurses, 9.7% other health-related, and 7.9% a nurse manager (NCSBN/Forum, 2020).

Figure 35: Washington Active Licensed RN Position Description





Subset Analysis of Registered Nurses Actively Employed in Nursing and Practicing in WA

The remainder of the analysis for Washington RNs analyzes a subset of Active Licensed RNs. This analysis focuses on those that indicate they are actively employed in Nursing (either full or parttime) and indicated they are practicing in Washington State. This includes 54,456 RNs out of a total of 101,239 active licensed RNs. This does not include ARNPs.

The largest employment setting for RNs actively practicing in Washington is a hospital (52.4%), followed by 14% in "other" settings, and 13.5% in an ambulatory care setting. Slightly fewer Washington RNs worked in a hospital in 2021 than in 2019. This follows the same pattern as national data with 54.8% working in a hospital, 9.7% in an "other" setting, and 9.7% in an ambulatory care setting (NCSBN/Forum, 2020).

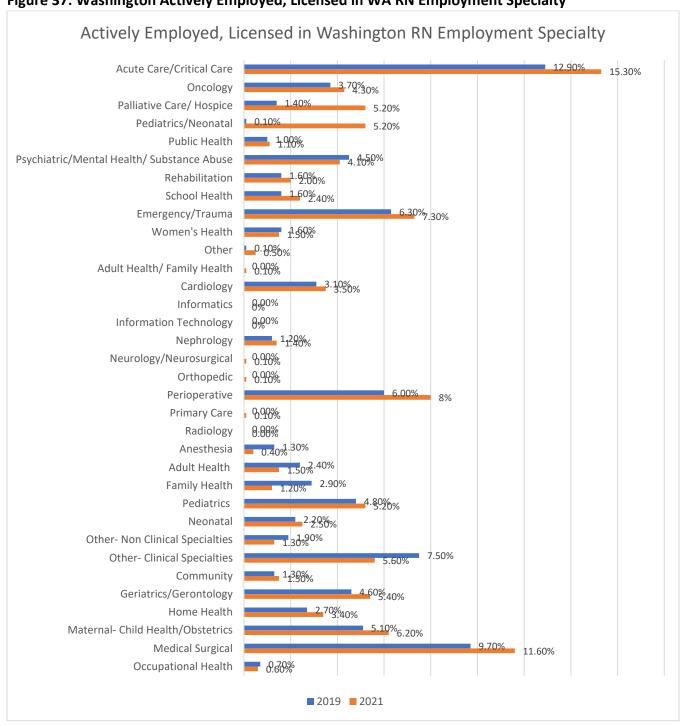
Actively Employed, Licensed in Washington RN Employment Setting 52.4% 56.5% Hospital **Ambulatory Care Setting** Public Health/Community Health Occupational Health Insurance Claims/Benefits Nursing Home/Extended Care/ALF Home Health School of Nursing **Correctional Facility** School Health Service Other 13.5% 12.7% Policy/Planning/Regulatory/Licensing **Dialysis Center** Hospice **2021 2019**

Figure 36: Washington Actively Employed, Licensed in WA RN Employment Setting



The greatest percentage of Washington RNs indicate acute care/critical care as their employment specialty (12.9%), followed by 9.7% as medical/surgical, and 7.5% as other clinical specialties. Nationally, 13.4% of RNs indicate acute care/critical care, 8.5 % medical/surgical, and 13.1% other clinical specialties (NCSBN/Forum, 2020). In 2018, 15.5 % of RNs worked in emergency trauma or critical care, 20% in general medical/surgical, and 14.5% in ambulatory/primary care (U.S. Department of Health and Human Services, 2020).

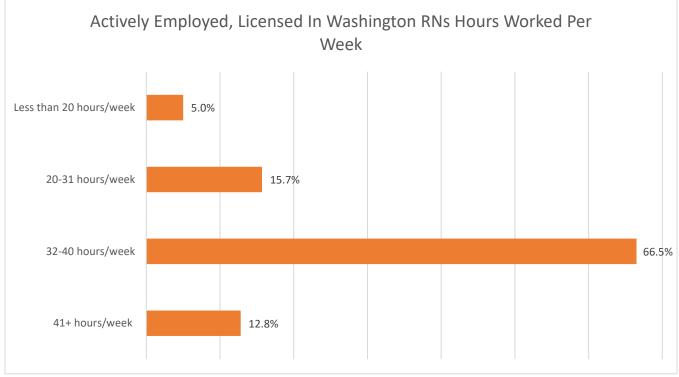
Figure 37: Washington Actively Employed, Licensed in WA RN Employment Specialty





Most (66.5%) actively employed and licensed in Washington RNs worked 32 to 40 hours in an average week. Nationally, 58.7% of RNs work 32-40 hours a week (NCSBN/Forum, 2020).

Figure 38: Washington Actively Employed, Licensed in WA RN Number of Hours Worked per Week



For those RNs that are actively licensed, employed and working in Washington the largest minority is Asian.

Table 5: Race and Ethnicity of RNs that are Actively Licensed, Employed and Working in Washington

		2021 WA		2019 WA
	2021 RN	Population	2019 RN	Population
American Indian/Alaska Native	1.50%	2%	0.50%	2%
Asian	11.60%	10%	10.20%	8%
Black/African American	3.70%	4%	2.30%	4%
Native Hawaiian/ Other Pacific Islander	1.00%	1%	0.40%	.8%
White/ Caucasian	82.70%	65%	81.40%	79%
Hispanic/ Latino	5%	13%	4.40%	13%
Other or Mixed Race or 2 or more	2.40%	5%	5.10%	5%



The percentage of actively licensed, employed and working in WA RNs with a BSN or higher degree has increased since 2019 (Stubbs & Skillman, 2020).

Washington Active Licensed RNs Working in State with a BSN or Higher 100.00% 90.00% 80.00% 64.80% 70.00% 58.90% 60.00% 50.00% 40.00% 30.00% 20.00% 10.00% 0.00% 2021 2019

Figure 39: Washington Active Licensed RNs Working in State with a BSN or Higher

RNs between 25-29 were most likely to have a BSN or higher degree. All age categories ages 30 and above saw increases in the percentage of RNs with a BSN degree or higher between 2019 and 2021 (Stubbs & Skillman, 2020).

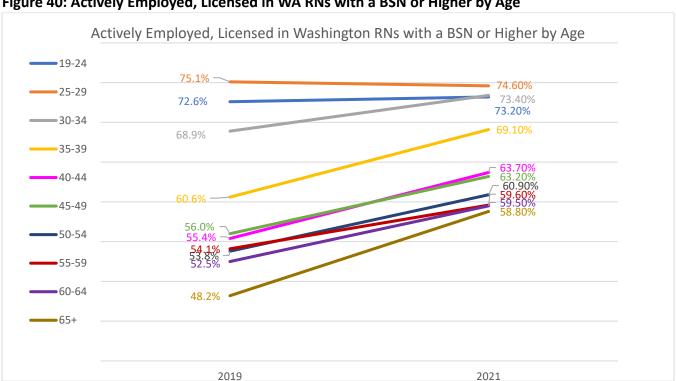


Figure 40: Actively Employed, Licensed in WA RNs with a BSN or Higher by Age



The greatest percentage of RNs that are actively licensed and working in Washington with a BSN or higher are Asian RNs followed by Native Hawaiian/Other Pacific Islander.

Washington Active Licensed RNs Employed In-state: Education by Race and Ethnicity 57.70% 60.30% 60.40% 63.80% 65.50% 67.30% 42.30% 39.70% 39.60% 36.20% 34.50% 32.70% 24.40% American Indian/Alaska Asian Black/ African American Native Hawaiian/Other White/ Caucasian Hispanic/Latino Pacific Islander Less than a BSN ■ BSN or Higher

Figure 41: Washington Active Licensed RNs Working in State: Education by Race and Ethnicity

The youngest RNs that are actively licensed and working in Washington are Hispanic/Latino RNs followed by Native Hawaiian/Other Pacific Islander. All minority groups are younger than White/Caucasian RNs.

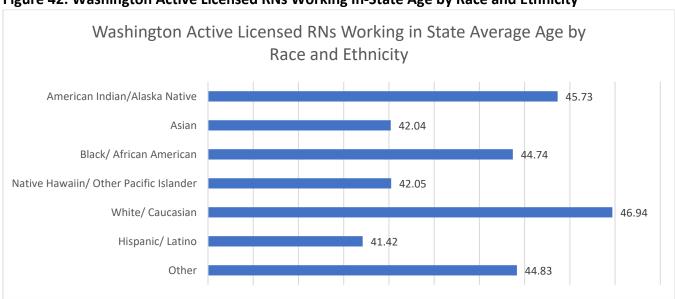
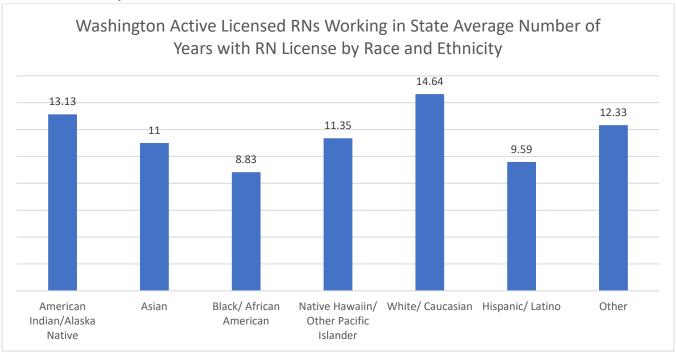


Figure 42: Washington Active Licensed RNs Working In-State Age by Race and Ethnicity



Black/African American RNs have the smallest number of years with an RN license that are actively licensed and working in Washington. All minority groups have fewer years with a license than White/Caucasian RNs.

Figure 43: Washington Active Licensed RNs Working In-State Number of Years with RN License by Race and Ethnicity





Overall Active Licensed Advanced Registered Nurses Analysis

Demographics

Most Washington ANRPs are Nurse Practitioners. Nationally, in 2018, 72.7% of ARNPs were Nurse Practitioners, 21.7% were Certified Nurse Specialists, 10.1% were Certified Registered Nurse Anesthetists, and 2.7% were Certified Nurse Midwives (U.S. Department of Health and Human Services, 2020).

Table 6: Washington Active Licensed ARNPs

Active Licensed ARNP Type	2021 Number	2019 Number
Nurse Practitioner	7,617	6,985
Certified Registered Nurse Anesthetist	1,086	1061
Certified Nurse Midwife	486	483
Certified Nurse Specialist	145	120
Total	9334	

More nurse practitioners are employed in nursing in 2021 than in 2019 (Stubbs & Skillman, 2020).

Table 7: Washington ACTIVE Licensed ARNP Employed in Nursing

Employed in Nursing	2021	2019
Nurse Practitioner	6,891	6,494
Certified Registered Nurse Anesthetist	1,001	1,001
Certified Nurse Midwife	428	443
Certified Nurse Specialist	137	104

There were also more unemployed nurse practitioners, but fewer certified registered nurse anesthetists unemployed in 2021 than in 2019 (Stubbs & Skillman, 2020).

Table 8: Washington Active Licensed ARNP Unemployed

Unemployed	2021	2019
Nurse Practitioner	390	326
Certified Registered Nurse Anesthetist	21	34
Certified Nurse Midwife	29	21
Certified Nurse Specialist	6	14



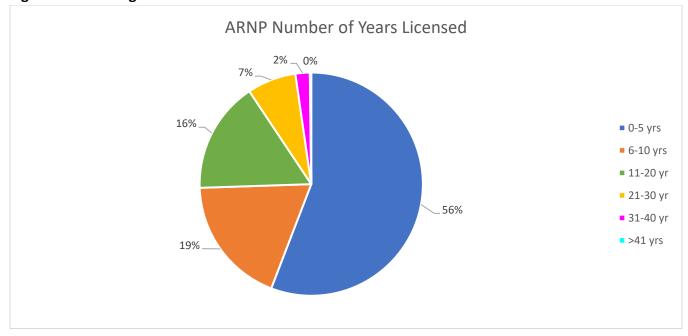
There were almost double the number of nurse practitioners that were retired, volunteering, or working in a field other than nursing in 2021 (Stubbs & Skillman, 2020).

Table 9: Washington Active Licensed ARNP Retired, Volunteering, or Working in a Field other than Nursing

Retired, volunteer or working in a field other than nursing	2021	2019
Nurse Practitioner	336	165
Certified Registered Nurse Anesthetist	39	26
Certified Nurse Midwife	29	18
Certified Nurse Specialist	2	2

The greatest percentage of Washington ARNPs (56%) were licensed in the last 5 years.

Figure 44: Washington ARNP Number of Years Licensed





The county with the greatest concentration of Active Licensed ARNPs according to mailing zip code was King County. The mailing zip codes included 31% of addresses that were out-of-state and 1.3% with invalid zip codes.

Table 9: Number of Active Licensed ARNPs Residing in Washington by County

County	ARNP Mailing Zip code	County	ARNP Mailing Zip code	
Adams	9	Lewis	43	
Asotin	19	Lincoln	7	
Benton	233	Mason	36	
Chelan	84	Okanogan	38	
Clallam	81	Pacific	19	
Clark	347	Pend Oreille	11	
Columbia	4	Pierce	942	
Cowlitz	80	San Juan	25	
Douglas	21	Skagit	108	
Ferry	8	Skamania	4	
Franklin	55	Snohomish	616	
Garfield	4	Spokane	758	
Grant	54	Stevens	49	
Grays Harbor	44	Thurston	342	
Island	67	Wahkiakum	2	
Jefferson	42	Walla Walla	74	
King	2837	Whatcom	201	
Kitsap	219	Whitman	31	
Kittitas	42	Yakima	213	
Klickitat	14			
			Washington Total 7,783	
			Other States 3,543	
	Not Valid 15			
			Total 11,479	



The average age of active licensed Washington ARNPs is 46 years old. The greatest percentage of ARNPs are 35-39 years old.

Washington ARNP Age 20% 19% 18% 16% 16% 13% 14% 13% 12% 10% 10% 10% 9% 8% 8% 6% 4% 3% 2% 0% 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65+

Figure 45: Active Washington ARNP Age Intervals

Assuming retirement at age 67, Washington will lose 20% of the current ARNP population by 2028 and 40% by 2037.



Figure 46: Washington ARNP Retirement at Age 67



The largest percentage of male ARNPs are between 45 and 54 years.

Washington ARNP Gender by Age Category 100.00% 11.70% 19.70% L9.30% 90.00% 80.00% 70.00% 60.00% 50.00% 40.00% 30.00% 20.00% 10.00% 0.00% 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65+ ■ Female ■ Male

Figure 47: Washington ARNP Age by Gender

Most (78%) ARNPs identify as White or Caucasian. The second-largest race category is Asian (9%) followed by Black/African American (5%) and Hispanic/Latino (4%).

ARNP Race and Ethnicity 1% ■ American Indian/Alaska Native Asian ■ Black / African American Native Hawaiian / Other Pacific Islander ■ White / Caucasian ■ Hispanic / LatIno Other 78%

Figure 48: Washington ARNP Race and Ethnicity



Asian and Native Hawaiian/Other Pacific Islander are the youngest ARNPs in Washington.

Washington ARNP Average Age by Race and Ethnicity American Indian/Alaska Native Asian 41.87 Black/ African American 44.14 Native Hawaiin/ Other Pacific Islander White/ Caucasian 47.97 Hispanic/Latino 43.58 Other 46.68 **ALL ARNPs** 46.47

Figure 49: Washington ARNP Average Age by Race and Ethnicity

Most Washington ARNPs indicated that they only had an active license to practice in Washington (62.9%). A few ARNPs (19.9%) have an active license in one other state, two states (7.7%), and three states (3.1%).

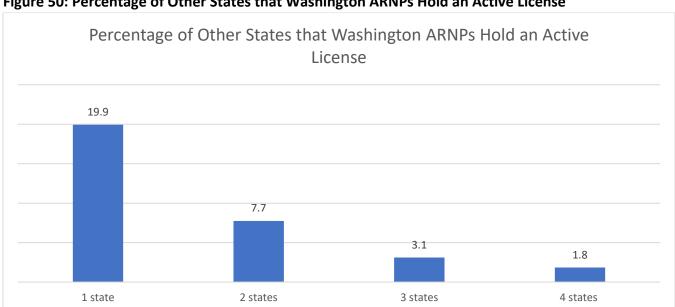
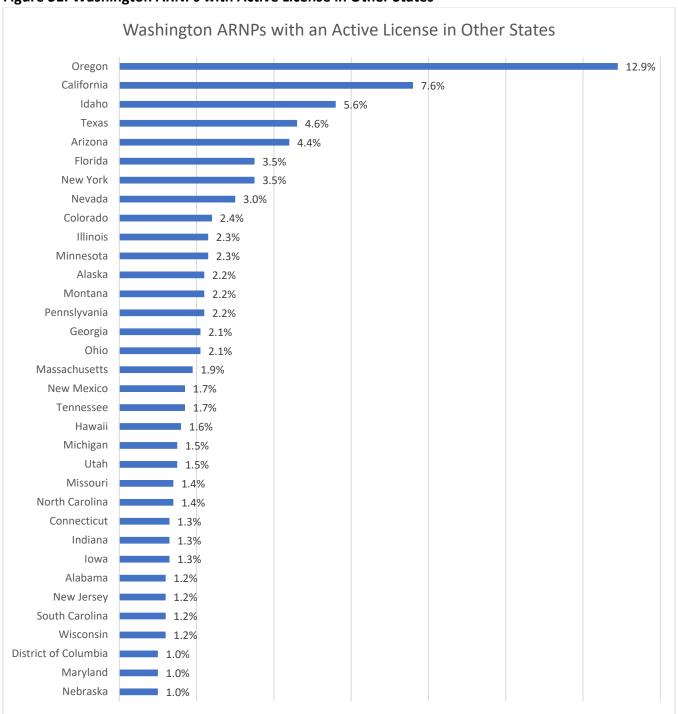


Figure 50: Percentage of Other States that Washington ARNPs Hold an Active License



Of those Washington ARNPs that have an active license outside Washington, 12.9% have an Oregon License, 7.6% a California license, and 5.6% an Idaho license. States with less than 1% are not included on the graph.

Figure 51: Washington ARNPs with Active License in Other States





Most Washington ARNPs indicated that they are only actively practicing in Washington (79%). A few ARNPs (15.6%) are actively practicing in one other state, two states (2.6%), and three states (.9%).

Percentage of Washington ARNP's Actively Practicing in Other States 15.6 2.6 0.9 0.5 1 state 2 states 3 states 4 states

Figure 52: Washington ARNPs Actively Practicing in Other States

Of those Washington ARNPs that are actively practicing outside Washington, 6.10% practice in Oregon, 2.8% in California, and 2.8% in Idaho. States with less than 1% are not included on the graph.

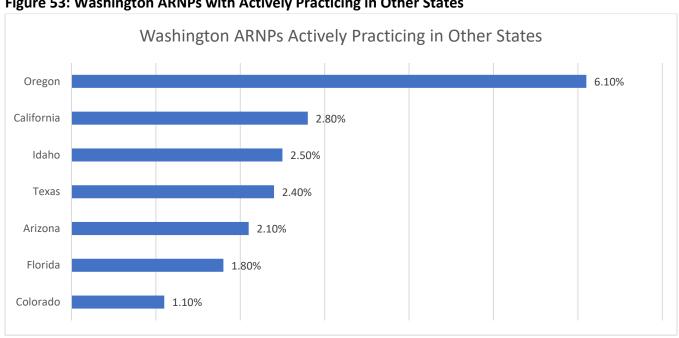
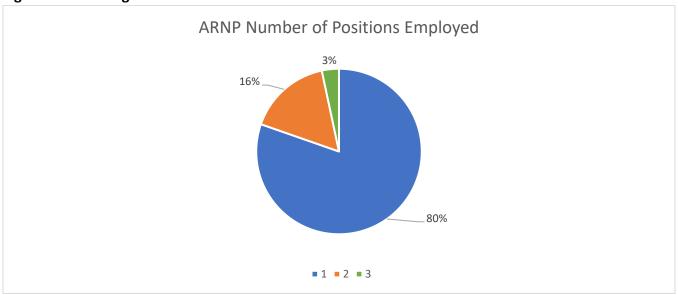


Figure 53: Washington ARNPs with Actively Practicing in Other States



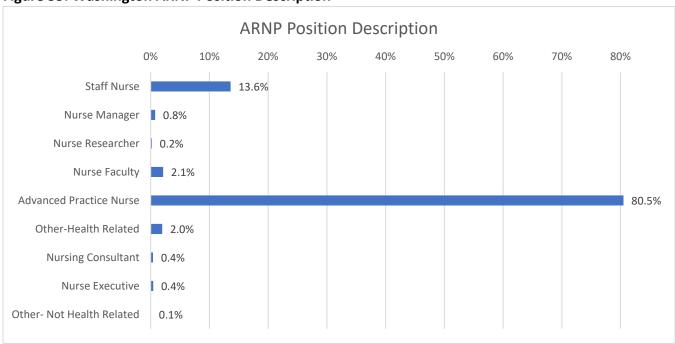
Most Washington ARNPs have one employment position (80%).

Figure 54: Washington ARNP Number of Positions Held



The majority of ARNPs (80.5%) described their position as an Advanced Practice Nurse and 13.6% as a staff nurse.

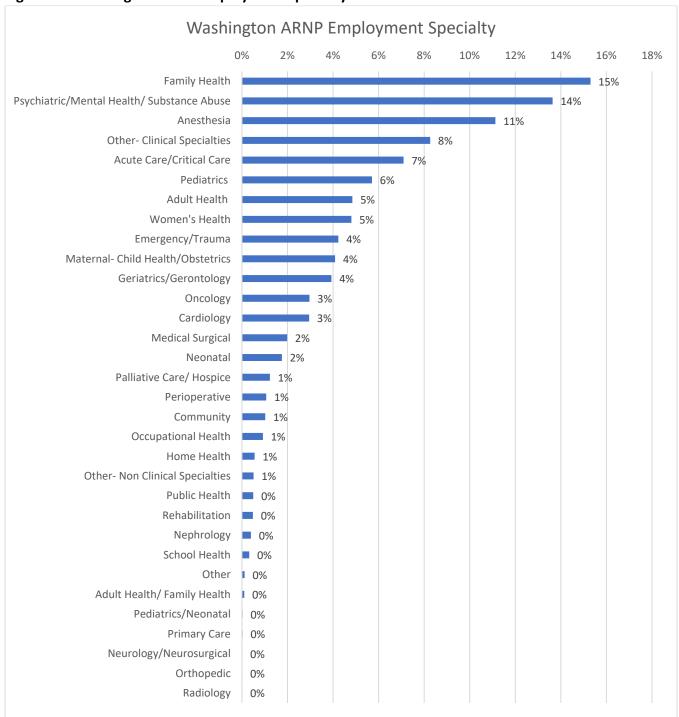
Figure 55: Washington ARNP Position Description





The largest percentage of Washington ARNPs indicate Family Health as their employment specialty (15.3%) followed by Psychiatric/Mental Health/Substance Abuse (13.6%) and Anesthesia (11.1%). In 2018, 17.6% of ARNPs worked in general medical/surgical and 28.8% in ambulatory/primary care (U.S. Department of Health and Human Services, 2020).

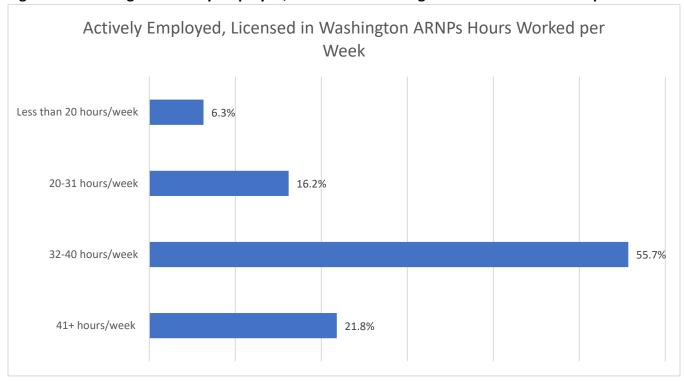
Figure 56: Washington ARNP Employment Specialty





Most Washington ARNPs worked 32 to 40 hours in an average week (55.7%) and 21.8% worked 41+ hours in an average week.

Figure 57: Washington Actively Employed, Licensed in Washington ARNP Hours Worked per Week





Subset Analysis of Advanced Practice Nurses Actively Employed in Nursing and Practicing in Washington State

The remainder of the analysis for Washington ARNPs analyzes a subset of Active Licensed ARNPs. This analysis focuses on those that indicate they are actively employed in Nursing (either full or part-time) *and* indicated they are practicing in Washington State. This includes 6,294 ARNPs out of a total of 9,334 Active Licensed ARNPs.

The greatest percentage of males are certified registered nurse anesthetists. All ARNPs had an increase in the percentage of males in 2021 versus 2019, except certified nurse midwives (Stubbs & Skillman, 2020).

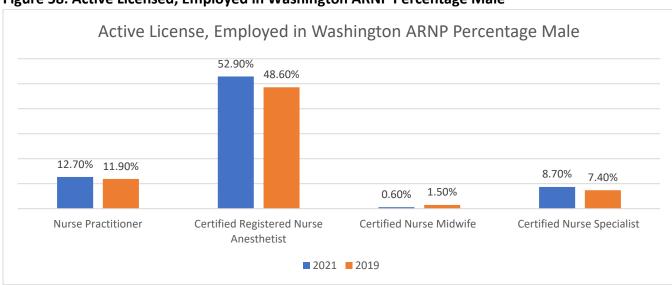


Figure 58: Active Licensed, Employed in Washington ARNP Percentage Male

Certified Nurse Specialists have the oldest average age and all ages increased since 2019. (Stubbs & Skillman, 2020).

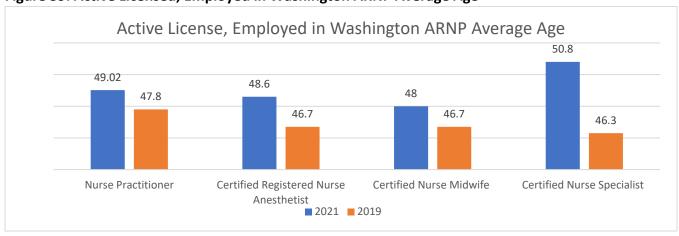


Figure 59: Active Licensed, Employed in Washington ARNP Average Age



The largest employment setting for ARNPs in Washington is in a hospital, ambulatory care setting, and other. Nationally, 38.6% of ARNPs in 2018 worked in ambulatory care and 19.7% in inpatient care (U.S. Department of Health and Human Services, 2020).

Table 10: 2021 Washington Actively Employed, Licensed in WA ARNP Employment Setting

	CNM	CNP	CNS	CRNA
Hospital	39.1%	21.3%	40.4%	74.0%
Ambulatory Care Setting	27.8%	30.7%	17.30%	15.20%
Public Health	2.30%	1.10%	1%	0%
Occupational Health	0.30%	1%	1%	0%
Insurance Claims/Benefits	0	0.10%	0	0.30%
Nursing Home/Extended Care/Assisted Living	0.30%	3.50%	3.80%	0%
Home Health	0.60%	1.60%	1.00%	0%
School of Nursing	5.40%	2.70%	5.80%	1.20%
Correctional Facility	0	1.20%	1%	0%
School Health Service	0.30%	1.00%	0	0
Other	15.90%	25.50%	20.20%	9.10%
Community Health	7.90%	9.20%	8.70%	0.10%
Policy/Planning/ Regulatory/ Licensing	0.30%	0.20%	0%	0%
Dialysis Center	0%	0.20%	0%	0%
Hospice	0%	0.50%	0%	0%

Certified Nurse Midwives are the least diverse ARNP with only 6.8% identifying as a minority.

Table 11: Washington Active Licensed ARNPs Working In-State by Race and Ethnicity

	2021	2021	2021	2021	2021 WA
	CNM	CNP	CNS	CRNA	Population
American Indian/Alaska Native	0.60%	1.50%	0%	0%	2%
Asian	4.20%	8.80%	11.50%	6.90%	10%
Black/African American	1.40%	4.20%	2.90%	1.70%	4%
Native Hawaiian/ Other Pacific	0.80%	0.60%	0%	1%	1%
Islander					
White/ Caucasian	93.20%	85.60%	85.60%	85.60%	65%
Hispanic/ Latino	4%	4.40%	2.90%	3.80%	13%
Other or Mixed Race or 2 or more	2.00%	2.50%	1.00%	2.50%	5%



Most ARNPs indicated that they have a master's degree in nursing. Few had obtained a Doctorate degree in nursing or another field.

Table 12: Washington Active Licensed ARNPs Education Status

	Master's degree in nursing	Master's Degree in Other Field	Doctoral Degree in Nursing	Doctoral Degree in Other Field
Nurse Practitioner	85.30%	6.10%	0.30%	1.30%
Certified Registered Nurse Anesthetist	60.80%	27.90%	4.80%	0.90%
Certified Nurse Midwife	81%	9%	0.80%	1.70%
Certified Nurse Specialist	93.30%	6.70%	0%	1.90%



Methods

Data for this report were analyzed from the Nursys e-Notify data and Washington state nurse licensure data from the Nursing Care Quality Assurance Commission (NCQAC). A data request was submitted and approved to use for supply analysis by the NCQAC.

Nursys e-Notify data is information collected via an online survey with questions about demographics, work characteristics, and education history. Nurses (LPNs, RNs, and ARNPs) in Washington state answer these questions when they renew their nursing license or apply for a new license and is based on the Minimum Nursing Dataset for Supply from the National Forum of State Nursing Workforce Centers. Nurses receive a link in their email to review their information in Nursys e-Notify after license renewal. Licensure data is a complete list of LPNs, RNs, and ARNPs with active licenses in Washington state and is regularly updated by the NCQAC. Nursys e-Notify data and the licensure data were downloaded in June 2021. When Nursys e-Notify data and licensure data were merged, there were 166,452 unique nurse licenses, and after excluding those with an inactive license there were 122,962 LPN and RN (including ARNPs) licenses. Of these, 74% of nurses participated in the survey by reviewing their information or answering at least one question which resulted in a timestamp for the completion of the survey.

The analysis includes all LPNs, RNs, and ARNPs with an active Washington state license as of June 1, 2021. The Nursys e-Notify data and the licensure data were linked using license number and birth year. Descriptive statistics were analyzed using SPSS statistical software. Percentages were calculated by excluding missing cases for each variable.

Table 13: Number of Surveys Completed Year by License Type

	2015	2016	2017	2018	2019	2020	2021	Missing	Total
								Data	
LPN	3	6	203	946	1,912	2,355	3,448	1.919	10,792
RN	51	80	2308	8870	18,677	24,152	21,838	25,263	101,239
ARNP	6	13	169	956	2,151	3,003	1,801	1,955	9,334



Data Recommendations and Limitations

- Multiple errors were found in zip codes for mailing and employment addresses. A drop-down menu of counties would help decrease errors.
- The Nursys e-Notify data includes a list of possible education degrees allowing nurses to check which one(s) they have obtained. The National Forum Minimum Supply data set includes questions asking for entry level education and highest education. This is the same format that is used in the National Nurse Sample Survey (NCSBN/Forum, 2020). A revision that asks for entry level education and higher education instead would allow for better comparisons with other data sets.
- In many cases, the "other" option is frequently indicated. Offering a text box to allow the respondent to write and describe "other" would help this data.
- The current Nursys e-Notify system allows users to review data in the system without entering new data. It is recommended that respondents require completion of the survey to ensure complete data collection.
- The current Nursys e-Notify system is collected via a link in a separate email. Greater and more accurate responses will be obtained if the data collected is integrated with the license renewal process instead of being separate.



Future Studies

In March 2021, WCN conducted an interested parties survey to inform the WCN Research Agenda. The table below lists the results of their recommendations for supply-related research topics in the first column. The 2022 Washington State Nursing Workforce Supply Report summarizes results fulfills 34% of the listed recommendations from interested parties. The Future Studies column lists recommendations where data was not readily available or recommendations beyond the scope of this report.

Table 2: Stakeholder Feedback and Future Studies

2021 WCN Research Stakeholder	2022 WCN Supply Report	Potential Future
Survey: Demand Recommendations		Studies/HELMS Data
Longitudinal nurse supply data, including info on demographics, education, practice location and specialty, etc.	Current demographics, education, practice location, specialty included in report.	Longitudinal data will be possible with HELMS implementation and regular (every 2 years) repeat
Percentages of nurses working in different fields/occupations	Included in report.	reports
Diversity in the pipeline and pathways to leadership	Pathways to leadership not included. Need to define what is needed there.	
Breakdown of ethnicity. Make sure diversity information included in demographics - both ethnicity and age Diversity of nurses	·	School nurse survey including school nurses over time, education, future plans, ESA certifications
I would also like to see some dashboard elements on diversity	интенторони	program- in-state, out of state will be included with HELMs
Employment rates, employment locations, practice settings, employee demographics	Included in report.	Additional analysis:
Nurses with out-of-state education All of the supply information as they pertain to anesthesia practice	Not included in report. Not included in report.	Number exiting workforce-
compact state information - survey need	Not included in report.	maybe analysis of lapsed licenses
Retirement numbers	Retirement projections based on age included.	
age of workforce	Included in report.	
All of the above and specialties in different practice settings as well as the number of part-time.	Included in report.	
Again, keep diversity information as aforementioned; nice to know =	Included in report	Nurse Survey including



intent to leave/retire within next 5		Strategies to retain the
years		incumbent nurse workforce
number of nurses in school nursing	Current percentage of school	(e.g., new skills needed, ways
over time, RN's to LPN's	nurses included in report.	to recognize and support
		professional development.
		Desire to seek graduate
		education and barriers.
		Other advanced careers not ARNP
		Intent to leave/retire within next years.
practice setting	Included in report.	
Maybe the number of nurses leaving	Not included in report.	
acute care/ICU due to trauma or		
burn out		
Practice setting details, regional	Included except COVID impacts.	
disbursement compared to	Separate WCN report on that	
population, retirement intentions,	subject.	
impact of COVID on above		
I think the rural vs urban distribution	Not included in report.	
is really critical to get a better handle		
on.		
those exiting the workforce, # of	Number exiting not included in	
licensed nurses working in state	report.	
Demographics of nursing workforce	Included in report.	
in WA state broken down by		
race/age/licensure/degree/work		
setting, with demographics in these		
categories cross referenced against		
each other (race by age, degree by		
work setting, degree by race, etc.)		
School nurse demographics and what	Not included in report.	
future holds.		
demographics and practice settings	Included in report.	
Demographics of nursing staff who	Included in report.	
are BIPOC as well as various nursing		
degrees for example diploma versus		
ADN versus BSN		
Who works where	Included in report.	



1	Included in report using age.	
10 years.		
Where APRN's are working (primary	Included in report.	
care, specialty etc.)		
Specifics about nurses working in	Percentage of school nurses	
school setting, nurses with ESA	included nurses with ESA	
certifications.	certifications not included.	
How many are in the workforce,	Included in report.	
retired		
Demographics and practice settings	Included in report.	
Advanced career in nursing other	Not included in report.	
than ARNP.		
What percent of employed nurses	Not included in report.	
would desire to seek graduate		
education? In what areas? What are		
the barriers?		
The usual, but also information about	Not included in report.	
needs to help retain the incumbent		
nurse workforce (e.g., new skills		
needed, ways to recognize and		
support professional development)		
Nursing practice areas and	Included in report.	
employment in different practice		
areas.		



References

- Chan, G.K., Bitton, J.R., Allgeyer, R.L., Elliott, D., Hudson, L.R. & Moulton Burwell, P. (May 31,2021). *The Impact of COVID-19 on the Nursing Workforce: A National Overview* OJIN: The Online Journal of Issues in Nursing. Vol. 26. No.2. Last accessed 4/1/2022 at https://ojin.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol-26-2021/No2-May-2021/The-Impact-of-COVID-19-on-the-Nursing-Workforce-A-National-Overview.html
- Smiley, R., Ruttinger, C., Oliveira, C., Hudson, L, Allgeyer, R., Reneau, K., Silvestre, J. & Alexander, M. (2021). *The 2020 National Nursing Workforce Survey*. Journal of Nursing Regulation. Volume 12 (1) Supplement. Last accessed 4/1/2022 at https://www.journalofnursingregulation.com/article/S2155-8256(21)00027-2/fulltext
- Stubbs, B. & Skillman, S. (2020). Washington State's 2019 Advanced Registered Nurse Practitioner Workforce. Center for Health Workforce Studies, University of Washington. Last accessed 4/1/2022 at 2020-March-UW-CHWS-WCN 2019-WA-State-ARNP Workforce-Survey-Results.pdf (wcnursing.org)
- Stubbs, B. & Skillman, S. (2020). Washington State's 2019 Licensed Practical Nurse Workforce. Center for Health Workforce Studies, University of Washington. Last accessed 4/1/2022 at 2020-June-UW-CHWS-WCN 2019-WA-State-LPN-Workforce-Survey-Data-Report.pdf (wcnursing.org)
- Stubbs, B. & Skillman, S. (2020). Washington State's 2019 Registered Nurse Workforce. Center for Health Workforce Studies, University of Washington. Last accessed 4/1/2022 at 2019-WCN-UW-CHWS Washington-States-2019-Registered-Nurse-Workforce-Survey-Results.pdf (wcnursing.org)
- Survey Information Analytics (2021). Washington Center for Nursing: COVID-19 Impact on the Nursing Workforce Study. Published at the Washington Center for Nursing. Last accessed 4/1/2022 at 2021-June-WCN-SIA-COVID-19-Impact-on-the-Nursing-Workforce-Study.pdf (wcnursing.org)
- U.S. Department of Health and Human Services, Health Resources and Services Administration,
 National Center for Health Workforce Analysis. 2019. Brief Summary Results from the 2018
 National Sample Survey of Registered Nurses, Rockville, Maryland. Last accessed 4/1/2022 at
 https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/nssrn-summary-report.pdf
- U.S. Department of Health and Human Services, Health Resources and Services Administration,
 National Center for Health Workforce Analysis. 2020. Characteristics of the U.S. Nursing
 Workforce with Patient Care Responsibilities: Resources for Epidemic and Pandemic Response,
 Rockville, Maryland. Last accessed 4/1/2022 at https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/nssrn-pandemic-response-report.pdf
- U.S. Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis. 2020. Nursing Education and Training in the



United States, Rockville, Maryland. Last accessed 4/1/2022 at https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/nchwa-nssrn-nursing-education-training.pdf

VN Research (2020) WCN: 2020 Study of Licensed Practical Nurses (LPNs)- Literature Review. Published at the Washington Center for Nursing. Last accessed 4/1/2022 at 2020-January-WCN-2020-Study-of-LPN-Literature-Review-VN-Research.pdf (wcnursing.org)