HRSA Health Workforce

Nursing Workforce Projections by Ethnicity and Race 2014 – 2030

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About the National Center for Health Workforce Analysis

The National Center for Health Workforce Analysis informs public and private-sector decision-makers on health workforce issues by expanding and improving health workforce data, disseminating workforce data to the public, and improving and updating projections of the supply and demand for health workers.

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The mission of the Health Resources and Services Administration (HRSA) is to improve health and achieve health equity through access to quality services, a skilled health workforce, and innovative programs.[1] A key element of this mission involves strengthening the health workforce through the development of a culturally and linguistically competent workforce that can meet the health care needs of an increasingly diverse U.S. population.[2,3] Recognizing that health professions, including nurses, have historically lagged behind the U.S. population in terms of diversity,[4] the National Academy of Medicine (formerly, the Institute of Medicine[5]) and the National Quality Forum[6] both emphasize the need for the nursing workforce to become more diverse in the coming years in order to ensure comprehensive, effective, and efficient health care.

Achieving this goal requires understanding the ethnic and racial distribution of both providers and patients. Toward that end, this factsheet presents information on the self-reported ethnicity and race of registered nurses (RNs) and licensed practical/vocational nurses (LPNs) in 2014 (baseline), and then presents projections of provider ethnicity and race in 2030. Supply estimates are broken down into four categories: Hispanic, non-Hispanic White, non-Hispanic Black, and non-Hispanic Other.[7] This factsheet also presents estimates of RN and LPN demand by self-reported patient ethnicity and race for the same time period (2014 – 2030) and using the same four categories (Hispanic, non-Hispanic White, non-Hispanic Black, and non-Hispanic Other).

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[1] Health Resources and Services Administration (HRSA). May 2017. About HRSA. Retrieved October 24, 2017 from: https://www.hrsa.gov/about/index.html.

[2] Health Resources and Services Administration (HRSA). March 2016. Goal 2: Strengthen the Health Workforce. Retrieved October 24, 2017 from: https://www.hrsa.gov/about/strategic-plan/goal-2.html.

[3] Colby, S. L. and J. M. Ortman. 2014. Projections of the Size and Composition of the U.S. Population: 2014 to 2060, Current Population Reports, P25-1143, U.S. Census Bureau, Washington, DC. Retrieved October 24, 2017 from: https://www.census.gov/content/dam/Census/library/publications/2015/demo/p25-1143.pdf.

[4] Phillips, J. M., & Malone, B. 2014. Increasing Racial/Ethnic Diversity in Nursing to Reduce Health Disparities and Achieve Health Equity. Public Health Reports, 129(Suppl 2), 45–50. Retrieved December 1, 2017 from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3863700/.

[5] Institute of Medicine (IOM). 2011. The Future of Nursing: Leading Change, Advancing Health. Washington, DC: The National Academies Press. Retrieved December 1, 2017 from: https://www.nap.edu/download/12956.

[6] National Quality Forum. 2014. Priority Setting for Healthcare Performance Measurement: Addressing Performance Measure Gaps for the Health Workforce, Final Report. Washington, D.C.: National Quality Forum. Retrieved December 1, 2017 from: http://www.qualityforum.org/Publications/2014/08/Priority_Setting_for_Healthcare_Performance_Measurement__Addressing_Performance_Measure_Gaps_for_the_Health_Workforce.aspx.

[7] Estimates based on race groups among self-reported Hispanic nurses (e.g., Hispanic Blacks) were not possible due to limitations of the projection model.

HRSA's Health Workforce Simulation Model (HWSM)[8] was used to estimate nursing workforce supply and patient demand. While the nuances of modeling workforce supply and patient demand differ for individual health professions, the basic framework remains the same. For supply modeling, the major components beyond common labor-market factors like unemployment include characteristics of the existing workforce in a given occupation; new entrants to the workforce (e.g., newly trained RNs and LPNs); and workforce participation decisions (e.g., patterns in retirement and hours worked). For patient demand modeling, the HWSM assumes that demand equals supply in the base year (2014),[9] and that the major components of patient demand include population demographics; health care use patterns (including the influence of increased insurance coverage); and demand for health care services. All estimates are reported as nurse full-time equivalents (FTEs).

Important limitations for these nursing workforce projections include underlying model assumptions that health care delivery in the future (projected until 2030) will not change substantially from the way care was delivered in the base year (2014) and that there will be stability in the current rates of workforce participation, workforce retirement, and patient utilization. Changes in these factors, including changes in delivery models that result in increased workforce productivity or decreased service demand, may significantly impact the nursing supply and patient demand projections presented in this factsheet. These projections also do not account for the geographical distribution of providers, which may impact access to care in certain communities.

BACKGROUND

RNs and LPNs perform a variety of patient care duties and are critical to the delivery of health care services across a wide array of settings, including ambulatory care clinics, hospitals, nursing homes, public health facilities, hospice programs, and home health agencies. Distinctions are made among the different types of nurses according to their education, role, and the level of autonomy in practice.

RNs have a bachelor's degree in nursing, a two-year associate's degree in nursing, or a diploma from an approved nursing program. They must pass a national exam, the NCLEXRN, before they are licensed to practice.[10,11,12] RNs provide a range of care services, including treatment administration, care coordination, patient education, and health promotion for individuals, families, and communities. RNs may choose to obtain advanced clinical education and training to become Advanced Practice Nurses (APRNs). APRNs often focus in a clinical specialty area.[13,14] APRNs are not included in the estimates presented here.

LPNs typically receive training for one year beyond high school and, after passing the national NCLEX-PN exam, become licensed to work in patient care. LPNs also provide a variety of services, including

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[8] This model uses a micro-simulation approach where supply is projected based on the simulation of career choices of individual health workers. Demand for health care services is simulated for a representative sample of the current and future U.S. population based on each person's demographic and socioeconomic characteristics, health-related behavior, and health risk factors that affect their health care utilization patterns. For more information on data and methods, please see https://bhw.hrsa.gov/sites/default/files/bhw/nchwa/projections/NCHWA_HWSM_Technical_Report_to_DEA.pdf.

[9] Ono T, Lafortune G, Schoenstein M. "Health workforce planning in OECD countries: a review of 26 projection models from 18 countries." *OECD Health Working Papers, No. 62*. France: OECD Publishing; 2013: 8-11.

[10] Sochalski, J., & Weiner, J. (2011). Health care system reform and the nursing workforce: Matching nursing practice and skills to future needs, not past demands. The future of nursing: Leading change, advancing health, 375-400.

[11] Pittman, P., & Forrest, E. (2015). The changing roles of registered nurses in Pioneer Accountable Care Organizations. Nursing outlook, 63(5), 554-565.

[12] Anderson, D. R., & St Hilaire, D. (2012). Primary care nursing role and care coordination: An observational study of nursing work in a community health center. Online journal of issues in nursing, 17(2), E1.

[13] Blegen, M. A., Goode, C. J., Park, S. H., Vaughn, T., & Spetz, J. (2013). Baccalaureate education in nursing and patient outcomes. Journal of Nursing Administration, 43(2), 89-94.

[14] Hamric, A. B., Hanson, C. M., Tracy, M. F., & O'Grady, E. T. (2013).Advanced practice nursing: An integrative approach. Elsevier Health Sciences.

administering medication, taking medical histories, recording symptoms and vital signs, and other tasks as delegated by RNs, physicians, and other health care providers.[15,16]

REGISTERED NURSES

Between 2014 and 2030, the national RN supply, across all race and ethnicity groups, is projected to grow from 2,806,100 FTEs to 3,895,600 FTEs (39 percent increase), while total patient demand for RN care is estimated to grow from 2,806,100 FTEs to 3,601,800 FTEs (28 percent increase; Exhibit 1, Exhibit 2, Exhibit 3). These estimates suggest the United States will have a sufficient supply of RNs to meet the projected growth in demand for RN services in 2030. While the total RN supply is expected to be adequate to meet demand, these estimates do not capture changes in care delivery patterns or regional maldistributions in RN supply that may be present both at baseline and in 2030. Thus, as with national projections for other health professions, the estimates of total RN supply may mask considerable variability at regional and local levels.

Exhibit 1. Estimated RN Supply in the United States, by Ethnicity and Race, 2014 – 2030

	Hispanic RNs in FTEs (% of Total)	**Non-Hispanic White RNs in FTEs (% of Total)**	**Non-Hispanic Black RNs in FTEs (% of Total)**	**Non-Hispanic Other RNs in FTEs (% of Total)**	**Total RN Workforce in FTEs (% of Total)**
Estimated RN supply, 2014	160,800 (6%)	2,046,000 (73%)	301,400 (11%)	297,900 (11%)	2,806,100 (100%)
Projected increase in RN supply, 2014-2030	132,800 (12%)	723,500 (66%)	114,500 (11%)	118,700 (11%)	1,089,500 (100%)
Projected RN supply, 2030	293,600 (8%)	2,769,500 (71%)	415,900 (11%)	416,600 (11%)	3,895,600 (100%)

Notes: FTE estimates and percentages may not sum to totals due to rounding. FTE estimates are rounded to the nearest 100. Percentages are rounded to the nearest percent.

[15] Mueller, C., Anderson, R., McConnel, E. (2012). Licensed Nurse Responsibilities in Nursing Homes: A Scope-of-Practice Issue. Journal of Nursing Regulation. 3(1): 13-20.

[16] Lubbe, J., Roets, L. (2014) Nurses' Scope of Practice and the Implication for Quality Nursing Care, Journal of Nursing Scholarship. 46(1): 58-64.

Exhibit 2. Estimated Demand for RNs in the United States, by Patient Ethnicity and Race, 2014 – 2030

	Hispanic Patient Demand, in RN FTEs (% of Total)	Non-Hispanic White Patient Demand, in RN FTEs (% of Total)	Non-Hispanic Black Patient Demand, in RN FTEs (% of Total)	Non-Hispanic Other Patient Demand, in RN FTEs (% of Total)	Total Patient Demand, in RN FTEs (% of Total)
Estimated patient demand for RNs, 2014[a]	314,900 (11%)	1,929,800 (69%)	373,600 (13%)	187,800 (7%)	2,806,100 (100%)
Projected increase in patient demand for RNs, 2014-2030	178,200 (22%)	385,400 (48%)	128,100 (16%)	104,000 (13%)	795,700 (100%)
Projected patient demand for RNs, 2030	493,100 (14%)	2,315,200 (64%)	501,700 (14%)	291,800 (8%)	3,601,800 (100%)

Notes: FTE estimates and percentages may not sum to totals due to rounding. FTE estimates are rounded to the nearest 100. Percentages are rounded to the nearest percent.

[a] The model assumes that total, national-level RN supply and demand are in approximate equilibrium in 2014.

Exhibit 3. Percent Growth in RN Supply and Patient Demand, by Ethnicity and Race, 2014 – 2030

	Hispanic	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic Other	Overall Growth Across all Ethnicity and Race Categories
Percent Growth in RN Supply by RN Ethnicity and Race	83%	35%	38%	40%	39%
Percent Growth in RN Demand by Patient Ethnicity and Race	57%	20%	34%	55%	28%

Note: Percent growth in RN Supply is calculated as (RN Supply, 2030 – RN Supply, 2014)/RN Supply, 2014 X 100.
Percent growth in RN Demand is calculated as (Patient Demand, 2030 – Patient Demand, 2014)/Patient Demand, 2014 X 100.

When analyzing nursing supply and demand by individual ethnicity and race categories, a more variable situation is observed. While the overall growth in RN supply is about 39 percent (Exhibit 3), the supply of Hispanic RNs increases 83 percent, more than twice as fast as the overall increase in RN supply. Increases in RN supply in the other categories are projected to be roughly similar to the overall growth in RN supply (39 percent), ranging from a 35 percent among non-Hispanic whites to an increase of 40 percent in the non-Hispanic Other category.

Similarly, the overall growth in patient demand for RNs is 28 percent. The increase in demand by Hispanic patients is 57 percent, again about twice the overall increase in patient demand (28 percent). In the non-Hispanic Black and non-Hispanic Other categories, the increase in patient demand is estimated to be higher, at about 34 percent and 55 percent respectively. The lowest increase in patient demand is among non-Hispanic White patients, where the increase is 20 percent.

LICENSED PRACTICAL/VOCATIONAL NURSES

Between 2014 and 2030, the national LPN supply across all race and ethnicity groups is estimated to grow from 809,700 FTEs to 1,016,700 FTEs (26 percent), while total patient demand for LPNs is estimated to grow from 809,700 FTEs to 1,168,200 FTEs (44 percent; Exhibit 4, Exhibit 5, Exhibit 6). These estimates suggest that patient demand for LPNs in 2030 may slightly outpace LPN supply at the national level. These estimates also do not capture changes in care delivery patterns or regional maldistributions in LPN supply that may be present both at baseline and in 2030. Again, estimates of total supply may mask considerable variability at regional and local levels.

Exhibit 4. Estimated LPN Supply in the United States, by Ethnicity and Race, 2014 – 2030

	Hispanic LPNs in FTEs (% of Total)	Non-Hispanic White LPNs in FTEs (% of Total)	Non-Hispanic Black LPNs in FTEs (% of Total)	Non-Hispanic Other LPNs in FTEs (% of Total)	Total LPN Workforce in FTEs (% of Total)
Estimated LPN supply, 2014	72,100 (9%)	491,100 (61%)	193,100 (24%)	53,400 (7%)	809,700 (100%)
Projected increase in LPN supply, 2014-2030	56,300 (27%)	78,700 (38%)	37,500 (18%)	34,500 (17%)	207,000 (100%)
Projected LPN supply, 2030	128,400 (13%)	569,800 (56%)	230,600 (23%)	87,900 (9%)	1,016,700 (100%)

Notes: FTE estimates and percentages may not sum to totals due to rounding. FTE estimates are rounded to the nearest 100. Percentages are rounded to the nearest percent.

[a] The model assumes that total, national-level LPN supply and demand are in approximate equilibrium in 2014.

Exhibit 5. Estimated LPN Demand in the United States, by Patient Ethnicity and Race, 2014 – 2030

	Hispanic Patient Demand in LPN FTEs (% of Total)	Non-Hispanic White Patient Demand in LPN FTEs (% of Total)	Non-Hispanic Black Patient Demand in LPN FTES (% of Total)	Non-Hispanic Other Patient Demand in LPN FTEs (% of Total)	Total Patient Demand in LPN FTEs (% of Total)
Estimated demand, 2014[a]	77,600 (10%)	593,800 (73%)	89,700 (11%)	48,600 (6%)	809,700 (100%)
Projected increase in patient demand for LPNs, 2014-2030	58,800 (16%)	216,600 (60%)	46,700 (13%)	36,400 (10%)	358,500 (100%)
Projected patient demand for LPNs, 2030	136,400 (12%)	810,400 (69%)	136,400 (12%)	85,000 (7%)	1,168,200 (100%)

Notes: FTE estimates and percentages may not sum to totals due to rounding. FTE estimates are rounded to the nearest 100. Percentages are rounded to the nearest percent.

[a] The model assumes that total, national-level LPN supply and demand are in approximate equilibrium in 2014.

Exhibit 6. Percent Growth in LPN Supply and Patient Demand, by Ethnicity and Race, 2014 – 2030

	Hispanic	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic Other	Overall Growth Across all Ethnicity and Race Categories
Percent Growth in LPN Supply by LPN Ethnicity and Race	78%	16%	19%	65%	26%
Percent Growth in LPN Demand by Patient Ethnicity and Race	76%	36%	52%	75%	44%

Note: Percent growth in LPN Supply is calculated as [(LPN Supply, 2030 – LPN Supply, 2014)/LPN Supply, 2014] X 100.
Percent growth in LPN Demand is calculated as [(Patient Demand, 2030 – Patient Demand, 2014)/Patient Demand, 2014] X 100.

As with RNs, a more complex situation emerges when individual ethnicity and race categories for LPNs are examined. While the overall growth in LPN supply is about 26 percent (Exhibit 6), the percent growth in the supply of Hispanic LPNs is about three times that (78 percent). Percent growth in LPN supply in the other categories ranges from 16 percent among non-Hispanic White LPNs to 65 percent for LPNs in the non-Hispanic Other category.

The overall growth in demand for LPN care across all patient ethnicity and race categories is 44 percent (Exhibit 6), while the percent growth in LPN demand by Hispanic patients is 76 percent, roughly twice the overall increase in patient demand for LPN care. In the non-Hispanic Black and non-Hispanic Other categories, the increase in patient demand for LPNs is 52 percent and 75 percent respectively. As with RNs, the smallest increase in patient demand is seen among non-Hispanic White patients, where the percent growth (36 percent) is less than the overall percent growth in patient demand across all ethnicity and race categories (44 percent).

SUMMARY

These estimates of nursing workforce supply and patient demand reflect overall changes the demographics of both nursing and patient populations, and are broadly consistent with changes in the U.S. population projected by the U.S. Census Bureau. For both RNs and LPNS, the greatest changes are seen in the supplies of Hispanic nurses and in the demand for nursing care by Hispanic patients (Exhibit 3, Exhibit 6). The lowest levels of change are seen for non-Hispanic White nurses and non-Hispanic White patients, where the percent growth is less than the overall changes in nurse supply and patient demand (Exhibit 3, Exhibit 6).

A diverse health workforce has been linked to increased patient satisfaction, improved patient-clinician communication, and greater access to care for patients belonging to minority populations.[17,18] Recognizing these important benefits, the projected growth in the supplies of Hispanic RNs and LPNs is especially encouraging. Overall, however, the estimates presented here suggest that addressing the health care needs of an increasingly diverse U.S. population may require ongoing initiatives to actively recruit, train, and retain an ethnically and racially diverse nursing workforce.

[17] Grumbach, K. & Mendoza, R. (2008). Disparities in human resources: Addressing the lack of diversity in the health professions. Health Affairs, 27(2): 413-422.
[18] Institute of Medicine (US) Committee on Institutional and Policy-Level Strategies for Increasing the Diversity of the U.S. Healthcare Workforce, Smedley BD, Stith Butler A, Bristow LR, editors. (2004). In the Nation's Compelling Interest: Ensuring Diversity in the Health-Care Workforce. Washington, DC: National Academies Press. Available from: https://www.ncbi.nlm.nih.gov/books/NBK216009/.