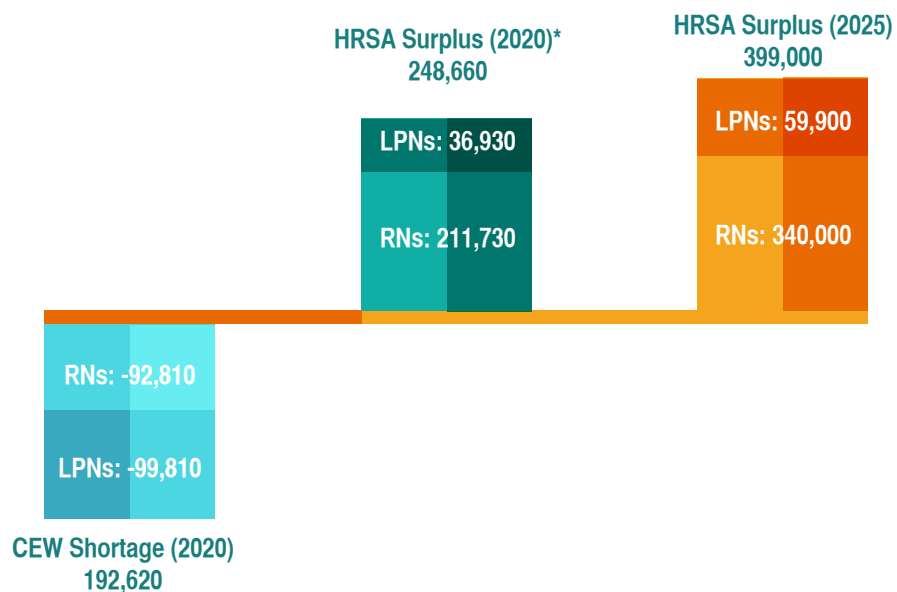# Nursing Projections Methodology

Will there be a shortage or surplus of nurses in 2020?

Forecasting is an intricate and indefinite task, particularly when actual outcomes are so demonstrably unpredictable. Many believe the economy is too volatile to give serious credence to anyone's crystal ball. Adding to the perplexity are the numerous opportunities to obtain different outcome forecasts for the same event from multiple experts. To a large extent, these varied forecasts often are the product of differing assumptions made by the experts generating the forecasts. Nevertheless, forecasts, predictions, and educated guesses are necessary for planning, policy, and investment decisions.

The following explains why the Georgetown University Center on Education and the Workforce (CEW) prediction of a shortage of nurses in 2020 differs from the surplus of nurses predicted for 2025 by the Heath Resources and Services Administration (HRSA) National Center for Health Workforce Analysis. To facilitate direct comparisons for 2020 in this discussion, we obtained the average annual growth in demand based on assumptions in the HRSA model, and then estimated what the HRSA model would have predicted for 2020. As shown in Figure 1, even with the five-year modification, HRSA predicts a surplus of nurses in 2020. Figure 2 provides the CEW and HRSA demand and supply numbers for 2020.
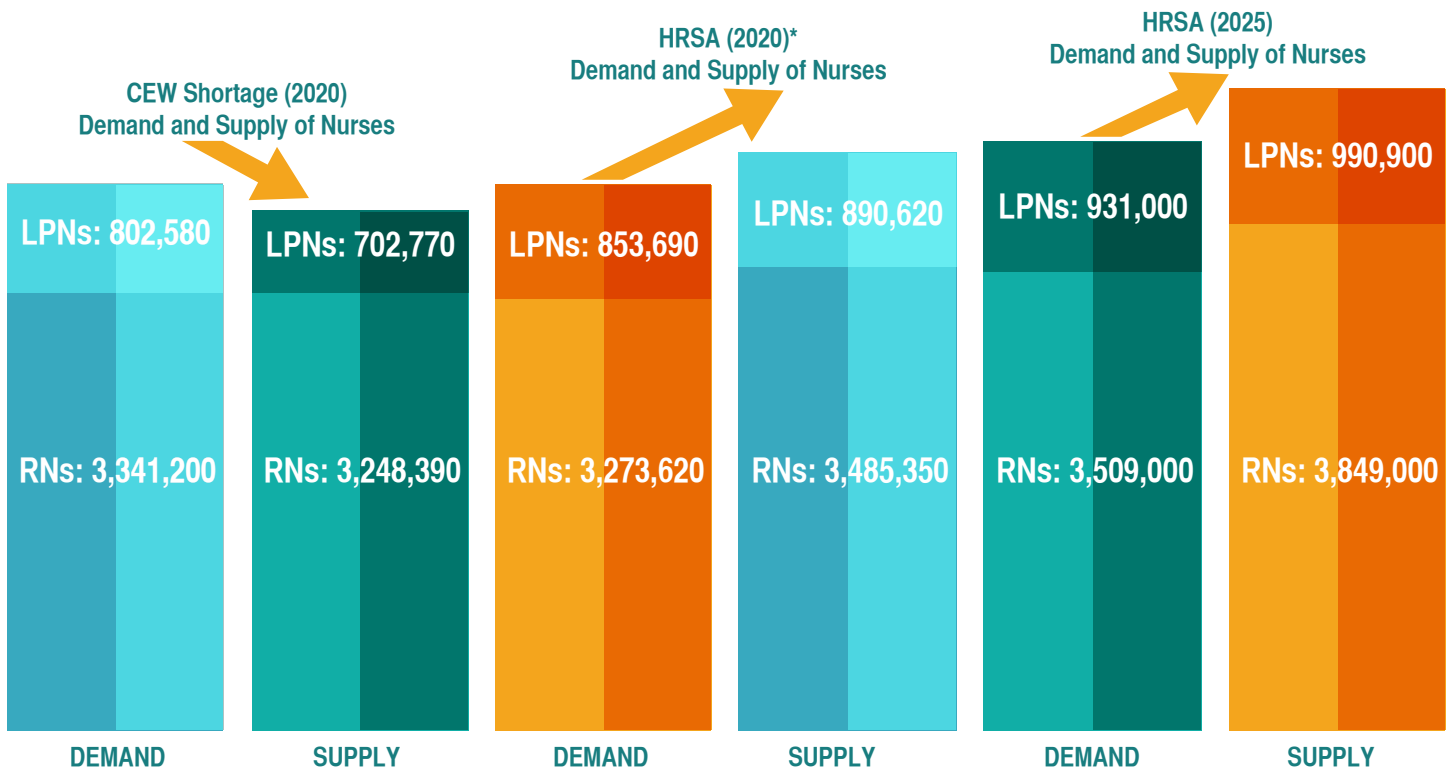
Figure 1. CEW predicts a shortage of nurses while HRSA predicts a surplus.

HRSA Surplus (2020)*
248,660

LPNs: 36,930

RNs: 211,730

HRSA Surplus (2025)
399,000

LPNs: 59,900

RNs: 340,000

RNs: -92,810

LPNs: -99,810

CEW Shortage (2020)
192,620

Sources: Georgetown University Center on Education and the Workforce forecasts of nursing demand, 2015; and Health Resources and Services Administration (HRSA), National Center for Health Workforce Analysis, *The Future of the Nursing Workforce: National- and State-Level Projections, 2012-2025*, 2014.

*The HRSA analysis only provides the 2025 figures. The 2020 numbers were estimated by CEW using average annual growth in supply and demand based on the assumptions in the HRSA model.

Figure 2. CEW estimates of demand do not differ substantially from HRSA demand forecasts. It is the supply forecasts that differ drastically between both institutions, thus contributing to the differing outcomes.

CEW Shortage (2020) Demand and Supply of Nurses

LPNs: 802,580

LPNs: 702,770

RNs: 3,341,200

RNs: 3,248,390

DEMAND

SUPPLY

HRSA (2020)* Demand and Supply of Nurses

LPNs: 853,690

LPNs: 890,620

RNs: 3,273,620

RNs: 3,485,350

DEMAND

SUPPLY

HRSA (2025) Demand and Supply of Nurses

LPNs: 931,000

LPNs: 990,900

RNs: 3,509,000

RNs: 3,849,000

DEMAND

SUPPLY

Sources: Georgetown University Center on Education and the Workforce forecasts of nursing demand, 2015; and Health Resources and Services Administration (HRSA), National Center for Health Workforce Analysis, *The Future of the Nursing Workforce: National- and State-Level Projections, 2012-2025*, 2014.

* CEW obtained the average annual growth in supply and demand, based on assumptions in the HRSA's model and then, using the 2025 figures, estimated what the HRSA model would have predicted for 2020.
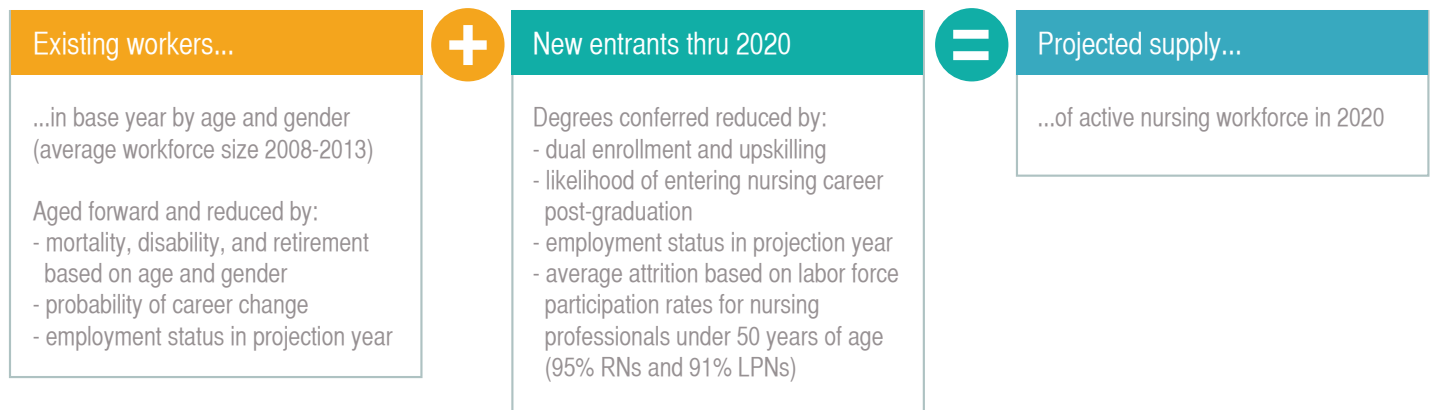
What's behind the differences?

First, let's begin with an area of commonality between CEW and HRSA: the future demand for nursing professionals. When the HRSA figures are adjusted to 2020, we find fairly similar estimates with regard to the demand for nursing professionals in 2020 – 4.14 million estimated by CEW and 4.13 million[1] estimated by HRSA (Figure 2).

CEW and HRSA don't differ significantly in estimations of the growth in demand for healthcare services. Health care now represents almost 20 percent of the U.S. economy and is only expected to continue growing as the U.S. population ages and healthcare coverage continues to expand, albeit at a slower pace. The demand for healthcare services and healthcare workers, particularly nurses, tends to grow in tandem with these forces.

[1] The totals are the sums of the RN and LPN forecasts for demand, with 2025 HRSA numbers adjusted for 2020.

It is in the estimations of supply where our forecasts diverge (Figure 2). For the most part, HRSA estimates supply based on a number of assumptions concerning new entrants, including differing demographic patterns in the nursing workforce, as well as mortality, labor force participation, overall attrition, and hours worked. CEW uses a fairly similar method – and similar variables – to determine supply, which are modelled on HRSA's earlier methodology (the Clinical Specialty Supply Model). However, CEW comes to different conclusions based on the behavior of the workforce as it pertains to retirement, mortality, labor force participation, career changes, overall attrition, and educational upskilling (Figure 3). In addition, our projections for registered nurses (RNs) include advance practice registered nurses (APRNs), whereas HRSA's National Center for Health Workforce Analysis classifies APRNs as primary or non-primary care clinicians depending on the specialty and does not include APRNs in its nursing predictions.

Figure 3. New entrants are added to the remaining nursing professionals from existing workforce to get the projected supply of active nursing professionals in 2020.

Existing workers...	New entrants thru 2020	Projected supply...
...in base year by age and gender (average workforce size 2008-2013)	Degrees conferred reduced by: - dual enrollment and upskilling - likelihood of entering nursing career post-graduation - employment status in projection year - average attrition based on labor force participation rates for nursing professionals under 50 years of age (95% RNs and 91% LPNs)	...of active nursing workforce in 2020
Aged forward and reduced by: - mortality, disability, and retirement based on age and gender - probability of career change - employment status in projection year		

Where do our assumptions differ?

A key consideration is that not everyone who graduates with a nursing license or diploma goes on to immediately practice or to eventually predominantly practice nursing. Our forecast of supply is akin to estimating the "active supply" of nurses, or those who are active in the workforce. There are many normative explanations as to why this is the case. Our most compelling rationale has to do with how the state of the economy influences whether nurses choose to enter or exit the workforce. Ample evidence supports this viewpoint. Buerhaus, et al. (2009) examined changes in full-time equivalent (FTE) RN employment during recessions and economic growth periods between 1981 and 2008, and found that annual growth in FTE

RN employment is substantially higher during periods of economic decline than during periods of economic growth (3.6% vs. 2.3%)[2]. Furthermore, there are stark disparities between the number of nursing professionals in the workforce and the number of nursing professionals who are licensed to practice. In 2013, there were 5.2 million licensed nursing professionals, but only 3.6 million were employed in the nursing workforce. As the economy improves, many more nurses will have the option to leave the nursing workforce for other types of jobs or to retire compared to the limited opportunities nurses had during the Great Recession.

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[2] Buerhaus, et al., "The Recent Surge In Nurse Employment: Causes And Implications," 2009: w657-w668.

Above and beyond the differences between CEW and HRSA, both models make assumptions that are subject to scrutiny, as discussed below.

1. Obamacare is expected to increase the demand for nurses. The Affordable Care Act (ACA) could increase the demand for nurses far beyond what current estimates predict. Not only should expanded medical coverage result in increased demand for healthcare services, but a number of provisions in the ACA seek to expand team-based primary, preventive, and community-based care models that heavily rely on nursing professionals. There is evidence that low-income individuals currently utilize relatively more expensive acute care services.[3] New provisions in the ACA seek to change this. The reforms are designed to promote new entrants into the healthcare marketplace to rely more on primary care, preventive medicine and the management of chronic illnesses, a domain that fits directly into the realm of the nursing workforce. Furthermore, many provisions of the ACA encourage upskilling of the workforce. Already hospitals are much more likely to require that entry-level RNs have a bachelor's degree to be considered for new positions.

2. Demographic changes. The growing and aging U.S. population, increasing healthcare coverage, rising disposable incomes, and changing healthcare delivery models all have contributed to the steady growth in demand for nursing services. Moreover, an aging workforce, a demanding job environment, and inconsistent wages and wage increases have contributed to many qualified nurses exiting the profession.

3. Changes in immigration legislation. A temporary drying up of international nurses has put a damper on the supply of qualified nursing professionals. The number of foreign RNs applying for work visas has contracted by nearly a third since the beginning of the Great Recession.

4. Lack of educational facilities. To date, there have not been enough educational facilities to accept all qualified students. More importantly, the lack of faculty and clinical placement sites remains important obstacles to qualified applicants gaining a place in nursing school.[4,5] More online learning opportunities and/or changes to the business model of teaching institutions is needed to facilitate classroom seats or enrollment numbers that more closely reflect the number of applications to nursing school.

5. Dramatic swings (up or down) in enrollment. Data over time show that large swings in the enrollment of nursing students can affect supply and change the outlook for either a shortage or surplus.

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[3] Kongovi, et al., "Understanding Why Patients of Low Socioeconomic Status Prefer Hospitals over Ambulatory Care," 2012: 1196-1203.
[4] Fang, et al., 2011-2012 Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing, 2012.
[5] National League for Nursing, Annual Survey of Schools of Nursing, Fall 2011, 2012.

Projections do not foretell the future.

Projections are not based on pre-destined outcome. The future is ever changing, and any major economic or policy change can have major impact on what happens. For example, many forecasts made prior to the Great Recession did not pan out because the Great Recession had major impacts across many economic and social dimensions.

Projections explore current trends and forecast what will likely happen if those trends continue. They are very sensitive to what trends researchers choose to include and how much impact they think each trend will have on the outcome. Thus, knowledgeable and reasonable experts can disagree substantially on a given subject. The key is to understand the differences between different sets of projections and to use the one best suited for the purpose.

With that in mind, the main differences between our projections and HRSA projections of nursing supply and demand are:
• Our projections extend to 2020, whereas HRSA's extend to 2025. Five years is a long time, and many things can change during that time.
• We focus on "active supply," that is, nurses who will not only graduate and get a nursing license, but also will work as nurses. A third of nurses with a license do not work in nursing.
• We include advanced practice registered nurses (APRNs) in our projections; HRSA does not include them in its projections for [specify the category]; Instead, it includes APRNs in separate projections of primary and non-primary care clinicians.