2021 HAWAII NURSING WORKFORCE SUPPLY SURVEY METHOD
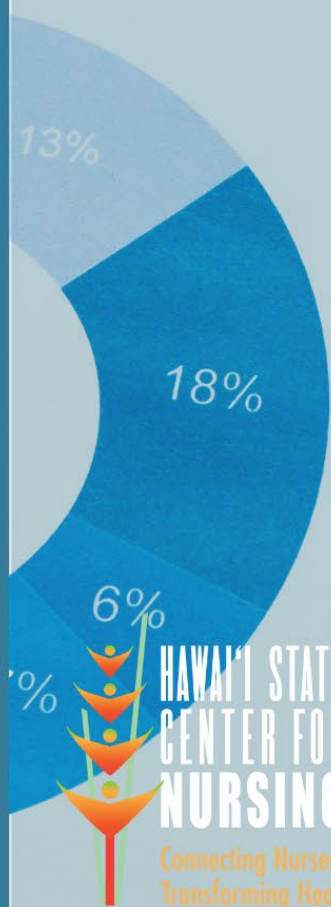
HAWAI'I STATE CENTER FOR NURSING

Connecting Nurses.
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OCTOBER 2021

2021 Hawaiʻi Nursing Workforce Supply

Survey Method

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The Hawaiʻi State Center for Nursing monitors the state of the nursing workforce in Hawaiʻi through the collection and reporting of workforce supply, education capacity, and employer demand data. These three research activities assist entities in the public and private sectors with the development and implementation of initiatives intended to develop a robust nursing workforce that meets the needs of Hawaiʻi's residents now and in the future.

INTRODUCTION

This document provides a description of the method of the Hawaiʻi State Center for Nursing's (the Center) 2021 Nursing Workforce Supply Survey (Supply Survey). Questions about the content of this document or the Supply Survey should be directed to the Center's researcher, Carrie M. Oliveira, Ph.D. (carrieol@hawaii.edu).

IRB REVIEW

An earlier version of the Supply Survey was reviewed and approved as human subjects research by the Institutional Review Board (IRB) at the University of Hawaiʻi at Mānoa where the Center is located. Prior to fielding in 2021, the Center's researcher submitted a revised survey instrument to the IRB which included modifications to existing items and the addition of new items. Upon review, the IRB determined that the survey was classifiable as non-human subjects research due to its purpose as a workforce monitoring tool. As such, the study is not subject to ongoing review or oversight by the IRB.

INSTRUMENTATION

The Supply Survey is based on the National Forum of State Nursing Workforce Centers (2016) Minimum Dataset for Supply (Supply MDS). The Supply MDS provides guidance to states about the questions they should ask their nurses so that states' data are comparable to one another. Such comparability is useful for examining national trends and differences between states' workforces. The Center's Supply Survey instrument includes all the variables recommended

on the Supply MDS. It also includes questions recommended by statewide stakeholders and the Center's Research Steering Committee.

The 2021 Supply Survey instrument comprised 124 questions. Consistent with prior years' instruments, the 2021 survey addressed the topics of nurses' license(s), certification(s), demographic characteristics, nursing education, volunteerism, employment status, primary and secondary employment characteristics, job satisfaction/intention to leave, and nursing professional development.

The 2021 instrument also included two new modules. The first new module included questions related to nurses' wellbeing at work. This module will become a part of the regular Supply Survey instrument. The second module included questions related to how nurses' employment and emotions were affected by the COVID-19 pandemic.

The survey was conducted entirely online via the web-based survey platform SurveyMonkey. The online instrument contained skip logic that prevented respondents from seeing questions that were irrelevant to them based on answers to questions earlier in the survey. Most of the questions on the survey were programmed not to require an answer unless the answer on that question was necessary to correctly activate skip logic. There was no circumstance in which any respondent would have seen all 124 questions. Because the number of questions each respondent answered varied as a function of their individual

characteristics and the number of optional questions they chose to answer, we have not attempted to calculate an average number of questions respondents answered. On average, respondents took 13 minutes to complete the survey.

FIELDING

The Supply Survey has been conducted by the Center with the support of the Hawai'i Board of Nursing (HBON) and the assistance of the Professional and Vocational Licensing (PVL) Division of the Hawai'i Department of Commerce and Consumer Affairs (DCCA) since 2007, the first year the Center conducted the survey.

Nurses complete the Supply Survey on a voluntary basis during the Hawai'i nurse license renewal period which begins around the third week of April and ends on June 30 of every odd-numbered year. In 2021, renewals began on April 19. During the license renewal period, nurses log in to their online license management account to submit the electronic license renewal application. The online license renewal portal also includes a link to the Supply Survey with a message from HBON encouraging nurses to complete the survey.

Under normal circumstances, nurses have the option to complete the survey prior to or following the submission of their license renewal application. However, in 2021, the Supply Survey link was available only prior to the submission of a license renewal application. As a result, anyone who did not opt to take the survey prior to submitting their application was unable to see the survey link or participate in the survey. This programming issue resulted in a severely diminished study response rate as compared to prior years. The response rate for the study is discussed later in this document.

When the Center learned that no nurse who had already submitted a renewal application was able to complete the Supply Survey, the Center's Director worked with the Executive Officer of HBON to have the link added to the end of the renewal application. The resolution of the issue improved the daily number of completions, but the timing of the resolution – 10 days prior to the end of the renewal period – meant that most nurses who renewed in the first 63 days of the period had not had the opportunity to take the survey.

To improve the response rate among nurses who were unable to access the survey during the license renewal period, the Center and HBON worked together to encourage nurses to take the survey. The Center extended the fielding period by an additional month beyond the close of the license renewal period to July 31. Then, HBON added the survey link to nurses' license management platform and sent emails to nurses advising them of the availability of the survey. These actions had a small but important positive impact on the survey response rate.

Simultaneous to HBON's efforts to improve participation, the Center mailed postcards with the Supply Survey link to every nurse with a primary residential address in Hawai'i

(approximately 18,000 nurses after the removal of foreign, duplicate, and invalid addresses). The postcards began arriving in mailboxes at approximately the same time that HBON made the survey link available at the end of the renewal application. As a result, it is impossible to accurately estimate the extent to which the postcards influenced the study response rate[1].

TIMING OF THE SUMMER COVID-19 SURGE AND FIELDING LIMITATIONS

Beginning in mid-July, Hawai'i experienced a surge in the number of cases of COVID-19 (Hawai'i Department of Health Disease Outbreak Control Division, 2021). The surge, caused by the delta variant, peaked in late August which resulted in a shortage of healthcare professionals in many fields including nursing. The surge in COVID-19 cases and the resulting staffing shortages placed additional strain on nurses after the 2021 Supply Survey fielding period ended. As such, some of the most significant emotional and job-related impacts of COVID-19 are likely not reflected in the study data.

SAMPLE

During the 2021 license renewal period, 35,329 nurses were eligible to renew their Hawai'i nursing license of which 27,079 (77%) submitted renewal applications. Of the nurses who renewed,

4,399 completed the Supply Survey resulting in a 16% overall study response rate.

Prior to 2021, the Supply Survey response rate averaged about 50%. The low response rate raises reasonable questions about the accuracy of this year's data. As such, prior to the release of any data from the 2021 survey, the Center's researcher compared the 2019 and 2021 distributions of several variables including highest license held, race/ethnicity, primary employment setting and primary employment job title. Because there were no large or unexpected differences between 2019 and 2021, we concluded that the low response rate did not compromise the overall quality of the data. We are confident that the results of this year's survey are an accurate representation of the nursing workforce in Hawai'i within the margins of error indicated in Table 1.

CRITERIA FOR CLASSIFICATION OF CASES INTO LICENSE CATEGORIES

Though we frequently refer to the "nursing workforce" as a singular entity, there are really three nursing workforces defined by the three nursing licenses (i.e., LPN, RN, and APRN). Prior to analysis, each data record was classified into one and only one nurse license category using the following criteria.

1. Any respondent who reported holding only an LPN license *or* only an RN license was

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[1] Because the postcards were only sent to nurses with a primary residential address in Hawai'i any significant influence of the postcards on the sample would likely have resulted in an unusually high proportion of the sample reporting that they live in Hawai'i. This did not occur. Consistent with prior study years, the proportion of in-state nurses in the sample approximately matched the proportion of nurses reported by PVL as having a primary residential address in Hawai'i. As such, we have concluded that the influence of the postcards on the sample was, at best, negligible.

classified into the license category corresponding to the license they reported holding.

2. Any respondent who reported holding both an LPN license *and* an RN license but *not* an APRN license was classified as an RN.

3. Any respondent who reported holding an APRN license *and* an RN license but *no* APRN

certification was classified as an RN as it is impossible to hold an APRN license without an APRN certification.

4. Any respondent who indicated holding an APRN license *and* an RN license *and* at least one APRN certification was classified as an APRN.

Table 1: Response Rates and Margins of Error by License

	All Nurses	LPN	RN	APRN
Renewed a License in 2021	27,079	1,629	2,3706	1,744
Completed 2021 Supply Survey	4,392	339	3,742	311
Response Rate	16%	21%	16%	18%
Margin of Error (α=95%)	+/- 2.56	+/- 4.74	+/- 1.47	+/- 5.04

Note. Seven nurses provided responses that prevented their accurate classification into one of the three nurse license categories. Because these cases could not be classified into a license group, they were deemed invalid and removed from the dataset. The response rates and margins of error in the table above are calculated following the removal of these 7 cases from the dataset. The margins of error are reported as percentage points.

CRITERIA FOR INCLUSION OF CASES IN ANALYSIS

All nurses who renewed a Hawai'i nursing license were encouraged to complete the Supply Survey. However, the primary goal of the survey is to describe the characteristics of nurses who comprise Hawai'i's nursing workforce which we define as nurses who are practicing nursing in the state. Data about the statewide nursing workforce as presented in tables, reports, and infographics include only those respondents who met all four inclusion criteria except where the table, report, or infographic includes the explicit indication of other inclusion criteria. Cases were excluded from statewide analysis if:

1. The respondent indicated that they were an APRN who did *not* also have an active RN license *and* APRN certification (n=7, cumulative cases excluded from analysis=7). A

person cannot hold an APRN license in Hawai'i without both an active RN license and a valid APRN certification so these cases lack valid license data. Because they are invalid cases, they were removed from the dataset and are not included in any table, report, or infographic.

2. The respondent indicated that they were not employed or self-employed at the time of the survey or did not answer the question related to employment status (n=778, cumulative cases excluded from analysis=785).

3. The respondent indicated that they were not employed or self-employed in any position that is relevant to their nursing license or did not answer the question about the relevance of their nursing license to their employment (n=99; cumulative cases excluded from analysis=884).

4. The respondent indicated that their primary employment position is located outside the state of Hawai'i or did not answer the question about the location of their primary employment (n=867, cumulative cases excluded from analysis=1,751).

The remaining 2,648 records are included in all statewide analyses produced from the 2021 Nursing Workforce Supply Survey data except when a record is missing data on the variable(s) included in any given analysis. No attempt was made to interpolate or otherwise estimate missing data in any variable in the dataset.

ESTIMATION OF COUNTS

Some of the data tables produced from the 2021 Supply Survey data include frequency distributions or cross-tabulations that include both percentages and counts. The counts do not represent the number of actual responses in a variable category. Rather, they are calculated estimates of the number of nurses in the workforce that the corresponding percentage represents.

The estimation of any count was based on the total number of in-state nurses reported in

PVL's (2021) Geographic Report of Current Licenses. These data represent the total number of individuals residing in Hawai'i who are eligible to practice in nursing license-relevant roles.

As described earlier in this document, most of the reports containing Supply Survey data are concerned with nurses who both reside and work in license-relevant roles in Hawai'i. Using the total in-state licenses as the basis for estimated counts would result in overestimates as not everyone who holds a license is working in a license-relevant role. To prevent over-estimation, total in-state licenses reported by PVL was reduced by the percentage of 2021 Supply Survey respondents who were excluded from analysis because of their employment status (Inclusion Criterion #2) or employment role (Inclusion Criterion #3). The result of that calculation established the population of nurses from which counts were estimated.

Estimated counts were computed by multiplying the calculated percentages in each variable category from the Supply Survey by the estimated population of nurses employed in Hawai'i.

Table 2. Estimation of Population of Nurses Employed in Hawai'i by License

	All Nurses	LPN	RN	APRN
Total In-State Licenses Reported by PVL	18,471	1,367	15,827	1,277
# of Survey Respondents Excluded due to Employment Status or Role	877	80	755	42
% of Survey Respondents Excluded due to Employment Status or Role	4.75%	5.85%	4.77%	3.29%
Est. % of Total In-State Licenses Employed in a License-Relevant Role in Hawai'i	95.25%	94.15%	95.23%	96.71%
Population of Estimate of Nurses Working in License-Relevant Roles in Hawai'i	17,593	1,287	15,072	1,234

REFERENCES

Hawaiʻi Department of Health Disease Outbreak Control Division. (2021). *Hawaiʻi COVID-19 Summary Metrics* [Data Dashboard]. https://health.hawaii.gov/coronavirusdisease2019/current-situation-in-hawaii/

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Professional and Vocational Licensing Division. (2021). *Geographic Report (Current Licenses) as of September 24, 2021*. https://cca.hawaii.gov/pvl/files/2021/10/WebGEO-RptHoala-092421.pdf

APPENDIX

2021 Hawaiʻi Nursing Workforce Supply Survey Instrument