HWTAC Webinar Series
RN Research Using the NSSRN

HWTAC
Health Workforce Technical Assistance Center

Exploring Pathways to Registered Nursing
Recent Research Using the 2018 National Sample Survey of Registered Nurses

February 18, 2021

Hannah Johnson, MHA PhD Candidate
Susan Skillman, MS, Senior Deputy Director
Bianca Frogner, PhD, Director

centerforhealth
workforcestudies
UNIVERSITY *of* WASHINGTON

Funding

Background

- Demand for registered nurses (RNs) remains high

- The RN workforce does not adequately reflect the diversity of US population, which could contribute to healthcare disparities

- Working in a health-related occupation prior to becoming an RN may encourage or facilitate becoming an RN

- The degree of financial assistance may be another key factor in whether on not an individual pursues an RN degree

OBJECTIVE: To compare the career pathways and use of financial assistance among RNs whose initial RN degree was an Associate (ADN) versus Bachelor's (BSN) degree

Methods

A8. Were you ever employed in any of the following health-related jobs before completing your first RN program?
Mark all that apply.

☐ Nursing aide or nursing assistant
☐ Home health aide or assistant
☐ Licensed Practical or Vocational Nurse
☐ Community health worker
☐ Midwife
☐ Other health-related job
☐ Not employed in any health-related jobs before RN

A9. How did you finance your first RN degree?
Mark all that apply.

☐ Self-financed (personal savings, earnings from employment, money from spouse or family members, etc.)
☐ Employer tuition reimbursement plan
☐ Department of Veterans Affairs employer tuition plan
☐ Health Resources and Services Administration Support (e.g., National Health Service Corps, Nurse Corps Loan Repayment, Faculty Loan Repayment)
☐ Other federal traineeship, scholarship, or grant
☐ Federally-assisted student loan
☐ Other type of student loans
☐ State/local government scholarship or grant
☐ Non-government scholarship or grant
☐ Other resources

Descriptive study using data from the 2018 NSSRN

- Included RNs and APRNs whose RN program was completed in the U.S., and whose first RN degree was either ADN or BSN
- Weighted to represent national estimates
- Prior health related jobs (Q.A8) and methods of financing first RN degree (Q.A9)
- Race/ethnicity variables as defined by NSSRN were used to further explore variability in RN pathways
- Statistical differences were calculated using Pearson's Chi squared test

centerforhealth workforcestudies
UNIVERSITY of WASHINGTON

Limitations

- Variable capturing prior health related jobs
    - Does not distinguish between work *prior* to versus *during* RN degree program
    - Limited list of "prior" health related jobs
- Interpretation of race/ethnicity variable may be limited due to survey weighting impacting the Hispanic ethnicity variable

center for health
workforce studies
UNIVERSITY of WASHINGTON

Demographics and Employment Setting by ADN/BSN

	First RN Degree	
	Associate	Bachelor's
	(n= 1,886,461)	(n=1,429,939)
	57%	43%
Age		
Mean (Years)	49.1	44.5
Race/Ethnicity		
Hispanic	11.6%	9.3%
American Indian/Alaska Native C	0.5%	0.4%
Asian Only	2.4%	3.8%
Black Only	8.8%	7.8%
Native Hawaiian/Pacific Islander	0.4%	0.5%
While Only	82.8%	82.5%
Some Other Race Only	2.7%	2.6%
Multiple Races	2.4%	2.4%
Gender		
Female RNs	89.5%	90.7%
Held a Health Related Job Prior		
Yes	72.6%	66.9%
Employment Setting		
Hospital	48.8%	53.7%
Other Inpatient	3.4%	2.0%
Clinic/Ambulatory	22.3%	27.9%
Other	10.5%	9.4%
Long Term Care	7.8%	2.9%
Home Health	7.1%	4.2%

center for health
workforce studies
UNIVERSITY of WASHINGTON

Prior Health Related Jobs by ADN/BSN

	First RN Degree		
	Associate (n= 1,886,461)	**Bachelor's** (n=1,429,939)	**p value**
Held Any Health Related Job Prior	72.6%	66.9%	0.0000
Number of Health Related Jobs			0.0000
Zero	27.4%	33.2%	-
One	51.8%	54.4%	-
Two	16.6%	11.0%	-
Three or More	4.2%	1.5%	-
Type of Prior Health Related Jobs			
Nursing Aid or Nursing Assistant	45.2%	49.1%	0.0014
Home Health Aid or Assistant	7.2%	7.2%	0.9126
Licensed Practical or Vocational Nurse	22.5%	4.3%	0.0000
Community Health Worker	1.0%	0.8%	0.4164
Other Health-Related Job	22.0%	19.6%	0.0099

Financial Support of Initial RN Degree by ADN/BSN

	Initial RN Degree		
	Associate (n= 1,886,461)	**Bachelor's** (n= 1,429,939)	**p value**
Self Financed (e.g. personal savings)			
Only Self Finance	32.1%	24.6%	0.0000
Any Self Finance	65.8%	70.4%	0.0000
Employer Tuition Reimbursement Plan (Employer+VA)			
Only Employer Support	3.4%	1.0%	0.0000
Any Employer Support	14.9%	8.3%	0.0000
Government Financial Support			
Any Local, State, Federal Government Financial Support (Traineeship/Scholarship/Grant)	26.0%	29.4%	0.0002
Federal			
Any Federal Government Financial Support (Traineeship/Scholarship/Grant)	14.5%	15.4%	0.2906
Any Federally-Assisted Student Loans	35.5%	50.7%	0.0000
Other Financial Support			
Any Non Government Scholarship or Grant	9.1%	18.3%	0.0000
Any Other Type of Student Loans	12.3%	24.1%	0.0000
Only Loans			
Only Other Type of Student Loans	1.5%	1.7%	0.5274
Only Federally Assisted Student Loans	8.8%	6.9%	0.0037

Financial Support of Initial RN Degree by Race/Ethnicity

- Higher percentages of Black, "Other", and Multiracial BSN-entry RNs (>64%) used federal student loans compared with RNs of other races

- Hispanic ADN-entry RNs were more likely than non-Hispanics to have financed their initial RN education with only federal student loans (12.5% vs. 8.3%)

center for health
workforce studies
UNIVERSITY of WASHINGTON

Conclusions

- Similar percentages of ADN and BSN-entry RNs worked as a nursing aide/nursing assistant or home health aide/assistant before completing their first RN degree

- Employment as an LPN/LVN was a common step for ADN-entry RNs

- Government loans were more widely used than other types of financial support for initial RN education
  - Especially among BSN-entry Hispanic or Black RNs

- Employer financial support was more likely to be used among ADN-entry RNs

Implications

- Our findings suggest attention is needed to ensure financial burden is not a barrier to equitable access to initial RN education
    - Part of larger conversation about financing higher education
- Future research should explore how debt burden influences RNs' professional development
    - ADN to BSN, RN to ARNP
- Suggestions for next NSSRN questionnaire
    - Healthcare jobs before starting RN education
    - Broader options for prior healthcare jobs
    - Amount of debt accrued during initial and subsequent RN education
    - Relative amounts of different types of financing
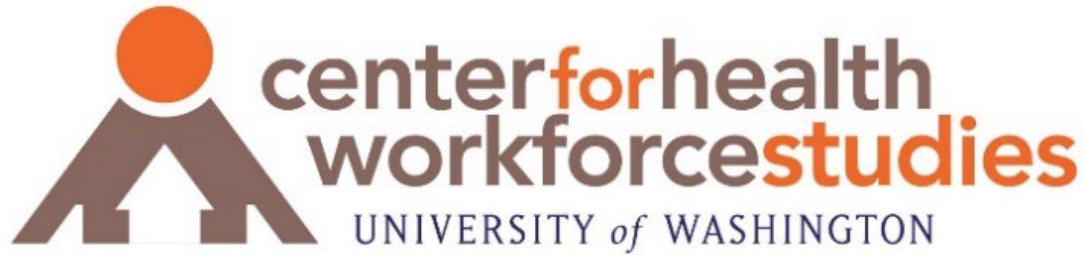
Contact:

Hannah Johnson
hmodin@uw.edu

Sue Skillman
Skillman@uw.edu
206 543-3557

More details and information:

UW CHWS
https://depts.washington.edu/fammed/chws

Follow us on Facebook and Twitter @uwchws

Disclaimer and Funding

This work was funded by:

Background: Hospital setting

Emergency department

Inpatient

Outpatient

- Hospitals are the most common employer of registered nurses (RNs)

- Within a hospital, RNs can work in a variety of settings

- These hospital "sub-settings" have distinct characteristics, like different RN-to-patient staffing ratios

- Workforce analyses need to account for these sub-settings separately

THE CECIL G. SHEPS
CENTER FOR
HEALTH SERVICES
RESEARCH

3

Our Dilemma...

- In the midst of supply and demand modeling using NC Board of Nursing data

- We realized that **employment setting** details gathered during the NC licensure process changed to align with Nursys changes

  - The "hospital" employment setting category was changed to combine nurses working in the emergency department, inpatient, and outpatient settings

  - Unable to tease apart these settings of nursing employment

  - Yet, we needed to separate these setting categories for the NC supply and demand model

  - Particularly interested in tracking the shift to ambulatory care
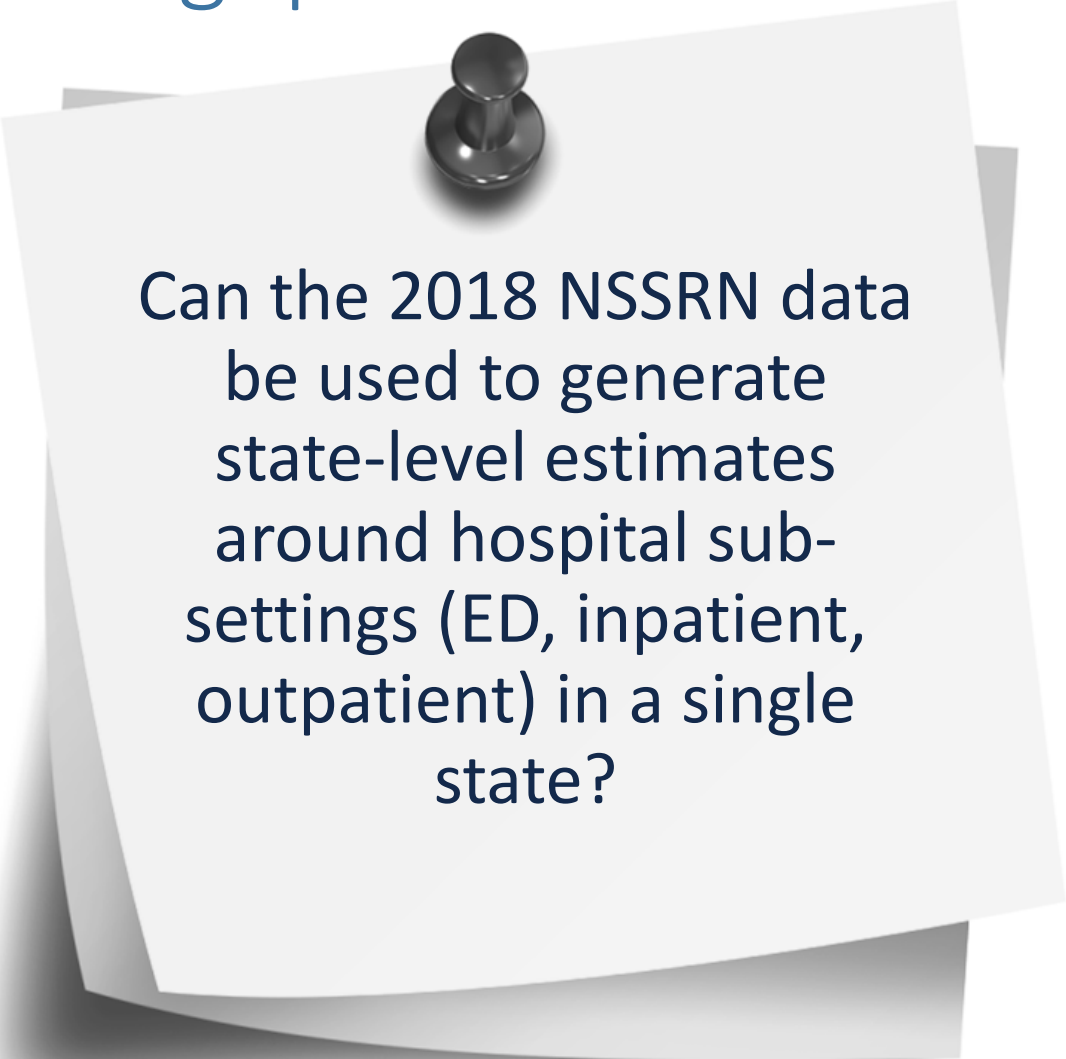
- Searching for a solution

Eureka: The NSSRN!...but wait

- NCBON licensure data: "gold standard" because it is the <u>full census</u> of nurses in NC

- NSSRN gathers <u>survey</u> data from a sample of nurses in each state

- Estimates for a sub-sample of nurses in a single setting and state may not accurately reflect the nursing workforce in the state

- However, the NSSRN contains sampling weights that can be used in analyses to estimate the demographic, practice and educational characteristics RNs in the U.S

Guiding question

Can the 2018 NSSRN data be used to generate state-level estimates around hospital sub-settings (ED, inpatient, outpatient) in a single state?

Purpose

- Determine the number and percentage of nurses working in ED, inpatient, and outpatient hospital settings nationally versus in North Carolina (NC)

- Compare the NSSRN estimates to those generated from a dataset representing the complete census of NC nurses

Methods
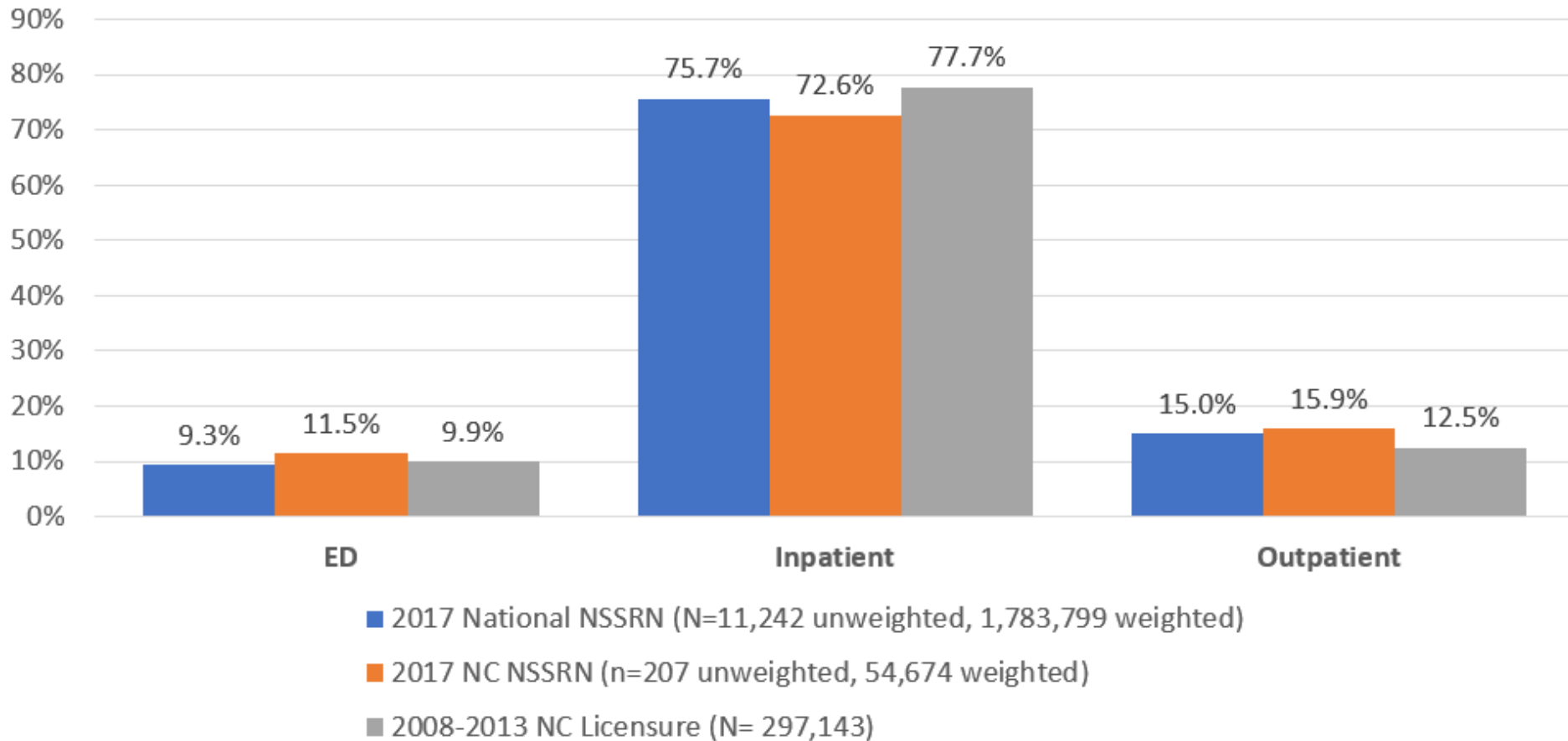
- Compared hospital nurse sub-settings
  - 2018 NSSRN (sample of RNs)
    - Applied NSSRN sampling weights to all estimates
    - Generated estimates for NC and nationally
  - 2008-2013 NC licensure data (complete RN census)
    - Data after 2013 could not be used due to changes in NCBON/Nursys data collection

- Settings are identified by nurses' self-report

- Excluded NPs, CNMs, and CRNAs

Results

Nurse Employment in Hospitals, NSSRN vs NC licensure Data

Legend:
- 2017 National NSSRN (N=11,242 unweighted, 1,783,799 weighted)
- 2017 NC NSSRN (n=207 unweighted, 54,674 weighted)
- 2008-2013 NC Licensure (N= 297,143)

Category	2017 National NSSRN	2017 NC NSSRN	2008-2013 NC Licensure
ED	9.3%	11.5%	9.9%
Inpatient	75.7%	72.6%	77.7%
Outpatient	15.0%	15.9%	12.5%

Our takeaways…

- NSSRN provides a good way to track the shift in nurses' employment setting in states that have an adequate sample

- May be more problematic in smaller states

- Further examination of these relationships is needed in other states, and for other variables

In the meantime: Find us, Follow Us, Sign up For our Newsletter

UNC

THE CECIL G. SHEPS CENTER FOR HEALTH SERVICES RESEARCH

Program on Health Workforce Research & Policy

go.unc.edu/Workforce

@UNC_PHWRP

SHEPS HEALTH WORKFORCE NC

nchealthworkforce.unc.edu

@WorkforceNC

★ Sign up for our newsletter directly at go.unc.edu/WorkforceNewsletter

Contact Information

Cheryl B. Jones, PhD, RN, FAAN
(919) 966-5681
cabjones@email.unc.edu

Carolina Health Workforce Research Center
Go.unc.edu/Workforce
nchealthworkforce.unc.edu

RNs' work settings have been fairly stable over time

- From the American Community Survey, 2003-2018:
  - 62% - 64% hospital
  - 9.5% - 12.5% physician offices
  - 11.5% - 14% nursing homes & residential care

- From the NSSRN 2018:
  - 6% home health/hospice
  - 4.4% long-term care/nursing home

UCSF

RNs in long-term care settings…

- Have higher mean age

- Earn less than in other settings
  - $75,030 hospitals vs. $66,250 residential care

- Less likely to have a bachelor's or higher degree

- More likely to be internationally-educated

- More likely to be Black or Asian
  - Less likely to be Hispanic

UCSF

Are wages different across racial/ethnic groups?

- Black & Hispanic RNs employed in urban hospitals earn less than white and Asian RNs (Moore & Continelli, 2016)
- Long-term care RNs earn less than hospital RNs

- Is race/ethnicity the explanation for lower wages in LTC?
  - Do non-white RNs earn less than white RNs in LTC?
  - Do immigrant RNs earn less than non-immigrants in LTC?
- What other factors account for lower wages in LTC?

Data and methods

- National Sample Survey of RNs, 2018
  - Employed RNs
    - Not advanced practice (e.g., NPs, nurse-midwives)
  - Hourly wage calculated as earnings divided by annual hours
    - Excluded if calculated wage < minimum wage
  - Study sample = 14,178 RNs
- Methods
  - Cross-tabulations (chi-squared tests)
  - Log wage regressions, stratified by LTC/non-LTC
    - Key predictors: race/ethnicity
    - Controls include Census regions, experience (quadratic), full-time work, prior LVN work, union representation, international education, gender, highest education, current enrollment, marital status, presence of kids
    - Tested Heckman correction for selection into employment – no change

UCSF

Characteristics of Employed RNs
(weighted percentages)

	Long-term care	Non-LTC	Significant difference?
Hispanic	9.2%	11.3%	p=0.02
White	71.4%	71.9%	
Black	10.2%	7.0%	
Asian	6.4%	5.8%	
Other	2.9%	4.1%	
<35 years	14.2%	27.0%	p<0.001
35-44 years	23.4%	25.5%	
45-54 years	23.9%	21.9%	
55-64 years	27.3%	20.1%	
65+ years	11.2%	5.6%	

Characteristics of Employed RNs
(weighted percentages)

	Long-term care	Non-LTC	Significant difference?
Highest ed=Diploma	5.3%	4.1%	p<0.001
Highest ed=AD	48.0%	28.4%	
Highest ed=BS	42.3%	59.5%	
Highest ed=grad	4.5%	8.0%	
US initial ed	93.8%	94.9%	p=0.159
Non-US initial ed	6.3%	5.1%	
Previously was LPN	29.2%	15.0%	p<0.001

RN Characteristics by Race/Ethnicity (weighted)

	Hispanic	White	Black	Asian	Other
<35 years	33.4%	25.1%	18.8%	22.9%	26.8%
55-64 yrs	12.6%	22.9%	19.1%	18.6%	15.7%
Bachelor's	56.7%	55.4%	59.0%	77.9%	64.9%
Graduate	8.1%	7.1%	10.6%	8.5%	8.1%
Not US ed	3.7%	1.0%	6.5%	51.1%	15.5%

Employment Characteristics (weighted)

	Long-term care	Non-LTC	Significant difference?
Union represented	6.0%	20.3%	p=0.001
More than one RN job	11.3%	10.2%	p=0.346
Changed settings in past year	22.7%	15.9%	p=0.001

Median Hourly Wages & Non-Nursing Income
(weighted)

	Long-term care	Non-LTC	Significant difference?
Hourly wage	$30.00	$34.21	p<0.001
Non-union wage	$29.76	$32.86	p<0.001
Union wage	$36.19	$42.11	p<0.001
Hispanic	$28.95	$35.26	p<0.001
White	$29.52	$33.33	p<0.001
Black	$30.08	$34.76	p<0.001
Asian	$38.10	$42.86	p<0.001
Other	$35.29	$36.96	p=0.478
Non-nursing household income	$23,500	$29,500	p<0.001

UCSF

Regression results
*** p<=0.01 ** p<=0.05 * p<=0.10

	All RNs	LTC RNs	Non-LTC RNs
Black	0.04***	0.02	0.05**
Hispanic	0.03	-0.05	0.04
Asian	0.10***	0.19**	0.09***
Other race	0.06**	0.14	0.05
Foreign educ	0.01	0.04	0.01
Assoc degree	0.04	0.04	0.04
Bachelors	0.09***	0.09	0.09***
Graduate	0.11***	0.15	0.10***
Experience	0.02***	0.01*	0.02***
Experience-sq	-0.0003***	-0.0002	-0.0003***
Prior LPN	-0.02**	0.02	-0.02*
Union	0.10***	0.05*	0.09***
Full-time	-0.11***	-0.16**	-0.10***
Enrolled	0.04***	0.08**	0.04***

JCSF

What do we conclude?

- Lower wages in LTC are not the result of race/ethnicity or international education differences

- Main causes of lower LTC wages:
  - LTC does not reward education
  - LTC does not reward experience
  - LTC does not reward unionization very much (if at all)

- Limitations:
  - Data do not include rural/urban indicator
    - Minority nurses more likely to work in urban areas, which have higher wages?
  - Data do not include job title
    - Higher wage for Asian LTC RNs might be Management jobs
  - Normal limits of a sample survey: Response bias, self-report

Implications for policy, practice, management & research

- LTC wages are lower than other settings
  - Despite workers having more experience
  - This is probably a reason for higher turnover in LTC
- LTC settings should reward education/experience
  - Quality of care is linked to these
  - Nurses leave jobs when they do not feel rewarded or lack opportunity
  - Management/leadership positions may play into recruitment & retention
- LTC employers appear to pay minority RNs equally (badly)
  - Need to examine racial/ethnic differences in more depth
  - Need rural/urban indicator & job title to explore more fully

Thank you!
Joanne Spetz   joanne.spetz@ucsf.edu

UCSF