

# UC Irvine

## UC Irvine Previously Published Works

### Title

Diffusion of a Nurse-led Healthcare Innovation

### Permalink

<https://escholarship.org/uc/item/77m6w3p4>

### Journal

JONA The Journal of Nursing Administration, 46(7&sol;8)

### ISSN

1520-9229

### Authors

Bender, Miriam  
Williams, Marjory  
Su, Wei

### Publication Date

2016-07-01

### DOI

10.1097/nna.0000000000000365

Peer reviewed



# Diffusion of a Nurse-led Healthcare Innovation

## *Describing Certified Clinical Nurse Leader Integration Into Care Delivery*

Miriam Bender, PhD  
Marjory Williams, PhD  
Wei Su, PhD

**BACKGROUND:** The Clinical Nurse Leader™ (CNL) initiative is in its 2nd decade. Despite a growing theoretical and empirical body of CNL knowledge, little is known about CNLs themselves or where and how their competencies are being integrated into care delivery across the country.

**OBJECTIVE:** The aim of this study was to describe certified CNL characteristics and roles as part of a larger study validating a model for CNL practice.

**METHODS:** This study used a descriptive analysis of survey data from a national sample of certified CNLs.

**RESULTS:** Survey response rate was 19%. Sixty percent have greater than 10 years of RN experience, and 75% have additional specialty certifications. Fifty-eight percent are practicing in a formal CNL role and report a high degree of accountability for all 9 CNL essential competencies.

**CONCLUSIONS:** Findings help understand the extent of CNL adoption and spread across the country and the level to which the initial vision of CNL practice is being achieved.

Healthcare delivery is a complex process tasked with reducing the burden of illness and increasing overall health of the population. The system currently in place is unable to provide consistent high-quality care.<sup>1,2</sup> Medical care and healthcare services have become more complex and increasingly specialized. Specialization of care settings and practitioners has resulted in a narrowed focus for care in each setting and specialty. Despite unprecedented advances, a consequence of specialization is fragmented care.<sup>3</sup> Barriers to providing adequate, real-time coordination among specialties and practitioners in the current fragmented system contribute to patterns of care delivery that fall short of achieving desired overall patient care quality.

---

**Author Affiliations:** University of California, Irvine (Dr Bender); Central Texas Veterans Health Care System, Temple (Dr Williams); and School of Public Health, University of Alabama at Birmingham (Dr Su).

This study was funded by the Commission on Nurse Certification, Washington, DC, and the University of California, Irvine's Center for Organizational Research. This work was completed with support from the Central Texas Veterans Health Care System. The views are those of the authors and do not necessarily represent the views of the Department of Veterans Affairs. The authors have no other disclosures.

The authors declare no conflicts of interest.

**Correspondence:** Dr Bender, Program in Nursing Science, University of California, Irvine, 252C Berk Hall, Irvine, CA 92697-3959 ([miriamb@uci.edu](mailto:miriamb@uci.edu)).

Supplemental digital content is available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal's Web site ([www.jonajournal.com](http://www.jonajournal.com)).

DOI: 10.1097/NNA.0000000000000365

### The Clinical Nurse Leader Initiative

The nursing profession is playing a key role in re-designing care delivery to bridge the gap between fragmented care and integrated multidisciplinary care processes.<sup>4</sup> One example is the Clinical Nurse Leader (CNL) initiative. The American Association of Colleges of Nursing (AACN) launched the CNL initiative more than a decade ago as a key nursing strategy for re-designing care delivery to address quality and safety gaps. The CNL is an RN with a Master's level education and advanced competencies in clinical leadership, care environment management, and clinical outcomes

management.<sup>5</sup> These competencies, delineated in the AACN *Competencies and Curricular Expectations for Clinical Nurse Leader Education and Practice*,<sup>6</sup> form the basis of the CNL certification examination, which ensures national level standards for CNL knowledge, skills, and abilities.<sup>7</sup>

A recent literature review confirmed the potential of CNL practice to improve care quality and safety wherever it is implemented,<sup>8</sup> and research is producing a growing body of CNL knowledge. This includes greater than 15 case reports describing the development, implementation, and outcomes of CNL practice in diverse federal, community nonprofit, and for-profit settings; 2 correlation studies associating CNL practice with improved nurse satisfaction, turnover, and leadership practices; and 2 short interrupted time series studies quantifying a moderate to strong correlation between CNL implementation and improved care environment and quality outcomes, including patient experience of multiple aspects of care.<sup>8,9</sup>

This growing body of evidence provides important information about the outcomes associated with integration of CNL practice into microsystem care delivery. There is however surprisingly little known about the certified CNL population itself, including basic CNL demographic information and the extent of CNLs' experience and expertise in practice. There is also limited information about national-level CNL adoption and spread, including the settings and locations of CNL practice. This information is necessary to help determine where, to what extent, and by whom the initial vision of CNL practice is being achieved.

## Objective

The purpose of this arm of an ongoing national study to validate a CNL practice model was to describe certified CNL demographics, practice settings, and role enactment across the United States.

## Methods

Clinical Nurse Leader demographic and role enactment data were collected via an online survey instrument that was developed as part of a larger mixed methods study validating a model for CNL practice.

## Survey Instrument

Survey development engaged a CNL expert advisory panel comprising a balanced multiprofessional team with expertise in CNL policy, education, executive leadership, and practice (see Acknowledgments). The panel and investigators collaborated to develop survey items that would inform key CNL professional demographics and current role settings and activities.

Survey items were developed for each of the 9 CNL essential areas of competence in the AACN *Competencies and Curricular Expectations for Clinical Nurse Leader Education and Practice*.<sup>6</sup> A Delphi process was used to obtain full consensus on survey item content.<sup>10</sup> The survey was pretested with a convenience sample of CNL students (n = 36) to establish clarity and understandability of each survey item. Items were revised as indicated by pretest findings, and the final survey content was determined by consensus using a repeated Delphi process.

Survey items were multiple-choice questions. Some items provided opportunity to input additional text comments. The principal investigator manually recoded text items into existing or new response options. Text items were 1st compared with existing response options and, where applicable, transformed to the corresponding option. Content analysis was then used to determine whether a new response option was warranted for remaining text items. If so, these text items were transformed to the new response option. The remaining text items were merged with the "other" response option. Survey items are listed in Supplemental Digital Content 1, <http://links.lww.com/JONA/A469>. The survey was formatted for electronic administration using the Qualtrics platform.

## Target Population

The survey targeted all known certified CNLs. The Commission on Nurse Certification (CNC) oversees the CNL certification process and manages the certified CNL database. The total known population of certified CNLs at the time of the study was 3375.

## Survey Administration

The study was initially introduced to the certified CNL community by flyer and announcement at the national AACN CNL Summit in Orlando, Florida, January 22 to 24, 2015. An email that contained information about the study and the survey URL link was subsequently sent by the CNC to all certified CNLs in the CNC database on February 9, 2015. Email reminders were sent on March 5, April 7, and April 29, 2015. The survey closed on May 8, 2015.

## Analysis

Survey data were exported from Qualtrics into SPSS format, and all analyses were conducted in SPSS 22 (Armonk, New York). Frequencies and percentages were calculated for all survey items. For items with multiple responses allowed, each response option was analyzed independently. For example, if a participant indicated that his/her role in a CNL initiative was both as an instructor in a CNL educational program and a CNL preceptor/mentor in a clinical setting, this

respondent would contribute to the count for each response option. Some items, therefore, have total response counts greater than the study sample.

### Ethical Considerations

Institutional review board approval was obtained from the University of California, Irvine; Central Texas VA Health System; and University of Alabama at Birmingham, before investigator participation in any study procedures. All responses were voluntary and confidential. The investigators did not have access to any certified CNL email addresses, and no identifiers such as IP addresses were documented or recorded. An optional small gift card incentive was offered to respondents for participation. Upon survey completion, respondents were directed to a separate secure URL, not linked to the survey, to receive the incentive.

## Results

### Response Rate

Of the 3375 emails sent to all certified CNLs in the CNC database, 249 were returned as undeliverable, leaving a total of 3126 emails delivered. The survey response rate was 19% (601/3126). The sample size constitutes 18% of the known population of certified CNLs (601/3375).

### CNL Demographics

Most respondents (55%) are between the ages of 31 and 50 years (Table 1). Thirty-three percent have been RNs for greater than 20 years. Fifty-seven percent graduated from a model A (BSN to masters) program, and 30% graduated from a model C masters-entry program (ie, entered a program with a bachelor's degree from another field besides nursing). Sixty-six percent received certification less than 5 years ago (certification was 1st offered in 2007, 8 years ago). Seventy-five percent actively hold additional specialty certifications, including critical care (9%), medical surgical (10%), oncology (7%), emergency (4%), and more than 30 other specialties.

### CNL Clinical Settings and Role Activities

Sixty-five percent of respondents identify clinical practice as their primary nursing function; 19% are administrators or managers, and 12% are educators (Table 2). Almost 80% (480/601) stated that they were involved in a CNL initiative in some manner. Most (58%) are practicing in a role formally designated by their practice site as a CNL role. However, this differed based on educational program graduated from: 71% (n = 238) of those graduating from a model A program responded that they are practicing

in a formally designated CNL role, compared with 43% (n = 75) of those graduating from a model C program. Clinical Nurse Leaders are also serving as preceptors or mentors to CNLs in a clinical setting (37%) and as instructors in a CNL educational program (12%).

Most respondents are practicing in acute care hospitals (75%), with 7% in ambulatory clinic settings and 6% in academic/education institution settings (Table 2). Thirty-five percent of CNL respondents are practicing in Magnet® designated hospitals, and many included comments that their setting was “on the Magnet journey.” As for practice setting ownership, 57% work in a not-for-profit organization, 26% work in a federal government setting, and 8% work in a for-profit setting.

Figure 1 shows certified CNL geographic dispersion for the total sample and for CNLs in a formally designated CNL role. Most certified CNLs work in the south (39%), followed by the midwest (26%), the west (19%), and the northeast (14%). Most CNLs (81%) are practicing in urban areas, with 12% practicing in rural settings. Of the 347 CNLs practicing in a formally designated CNL role, 43% are located in the south (Figure 1).

### CNL Enactment of Essential Areas of Competence

Respondents practicing in a formally designated CNL role (n = 347) demonstrated significantly higher accountability for CNL competencies than respondents not practicing in a formally designated CNL role (Table 3). Participants not involved in a CNL initiative (n = 121, 20% of the study sample) were exited out of the survey before answering competency items, so results for this subpopulation are unknown. The overall competency accountability (averaging all competencies combined) for respondents in a formally designated CNL role was 83% and ranged from 65.4% (“background in humanities and science education”) to 90.2% (both “assess clinical environment as the basis for identifying issues with care processes” and “implement quality improvement strategies using current evidence, analytics, and risk anticipation”). The overall competency accountability for respondents not practicing in a formally designated CNL role was 76%, ranging from 59% (“background in humanities and science education”) to 84% (“implement quality improvement strategies using current evidence, analytics, and risk anticipation”).

## Discussion

The following sections examine the characteristics of certified CNL practice and the settings that have adopted CNL practice and explore the level to which

**Table 1. Certified CNL Demographics**

Demographic	All Certified CNLs		Certified CNLs Practicing in a Formal CNL Role		Difference Test ( $\chi^2$ ) <sup>a</sup> P
	Freq. (N = 601)	%	Freq. (N = 347)	%	
Age, y					.400
20-30	97	16.1	40	11.5	
31-40	175	29.1	104	30.0	
41-50	153	25.5	95	27.4	
51-60	138	23.0	87	25.1	
>60	38	6.3	21	6.1	
Degrees (multiple responses possible)					
Diploma	5	0.8	4	1.2	.431
AA	67	11.1	43	12.4	.565
Bachelor	251	41.8	156	45.0	.339
Master	580	96.5	341	98.3	.116
Doctorate	30	5.0	11	3.2	.184
PhD	19	3.2	4	1.2	.053
Other	2	0.3	0	0.0	.402
Number of years with RN license					.026 <sup>b</sup>
<5	89	14.8	31	8.9	
5-10	151	25.1	81	23.3	
11-20	164	27.3	116	33.4	
>20	197	32.8	119	34.3	
Year received CNL certification					.117
<5 years ago (2011-2015)	394	65.6	211	60.8	
5-10 years ago (2005-2010)	204	33.9	136	39.2	
Unknown	3	0.5	0	0.0	
CNL model program graduated from					.005 <sup>b</sup>
Model A (BSN-master)	334	55.6	237	68.3	
Model B (BSN with residency-master)	7	1.2	2	0.6	
Model C (second degree program)	175	29.1	74	21.3	
Model D (ADN-master)	13	2.2	9	2.6	
Model E (postmaster certificate)	13	2.2	7	2.0	
Did not graduate from a CNL program	56	9.3	18	5.2	
Unknown	3	0.5	0	0.0	
Have additional certification besides CNL	449	74.7	270	77.8	.283

CNL, Clinical Nurse Leader.

<sup>a</sup>N/A and unknown categories were excluded from the difference test.<sup>b</sup>Test is significant at the .05 level.

the initial vision of the CNL is being achieved in practice.

### Certified CNL Demographics

Certified CNL respondents represent a high level of overall nursing experience and expertise. More than 60% have been RNs for greater than 11 years; 32% have been RNs for greater than 20 years. Furthermore, 75% hold active additional specialty certifications, across a broad range of specialties, compared with a rate of specialty certification in the general RN population of 35.7%.<sup>11</sup> The highest proportion of specialty certification among the CNL sample is medical surgical at 10%, compared with the rate of medical surgical certification of 0.9% in the general RN population.<sup>12</sup> Most respondents (65%) were enacting this experience and expertise in clinical practice, with 19% as administrators or managers and 12% as educators.

Research has shown that experienced nurses provide safer, more consistent care than less experienced

nurses.<sup>13</sup> There is a growing body of evidence showing that credentialed nurses improve care quality and safety.<sup>14</sup> The CNL White Paper<sup>5</sup> articulated the need for an education and career pathway to keep experienced, expert nurses at the bedside to improve care quality and safety. The data from this study support the assertion that CNL certification is a viable option for experienced, expert nurses to advance their education and career while remaining clinically engaged at the point of care.

Most respondents graduated from a model A (BSN to masters) program (55.6%). This is in contrast to most current CNC statistics,<sup>15</sup> which indicate that 35% of all certified CNLs graduated from a model A program. There is also a discrepancy between this study and CNC rates for model C (entry-level masters) program graduates: 29.1% of respondents compared with 49.7% in the CNC database. Other data may help explain this anomaly. In 2010, Klich-Heartt<sup>16</sup> surveyed graduates of 2 Northern California model

**Table 2. Certified CNL Roles and Role Settings**

Clinical Role/Activity	All Certified CNLs		Certified CNLs Practicing in a Formal CNL Role		Diff. Test ( $\chi^2$ ) <sup>a</sup> P
	Freq. (N = 601)	%	Freq. (N = 347)	%	
Primary nursing role					<.001 <sup>b</sup>
Clinical practice	393	65.4	275	79.3	
Administration/management	112	18.6	46	13.3	
Education	69	11.5	21	6.1	
N/A	12	2.0	3	0.9	
Other/unknown	15	2.5	2	0.6	
Active involvement in a CNL initiative (answered yes)	480	79.9	347	100.0	—
Type of involvement (multiple responses possible)					
Not involved in a CNL initiative	121	20.1	0	0.0	—
Practicing in a formal CNL role	347	57.7	347	100.0	—
A CNL preceptor/mentor in a clinical setting	222	36.9	175	50.4	<.001 <sup>b</sup>
Developing the CNL initiative	159	33.1	98	28.2	.551
An instructor in a CNL educational program	72	12.0	32	9.2	.191
Manager/director with formal CNL accountability	36	6.0	18	5.2	.607
Executive leader with formal CNL accountability	8	1.3	0	0.0	.030 <sup>b</sup>
Other	33	5.5	12	3.5	.129
Role setting					.033 <sup>b</sup>
Acute care hospital	449	74.7	295	85.0	
Multiple settings within 1 health system	25	4.2	12	3.5	
Academic/education institution	37	6.2	9	2.6	
Ambulatory clinic	40	6.7	17	4.9	
Short-/long-term acute care facility	10	1.7	6	1.7	
N/A, not currently practicing in the nursing field	6	1.0	0	0.0	
Other/unknown	34	5.7	8	2.3	
Role setting designations (multiple responses possible)					
No current designations	337	56.1	196	56.5	.902
Magnet status	209	34.8	127	36.6	.572
Other designation	97	16.1	68	19.6	.176
N/A, not currently practicing in the nursing field	20	3.3	5	1.4	—
Role setting association with academic institution					.167
Yes	402	66.9	253	72.9	
No	171	28.5	87	25.1	
N/A, not currently practicing in the nursing field	8	1.3	0	0.0	
Don't know/unknown	20	3.3	7	2.0	
Role setting location					.890
Urban (catchment area of ≥50,000 people)	489	81.4	293	84.4	
Rural (catchment area of <50,000 people)	72	12.0	39	11.2	
Other	23	3.8	14	4.0	
N/A, not currently practicing in the nursing field	7	1.2	1	0.3	
Unknown	10	1.7	0	0.0	
Role setting ownership status					.165
Not for profit (nongovernment)	342	56.9	196	56.5	
Federal government	153	25.5	113	32.6	
Nonfederal government	23	3.8	9	2.6	
For profit	47	7.8	21	6.1	
Other	20	3.3	8	2.3	
N/A, not currently practicing in the nursing field	7	1.2	0	0.0	
Unknown	9	1.5	0	0.0	

CNL, Clinical Nurse Leader.

<sup>a</sup>N/A and unknown categories were excluded from the difference test.

<sup>b</sup>Test is significant at the .05 level.

C programs and found that 92% were performing as staff nurses, with no graduates working in a formally designated CNL role. It is plausible that many CNL graduates from model C programs are practicing as staff nurses and elected to not participate in a study designed to validate CNL practice.

This study also found a large difference between educational program graduated from and role enact-

ment, with 71% of model A graduates in a formally designated CNL role compared with 43% of model C students. So although model C graduates comprise most of all certified CNLs, they comprise the minority of CNLs in formally designated CNL roles in this sample. Although it is reasonable to expect that model C graduates are filling a critical workforce need for highly educated nurses across the country, more

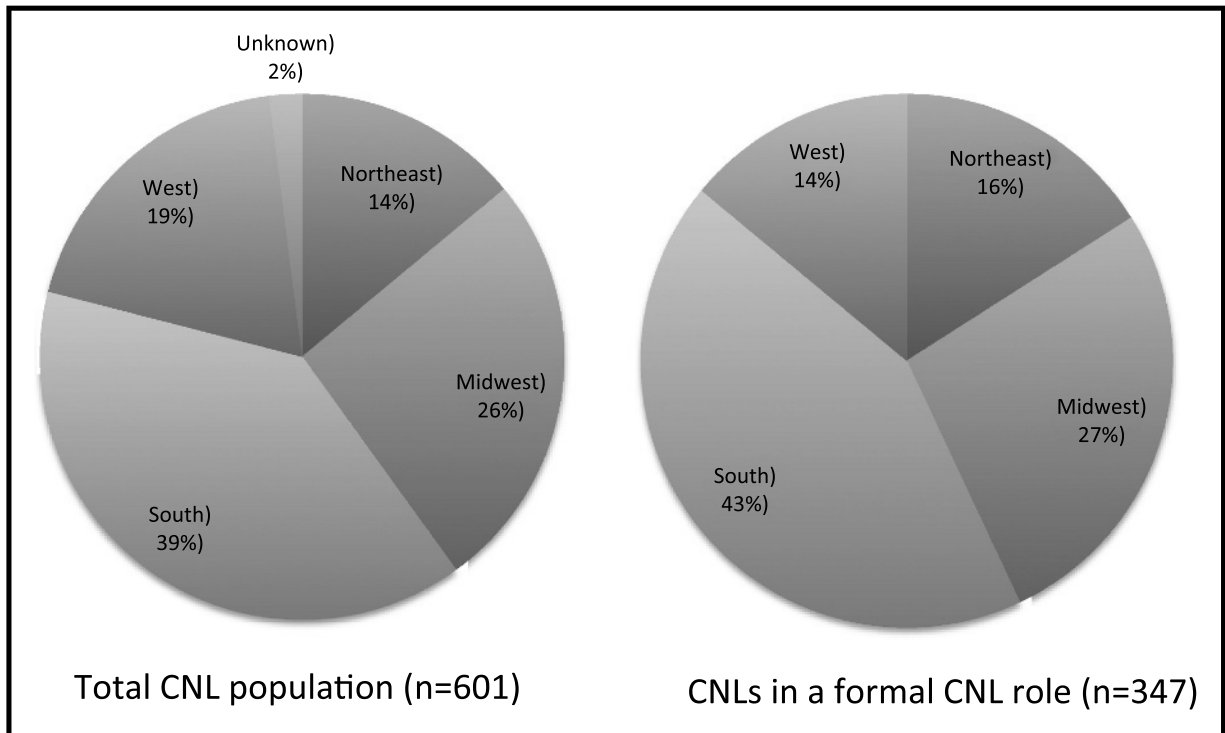


Figure 1. Certified CNL dispersion by geographic region. Regions defined by United States 2010 Census, available at [http://www2.census.gov/geo/docs/maps-data/maps/reg\\_div.txt](http://www2.census.gov/geo/docs/maps-data/maps/reg_div.txt). The 2 groups do not present significant difference in region distribution ( $\chi^2(3) = 4.284, P = .232$ ).

research is needed to fully understand how this CNL subpopulation is fulfilling the CNL vision.

#### Diffusion of CNL Practice Across Settings

Although the CNL is promoted to be valuable across the care spectrum, most respondents in this study are practicing in the acute care hospital setting. More than one-third of respondents (35%) are practicing in Magnet hospitals, with others “on the Magnet journey.” Hospitals seeking Magnet status create cultures of excellence through enactment of the Magnet standards.<sup>17</sup> Clinical Nurse Leader practice has been described as embodying the 5 ANCC Magnet Recognition Program® model components for hospitals: transformational leadership; structural empowerment; exemplary professional practice; new knowledge, innovation, and improvements; and empirical outcomes.<sup>18</sup> In a previous study, CNL practice was identified by hospital leaders as a strategy for facilitating a culture of professional practice at the point of care.<sup>19</sup> A more recent study concluded that CNL practice can be considered an effective approach to organizing nursing care that maximizes the scope of nursing to influence the ways care is delivered by all professions in a clinical microsystem.<sup>20</sup> This study’s findings suggest that hospitals are the care settings that have most recognized the potential of the CNL to improve care quality and safety.

#### Diffusion of the CNL Role and Competencies in Practice

Fifty-eight percent of the CNLs in this study reported practicing in a formally designated CNL role. This rate is significantly greater than the 40% previously reported in the 2011 CNL job analysis, which surveyed CNLs from the same CNC database as this study.<sup>7</sup> The data suggest a steady increase across the country of formally designated CNL roles, enacting CNL competencies. Further study is necessary to determine whether these trends reflect an increased ability of CNLs to transform traditional practice roles into formally designated roles (ie, a bottom-up phenomenon) or whether health systems are increasingly reorganizing nursing care delivery models to include CNL practice (ie, a top-down approach). Comparison of geographic data from the current study with previous reports indicates a steady increase in CNL representation in the south.<sup>7,21</sup> Currently, there are several large health systems ramping up CNL initiatives in this region,<sup>22</sup> which suggests that the growth of CNL roles in this region at least may be more reflective of the top-down approach.

Respondents practicing in a formally designated role reported high levels of accountability for all 9 essential areas of CNL competence. This suggests consistency of the application of CNL competencies to practice roles across settings. This is an important

**Table 3. Certified CNL Competencies Accountable For**

AACN Competency Essential <sup>a</sup> (Multiple Responses Possible)		Certified CNLs Involved in a CNL Initiative		Certified CNLs Practicing in a Formal CNL Role		Diff. Test ( $\chi^2$ ) <sup>b</sup>
#	Description	Freq. (N = 480) <sup>c</sup>	%	Freq. (N = 347)	%	P
1	Background includes education in both science and humanities	283	59.0	227	65.4	.059
2	Use organizational and systems leadership theories to frame clinical practice	350	72.9	276	79.5	.028 <sup>d</sup>
3a	Assess the clinical environment as the basis for identifying issues with care processes	399	83.1	313	90.2	.004 <sup>d</sup>
3b	Implement quality improvement strategies using current evidence, analytics, and risk anticipation	401	83.5	313	90.2	.006 <sup>d</sup>
4	Facilitate the integration of evidence into practice	392	81.7	309	89.0	.004 <sup>d</sup>
5	Use informatics and technology to support/improve care processes/health outcomes	354	73.8	286	82.4	.003 <sup>d</sup>
6	Advocate for policies that improve care processes/health outcomes	368	76.7	298	85.9	.001 <sup>d</sup>
7	Facilitate inter professional collaboration to improve care processes/health outcomes	385	80.2	305	87.9	.003 <sup>d</sup>
8	Create comprehensive care plans/guidelines that address patient population needs	338	70.4	274	79.0	.006 <sup>d</sup>
9a	Demonstrate master's level nursing practice	359	74.8	295	85.0	<.001 <sup>d</sup>
9b	Organize patient care to facilitate appropriate delivery of care	360	75.0	285	82.1	.015 <sup>d</sup>
-	None of these	8	1.7	1	0.3	.088

<sup>a</sup>Competencies based on AACN 2013.

<sup>b</sup>N/A and unknown categories were excluded from the difference test.

<sup>c</sup>121 certified CNLs were not involved in a CNL initiative and therefore did not respond to these items.

<sup>d</sup>Test is significant at the .05 level.

finding because a recent review of CNL research concluded that variability in practice was creating confusion about role clarity and its function within the care delivery setting.<sup>8</sup> It could be that certified CNLs' knowledge, skills, and abilities are being enacted consistently and at high levels, but in diverse workflows and/or practice patterns. The CNL White Paper was explicit in stating that CNL practice would vary across settings, but recent research has highlighted that lack of CNL practice clarity limits the ability to clearly articulate and measure CNL practice and link this practice to quality outcomes.<sup>23</sup> It is important to more clearly delineate how CNL competencies are being enacted in formally designated CNL roles and how consistent or diverse these CNL workflows are across the healthcare spectrum to better understand how CNL competencies in practice influence care quality and safety.

### Limitations

The descriptions of CNL practice articulated here are from a sample representing approximately 20% of the total CNL population. As described earlier, the study sample may underrepresent certified CNLs who

graduated from a model C program and overrepresent CNLs who graduated from a model A program. It is possible that, if model C students had responded in greater rates, the percentage of the CNL sample involved in a CNL initiative or practicing in a formal CNL role might have been reduced. Future research targeting certified CNLs should identify sampling strategies that reduce these potential selection biases to increase validity of study findings.

### Conclusions

This study found that certified CNLs are experienced, expert nurses increasingly enacting essential CNL competencies in formal CNL roles within diverse health systems across the country. These findings suggest that the current state of the CNL initiative broadly aligns with the vision of the original AACN White Paper.<sup>5</sup> The CNL initiative is still relatively new, however. Currently, CNLs represent only 0.1% of the entire national RN workforce and 1.3% of RNs with a master's degree. Even so, the certified CNL pool is expanding at an estimated 64% annual certified CNL growth rate, based on current CNC-reported trends. The capacity to educate CNLs has also expanded over the last 10 years,



from 28 programs in 2004 to 94 programs in 2013. As the initiative continues to evolve and grow, continued research is needed to systematically characterize, measure, and explain the capacity of CNL practice to change the landscape of nursing care delivery, as envisioned in the CNL White Paper.<sup>5</sup>

### Acknowledgments

The authors would like to acknowledge the CNL Expert Advisory Panel who provided feedback and expert opinion during every phase of the study. Panel members include (in alphabetical order): Alice Avolio,

DNP, RN, Portland VA, Portland, OR; Patricia Baker, MS, RN, CNL, Methodist HealthCare System, San Antonio, TX; James Harris, DSN, RN, University of South Alabama, Mobile, AL; Nancy Hilton, MS, RN, St Lucie Medical Center, Port St Lucie, FL; Lisle Hites, PhD, University of Alabama, Birmingham, AL; Linda Roussel, DSN, RN, University of Alabama, Birmingham, AL; Bobbie Shirley, MS, RN, CNL, Maine Medical Center, Portland, ME; Joan Stanley, PhD, FAAN, FAANP, American Association of Colleges of Nursing, Washington, DC; and Tricia Thomas, PhD, RN, Trinity Health, Livonia, MI.

### References

1. Kohn LT, Corrigan JM, Donaldson MS, eds. *To Err is Human: Building a Safer Health System*. Vol. 6. Washington, DC: National Academies Press; 2000.
2. Shojania KG, Thomas EJ. Trends in adverse events over time: why are we not improving? *BMJ Qual Saf*. 2013;22(4):273-277.
3. Porter-O'grady T, Clark JS, Wiggins MS. The case for clinical nurse leaders: guiding nursing practice into the 21st century. *Nurse Leader*. 2010;8(1):37-41.
4. Institute of Medicine (US), Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing. *The Future of Nursing: Leading Change, Advancing Health*. Washington, DC: National Academies Press; 2011.
5. American Association of Colleges of Nursing. White paper on the education and role of the clinical nurse leader. 2007. Available at <http://aacn.nche.edu/publications/whitepapers/clinicalnurseleader07.pdf>. Accessed January 9, 2014.
6. American Association of Colleges of Nursing. Competencies and curricular expectations for clinical nurse leader education and practice. 2013. Available at <http://www.aacn.nche.edu/cnl/CNL-Competencies-October-2013.pdf>. Accessed January 9, 2014.
7. Commission on Nurse Certification. Clinical nurse leader job analysis report. 2011. Available at <http://www.aacn.nche.edu/cnl/Job-Analysis-Report.pdf>. Accessed January 9, 2014.
8. Bender M. The current evidence base for the clinical nurse leader: a narrative review of the literature. *J Prof Nurs*. 2014;30(2):110-123.
9. Bender M, Murphy E, Thomas T, Kaminski J, Smith B. Clinical nurse leader integration into care delivery microsystems: quality and safety outcomes at the unit and organization level. Paper presented at: Academy Health Annual Research Meeting; Minneapolis, MN; 2015.
10. Hasson F, Keeney S, McKenna H. Research guidelines for the Delphi survey technique. *J Adv Nurs*. 2000;32(4):1008-1015.
11. US Department of Health and Human Services. *The US Nursing Workforce: Trends in Supply and Education*. Washington, DC: Health Resources and Services Administration, US Department of Health and Human Services; 2013.
12. US Department of Health and Human Services, *The Registered Nurse Population: Findings From the 2008 National Sample Survey of Registered Nurses*. Washington, DC: Health Resources and Services Administration, US Department of Health and Human Services; 2010.
13. Blegen MA, Vaughn TE, Goode CJ. Nurse experience and education: effect on quality of care. *J Nurs Adm*. 2001;31(1):33-39.
14. Hickey JV, Unruh LY, Newhouse RP, et al. Credentialing: the need for a national research agenda. *Nurs Outlook*. 2014;62(2):119-127.
15. American Association of Colleges of Nursing. CNL certification exam data. 2015. Available at <http://www.aacn.nche.edu/leading-initiatives/cnl/cnl-certification/pdf/CNLStats.pdf>. Accessed June 13, 2015.
16. Klich-Heartt E. Entry-level clinical nurse leader: evaluation of practice. 2012:1-48. Available at <http://repository.usfca.edu/dnp/5>. Accessed January 9, 2014.
17. Jost SG, Rich VL. Transformation of a nursing culture through actualization of a nursing professional practice model. *Nurs Adm Q*. 2010;34(1):30-40.
18. Bender M, Mann L, Olsen J. Leading transformation: implementing the clinical nurse leader role. *J Nurs Adm*. 2011;41(7-8):296-298.
19. Sherman RO. Lessons in innovation: role transition experiences of clinical nurse leaders. *J Nurs Adm*. 2010;40(12):547-554.
20. Bender M. Clinical nurse leader integration into practice: developing theory to guide best practice. *J Prof Nurs*. 2016;32(1):32-40.
21. Stanhope M, Turner LP. Diffusion of the clinical nurse leader innovation. *J Nurs Adm*. 2006;36(9):385-389.
22. Kirby K. Leader to honor. *Nurse Leader*. 2015;13(1):15-19.
23. Bender M. Conceptualizing clinical nurse leader practice: an interpretive synthesis. *J Nurs Manag*. 2016;24:E23-E31.