Title

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Journal

Journal of Nursing Care Quality, 38(4)

Authors

Williams, Marjory

Chandler, Gianna

Bender, Miriam

Publication Date

2023-10-01

DOI

10.1097/NCQ.0000000000000706

Peer reviewed

HHS Public Access

Author manuscript

J Nurs Care Qual. Author manuscript; available in PMC 2024 March 22.

Published in final edited form as:

J Nurs Care Qual. 2023 ; 38(4): 327–334. doi:10.1097/NCQ.0000000000000706.

Factors influencing low versus high implementation success of the Clinical Nurse Leader care delivery model: Findings from a national-level mixed methods study

Miriam Bender, PhD RN [Associate Professor],
Sue & Bill Gross School of Nursing, University of California Irvine, 252 Berk Hall, Irvine CA 92707-3959, 949-24-6181

Gianna Chandler, BSc RN [Clinical Nurse III],
Wound Care at Torrance Memorial Medical Center, 3330 Lomita Blvd, Torrance, CA 90505

Marjory Williams, PhD RN
Central Texas Veterans Health System, Temple TX 76504

Abstract

Background: The Clinical Nurse Leader (CNL) care model has existed since 2007. However, there is limited understanding how the model can best be implemented.

Purpose: A validated CNL Practice Survey measuring domains theorized to influence CNL implementation was used to examine the link between CNL domains and CNL implementation success.

Methods: Mixed methods were used to analyze data from a nationwide 2015 survey administered to clinicians and administrators involved in CNL initiatives.

Results: Of total respondents (n=920), 543 (59%) provided success scores, with 349 (38%) providing comments. Respondents with negative comments gave significantly lower average CNL success scores. The majority of negative comments mapped onto Readiness and Structuring domains, providing details of barriers to CNL implementation success.

Conclusions: Findings provide information about structural domains that can be strategically targeted to better prepare settings for CNL implementation and success.

Keywords

clinical nurse leader; nursing care model; implementation; mixed methods

INTRODUCTION

In 2007, the American Association of Colleges of Nursing (AACN) introduced the position of Clinical Nurse Leader (CNL), a Registered Nurse (RN) with a master's degree whose role

Corresponding author: Miriam Bender PhD RN, Associate Professor, Sue & Bill Gross School of Nursing, University of California Irvine, 252 Berk Hall, Irvine CA 92707-3959 949-24-6181, miriamb@uci.edu.

The authors declare no conflicts of interest

is to prevent fragmentation of health care by working with all members of the health care team.[1] The CNL manages care for specific patient populations at the microsystem level. By microsystem we mean "the small, functional, front-line units that provide most health care to most people."[2(p473)] Envisioned as a way to bring a more global perspective to individual units at health care facilities, the CNL's specialized education places that person in a unique position as someone who may advocate for clinicians, institutions, and patients. It serves as a professional nursing response to the complexities of modern health care, which include such factors as an aging population, increasing prevalence of chronic diseases, disparities in quality care that result from discrimination and prejudice, and exponential increases in technology, information, and regulatory expectations.

The literature has demonstrated the capacity of the CNL to improve health care quality in a variety of settings, from inpatient hospitals to outpatient clinics.[3–8] In practice, CNLs have found themselves performing a variety of quality improvement, leadership, and care integration functions such as facilitating constant communication between inter-professional health care team members who would otherwise not communicate with each other, promoting utilization of human resources that would otherwise go unused, and working on solutions when the health care team recognizes a problem.[9–11] However, other research has demonstrated variability in CNL implementation (eg, who CNLs report to) that influenced the consistency of CNL practice and outcomes.[12] This known CNL implementation variation has not been explicitly addressed in research to establish the conditional links between CNL care model structures, processes and outcomes.[13]

The validated CNL Practice Model identifies 5 major domains of CNL practice: (a) Readiness for CNL-integrated care delivery (Readiness); (b) Structuring CNL-integrated care delivery (Structuring); (c) CNL practice: continuous clinical leadership (Practice); (d) Outcomes of CNL-integrated care delivery (Outcomes); and (e) Value of CNL practice (Value).[14–16] Each domain has distinct components, meanings, and potential positive and negative effects on CNL practice. The model was transformed into a psychometrically validated CNL Practice Survey that measures the extent to which CNL Practice Model domains are active and/or present in any health care setting, including overall perceived CNL implementation success.[17] The purpose of this study was to analyze survey data from a sample of administrators and clinicians involved with CNL model implementation in health care systems across the nation to identify links between levels of CNL domain attainment and levels of CNL implementation success.

METHODS

Design, setting, and sample

This mixed-methods study was a part of the larger program of research that validated that the CNL Practice Model reflected the reality of CNL practice in the field. The target population of the original 2015 study was the entire population of certified CNLs (as documented by the Commission on Nurse Certification) as well professionals and administrators involved in CNL initiatives across the United States.

Data

The data included all survey responses from the 2015 national sample. Details about the survey (n=69 items) including number of items for each domain and component, scoring, and psychometric validation statistics can be found elsewhere.[17] In addition to validated survey items representing CNL Practice Model domains and components, the survey included a single item gauging participant's perception of their system's CNL implementation success, ranging from 0–100%, with higher scores indicating higher levels of implementation success. The next survey item asked, "Would you care to elaborate?" to elicit open-ended comments about CNL implementation.

Analysis

The survey responses, which included participants' answers to all survey questions and their optional open-ended comments, were compiled into a large Microsoft Excel™ database. Open-ended comments were coded via the following procedures. Two investigators (MB, GC) performed data cleaning to ensure all responses were complete and properly formatted. Deductive qualitative content analysis was used to code the data.[18–21] The investigators independently reviewed and indexed each survey respondent's open-ended response as one of the following 4 major categories: positive, negative, mixed, or no comment. All open-ended responses were also coded to the 5 domains of the CNL Practice model. Subsequent joint coding review and inter-rater reliability calculations were performed to produce the final data set, along with random data audits and quality checks.[22] Next, the investigators linked the positive, negative, mixed, and no comment categories to the individual-level and organizational-level demographic data. A chi-square analysis was performed to identify significant demographic differences. Finally, the investigators linked the positive, negative, and mixed response categories to the model domains and implementation success scores through descriptive quantitative analyses, including counts and percentages. A one-way ANOVA analysis was performed to determine significant differences in distribution of comment types related to implementation success scores.

Ethical considerations

Human subjects approval was obtained for this study through the university's Institutional Review Board: HS#2014–1512.

RESULTS

Of the total survey respondents (n=920), 543 (59%) provided success scores. Of those providing implementation success scores, 346 also provided open-ended comments that were eligible for analysis. In total, there were 182 (52.5%) negative comments, 75 (21.6%) positive comments, and 90 mixed comments (25.9%); 196 respondents provided a success score but left no comment. These comment rating results were audited via 2 rounds of inter-rater reliability scoring, with 73% score after round 1 and 93% score for round 2.

Distribution of demographic data by comment category

See Table 1 for respondent demographic data, as well as distribution of comment type across demographic categories. The distribution of positive, negative, mixed, and no comments

varied. Significant differences in distribution of comment type were found using chi-square statistics for employer location (X^2=13.90, p=.03), employer profit status (X^2=35.76, p<.001), spread of CNL initiative (X^2=43.85, p<.001), and the respondent's role (X^2=18.44, p=.03). Differences in comment distribution by type were not significant for the practice setting or respondent's highest educational level.

The majority of respondents (82.1%, n=446) identified as working in an urban area, with 11.6% (n=63) working in rural areas. Of the 277 urban-based respondents who left comments, 137 (49.5%) comments were negative, 61 (22.0%) were positive, and 79 (28.5%) were mixed. Negative comments also outnumbered positive comments among respondents from rural areas (72.7% negative, 11.4% positive) and those who work in non-rural, non-urban areas (52.0% negative, 32.0% positive). Most respondents (55.2%, n=300) identified their primary employer's profit status as non-profit. Of the 189 non-profit-based respondents who left comments, 45.5% were negative, 26.5% were positive, and 28.0% were mixed. A total of 152 (28%) of respondents identified as working for the federal government; 103 provided comments, including 68% negative, 8.7% positive, and 23.3% mixed. The trend of negative comments outnumbering positive comments also existed in the non-federal government and other employers profit status groups. However, those who worked in for-profit organizations submitted more positive comments (n=9, 21.9%) than negative comments (n=6, 14.6%).

The study sample predominantly identified acute care as their primary practice setting (n=399, 73.5%), and the number of negative comments (n=122, 54.5%) exceeded the positive (n=54, 24.1%) and mixed (n=68, 30.1%) comments for this subgroup. Negative comments exceeded positive and mixed comments for all other identified practice settings, but differences in distribution of comment type were not significant for this demographic.

The largest number of respondents identified that the CNL initiative had either spread to a majority of settings in their employment location (n=182, 33.5%) or a few but not the majority of settings (n=163, 30.0%). While the number of negative comments exceeded the number of positive or mixed comments in all descriptions of spread, the distribution of negative comments was significantly higher in those respondents noting less spread of the initiative.

Most respondents (n=303,55.8%) described themselves as working primarily in clinical practice, 21.7% (n=118) described themselves as administrators or managers, 12% (n=65) as educators or researchers, and 10.5% (n=57) described their role as other. Negative comments outnumbered positive comments in each of the 4 demographic categories that corresponded to the above respondent role choices, and differences in distribution of comment type by respondent role were significant. The percentage of comments that were negative was highest for the education role (63.6%) compared to clinical practice (55%), administration/management (42.3%), and other (49%). The distribution of positive comments was highest for administration/management (34.6%) compared to clinical practice (19.4%), other (15.5%) and education (13.6%).

The study sample was primarily masters prepared (83.3%), with 6.8% having a PhD, 5.7% with a clinical doctorate (Doctor of Nursing Practice/Doctor of Nursing Science), and 4.2% with bachelor's degree (BRN/BSN). Although the number of negative comments exceeded the number of positive or mixed comments for the groups with Masters or higher education, there were no significant differences in comment type distribution between subgroups of this demographic. The group with BRN/BSN had an equal number (4) of negative, positive, and mixed comments.

Distribution of CNL implementation success score by comment category

The distribution of CNL implementation success score measurement by comment category is presented in Figure 1. A single-factor ANOVA found a significant difference among the 4 comment types, $F(3, 536) = 63.77$, $p < .001$. Post-hoc analyses (Fishers LSD, Tukey's HSD, and Scheffe test) indicated significant differences between (a) positive and negative comments, (b) positive and mixed comments, (c) positive and no comments, (d) negative and mixed comments, (e) negative and no comments, and (f) mixed and no comments.

Distribution of comment category across CNL model domains

All positive, negative, and mixed comments were also coded to the 5 domains of the CNL model; see Table 2 for details. Comments were coded to multiple domains if deemed appropriate, which is why the total scores do not add up to 100%. Many (66%) negative comments were coded to the Readiness domain, defined as a health care institution's understanding of the gaps within their care delivery system and agreement that the CNL model can close those gaps. It especially requires the understanding and support of executive nurse leadership and the point-of-care nursing staff. Negative comments included "CNO [chief nursing officer] who implemented the role left," "[the role is] not well supported nor understood even with explanations," "few CNL programs," "no budget to hire CNLs," and "huge gap of information." Positive comments for this domain included, "Senior leadership values [the CNL] role and actively plans on implementing in every unit," and "Because of inability to recruit additional CNLs, our hospital now has a cohort of nurse in school to obtain their [Master's degree] with a CNL focus." A mixed comment example was, "CNLs [are] seen as a positive addition to unit but directors and managers not able to articulate the role of the CNL."

A total of 66% negative comments were coded to the Structuring domain, which involves the reconstruction of the organization's nursing care delivery model to integrate CNL practice, placing CNLs at the point-of-care (ie, direct patient care areas) on the microsystem level, and giving CNLs minimal administrative duties. Negative comments included, "the role remains ambiguous," "[they are] doing case manager [duties, not CNL]," "limited time [provided] for CNL duties," "[CNL] spread out between multiple projects on multiple units," and "role confusion." Positive comments for the Structuring domain were "CNL focused on improving processes related to core measures and quality," and "tremendous effort establishing the role and the boundaries associated with the role." An example of a mixed comment for this domain was "I feel CNLs are doing a great job to improve outcomes but their job description is not clear."

Fifty percent of negative comments were coded to the Practice domain, whose major component is continuous clinical leadership through such activities as facilitating inter-disciplinary communication, interacting with all clinicians who see patients at the point-of-care, team-building, and assisting staff when developing patient care plans. Negative comments included, “[CNLs] viewed self as independent and [did] not work with team,” and “[CNLs had] unpredictable presence on the unit.” Positive comments included “[CNL] being that liaison between the providers and the patient,” “[CNLs led] many new patient-centered care initiatives,” and “[CNLs are] drivers of organizational change.” One example of a mixed comment for this domain was “within 2 years of our hospital funded program, 25% of CNLs are not working in CNL role.”

Sixty-six percent of positive responses were coded to the Outcomes domain. Positive comments included, “decreased CLABSI [central line associated bloodstream infections] by 50% and increased compliance with core measures,” “CNLs have reduced HAIs [health care associated- infections], increased RN [registered nursing] retention, and improved HCAHPS [hospital Consumer Assessment of Healthcare Providers and Systems patient satisfaction] scores” An example of mixed comments was “[The CNL role] is clinically effective, but financially not a high ROI [return on investment].” Negative comments for the outcome domain included “[CNLs are] not focus on one goal long enough to make changes,” and “lack of deliberate effort to grow [CNL] practice on the unit.”

The domain of Value concerns multidisciplinary satisfaction with CNL practice, which includes nursing staff, physician, management, and executive leadership satisfaction; 45% of negative comments were coded to this domain, with comments suggesting that the CNL role was not valued, such as “not a lot of support from management or respect of the position from other disciplines,” and “Hospital leadership believed that the responsibilities of a CNL were already conducted by administrators and managers.” Twenty-seven percent of positive comments were coded to the Value domain including “role is respected and functional” and “[the CNL role was] successfully implemented on medical-surgical [area] and looking to expand to cardiac and other areas.” An example of the 29% of mixed comments for this domain was, “Our leadership is supportive…as a CNL I sometimes have difficulty getting my manager to actively integrate my role into the activities of the unit.”

DISCUSSION

The purpose of this study was to identify patterns between levels of CNL domain attainment and levels of CNL implementation success across a national sample of clinicians and administrators involved in CNL initiatives. An online survey was distributed to this sample, in which participants could rate the implementation success of their CNL initiatives from 0 to 100% and elaborate on their answers with open-ended comments if they wished. Overall, the participants who left comments coded as negative submitted significantly different implementation success scores than those who had positive, mixed, or no comments about their CNL implementation experiences. The preliminary findings further our understanding of potential enhancers of and barriers to CNL implementation success.

Negative comments comprised over half of the open-ended response data, outnumbering both positive and mixed comments; this negative coding is significantly correlated with the respondents' lower implementation success scores. Even among those whose CNL initiative had spread to the majority of units within their places of employment, more respondents submitted negative comments than positive. Furthermore, most negative comments mentioned readiness for CNL practice and structuring of CNL practice as the major contributing factors to the respondents' implementation success scores.

In terms of readiness for CNL implementation, other research aligns with these study findings. Our study found that more negative comments were made by participants who stated the spread of their CNL initiative had only reached pilot stages or a few units, rather than the majority of settings within their health system. In a different study,[12] the extent to which the CNL model was implemented across any particular health system was significantly correlated with higher perceived success of the model in improving outcomes. In this study, the lack of commitment to the model in terms of responding to challenges or barriers revealed during initial CNL rollout was suggested as the reason for higher perceived success. Kaack, et. al.[9] and other researchers[11,23] have described the Veterans Health Administration efforts to understand exactly what was needed to successfully implement CNL practice in their settings, which included the need to understand the CNL novice-to-expert trajectory of practicing CNLs, and the need to establish shared expectations of CNL practice at each stage of the novice-to-expert trajectory between senior leadership, unit-level management, and CNLs. They also determined the resources needed to appropriately structure CNL practice, including assistance linking CNLs with key leaders within and across clinical microsystems, regular consultations with senior leadership, access to clinical data, and adequate dissemination of CNL projects within the health system and beyond.

Our study also found that negative comments and lower implementation scores were related to ambiguous structuring of the CNL role within health care settings. Previous research concerning integration of the CNL role into existing care delivery systems indicates that the support of executive leadership and the subsequent re-structuring of the organization to include CNL practice are essential to success.[24,25] For example, in a study querying certified CNLs about whether they are practicing in a formal CNL role or not, those that said yes also reported high levels of accountability for all 9 AACN essential areas of CNL competence than those not formally practicing in the role.[10] Many of the negative comments in this study were related to CNLs not being able to practice as CNLs, but rather as staff nurses, charge nurses, or case managers. Without the ability to practice formally as CNLs, CNL practice competencies cannot be implemented which would understandably lead to failure in accruing outcomes and thus considered an implementation failure.

The increase in positive comments in relation to negative comments for the CNL Practice Model domains of Practice, Outcomes, and Value suggest that the extent to which health systems are able to adequately prepare for and structure their CNL roles within their settings determines the implementation of CNL practice and its expected outcomes of improved care quality and safety. Over half of respondents with positive comments chose to describe how their CNL initiatives improved care environments and care quality through better communication across health care professions, increased staff satisfaction with the

care delivery environment, frequent collaboration between multi-professional clinicians, and other positive outcomes. Recent work mapping CNL competencies across policy documents found that CNL competencies afforded 3 main CNL practices: clinical leadership, clinical pathways management, and care process management.[26] These practices involved expert self-efficacy, the coordination and improvement of clinical care and outcomes, and the assessment and improvement of microsystem processes. These are not simple skills that are part of any nursing job description. Rather, these practices require intimate knowledge of microsystem or unit-level people, structures, and practices in order to understand where the gaps or bottlenecks are as the first step in making improvements or changes using data, project improvement strategies, and a microsystem-level perspective. If health systems are not providing adequate time for CNLs to do these CNL-specific practices, the complexity involved in changing clinical care pathways or microsystem processes may well mean that improvements are simply not possible.

Limitations

We acknowledge the data used in this analysis is from 2015 and may not adequately represent current circumstances in CNL practice. However, the findings do reflect and expand on other findings in other CNL studies, suggesting its continued relevance. To address this limitation our current research involves a Hybrid Type II Implementation-Effectiveness study that leverages a natural experiment in 66 CNL-integrated clinical care units in 9 hospitals across the country and will evaluate the effect of the CNL care model on standardized quality and safety outcomes and implementation characteristics that are sufficient and necessary to achieve outcomes.[13]

CONCLUSION

The preliminary findings from this study suggest that deficits in CNL readiness and infrastructures were a barrier to CNL implementation success. The study provides empirical evidence of the theorized need for adequate organizational readiness and appropriate CNL structuring before CNL practice can manifest and produce expected outcomes. Findings also help explain the variability of CNL practice and outcomes found in the literature and provide information about structural domains that can be strategically targeted to better prepare settings for CNL implementation.

FINANCIAL SUPPORT:

This work was supported by the Agency for Healthcare Research and Quality, R01HS027181-02 grant titled ‘Organizing nursing to improve care quality and safety: a hybrid implementation-effectiveness study.’ Miriam Bender PI. The funder had no role in the study development, conduct, or analysis. This work was supported in part by resources of the Central Texas Veterans Healthcare System. Views are those of the authors and not intended to represent the views of the U.S. Department of Veterans Affairs or the United States Government.

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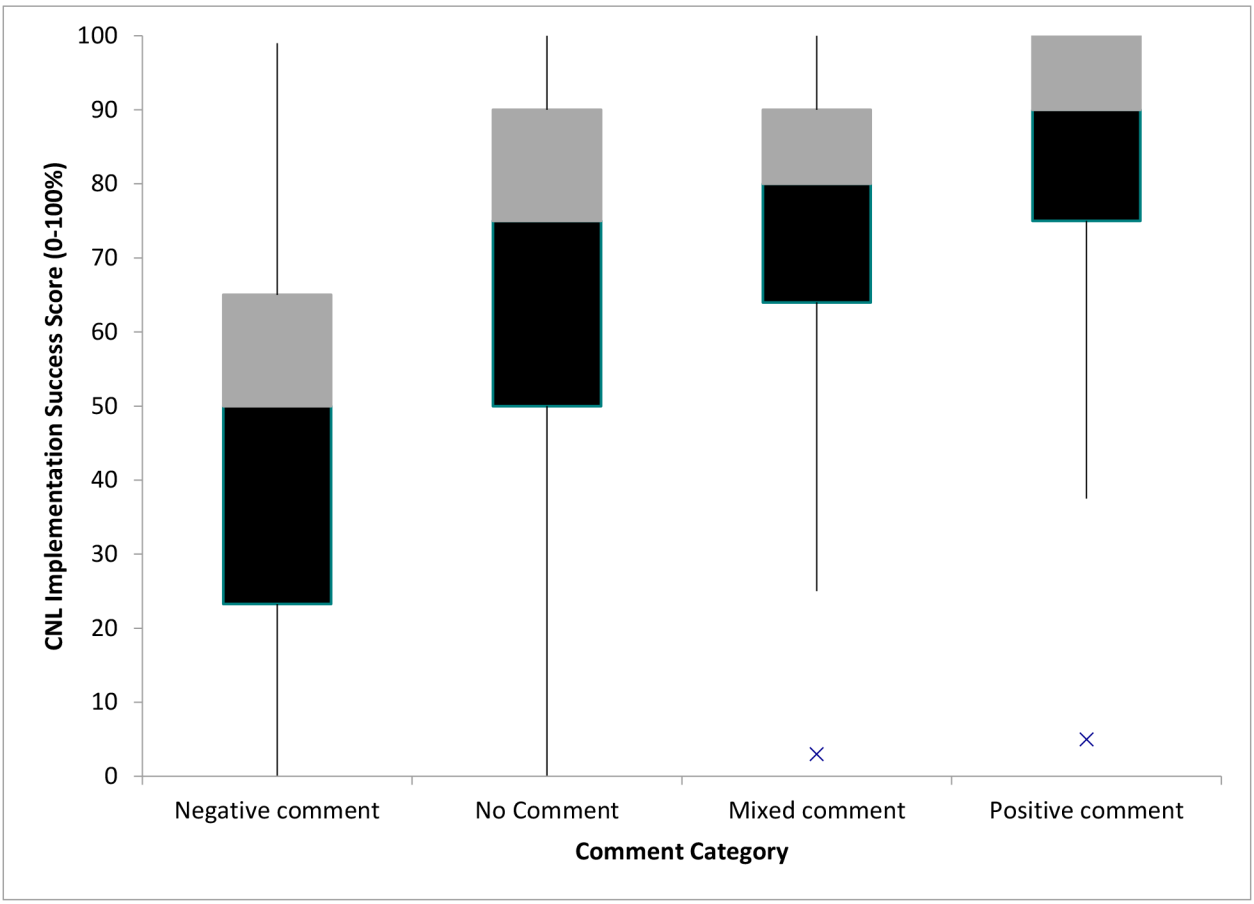

Figure 1:
Distribution of CNL implementation success scores by comment category

Table 1.

Survey respondent demographics for sample and subgroup by comment type

Demographic Characteristic	Total (n-543)	No Comment	Positive	Mixed	Negative	Chi Square, p-value
Employer Location						
Rural	63	19	5	7	32	15.37, p=.02
Urban	446	169	61	79	137	
Other/Unknown	34	8	9	4	13	
Employer Profit Status						
Non-Profit	300	111	50	53	86	31.41, p=.0017
Federal Government	152	49	9	24	70	
Non-Fed Government	23	11	2	4	6	
For-Profit	41	19	9	7	6	
Other/Unknown	27	6	5	2	14	
Practice Setting						
Acute Care Hospital	399	155	54	68	122	8.94, p=.71
Health System	32	8	6	5	13	
Academia	51	15	6	7	23	
Ambulatory	28	9	4	5	10	
Other/Unknown	33	9	5	5	14	
Spread of CNL Initiative						
Majority of Settings	182	67	35	37	43	46.31, p<.001
A Few Settings	163	55	22	26	60	
One Setting	68	33	10	8	17	
Pilot	45	14	4	10	17	
Planned, Not Implemented	26	9	2	1	14	
Actively Stopped	32	6	1	3	22	
Do Not Know	27	12	1	5	9	
Respondent Role						
Clinical Practice	303	123	35	46	99	23.36, p=.02
Administration	118	40	27	18	33	
Education	65	21	6	10	28	
Other/Unknown	57	12	7	16	22	
Respondent Highest Education						
Bachelor	23	11	4	4	4	11.74, p=.23
Masters	452	169	60	70	153	
Clinical doctorate	31	5	7	8	11	
PhD	37	11	4	8	14	

Table 2:

Distribution of comment kind across CNL Practice Model domains

	Positive comments		Mixed comments		Negative comments	
Domain	Percent	Average implementation Success Score (SD)	Percent	Average implementation Success Score (SD)	Percent	Average implementation Success Score (SD)
Readiness	10%	72 (17)	26%	76 (16)	66%	45 (26)
Structuring	8%	84 (15)	27%	73 (20)	64%	47 (27)
Practice	38%	98 (3)	13%	85 (0)	50%	56 (42)
Outcomes	66%	92 (8)	25%	72 (21)	9%	53 (37)
Value	27%	86 (20)	29%	81 (18)	45%	42 (27)

CNL=Clinical Nurse Leader