

# Diffusion of the Clinical Nurse Leader Innovation

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*The membership of the American Association of Colleges of Nursing, in partnership with its practice partners, has initiated a national effort to create a new nursing role that is more responsive to the realities of a complex, technologically advanced, ever-changing healthcare system. This new role is the clinical nurse leader. Nurses in this new role will be prepared at the master's level and will act as lateral integrators of care, patient advocates over the many components of the continuum, and information manager to the multiple disciplines involved in care. Practice and education partners are working together to define the curriculum for this role and to create a new care delivery model. In this article, the authors used the geographic information system technology to describe the diffusion of the education and practice partners throughout the United*

*States and reflect on the growth of the partnerships since the project's inception in June 2004.*

For the past 6 years, a new innovation in the discipline of nursing has been evolving. It began in 2000, when the American Association of Colleges of Nursing (AACN) engaged in discussions on the future of the nursing profession.<sup>1</sup> Issues such as the image of nursing, the declining enrollments in baccalaureate and higher degree nursing education programs, the emergent nursing shortage, the continuing knowledge explosion in healthcare, client/patient safety issues, and the need for preparation of nurses for leadership in healthcare delivery were addressed by 4 task forces appointed by AACN.<sup>2-7</sup> The first 2 task forces examined the issues, conceptualized new models for education, and addressed the need for a new role in nursing practice and the development of practice and education partnerships to implement the new role and competencies. After a discussion with consumers, educators, and practice stakeholders regarding the proposed new role, 2 additional task forces were established to

guide the implementation and to evaluate the effectiveness of the new role and the practice-education partnerships.

In spring 2004, the Implementation Task Force developed a curriculum to reflect the competencies outlined in the AACN working paper on the role of the clinical nurse leader (CNL).<sup>1</sup> The task force then set the direction for the practice arena to develop innovative models of nursing care delivery to incorporate the new role.<sup>8</sup>

## **Education-Practice Partnerships**

The AACN Web site was used for continuous communication with the schools and colleges of nursing, and contacts with external partners regarding the developing role were made. In April 2004, a "Request for proposals for implementing the clinical nurse leader" was distributed to the nursing education community as an invitation to participate with AACN in the initiation of the CNL role. Nursing education programs were asked to identify in their proposals practice partners who could assist them in "developing, implementing and evaluating education and practice models to improve patient outcomes and care

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environments while maintaining or improving cost effectiveness and efficiency.”<sup>9</sup>

In June 2004, the education programs and practice partners were invited to Washington, DC, to learn more about the CNL project, the history of the development, and the expectations of practice-education partners and to engage in a dialogue on partnership needs to promote successful implementation and evaluation of their projects. At the meeting, there were 83 educational institutions represented, with a range of 1 to 8 healthcare institutions agreeing to participate with each of the educational sites in the CNL project. Since June 2004, the pilot has grown and CNL projects are being implemented in multiple practice settings.

### **Innovation Diffusion**

E.M. Rogers,<sup>10,11</sup> in his diffusion theory, describes a process “by which an innovation is communicated...over time among the members of the...system” for the purpose of providing exposure to the innovation.<sup>10</sup> The process typically involves 5 stages: innovation development, dissemination, adoption, implementation, and maintenance. Innovation, he says, is an “idea, practice or object that is perceived as new (CNL role) by an individual or other unit of adoption.”<sup>10</sup> The AACN’s initial conference and regional meetings, Web site, personal contacts, and discussions with representatives of a number of professional organizations were used to communicate to “members of the systems in and affected by nursing.”

Innovation development involves the decisions and activities that occur from the beginning development to production (4 task forces of AACN). Dissemination involves an active approach to transfer knowledge from the developer (AACN) to the user (education and practice partners).<sup>10</sup> Adoption involves the understanding and comprehending of the innovation (CNL role) by the target audience (education-practice partners).<sup>11</sup> Implementation then involves the use of the innovation in practice (practice partners).<sup>11</sup> The CNL pilot is at the implementation stage in Rogers’ Diffusion Theory. To achieve maintenance, the final stage, ongoing implementation, and continuous use of the innovation must occur.<sup>11</sup>

### **Methodology**

Using the geographic information system (GIS) technology and the geomapping tool, the adoption and implementation of the CNL innovation commenced. Geographic information system technologies are used to organize spatial data into a form that can be easily analyzed.<sup>12</sup> Several user-friendly GIS software programs that can be used to create maps on desktop computers are available. These GIS programs arrange spatial data by themes as data layers.<sup>12</sup> The act of creating these data-specific maps is often referred to as “geomapping.” Themes such as streets, bodies of water, and locations are available for downloading from various Web sites. Once the base layer is established, other theme layers can be added to the map. For example, the land of a state is the base layer

and the city layer is added to the map. Data in tabular form can be imported and coded into GIS to be pictorially displayed by color coding or symbols.<sup>13</sup> Such data can include the addresses of business clientele or the locations of all the healthcare agencies in the selected city.

A variety of professions use GIS technology to display and analyze information. For example, epidemiologists use GIS to plot the new cases of an infectious disease on a map to help determine the source of the disease outbreak. In the nursing profession, GIS technology can be used in numerous ways.<sup>14</sup> It can assist nurses in performing community assessments,<sup>15</sup> planning and implementing interventions within a community,<sup>16</sup> identifying access to healthcare services,<sup>17</sup> and evaluating health policy.<sup>18</sup> Geographic information system provides the ability to pictorially examine relationships of information and to surmise results in a single glance.

Geographic information system technology was used to map the locations of schools and practice sites involved with the CNL pilot. The maps for this project were created using ArcView® 3.3 GIS software developed by Environmental Systems Research Institutes, Inc. ArcView® provides the ability to download necessary maps and to import data into the project to be displayed and analyzed.<sup>13</sup>

The geographic file of the United States separated into regions was downloaded from the US Census Bureau’s Cartographic Boundary Files Web site (updated in 2005) in the form of a Topologically Integrated Geographic

Encoding and Referencing 2000 shapefile.<sup>19</sup> The shapefile separated the 50 states into 4 groups: Northeast, South, Midwest, and West.

Tables and themes were created in GIS using 2 lists from the AACN. The first list provided the names and addresses of all schools and practice sites participating in the CNL pilot. The second list provided the directory of master's programs available in each state.<sup>20</sup> The participating schools were coded by whether they were an academic health center (AHC). Academic health center status was determined by being designated on the AACN

list as an AHC or by being listed as a member of the Association of Academic Health Centers.<sup>20</sup> The Association of Academic Health Center's member list was retrieved from the association's Web site at <http://www.ahcnet.org/about/members/index.php> (updated in 2005). The participating practice sites were also coded by Magnet Nursing Service Recognition status.<sup>21</sup> Magnet status of the practice site was determined by the listing of the Magnet facilities on the American Nurses Credentialing Center Web site at <http://www.nursingworld.org/ancc/magnet/facilities.html>

(updated in 2005). All the participating schools and practice sites were geocoded into the GIS map by using the sites' zip codes.

**Findings and Discussion**

According to the US Census (2000), the United States is divided into 4 regions as noted on the geomap (Figure 1): Northeastern region (dots), which includes 9 states; the Southern region (horizontal lines), which has 16 states plus Puerto Rico; the Midwestern region (white), with 12 states; and the Western region (diagonal lines), with 13 states. In July 2004, there were

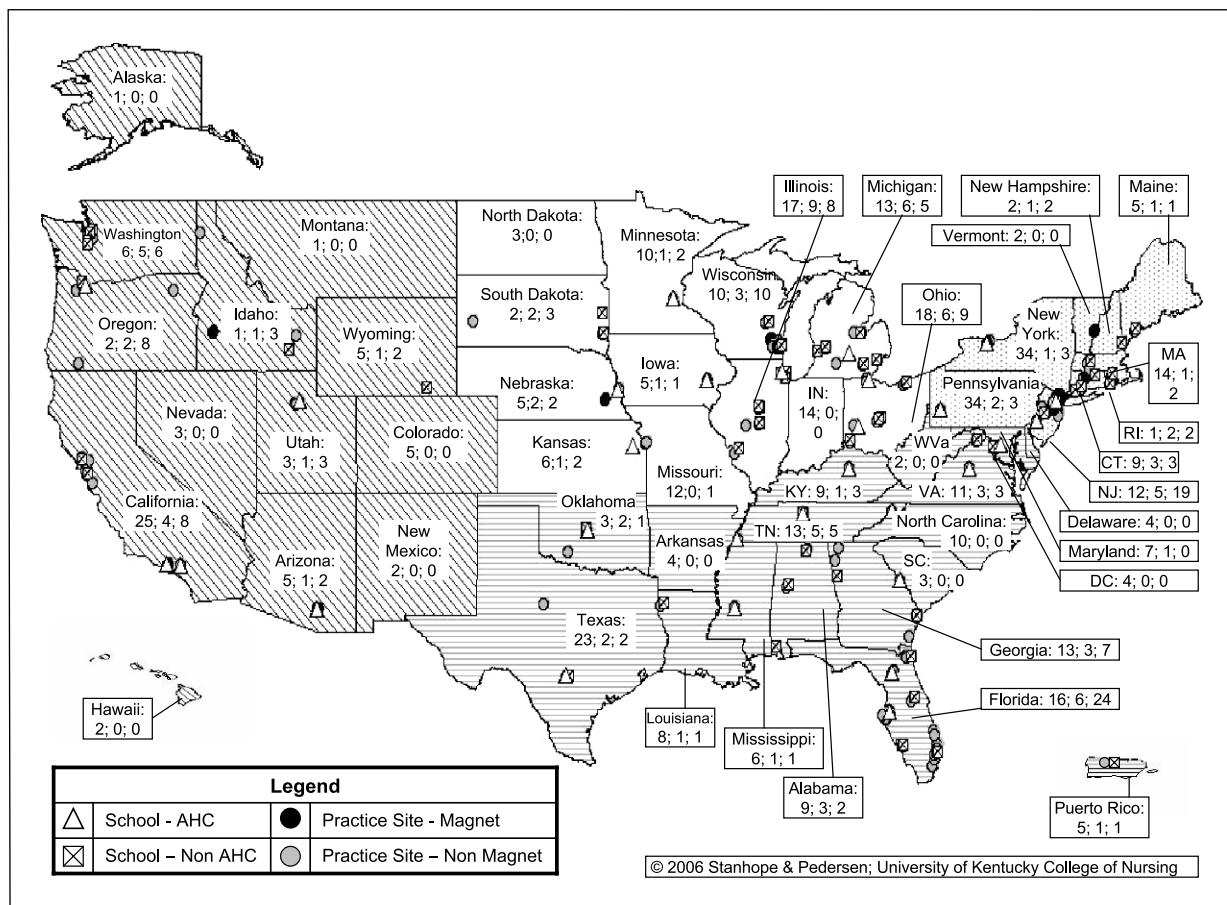


Figure 1. CNL project partners (no. of master's of science in nursing programs; no. of participating schools; no. of participating practice sites).



**Table 1.** Regional Summary of the Clinical Nurse Leader Education and Practice Partners

Region (% of States Participating)	Total No. of MSN Programs (%)	Total No. of CNL Schools (%)	No. of AHC Sites (%)	No. of Non-AHC Sites (%)	Total No. of CNL Practice Sites (%)	No. of Magnet Practice Sites (%)	No. of Non-Magnet Practice Sites (%)
Northeast (89)	113 (26)	16 (14)	5 (31)	11 (69)	35 (22)	10 (29)	25 (71)
South (75)	145 (33)	28 (19)	12 (43)	16 (57)	43 (27)	5 (10)	45 (90)
Midwest (83)	115 (26)	31 (28)	9 (29)	22 (71)	43 (27)	12 (28)	31 (72)
West (54)	57 (13)	15 (26)	5 (33)	10 (67)	30 (19)	6 (20)	24 (80)
Puerto Rico (100)	5 (1)	1 (20)	0	1 (100)	1 (1)	0	1 (100)
Total	435	91	31	60	159	33	126

MSN indicates master's of science in nursing; AHC, academic health center; CNL, clinical nurse leader.

78 educational and 124 health-care institutions participating together in the CNL projects. As of April 2006, there were 91 educational and 159 healthcare institutions in the practice partnerships. Of the practice partners, 33 (21%) have achieved Magnet Nursing Service Recognition.<sup>21</sup> All regions of the United States are hosting CNL projects.

In the Western region of the United States, 7 of 13 states (54%) are represented in the CNL pilot. In the Midwest, 10 of the 12 states (83%) are represented. In 1 of these states, only a healthcare institution is participating with an educational program in an adjoining state. In the South, 12 of 16 states (75%), plus Puerto Rico, are participating. In the Northeast, 8 of 9 states (89%) are participating.

To date, 21% of all master's programs in the United States are participating in the CNL pilot, and 34% are located in AHCs (Table 1). Within the Veterans Administration System, 60 of 159 hospitals (38%) have participating project (Harris J, Chief Nursing Officer, Veterans Administration, Tennessee Valley Health Care System, Nashville, Tenn, personal communication, April 2006). All

other project sites represent hospitals, home healthcare agencies, schools, long-term care, and a statewide community-based system. Data to determine the extent of participation by each of these systems are not yet available.

The Northeast, Midwest, and South have the highest numbers of states participating, respectively. The Midwest and the South have a greater number of educational and healthcare institutions participating, whereas the Midwest and West have a greater percentage of master's of science in nursing programs participating in the pilot. Most of the educational programs are located in non-AHCs, and the practice sites with Magnet recognition are in the minority.

### Conclusion

Since June 2004, the CNL pilot project has been initiated in 21% of all master's programs and in 37 (74%) states and 1 territory, and new graduates are beginning to emerge in practice sites. Oldenburg and Parcel<sup>22</sup> indicate that the "rates of initial program... adoption, implementation, and maintenance can vary...as a result of strategies used to disseminate

the innovation and to educate program adopters in its use." The final stage of maintenance in the diffusion theory can only be achieved after the initial implementation, the graduation of the product, and the evaluation of the effectiveness and efficiency of the innovation. It is at this point of evaluation that a determination can be made about the strategies used in innovation, development, and dissemination and whether these strategies will result in sustained use of the CNL.<sup>22</sup>

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