

BACKGROUND

Virtual acute care nursing (VACN) is emerging as an innovative care delivery model intended to achieve similar and even superior high quality care outcomes to on-site hospital care. VACN:

- Addresses needs of a changing nursing workforce
- Capitalizes on audio-visual, bidirectional communication technology to connect patients and nurses
- Creates opportunities for redistributing responsibilities for patient care to virtual environments
- Prioritizes patient safety, patient education, interdisciplinary care coordination, clinical coaching of novice staff, admission assessments and preparing and expediting discharges
- Reduces burdens of care (e.g., documentation) for bedside RNs. Few studies document outcomes with VACN models.

Here, we report outcomes associated with > 1 year integration of VACN on 2 Units in a Magnet designated teaching health system.

PROJECT AIMS

The specific aims of this project were to:

- Refine a VACN care delivery model that includes Virtual Nurse (VN) plans of care and workflow processes.
- Compare pre- and post-implementation of VACN for safety, clinical and patient-reported outcomes.

METHODS

Design: This project was part of a quality improvement (QI) pre- and post test initiative.

Description: An exploratory pre- and post-test design evaluated outcomes with a VACN model of care that reallocated unit full-time employee (FTEs) to virtual care.

Procedures: VACN was implemented on 2 pilot units (Unit A - Surgical and Unit B - Medical) Monday-Friday, 0700-1930 September 2022. VN-to-patient ratio varied 1:12-18.

- VNs were stationed at a remote central location communicating with patients and on-site hospital staff through technology.
- VN responsibilities for care and workflow processes were outlined in a position description, policy, and VN orientation.

Data Analyses: Monthly data from pre VACN were compared to post-implementation data using Mann Whitney U tests (medians). following full integration of VACN.

Outcomes:

- Harm Index
- Harm Rate with Rapid Response (RR) and Falls

Safety



- Adjusted Length of Stay (ALOS)
- Length of Stay (LOS) Index
- Readmission Rate

Clinical



- Information about Symptoms
- Explain Back
- Recommend Hospital

Patient Experience



RESULTS

Results are presented for comparisons (medians) of Safety, Clinical and Patient Experience Outcomes.

Outcomes	Unit A			Unit B		
	Pre n=14	Post n=13	Sig, P value*	Pre n=13	Post n=16	Sig, P value*
Safety Outcome						
Harm Index	6.63	6.04	.687	7.69	10.18	.404
Harm with RR and Falls	6.75	6.27	.685	7.71	10.18	.545
Clinical Outcomes						
ALOS	5.16	4.89	.840	5.54	5.45	.125
LOS Index	117	104	.019*	126	106	.036*
Readmission	9.79%	11.61%	.101	15.39%	17.73%	.589
Patient Experience Outcomes						
Information Symptoms	74.00%	64.00%	.046*	28.00%	52.00%	.477
Explain Back	35.00%	84.00%	.019*	23.00%	71.00%	.046*
Recommend	41.00%	33.00%	.762	17.00%	11.00%	.454

Medians reported for pre-pilot and post-implementation of VACN.

Comparisons of median ranks using Mann Whitney U tests.

P < .05; n = no. of months of data

Pre VACN data missing 9 of the 14 months for Information about Symptoms.

IMPLICATIONS

- Expert nursing leadership is crucial to the execution and culture change required.
- Consistent communication and reinforcement are required for practice standardization.
- It is imperative nurse leaders include leadership and care team buy-in, understanding the "Why" of the change, and sharing opportunities and successes during each stage, in the planning process.

CONTACTS

Dr. Michelle Collins, DNP, APRN, CNS, ACNS-BC, NPD-BC, NEA-BC, LSSBB, FAAN, Vice President of Nursing Excellence

mcollins@christianacare.org

Maria Brown, MSN, RN, PCCN, CNL, NEA-BC, Nursing Excellence Manager

Maribrown@christianacare.org

Tammy Brown, MSN, RN, OCN, NEA-BC, Virtual Acute Care Nurse Manager

TaBrown@christianacare.org

DISCLOSURE

No one in a position to control the content of this educational activity has relevant financial relationships with ineligible companies.

CONCLUSIONS

Virtual care is safe and effective.

- There were no significant differences for Harm Index, Harm with RR and Falls, ALOS, or Readmission rates. There was a statistically significant decrease (approaching 1) in LOS Index for both units, (P = .019, P = .036, respectively). A decrease in this metric is associated with a reduction in hospital costs.
- For patient experience, the focus of VNs providing patient education was associated with statistically significant (P = .019, P = .046, respectively) on both units for the Explain Back item. Information about Symptoms improved on Unit A (P=.046).

Future research and QI need to focus on:

- Refining VACN models, e.g., optimal patient-to-nurse ratios, VN responsibilities that yield the best outcomes.
- Further establishing that VACN is safe and effective in providing nursing care.
- Determining the most sensitive outcomes for measuring the impact of VACN.
- Capturing reductions in hospital costs associated with VACN.

APPLICATION TO OTHER SETTINGS

- Acute care services such as case management, social work and provider groups plan to leverage this technology to create staff efficiency while improving patient throughput and satisfaction.
- Leaders will drive an increase in recruitment and retention and positively impact patient outcomes.

LESSONS LEARNED

- Units should be transitioned to VACN at one time, across the entire unit to avoid confusion with two models of care.
- Nurse leaders and clinical teams should be knowledgeable about and prepared for virtual care prior to implementing VACN.
- Consistent VACN leader oversight is essential.

PRACTICAL TAKEAWAYS

- Consider assessment of financial impact related to staffing, technology and equipment, and interdisciplinary collaboration.

REFERENCES

- Boston-Fleischhauer C. (2017). The explosion of virtual nursing care. *Journal of Nursing Administration*, 47(2): 85-87.
- Cloyd, B., & Thompson, J. (2020). Virtual care nursing: The wave of the future. *Nurse Leader*, 18(2): 147-150.
- Dahl, D., Reisetter, J.A., & Zismann N. (2014). People, process, and technology meet the triple aim. *Nursing Administration Quarterly*, 38(1):13-21.
- Harris, D. (March 2022) How virtual nursing can boost staffing, optimize patient care, and combat burnout. Smartbrief. <https://corp.smartbrief.com/1011/03/how-virtual-nursing-can-boost-staffing-optimize-patient-care-and-combat-burnout>.
- Schuelke, S., Aurit, S., CANNOT, N., & Denney, S. (2019). Virtual nursing: The new reality in quality care. *Nursing Administration Quarterly*, 43(4): 322-328.