THE SHORTAGE OF EXPERT NEPHROLOGY NURSES AND PATIENT QUALITY CARE INDICATORS

A QUANTITATIVE CROSS-SECTIONAL STUDY

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Introduction

What is the relationship between the shortage of expert nephrology nurses and patient quality care indicators?

- Quantitative cross-sectional study examined the problem regarding the shortage of expert nephrology nurses and potential consequences on patient quality care indicators in the dialysis setting. Three areas of statistical significance:
  - **Units with higher levels of experience** had fewer hemodialysis patients with lower percentage of anemia and a higher percentage of patients meeting dialysis adequacy levels.
  - **Units with higher level of education** had a lower facility mortality rate.

Objective

- Identify the relationship between the expert nephrology nurse and the patient quality care indicators.

Methods

- Simple linear regression analysis was conducted on the patient quality care indicators and was used to predict outcomes on the shortage of nursing experts on the collected convenience sample.
- Units were divided into two groups based on experience:
  - **Experienced units** contained nurses equal to or more than 14.945 years of nursing experience and equal to or more than 9.968 years of nephrology nursing experience.
  - **Inexperienced units** had nurses with less than 14.945 years of nursing experience and less than 9.968 years of nephrology nursing experience.
- Units were divided into two groups based on education:
  - **Higher level of education units** contained at least one registered nurse with a bachelor or masters degree
  - **Lower level of education units** employed nurses with either an associate degree or diploma degree
- Patient quality indicators data obtained from the CMS QIP publically reported data were compared to the experience level and educational level within the unit

Results

Highest Educational Degree of Nurses Participating in Chronic Dialysis Units

Education

- Masters
- Bachelors
- Associate
- Diploma
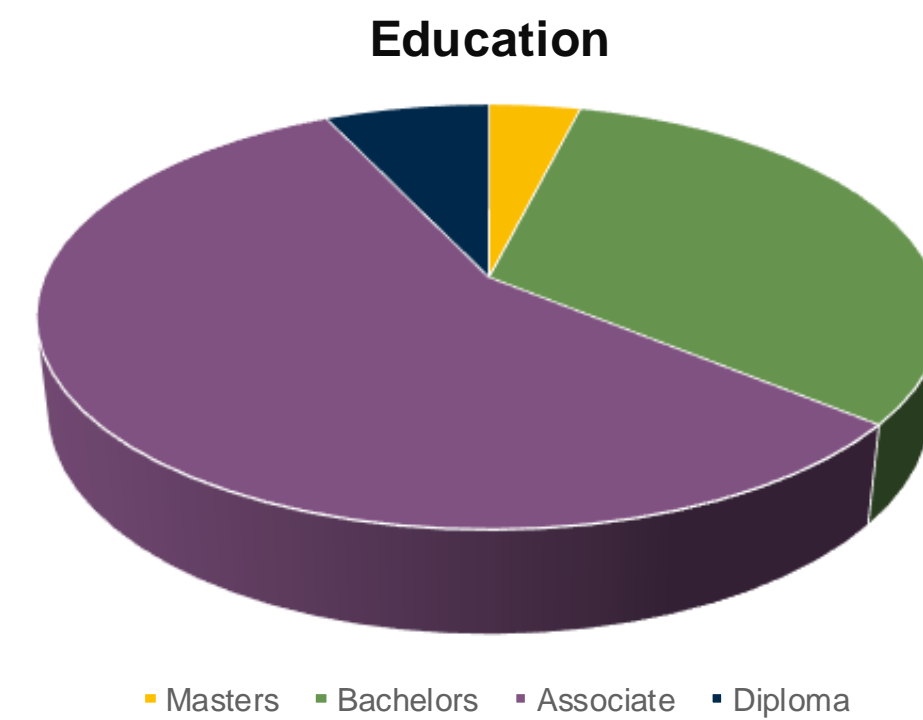
Certification Status of Nurses within Participating Chronic Dialysis Units

Certification

- Certifed
- Not Certified
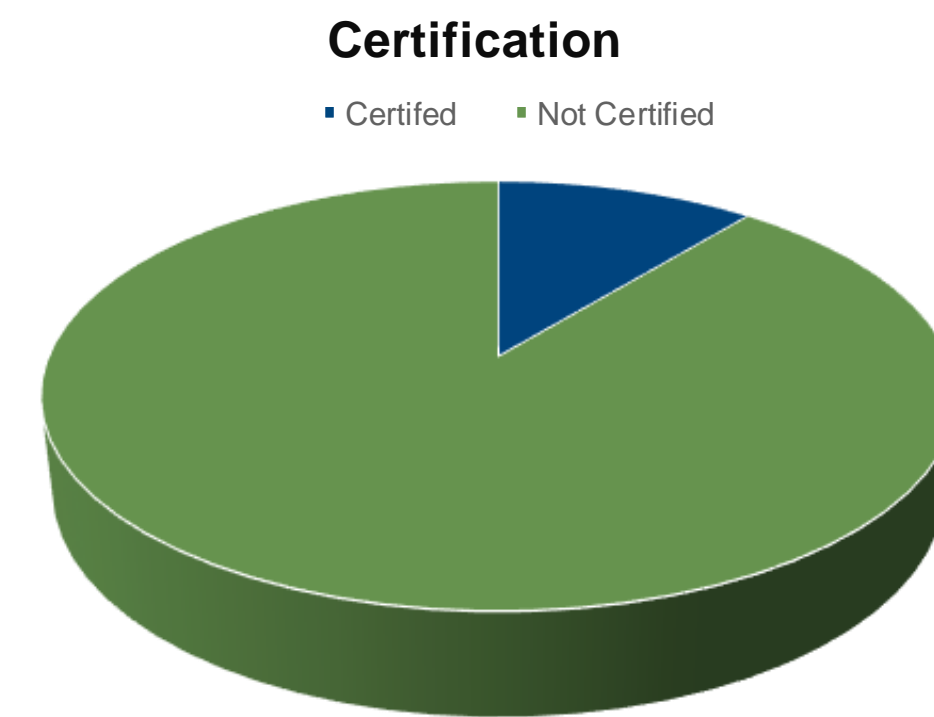
Years of Registered Nurses Experience within Participating Chronic Units

N	Mean	Median	Mode	SD	Range (years)
128	14.94	13.00	7.0	.67	1-43

Years of Nephrology Experience of Nurses within Participating Chronic Dialysis Units

N	Mean	Median	Mode	SD	Range (years)
128	9.96	7.00	5.00	.15	0-30

Statistically Significant Data

The **hemoglobin less than 10.2 g/dl** used as the dependent variable with nursing experience as the independent variables. Nursing experience (beta=.659; t=4.466; 95% C. I. = -8.634-9.157; p= .00) was significant, which means that nursing experience was associated with low percentage of patients with hemoglobin levels less than 10.2 g/dl.

The management of adequacy, **Kt/V greater than 1.2** used as the dependent variable with nursing experience as the independent variables. Nursing experience (beta= -.337; t= -1.960; 95% C. I.= -3.836-.079; p= .050) was borderline significant meaning nursing experience was mildly associated with a higher adequacy (Kt/V) for the hemodialysis treatment.

The **mortality rate** indicator used as a dependent variable with nursing educational level served as independent variables. The education level (beta= -.410; t= -2.384; C.I. = -7.090-.525; p= .025) was found to be a significance predictor of mortality rate.

CMS QIP Patient Quality Care Indicators Data Used in Study

Anemia	HBG less than 10.2g/dl
Adequacy	Kt/V greater than 1.2
Vascular Access	Percentage of AVF in use
CVC	Percentage in longer than 90d
Hypercalcemia	Calcium over 10.2 mg/dl
Phosphorus	less than 3.5 mg/dl
Phosphorus	3.5-4.5 mg/dl
Phosphorus	4.6-5.5 mg/dl
Phosphorus	5.6-7.0 mg/dl
Phosphorus	Over 7.0 mg/dl
Mortality Rate	Facility percentage rate
Readmission Rate	Unplanned hospital readmission (30 days or less)

Conclusions

There was a noted relationship on three patient quality care indicators of anemia (hemoglobin less than 10.2 g/dl), adequacy (Kt/V 1.2 or greater) and facility mortality rate. In each of these metrics units with more experienced registered nurses, anemia and adequacy, or higher level of education, mortality rate, was statistically significant.

Recommendations for research, practice, and policy revolve around the need for greater understanding of the expert nephrology nurses. Identification on initial recruitment, retention of current nurses, and promotion of this specialty nursing practice all require further investigation. Continued analysis of patient quality care metrics, satisfaction surveys, and facility ratings could all help align the relationship to expert nephrology nurses within the chronic dialysis units.

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