

Eleven Key Areas of Renal Nurse Responsibility - The Foundations of Quality Patient Dialysis Outcomes

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RATIONALE

Renal Nurses develop their expertise over time and in the exercise of their professional skills deliver the essence of safe, competent, and compassionate care. The knowledge, attitude, and skills of a nurse develop progressively where complexities of clinical procedures and experiences are intertwined (Berman et al, 2008). The progression is developed in a manner, as proposed by Patricia Benner's theory of "Novice to Expert Nurse."

OBJECTIVES AND METHODS

Objectives

The study identifies whether Quality Patient Dialysis Outcomes is directly affected by the extent of the eleven Renal Nurse's responsibility -when used to evaluate (1) Staff Competency in HD, (2) patient HD outcomes, (3) HD related infection incidences, and (4) physical component of Quality of Life

Methods

59 Staff Nurses were appraised evaluating SC while 525 hemodialysis patients were evaluated using the QPDO parameters. Univariate linear regression and Pearson rho moment correlation were used to build relationships.

RESULTS

Data indicated both increase and decrease trends in relation to staff competency. Competencies related to Health Education ($\uparrow 172.6$), Communication ($\uparrow 147.5$), Records Management ($\uparrow 141.6$), Safe and Quality Nursing Care ($\uparrow 135.0$), and Management of Resources ($\uparrow 133.5$) demonstrated increase trends. Competencies related to Research ($\uparrow -35.2$), Quality Improvement ($\uparrow -12.3$), and Legal Responsibility ($\uparrow -6.68$) were relatively decreased as the period of competency evaluation progressed. **It was notable that QPDO related to Kt/V, Albumin, Hemoglobin, and Hematocrit Levels were directly proportional to increasing extent of SC $\rho = (+0.61)$ while calcium and phosphorus levels were directly associated to areas where staff were demonstrated an decreasing trend $\rho = (+0.66)$.**

Hemodialysis-specific Competency Appraisal (HDCA-PN, HDCA-SN1, HDCA-SN2)

Extent of Staff Competency distributed per evaluation in 3 months, 6 months, and 1 year onwards from 2009 to 2011*

11 KEY AREAS OF RESPONSIBILITY	YEAR OF EVALUATION**								
	2009			2010			2011		
	3mo	6mo	1yr	3mo	6mo	1yr	3mo	6mo	1yr
1. Safe and Quality Nursing Care	59.8	61.0	64.5	63.2	75.9	84.6	81.4	84.2	85.7
2. Mgt of Resources and Environment	32.1	30.5	29.9	35.6	37.0	33.5	41.0	41.9	40.7
3. Health Education	5.60	6.10	5.10	7.10	7.60	8.00	9.80	10.0	9.20
4. Legal Responsibility	40.8	38.5	40.0	44.2	42.7	41.6	43.6	45.1	44.9
5. Ethico-moral Responsibility	21.0	22.7	20.2	22.1	23.0	22.5	25.0	25.0	25.0
6. Personal and Professional Dev't	51.2	53.6	50.1	53.9	54.6	54.0	61.0	59.9	61.9
7. Quality Improvement	29.6	30.1	28.7	31.0	33.2	32.6	35.1	35.7	32.0
8. Research	25.1	23.6	23.2	25.9	24.0	27.2	26.0	26.0	32.3
9. Records Management	21.0	23.1	21.2	23.6	27.8	22.0	30.1	30.0	32.4
10. Communication	3.00	3.10	3.00	4.00	4.00	4.00	4.50	4.50	4.50
11. Collaboration and Team work	31.9	33.6	33.0	35.7	35.0	36.1	43.5	40.1	43.0

*all above values are expressed in mean percentage (%) integer taken from the quotient of the total number of Quality Indicators score on each Key Area in an ordinal scale of 1 to 5 where 1 is the lowest and 5 as the highest
**sample on each year is variable according to the number of Sample 1 available with n=59 (2009=22, 2010=26, 2011=35)

Relationship Algorithm between Staff Competency and Quality Patient Dialysis Outcomes (analyzed from Raw Mean Scores, Kruskal-Wallis Test and Richardson's Evaluation)

Relationship Analysis	Period of Evaluation (n*)				INTERPRETATION
	3 months	6 months	1 year onwards	MEAN	
Pearson rho correlation					
1. Staff Competency and Quality Patient Dialysis Outcomes	$\rho = (+0.5)$	$\rho = (+0.68)$	$\rho = (+0.72)$	$\rho = (+0.61)$	STRONGLY CORRELATED
2. Quality Patient Dialysis Outcomes as to Staff					
a. Age	0.03	0.03	0.03	0.03	NONE
b. Gender	0.00	0.00	0.00	0.00	NONE
c. Nationality	0.00	0.00	0.00	0.00	NONE
Logistics regression					
1. Staff Competency and Quality Patient Dialysis Outcomes	F(1) (63%)	F(1) (77%)	F(1) (84%)	F(1) (74.6%)	HIGHLY ASSOCIATED
2. Quality Patient Dialysis Outcomes as to Staff					
a. Age	F(1) (0%)	F(1) (0%)	F(1) (0%)	F(1) (0%)	NONE
b. Gender	F(1) (0%)	F(1) (0%)	F(1) (0%)	F(1) (0%)	NONE
c. Nationality	F(1) (0%)	F(1) (0%)	F(1) (0%)	F(1) (0%)	NONE

*distribution is done by Univariate and Bivariate Logistics regressions with F-verification test

IMPLICATIONS TO PRACTICE

The eleven key areas of responsibility used to measure SC in a periodic evaluation demonstrated a strong correlation to the increasing extent of QPDO. Additionally, as the nurses progressed to becoming expert a direct correlation to the QPDO was notable. The study became the foundation for staff training and developing a competency appraisal framework in renal nursing practice thereby promoting quality assurance procedures while attaining QPDO.

DaVita Lehbi Care is formerly known as Al Lehbi Medical Center or KtDOQI Dialysis Centers located in Riyadh Kingdom of Saudi Arabia.

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