International Collaboration: Using Skype to Facilitate Research for a Doctor of Nursing Practice Capstone

Linda L Costa, PhD, RN, Assistant Professor, Johns Hopkins University School of Nursing/Nurse Researcher
Johns Hopkins Hospital, Baltimore

Zeenat Sulaiman Khan, DNP, RN, Chief Nurse Officer
Aga Khan University Hospital, Nairobi
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Distance from Baltimore to Nairobi:

7482.5 Miles

( 12042 Kilometers / 6497.8 Nautical Miles )
Ventilator-Associated Pneumonia in an Adult ICU at Aga Khan University Hospital

ZEENAT KHAN
Mentor: Dr. V. Mun’gayi
Advisor: Dr. L. Costa

Johns Hopkins School of Nursing
Capstone Project
ICU Beds Growth at AKUHN

2007: 8
2011: 17
2015: 23
Health Problem: VAP

Trend of VAP Rates at AKUHN: 2007-2009

Rate per 1000 Device Days

Q1  Q2  Quaters  Q3  Q4

CDC 75th%
Log. (2009)
Log. (2008)
Log. (2007)
Evidence Synthesis

CLINICAL PRACTICE GUIDELINES

- Institute of Health Care Improvement (IHI) - 2007
- Centre of Disease Control (CDC) - 2009
- American Critical Care Nursing (2005)
- Health - High Impact Interventions (2007)
Translation of Guidelines

THE AGA KHAN UNIVERSITY HOSPITAL, NAIROBI

VENTILATOR ASSOCIATED PNEUMONIA (VAP)

VAP is an airway infection that develops more than 48 hours after the patient is intubated and ventilated.

VAP BUNDLES
The Ventilator Bundle is a series of interventions related to ventilator care that must be implemented together.

• Hand Hygiene
• Elevation of the Head of the Bed 45°
• Daily "Sedation Vacations" and Assessment of Readiness to Extubate
• Peptic Ulcer Disease Prophylaxis
• Preventing Ventilator Circuit Tube Condensation
• Daily Oral Care with Chlorhexidine
PROJECT AIMS

1. Decrease VAP Rates at the Adult Medical/Surgical ICU
2. Evaluate compliance with evidence-based Clinical Practice Guideline to prevent VAP
3. Improve knowledge of VAP prevention amongst health care workers
Challenges in Approval of International Studies

• Study had to be approved though Johns Hopkins Medicine Institutional Review Board
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  – No materials belonging to the hospital – files, CDs may be taken out of the hospital.
Utilization of the Promoting Action on Research Implementation in Health Services (PARIHS)

- JHNEBP Model for evidence evaluation
- Reviewing of high quality evidence with the team
- Evaluation of local information (VAP rates and consequences)
- Consensus of the clinical team on the problem in hand

- Creating a multidisciplinary VAP Prevention Champion Team
- VAP team with clear roles, authority and accountability
- Enhancing a culture of evidence based practice
- Developing a VAP Clinical Practice Guideline (CPG)

- Utmost support, guidance and encouragement to the team
- Reviewing of all the stakeholders in the inner and outer context
- Presentations to departments, Committees and bedside teams
- Provision of resources: time, equipment, space

Leadership
Commitment and Ownership
VAP Rates/ 1000 Device Days: 2010

Outcomes: AIM 1

Qtr1: 6.71
Qtr2: 6.06
Qtr3: 3.88
Qtr4: 0

Rates
Benchmark
Outcomes: AIM 2

\(H_0:\) There is no difference in expected and observed frequency of observations between pre and post.

\(H_a:\) There is a difference in expected and observed frequency of observations between pre and post.

\(\alpha=0.05\) and confidence level=95%

<table>
<thead>
<tr>
<th>Measure</th>
<th>(\chi^2)</th>
<th>(P)</th>
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<tbody>
<tr>
<td>Head of bed elevation at 45 degrees</td>
<td>5.99</td>
<td>0.560</td>
</tr>
<tr>
<td>Oral Care: Minimum of oral care every 12 hours with 2% Chlorhexidine</td>
<td>3.84</td>
<td>0.466</td>
</tr>
<tr>
<td><strong>Ventilator tubing condensate</strong></td>
<td>8.912</td>
<td>0.012</td>
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<tr>
<td><strong>Daily Sedation Vacation and Weaning Assessment</strong></td>
<td>7.055</td>
<td>0.029</td>
</tr>
<tr>
<td><strong>Stress Ulcer Prevention</strong></td>
<td>116.11</td>
<td>0.000</td>
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Outcomes: AIM 3

$H_0$: There is no difference in mean scores of knowledge and practice between pre and post.

$H_a$: There is a difference in mean scores of knowledge and practice between pre and post.

$\alpha=0.05$ and confidence level=95 %

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<th>Measure</th>
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<td>Improve knowledge about VAP prevention</td>
<td>2.010</td>
<td>73</td>
<td>0.048</td>
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Significance

- Positive Patient Outcomes - Reduced VAP rates
- Positive Staff outcomes – Increased Compliance of VAP CPG and Increased Knowledge
- Introduction of Multidisciplinary Approach
- Team owned project- great pride for the team
- VAP project Catalyst – two more already underway: BSI and RRT
- Introduction of JHUEBP model- culture of inquiry beyond ICU
- JCIA initiation couple with EBP culture- complete support of administration
ACHIEVEMENT
AHSANTE SANA
THANK YOU