THE JOURNEY OF EDUCATIONAL TRAINING FROM COMPETENCY TO PROFICIENCY OF PEDIATRIC INTENSIVE CARE UNIT NURSES (PICU) IN TERTIARY CARE HOSPITAL

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KING FAISAL SPECIALIST HOSPITAL & RESEARCH CENTER, RIYADH, KSA
Objectives

By the end of the presentation, learners will be able to:

• Identify educational training needs of PICU nurses in treating critically ill children (under 5 Years) especially in developing countries.

• Understand the designed curriculum especially for PICU nurses to function proficiently in order to recognize early warning signs.

• Discuss the purpose of practice based project
Objectives Cont...

- Share the processes of project implementation & the measures taken for sustainability of project
- Discuss the project outcomes
- Discuss limitations and recommendations
ISSUE IDENTIFICATION LIST
Educational training for PICU staff

Infection control rates

Pattern of death in PICU

Staff professionalism

Family involvement during rounds
Priority Problem

*Educational Training for PICU Staff*

To identify the gap between knowledge, attitude and skills of PICU nurses and technicians

&

To identify the need for educational training for PICU Nurses and Technicians and make them competent in this specialty
Purpose

• To ensure appropriately trained nurses in PICU

• To increase knowledge and make them competent in dealing with Pediatric patients

• To attract nurses into the setting who previously had an intensive care or pediatric nursing experience
Rationale for Selecting this Issue

**Past Experience**

- PICU inaugurated in 2006
- No course or orientation for PICU staff since 2006
- No active session were conducted for PICU staff
Literature Significance

Pediatric Critical Care Unit (PICU) plays a very important role in the care of critically ill or injured children. The specialty of PICU has developed and matured over 30 years in the developed countries. There are several reports from the developed countries and very few only are available in Pakistan.
The first report from Pakistan, describing the Pediatric Residents experience in PICU rotation.

Pediatric critical care teaching curriculum for Residents is based on the spectrum of our common critical care problems along with basic principal of critical care.

But for Nurses

???
Observation

Need Assessment Tool

Pre Session Test
Need Assessment
Analyses
Pediatric Intensive Care Unit (PICU)  
Staff Survey Form

Consent:
I am Shaista Rajani Post RN BSCN Yr II student currently doing my senior electives with Dr Anwarul Haque in PICU. For the learning purpose, I would like to conduct a survey from PICU nurses to assess their knowledge and concerns related to PICU therefore I need your consent. You are requested to fill the questionnaire and give your honest response in order to support this study. Please be assured that your information will be kept in confidentiality without disclosing your identity and it will be shared through a consolidated project report/presentation.

I, ___________________________ have read and understood the consent and I am willing to participate in this survey.

Code #: ______________________   Date: ______________________

1. What is your designation in PICU?
   - [ ] RN
   - [ ] CCN
   - [ ] Sr. CCN

2. How many years of clinical experience you have in PICU?
   - [ ] 1 -2 yrs
   - [ ] 3 – 5 yrs
   - [ ] > 5 yrs

3. What do you think should be the clinical experience of adult ICU staff needed to work in PICU?
   - [ ] 6 months
   - [ ] 1 yrs
   - [ ] 2 yrs
   - [ ] 3 or more
   - [ ] Others

4. Have you attended any teaching sessions pertinent to Peds ICU since you working?
   - [ ] Yes
   - [ ] No

5. If “No” than have you felt any difficulty while dealing with PICU patients?
   - [ ] Yes
   - [ ] No

6. Do you think PICU staff need teaching sessions which should be totally based on Pediatric intensive care?
   - [ ] Yes
   - [ ] No

7. Do you think PICU staff need separate teaching module?
   - [ ] Yes
   - [ ] No
PICU Clinical Experience

1-2 yrs  3-5 yrs  > 5 yrs
ICU Experience Needed for PICU

6 months  1 year  2 year  3 or >  others
Past PICU Educational Sessions

Yes

No
Difficulty in Handing PICU Patients

Yes

No
Need of Separate Teaching Module

Yes

No
Need of Separate PICU Course
Pre-Test Questions
Pediatric Respiratory System

Date: ___________________________  Name: ___________________________

Circle the correct answer:

Internal and cellular respiration takes place in the:
1. Lungs
2. Larynx
3. Pharynx
4. Tissues
5. Epiglottis

The respiratory system consists of two tracts:
1. Anterior posterior
2. Upper lower
3. Lateral and bilateral

Under normal conditions, the rate and depth of breathing are adjusted by homeostatic control mechanism for CO2, not O2.
1. True
2. False

The inner surfaces of the airways (trachea, bronchi, and bronchioles) are lined with smooth muscle.
1. True
2. False
Pre Test Result: n=12

- 43% 70 - 80%
- 29% 60 - 70%
- 14% 50 - 60%
- 14% < 50%
PDSA
The Model for Improvement

Duffy, Moram and Riley (2009)
PDSA Model Integration

- Purpose and Significance of the specialty
- Module teaching
- Develop module
- Develop Pediatric Course

Duffy, Moram and Riley (2009)
Model of Nursing Student Evolution to Proficient Novice RNs

This model is based on Benner, 1984 and Dreyfus, 1980 models

It has an implications for future curriculum development, staff development, and evidence based practice in relation to clinical teaching and learning.

Kay Edgecombe & Margaret Bowden, 2008
Integration

• The term used ‘proficiency’ as Benner, 1984 to perceive situations as a whole to understand the situations and be able to make decisions.

• The desired curriculum outcome is to get staff to a level of proficiency that enables them to function competently.

Kay Edgecombe & Margaret Bowden, 2008
Model of nursing students' evolution to proficient novice RNs

Clinical learning environment

Deep personal impact

Sense of belonging

Valuing self as learner

Prior learning and experience

Support of home family and work

Positive Extrinsic Factors

Intrinsic Factors

Negative Extrinsic Factors

Clinical learning environment

Sense of achievement and mastery

Support and feedback

Assessment

Building relationships with clinical staff and peers

Time and opportunity for practice and research

Support of home family and work

Little feedback

Assessment

Marginalisation and lack of emotional support

Limited time and opportunity for practice

Pressures of home family and work
Modification

Facilitator
- Leadership skill
- Knowledge
- Experience
- Student-oriented
- Culturally sensitive
- Create non-threatening environment

Healthy staff & facilitator relationship

Staff
- Knowledge & experience
- Critical thinking
- Supportive environment
- Encouragement & appreciation
### “Action Plan”

<table>
<thead>
<tr>
<th>GOALS</th>
<th>OBJECTIVES</th>
<th>STRATEGIES</th>
<th>ACTIVITIES</th>
<th>TARGET GROUP</th>
<th>WHO</th>
<th>WHERE &amp; WHEN</th>
<th>RESOURCES REQUIRED</th>
<th>RESOURCES AVAILABLE</th>
<th>DRIVING FORCES/CONSTRAINTS</th>
<th>MARKETING</th>
<th>DEADLINE STATUS OF PLAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure appropriate trained pediatric nurses</td>
<td>By the end of electives I will be able to:</td>
<td>Educationa l sessions</td>
<td>Lecture/interactive sessions.</td>
<td>PICU staff  (Sr.CCN, CCN, Sr.CCT)</td>
<td>Shaista Rajani (Post RN BScN stude nt)</td>
<td>June 7-11, 2010</td>
<td>Multimedia</td>
<td>Multimedia</td>
<td>Forces:</td>
<td>Announcements during sessions</td>
<td>Final draft of overall plan is complete</td>
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<tr>
<td>To increase knowledge and make PICU staff competent in dealing with Pediatric patients</td>
<td>Identify the prioritized issue in PICU</td>
<td>Clinical practice</td>
<td>Multimedia presentation.</td>
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<td>Laptop</td>
<td>Laptop</td>
<td>Faculty</td>
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<td>Final draft of overall plan is complete</td>
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<tr>
<td></td>
<td>Discuss the prioritized issue with preceptor</td>
<td>Staff clinical observation</td>
<td>Group activity</td>
<td></td>
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<td>Tape recorder</td>
<td>Tape recorder</td>
<td>Preceptor</td>
<td></td>
<td>Final draft of overall plan is complete</td>
</tr>
<tr>
<td></td>
<td>Develop the need assessment tool</td>
<td>Ongoing assessment at bed side</td>
<td>Demonstration of respiratory assessment</td>
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<td>Cassette</td>
<td>Cassette</td>
<td>Co-preceptor</td>
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<td>Final draft of overall plan is complete</td>
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<td></td>
<td>Analyze the need assessment tool</td>
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<td>Summary of discussion with manager</td>
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<td>Paper and Pens</td>
<td>Paper and Pens</td>
<td>Constraints:</td>
<td></td>
<td>Final draft of overall plan is complete</td>
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<td>To develop capacity of nurses into the setting who previously had an intensive care or pediatric</td>
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<tr>
<td>nursing experience</td>
<td>Develop teaching module on identified educational need.</td>
<td></td>
<td></td>
<td></td>
<td>ICU Lounge/ Classroom/ PICU</td>
<td>June 09th, 2010 (1400-1600hrs)</td>
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<td></td>
<td>Develop pediatric critical care nursing course guideline</td>
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<td></td>
<td></td>
<td>14th June, 2010 (1400-1600hrs)</td>
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<td></td>
<td>Plan teaching session to teach the developed module.</td>
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<td>22nd &amp; 23rd June, 2010 (1400-1600hrs)</td>
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<td></td>
<td>Conduct session for PICU nurses to teach the module.</td>
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<td>24th June, 2010 (1400-1600hrs)</td>
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<td>Evaluate the staff for the effectiveness of session</td>
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<td>Formulate sustainability plan and handover to respective Staff or head of the PICU</td>
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<td>June 23-24, 2010</td>
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<td>Discuss the developed pediatric critical care nursing course guideline with manager</td>
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<td>June 29, 2010</td>
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Key:
- PICU (Pediatric intensive care unit)
- HN (Head Nurse)
- CNI (Senior Clinical Nurse Instructor)
- Sr.CCN (Senior Critical Care Nurse)
- Sr.CCT (Senior Critical Care Technicians)
IMPLEMENTATION
Pediatric Intensive Care Nursing Course

Title: Pediatric Intensive Care Nursing Course

Duration: 4 months
- 2 hours/week
- Total: 8 hours/month

Modules: 4 modules

Number of students per course: minimum 10 and maximum 20

Location of the Course: PICU/ICU

Course Co-coordinator: CNI/ PICU TL or Educator

Eligibility Criteria:
- 1 year ICU experience
- CCN & Sr.CCT
- Complete PICU CBO checklist

Rational for the course:
- Ensure appropriately trained pediatric nurses
- Develop capacity of nurses into the setting who previously had an intensive care or pediatric nursing experience
- Allow for beds to be opened by having sufficient nursing staff
- To improve and maintain the quality of care in PICU
Course Philosophy:

The course will provide:

- A structured teaching program to develop a sound knowledge base whereby theory and practice will be linked.
- A practitioner who will be able to care for the critically ill child and its family in a safe and appropriate manner.
- Facilitation of evidence-based practice in PICU.

Organization & Structure of the course:

The course will comprise of four modules:

**Module One**: Pediatric Respiratory System, Diseases & its management, Invasive/noninvasive Ventilation & its management.

**Module Two**: Pediatric Cardiac System, Diseases & its management.

**Module Three**: Pediatric Neuro-Muscular Diseases & its management.

**Module Four**: Pediatric Renal System, Diseases & its management.
Pediatric Intensive Care Nursing Course

Module One

“Pediatric Respiratory System”

Unit I & II: Anatomy & Physiology
Pediatric Respiratory Assessment

Unit III & IV: Upper Airway Diseases
Lower Airway Disease

Unit V & VI: Neuromuscular Respiratory Distress
Septic and Cardiogenic Respiratory Distress

Unit VII: Invasive/noninvasive Ventilation & its management
PALS overview
Staff Clinical Observation
Pediatric Intensive Care (PICU)
Respiratory System Module

Prepared By
Ms. Shaista Rajani
RN, BScN

Dr. Anwarul Haque
Assistant Professor, Pediatric Intensivist

Date: 17th May 2010
In Service Sessions
Assessment at bed side
Sustainability
## Sustainability Plan

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<th>GOALS</th>
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<th>WHEN</th>
<th>RESOURCES AVAILABLE</th>
<th>DRIVING FORCES/CONSTRAINS</th>
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</thead>
<tbody>
<tr>
<td>To ensure appropriate trained pediatric nurses</td>
<td>Educational session for PICU staff every month.</td>
<td>Lecture/interactive sessions.</td>
<td>PICU (pediatric intensive care unit) staff (Sr.CCN, CCN, Sr.CCT)</td>
<td>Clinical nurse instructor (CNI)</td>
<td>Activities to be held on 16th July, 2010</td>
<td>Human Resource</td>
<td>Forces:</td>
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<tr>
<td></td>
<td>Prepared course guide lines for PICU</td>
<td>Multimedia presentation.</td>
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<td>Head Nurse (HN)</td>
<td></td>
<td>CNI</td>
<td>CNI</td>
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<td></td>
<td>Prepared pediatric respiratory assessment module and presentations</td>
<td>Demonstration of respiratory assessment on Peds at bedside.</td>
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<td>PICU team leaders (TLs)</td>
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<td>HN</td>
<td>HN</td>
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<td></td>
<td>Clinical observation at bedside</td>
<td>Session Pre test and post tests papers</td>
<td></td>
<td>Post RN BSCNYR I students (Ms. Naushen and Ms. Amreen)</td>
<td></td>
<td>TLs</td>
<td>TLs</td>
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<tr>
<td>To increase knowledge and make PICU staff competent in dealing with Pediatric patients</td>
<td>Discuss project and sustainability plan with Critical Care Area Manager, Clinical nurse instructor, Head Nurse and PICU team leaders</td>
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<td>Material Resource</td>
<td>Peads Intensivists (Dr Anwarul Haque)</td>
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<td>To develop capacity of nurses into the setting who previously had an intensive care or pediatric nursing experience</td>
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<td>Pediatric respiratory module</td>
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<td>Powerpoint presentations</td>
<td>Constraints:</td>
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<td>To facilitate Staff in developing future pediatric related modules</td>
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<td></td>
<td>Sessions Pre test and post test papers</td>
<td>Staff duty scheduling</td>
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<td>Staff Turnover</td>
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<td>Unpredictable city crises</td>
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Evaluation

• **Formative:**
  ✓ Post session test
  ✓ Clinical assessment at bed side
  ✓ Session evaluation

• **Summative:**
  ✓ Module Evaluation Audit Checklist
Post-Test Questions
Pediatric Respiratory System

Date: _______________  Name: _______________

Circle the correct answer:

Is the amount of air which passes in and out the lungs during each cycle
1- Inspiratory capacity
2- Tidal volume
3- Vital capacity
4- Lung capacity

Stridor is heard in:
1- Pneumonia
2- Asthma
3- Croup
4- Pulmonary edema

PH= 7.2, PCO2= 40, HCO3= 18, PO2= 90
1- Respiratory acidosis
2- Metabolic alkalosis
3- Metabolic acidosis
4- Respiratory alkalosis

PH=7.5, PCO2=30, HCO3=22, PO2= 80
1- Respiratory alkalosis
Post Test

- > 80 %: 57%
- 70 - 80 %: 29%
- 60 - 70 %: 14%
Staff Clinical Observation

Name: _____________  Department: _____________

Observe head to toe assessment techniques of PICU staff

4= Excellent 3= Good 2= Fair 1= Poor

Observe skills according to organizational policies:

- Following standard precautions
  4= Excellent 3= Good 2= Fair 1= Poor

- Care of ventilated patients
  4= Excellent 3= Good 2= Fair 1= Poor

- Suctioning via OETT/TT
  4= Excellent 3= Good 2= Fair 1= Poor

- Routine care (eye care, mouth care, back care, positioning, catheter care)
  4= Excellent 3= Good 2= Fair 1= Poor

- Care of invasive lines
  4= Excellent 3= Good 2= Fair 1= Poor

- Monitoring of invasive lines
  4= Excellent 3= Good 2= Fair 1= Poor
Limitations

- It was a challenge for me to run this project alone for the first time
- Time duration for project was short
- PICU staff duty scheduling was difficult
- Staff relieving issues
- Module was too lengthy
- Census of Peds patients were very high due to which too much time was spent on rounds
Recommendations

• These types of projects should be run in the wards/critical care areas

• Other modules should be developed

• Proper designed orientation course for PICU should be planned through Nursing Education Service department.

• Staff should be given frequent educational sessions to strengthen their knowledge and practices
Conclusion

Educating, nurses training and ensuring high quality care in the PICU determine the quality of critical care. The need of the competent nurse in Pediatric critical care specialty in developing countries has to be enhanced that will enable them to recognize early warning signs and ultimately curb children mortality rate.
References


Thank You!