PEDIATRIC BLOOD PRESSURE MONITORING

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Objectives

- Discuss the frequency of monitoring blood pressure in pediatrics in terms of sleep disruption.
- Describe the role of the nurse in promoting patient and family satisfaction with care.
- Outline the steps of an evidence-based practice project.
A healthy child requires 9-12 hours of sleep.

Fragmented sleep disturbs the circadian rhythm that can lead to decrements in well being and impairs healing.

Hospitalized children often suffer sleep disruptions for a variety of reasons.

The number one reason for frequent nocturnal interactions is for monitoring.

The most disruptive part of monitoring to the child’s sleep is blood pressure.
Purpose of the Project

ích CHILD HEALTH
Promote the health of the hospitalized child by evaluating the effectiveness and safety of decreasing the frequency of blood pressure monitoring thereby promoting sleep.

 마련 G2: Deliver exemplary patient care and services in an environment devoted to safety and quality.

什 UNIT/PATIENT/FAMILY
To increase the patient and family satisfaction through less disruptions in care.
Team

- Clinical Practice Council
- Hospitalists
- Educators
- Nurses
- Patients
- Families
Clinical Question

Among stable pediatric medical surgical patients, does checking blood pressure every 12 hours compared to checking a blood pressure every 4 hours result in increased patient/family satisfaction and promotion of sleep?
Best Evidence

- Data Bases
  - CINAHL
  - OVID Medline
  - Cochrane

- Time Frame
  - Searched 1950-August 2007
  - Studies dated 1978-2007 with only 3 before 2001

- Key Terms
  - blood pressure
  - care
  - night
  - vital signs
  - ill
  - sleep
  - patients
  - wake
  - nursing
  - assessment
  - pediatric
  - practice
  - observations
  - clinical
  - routine
  - physiologic
  - child
  - monitoring
Best Evidence

- 13 Studies/Reports/Reviews
  - Related to blood pressure monitoring, nocturnal routines and sleep

- 1 Survey
  - Conducted in California Children’s Hospitals
Critique & Synthesis of the Evidence

- 6 Sources of Evidence related to BP Monitoring
  - 1 Systematic Review (Level I)
  - 1 Evidence Based Practice Guideline (Level I)
  - 1 Random Clinical Trial (Level II)
  - 1 Systematic Review of descriptive studies (Level V)
  - 1 Single descriptive study (Level VI)
  - 1 Expert Opinions (Level VII)
Critique & Synthesis of the Evidence

- Child blood pressures are often falsely elevated
- Normal vital signs do not guarantee stable physiologic status
- Vital signs have become a routine procedure unrelated to perceived individual patient needs
Critique & Synthesis of the Evidence

- 7 studies focused on sleep
- 1 Well-designed controlled trial without randomization (Level III)
- 2 Well-designed cohort studies (Level IV)
- 3 Randomized retrospective reviews (Level V)
- 1 Review of a descriptive study (Level VI)
Critique & Synthesis of the Evidence

- Disturbed circadian rhythms can cause decrements in well-being & functioning
- Chronic partial sleep deprivation can cause deficits in function
- Acutely ill children have increased levels of sleep fragmentation
- Greater proportion of time in transitional (lighter) sleep
  - Lead to fatigue, anxiety, and increased illness
Critique & Synthesis of the Evidence

- Impaired healing
- Memory loss
- Cognitive dysfunction
- Psychosis
- Interferes with immune system function, glucose metabolism, melatonin, growth hormone, cortisol & catecholamine levels, mood changes, and decreased pain tolerance
- Takes 1-7 weeks after discharge to return to pre-illness sleep patterns
California Children’s Hospital Survey

- 13 CA Children’s Hospitals

- CHOC vital sign policy states blood pressures are done every 4 hours on all stable patients

- Each of the other 12 children’s hospitals were called to compare CHOC VS P&P
## Critique & Synthesis of the Evidence

<table>
<thead>
<tr>
<th>Facility</th>
<th>Routine</th>
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<tbody>
<tr>
<td>UC Davis Children’s Hospital</td>
<td>Q 12 hours</td>
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<tr>
<td>LLUMC Children’s Hospital</td>
<td>Q 12 hours</td>
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<tr>
<td>Miller Children’s Hospital (Long Beach)</td>
<td>Q 12 hours</td>
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<tr>
<td>Cedars-Sinai (Ahmanon Pediatric Center)</td>
<td>Q 4 hours</td>
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<tr>
<td>Children’s Hospital Los Angeles</td>
<td>Q 4 hours</td>
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<tr>
<td>UCLA Children’s Hospital</td>
<td>Q 4 hours</td>
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<td>Children’s Hospital of Central California</td>
<td>Q 6 hours</td>
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<td>Lucile Packard Children’s Hospital (Stanford)</td>
<td>TID (Q 8 hours) varies by patient</td>
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<tr>
<td>Children’s Hospital Oakland</td>
<td>Q 4 hours</td>
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<td>Children’s Hospital Orange County</td>
<td>Q 4 hours</td>
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<tr>
<td>Rady Children’s Hospital (San Diego)</td>
<td>Q4-6 hours varies by patient</td>
</tr>
<tr>
<td>UCSF Children’s Hospital</td>
<td>Q 6 hours</td>
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Critique & Synthesis of the Evidence

- Blood pressure is an important part of monitoring a patient
  - More than half of the children’s hospitals in California check blood pressures on their stable patients less frequent than every 4 hours

- Disruption in sleep when a child is hospitalized

- Sleep has circadian and homeostatic properties and is necessary for repair, restoration, growth, and mental/emotional well being

- Children, especially ill children, need as much uninterrupted sleep as possible.
Adopt Change into Practice

 Recommendation: Pilot on 4th floor (East)

 Change the BP frequency on the stable pediatric patient to an interval less than every 4 hours (once a shift/q12 hours) and not during sleep.

 This would not include cardiac patients, renal patients, patients within 24 hours post operative, or any other patients for whom a physician decides that a blood pressure is needed every 4 hours or more frequent.

 Prior to beginning pilot, collaborate with nurse leaders & Hospitalists to finalized recommended practice change.
Adopt Change into Practice

- Outcomes to be evaluated
  - Press Ganey scores for change in patient/family satisfaction
  - Further consideration should be given to retrospective chart review to examine for delay in care and/or adverse events and physician satisfaction
- Modify the practice guidelines based upon the ongoing evaluation
References

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