



Pediatric Blood Pressure Monitoring

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Background

Healthy child require 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.

- Number one reason for frequent nocturnal interactions is for monitoring.
- Most disruptive part of monitoring to the child's sleep is blood pressure.

Purpose

Child Health

Promote health of hospitalized children by evaluating the effectiveness and safety of decreasing the frequency of blood pressure monitoring thereby promoting sleep.

Organization

PCS Strategic Plan (2007-2009): Goal#2- Deliver exemplary patient care and services in an environment devoted to safety and quality.

Unit, Patient, Family

Increase 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

13 Studies/Reports/Reviews

- Related to blood pressure monitoring, nocturnal routines, and sleep

1 Survey

- Conducted in California Children's Hospitals

Critique

6 studies 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)

- 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

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)

- Disturbed circadian rhythms can cause decrements in wellbeing and functioning
- Chronic partial sleep deprivation can cause deficits in function
- Greater proportion of time in transitional (lighter) sleep lead to fatigue, anxiety, and increased illness
- Causes impaired healing
- Cognitive dysfunction
- Lack of sleep interferes with immune system function, glucose metabolism, melatonin, growth hormone, cortisol and catecholamine levels, mood changes, and decreased pain tolerance
- Takes 1-7 weeks after discharge to return to pre-illness sleep patterns

Evidence Search

The 13 children's hospitals in California were contacted about their hospital's BP monitoring policy and procedure.

Facility	Routine
UC Davis Children's Hospital	Q 12 hours
LLUMC Children's Hospital	Q 12 hours
Miller Children's Hospital (Long Beach)	Q 12 hours
Cedars-Sinai (Ahmanson Pediatric Center)	Q 4 hours
Children's Hospital Los Angeles	Q 4 hours
UCLA Children's Hospital	Q 4 hours
Children's Hospital of Central California	Q 6 hours
Lucile Packard Children's Hospital (Stanford)	TID (Q 8 hours) varies by patient
Children's Hospital Oakland	Q 4 hours
Children's Hospital Orange County	Q 4 hours
Rady Children's Hospital (San Diego)	Q4-6 hours varies by patient
UCSF Children's Hospital	Q 6 hours

More than half of the children's hospitals in California check blood pressures on their stable patients less frequently than every 4 hours. The vital sign policy at CHOC states that blood pressures are done every 4 hours on all stable patients.

Adopt Change to Practice

Recommendation: Pilot on 4th floor (East)

Change the BP frequency on the stable pediatric patient to once per shift (every 12 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

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

Continue to modify the practice guidelines based upon the ongoing evaluation.