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**CRIES Instrument**  
**Assessment Tool of Pain in Neonates**

**Developed by:**  
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## **CRIES**

The CRIES instrument is a valuable tool for the assessment of pain in neonates. Attached are the materials prepared by Judy Bildner, RNC, MSN for your use in implementing the tool including a competency module and chart forms.

The author has asked that anyone who uses the tool communicate with her so that she can further add to her experience with this instrument. You may reach the author of the instrument at:

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Additional information can be obtained in the following publications:

1. Krechel, SW and Bildner, J. (1995). CRIES: A new neonatal postoperative pain measurement score. Initial testing of validity and reliability. *Paediatric Anaesthesia* 5:53-61.
2. Bildner, J and Krechel, SW. (1996). Increasing Staff Nurse Awareness of Postoperative Pain Management in the NICU. *Neonatal Network* 15(1):11-16.

**COMPETENCY:** CRIES Score

**OBJECTIVES:** The learner will be able to objectively manage postoperative pain in an infant.

**Content Expert:** B. Hickam, RN-C

NAME \_\_\_\_\_

ID # \_\_\_\_\_

TITLE \_\_\_\_\_ UNIT \_\_\_\_\_

<b>CRITICAL ELEMENTS</b>	<b>DATE</b>	<b>VALIDATOR</b>
1) Identify the variables listed in the CRIES acronym.		
2) Identify numerical values possible for each variable.		
3) Assess infant using all the variables.		
4) Assign a score for each variable.		
5) Total scores and document.		
6) Medicate infant per orders for a score of 4 or greater.		
7) Document medication.		
8) Repeat process hourly for first 24 hours postoperatively.		
9) Review pain protocol.		

Validator Signature/Initials \_\_\_\_\_ / \_\_\_\_\_

Title \_\_\_\_\_

Staff Signature \_\_\_\_\_

Date \_\_\_\_\_

## Coding tips for using CRIES

Crying	The characteristic cry of pain is <i>high pitched</i> If no cry or cry which is not high pitched <b>score 0</b> If cry high pitched but baby is easily consoled <b>score 1</b> If cry is high pitched and baby is inconsolable <b>score 2</b>
Requires O <sub>2</sub> for Sat > 95%	Look for <i>changes</i> in oxygenation. Babies experiencing pain manifest decreases in oxygenation as measured by TCO <sub>2</sub> or oxygen saturation If no oxygen is required <b>score 0</b> If < 30% O <sub>2</sub> is required <b>score 1</b> If > 30% is required <b>score 2</b> (Consider other causes of changes in oxygenation: atelectasis, pneumothorax, over sedation, etc.)
Increased vital signs	*Note: Take blood pressure last as this may wake child causing difficulty with other assessments. Use baseline pre-op parameters from a non-stressed period. Multiply baseline HR x 0.2 then add this to baseline HR to determine the HR which is 20% over baseline. Do likewise for BP. Use mean BP. If HR and BP are both unchanged or less than baseline <b>score 0</b> If HR or BP is increased but increase is <20% of baseline <b>score 1</b> If either one is increased >20% over baseline <b>score 2</b>
Expression	The facial expression most often associated with pain is a grimace. This may be characterized by: brow lowering, eyes squeezed shut, deepening of the naso-labial furrow, open lips and mouth. If no grimace is present <b>score 0</b> If grimace alone is present <b>score 1</b> If grimace and non cry vocalization grunt is present <b>score 2</b>
Sleepless	This parameter is scored based upon the infant's state during the hour preceding this recorded score. If the child has been continuously asleep <b>score 0</b> If he/she has awakened at frequent intervals <b>score 1</b> If he/she has been awake constantly <b>score 2</b>

### 4. Assign a score for each variable.

- Begin with C and assign a score of 0, 1 or 2 for each variable.

### 5. Total scores and document.

- Add scores to obtain a total.
- Document on the postoperative frequent vital sign sheet.

### 6. Medicate infant per orders for a score of 4 or greater.

- Administer medication per physician's order.
- If no medication order is written for pain, notify the physician for a score of 4 or greater.  
\*Request a medication order.

### 7. Document medication.

- Record medication on postoperative vital sign sheet.
- Record medication on CMAR.

### 8. Repeat process hourly for first 24 hours postoperatively.

- Assess infant each hour.
- Obtain CRIES score and record.
- Medicate infant if CRIES score 4 or greater.
- Record medication.

# CRIES SCORE

## Teaching Plan

1. Identify the variables listed in the CRIES acronym.

- Crying
- Requires O<sub>2</sub> for Sat >95
- Increased vital signs
- Expression
- Sleepless

2. Identify numerical values possible for each variable.

- Refer to CRIES scoring table.

CRIES neonatal post op-pain measurement score

	0	1	2
Crying	No	High Pitched	Inconsolable
Requires O <sub>2</sub> for Sat >95	No	<30%	>30%
Increased vital signs	HR and BP + or < Preop	HR or BP increased <20% of Preop	HR or BP increased >20% of Preop
Expression	None	Grimace	Grimace/Grunt
Sleepless	No	Wakes at frequent intervals	Constantly awake

Neonatal pain assessment tool developed at the University of Missouri-Columbia, Copyright S. Krechel, MD and J. Bildner, RNC, CNS.

3. Assess infant.

- Use coding tips to assess infant.

**FIG. I**

**CRIES  
NEONATAL POST-OP PAIN MEASUREMENT SCORE**

	<u>0</u>	1	<u>2</u>
<u>C</u> rying	No	High Pitched	Inconsolable
<u>R</u> equires O <sub>2</sub> for Sat >95	No	< 30%	>30%
<u>I</u> ncreased Vital Signs	HR and BP = or < Pre-Op	HR or BP ↑ <20% of Pre-Op	HR or BP ↑ >20% of Pre-Op
<u>E</u> xpression	None	Grimace	Grimace/Grunt
<u>S</u> leepless	No	Wakes at Frequent Intervals	Constantly Awake

Legend: Neonatal pain assessment tool developed at the University of Missouri-Columbia  
Copyright S. Krechel, M.D. and J. Bildner, RNC,CNS

**TABLE I**

**CODING TIPS FOR USING CRIES**

Crying	<p>The characteristic cry of pain is <u>high pitched</u>.          If no cry or cry which is not high pitched <b>score 0</b>.          If cry high pitched but baby is easily consoled <b>score 1</b>.          If cry is high pitched and baby is inconsolable <b>score 2</b>.</p>
Requires O <sub>2</sub> for Sat > 95%	<p>Look for <u>changes</u> in oxygenation. Babies experiencing pain manifest decrease in oxygenation as measured by TC02 or oxygen saturation.          If no oxygen is required <b>score 0</b>.          If &lt;30% O<sub>2</sub> is required <b>score 1</b>.          If &gt;30% is required <b>score 2</b>.</p> <p>[Consider other causes of changes in oxygenation: atelectasis, pneumothorax, over sedation etc.]</p>
Increased Vital Signs	<p><b>*NOTE:</b> Take blood pressure last as this may wake child causing difficulty with other assessments.          Use baseline pre-op parameters from a non-stressed period.          Multiply baseline HR x .2 then add this to baseline HR to determine the HR which is 20% over baseline.          Do likewise for BP. Use mean BP.          If HR and BP are both unchanged or less than baseline <b>score 0</b>.          If HR or BP is increased but increase is &lt;20% of baseline <b>score 1</b>.          If either one is increased &gt; 20% over baseline <b>score 2</b>.</p>
Expression	<p>The facial expression most often associated with pain is a grimace. This may be characterized by: brow lowering, eyes squeezed shut, deepening of the naso-labial furrow, open lips and mouth.          If no grimace is present <b>score 0</b>.          If grimace alone is present <b>score 1</b>.          If grimace and non cry vocalization grunt is present <b>score 2</b>.</p>
Sleepless	<p>This parameter is scored based upon the infants state during the hour preceding this recorded score.          If the child has been continuously asleep <b>score 0</b>.          If he/she has awakened at frequent intervals <b>score 1</b>.          If he/she has been awake constantly <b>score 2</b>.</p>



## CASE STUDY PAIN

P.G. is a 25 week preemie that is now 2 weeks old with the following history:

3 doses of survanta in the first 2 days of life  
2 head ultrasound - all normal  
2 cardiac echocardiograms - indicating a large PDA  
intubated with 2.5 jet tube - changed one time since birth  
currently on the VIP Bird ventilator  
2 courses of antibiotics for pneumonia since birth

Her diagnoses include:

1. extreme prematurity - Primary
2. respiratory distress with early BPD
3. hyperbilirubinemia
4. pneumonia x 2

Her current status is as follows:

NPO

TPN/Lipids

Ampicillin and Cefataxine

PCVC

vent settings: FiO<sub>2</sub> - 40-50%, rate - 30, pressure 17/4

V.S: T - 36.5, HR - 140, RR - 50, BP - 45/20 (30)

Activity:        moves spontaneously  
                  opens her eyes  
                  easily quieted when disturbed

She is having profound desaturation spells into the 50's requiring the FiO<sub>2</sub> to be flushed as high as 75%. Weaning from the ventilator has been impossible.

Based on the above information she has been scheduled for a PDA ligation this afternoon.

The procedure goes well - she receives anesthesia by the peds anesthesiologist during the surgery and 1 dose of Fentanyl after completion of the procedure.

You are P.G.'s nurse for the next 12 hours. Please evaluate her carefully for pain at 2 hours, 4 hours, 6 hours and 8 hours.

Indicate the score you give her based on her status. Each score should be explained and your follow up action documented.

2 hours post op:

P.G. is sleeping most of the time and is easily arousable  
There is no grimace or grunting present  
O<sub>2</sub> requirement is 50%  
HR is 168  
BP is 48/28

Score = 2

Description of score based on each parameter:

Crying = 0  
Oxygen requirement is not up = 0  
HR - 168, BP-48/28 = 2 (due to increase in HR >20%)  
Expression - no grimace = 0  
Sleeping most of the time = 0

\*20% increase on BP is 54 systolic

\*10% on HR is 154, 20% is 168

Nursing Action:

Reassess CRIES score in 1 hour unless otherwise indicated

4 hours post op:

P.G. is waking at frequent intervals with obvious strong grimacing and abdominal movement indicating a grunt  
Crying is evident on visual assessment which is controlled with containment  
O<sub>2</sub> requirement is 65%  
HR is 170  
BP is 55/32

score = 7

Description of score based on each parameter:

Crying but consolable = 1  
Oxygenation up 15% = 1  
HR increased greater than 20% at 170, BP is also up > 20% = 2  
Expression = grimace/grunt = 2  
Waking at intervals = 1

Nursing Action:

Give medication ASAP

Document one MAR

Enter in long notes describing parameters of CRIES

Reassess with CRIES 20-30" after drug administered to assess for pain relief

Document response to medication

6 hours post op:

P.G. is sleeping in short periods and awakes crying and inconsolable with intervention. Grimace is present.

When asleep she rides the ventilator without any extra movement noted

O<sub>2</sub> requirement is 85%

HR is 180

BP is 60/40

score = 8

Description of score based on each parameter:

Crying and inconsolable = 2

Oxygen requirement up 35% > than baseline = 2

HR up > 20% BP up >20% = 2

Expression is grimace only 1

Sleeping in short periods = 1

Nursing Action:

Give medication ASAP

Document on MAR

Enter in long notes describing parameters of CRIES

Reassess with CRIES 20-30" after drug administered to assess for pain relief

Document response to pain medication

8 hours post op:

P.G. appears to be sleeping without much movement. There is occasional crying, is not prolonged at all with an occasional grimace. Oxygen requirement is 60%. HR is 142 and BP is 48/23. P.G. is riding the ventilator and has been described by the nurse to be somewhat touchy.

Score = 3

Description of score based on each parameter:

Crying = 1

Oxygen requirement up by 10% = 1

HR and BP are in the baseline range = 0

Expression of occasional grimace = 1

Sleeplessness is not a problem = 0

Nursing Action

Since score is only 3 the first gut feeling is to not medicate

\*\*Here is where your common sense and assessment must kick in.

Riding the ventilator and being touchy are signs of guarding and pain respectively.

V.S. have returned to baseline and at this point when pain is evident we must assume that the v.s. are evidence of a decompensatory response in which the v.s. blend back to normal.

Medicate this infant

Document on the MAR

Explain score based on indicators

Reassess in 20-30" and

Document response to pain medication

**NEONATAL/PEDIATRIC FREQUENT VITAL SIGNS FORM GUIDELINES  
MR 311-8-93**

**PURPOSE**

To outline the nurse's responsibility in completing the Frequent Vital Signs Form.

**NATURE**

The Frequent Vital Signs Form is a permanent part of the medical record. It is an 8 1/2" x 11" form to be completed in black ink.

**OPERATIONAL DEFINITIONS**

<b>LOC</b>	Level of consciousness
<b>CRIES</b>	A pain scale used to assess pain in infants 0-6 months of age.
<b>OPS</b>	Objective Pain Scale - a pain scale used to assess pain in children 6 months of age to 3 years of age.
<b>OUCHER</b>	A pain scale used to assess children 3 years of age to 15 years of age.

**PATIENT POPULATION**

This form is to be completed for patients ages newborn to 15 years of age requiring frequent vital signs.

**RESPONSIBLE PERSONS**

1. The unit clerk is responsible to addressograph the form in the upper right hand corner.
2. The nurse places it at the bedside until completion.
3. The Pain Medication component is to be filled out by using a (√). Pain medications given are to be entered in the spaces provided and documentation placed in the nurses notes indicating the response of the patient.
4. All information in the column must be completed with each documented time interval as indicated by the time boxes at the top of the form.

**CHART PLACEMENT**

This form is to be placed with the corresponding narrative nursing documentation for the same date.

## **DETAILED INSTRUCTIONS**

1. ***Addressograph***

The unit clerk or nurse addressographs the upper right corner of the form.

2. ***Date***

Enter the date during the frequent vital signs monitoring (one sheet is used for each day beginning at midnight).

3. ***Time***

Enter the time of each assessment by placing the military time in the box

[The sample *Neonatal/Pediatric Frequent Vital Sign Sheet* could not be reproduced adequately. You may order this information from the City of Hope Pain Resource Center Index.]

4. ***LOC***

Place a (√) in the box next to the level of consciousness that best describes the patient.

[The sample *Neonatal/Pediatric Frequent Vital Sign Sheet* could not be reproduced adequately. You may order this information from the City of Hope Pain Resource Center Index.]

5. ***Pupils Equal and Reactive***

Place a (+) in the box next to the R or L indicating there is a positive equal and reactive response. Place a (-) in the box if there is no response. The R stands for right eye and the L stands for left eye.

[The sample *Neonatal/Pediatric Frequent Vital Sign Sheet* could not be reproduced adequately. You may order this information from the City of Hope Pain Resource Center Index.]

6. ***Vital Signs***

- a. Blood pressure is to be indicated by a (↓) arrow for systolic and an (↑) for diastolic in the box correlating to the numerical reading.
- b. Enter the number of respirations inside the box.
- c. Enter the pulse inside the box.
- d. Enter the patient's temperature inside the box.
- e. Enter the pulse oximetry reading inside the box.
- f. Enter the transcutaneous  $T_cPO_2/T_cO_2$  inside the box.

[The sample *Neonatal/Pediatric Frequent Vital Sign Sheet* could not be reproduced adequately. You may order this information from the City of Hope Pain Resource Center Index.]

7. ***Pain Scales***

- a. Place the numeric score of the assessed pain utilizing the pain scales appropriate for the age of the patient. Scores 4 or greater are to be circled and reported to the physician.
- b. The name of the pain medication is written in the space provided and indicated by a (✓) in the box at the appropriate time interval upon administration.
- c. The blank spaces at the end of the form may be used for special procedures done throughout the indicated time period as desired.

[The sample ***Neonatal/Pediatric Frequent Vital Sign Sheet*** could not be reproduced adequately. You may order this information from the City of Hope Pain Resource Center Index.]

<b>NPC APPROVAL DATE:</b>	May 20, 1994
<b>IMPLEMENTATION DATE:</b>	August 8, 1994
<b>DISTRIBUTION:</b>	Unit-Specific Standards Manuals (NICU, PICU, PEDS, PSSC/DOSA)

[The *Neonatal/Pediatric Frequent Vital Sign Sheet* provided for reproduction and the sample page could not be reproduced adequately. You may order this information from the City of Hope Pain Resource Center Index.]