

## Klear-Trace® Notes



### • Introduction

- *Superior performance, reliability and value*
  - *Designed for comfort and safety*
  - *Kind to the Skin and Cost-Effective*
- For long-term monitoring (typical use 5-7 days) use the **Klear-Trace 4800 and 4810**
    - Recommend the 4800 for babies weighing < 1000 grams
    - Recommend the 4810 for babies weighing > 1000 grams
  - For a typical electrode use of 3-5 days, the **Klear-Trace 2000** provides the same quality as the 4800 and 4810.
  - The **Klear-Trace 2500** is a 5 lead set of the 2000, with the same features and benefits as the 2000.
    - Positioning the 2500: Target all current Klear-Trace hospitals first. Within these hospitals, learn where 5-lead monitoring is done - PICU, OR, telemetry - learn which areas care for pediatric cardiology patients.
    - Competitive Advantages/Disadvantages:
      - Size
      - Reapplication, reposition features of the hydrogel
      - Radiotranslucent electrode head



## Klear-Trace® Notes

### • Clinical Concerns - Pre-Term Infant Skin and Adhesives

- *References support the use of Klear-Trace Electrodes as the least traumatic of adhesives*
- *The ability to leave Klear-Trace in place for extended periods of time means less handling and stimulation of the baby*
- *Optimal performance of expensive multi-parameter monitoring equipment is directly related to the quality of the ECG electrodes, leadwires and patient cables*

### • Underdevelopment of the Stratum Corneum

- The thin, parchment-like quality of pre-term skin alters several protective functions. The pre-term infant will have difficulty with fluid loss, electrolyte imbalance, and topical absorption of chemicals, heat loss, infectious disease, and changes in tactile sensations. The earlier the infant is born during the fetal period of development, the more severe the compromise of the normal functions of the skin.<sup>1</sup>
- Research measuring the thickness of the stratum corneum demonstrated that adult levels of maturation were evident at 30-32 weeks post-conceptual age, regardless of the infant's post-natal age. Thus, the maturation process may take as long as 8 weeks in an infant of 23 weeks gestational age, or 3 weeks in an infant of 28 weeks gestational age. Skin care practices that protect the developing stratum corneum and protect against toxicity and infection may be necessary until maturation is complete.<sup>2</sup>

### • Developmental Care

- Many researchers have examined the impact of developmentally supportive care, particularly integrating comfort into care and the importance of energy preservation and sleep.
- Necessary but painful procedures can have harmful effects because they release stress hormones that interfere with healing and growth. When an infant is stressed and struggling against the care being provided, there is an increased use of energy and a decreased opportunity for sleep. The infant uses precious calories needed for growth and healing with this increased energy expenditure.<sup>3</sup>
- *Klear-Trace electrode quality allows for longer periods of time between lead changes than other competitive brands reducing the frequency of noxious stimuli associated with "bad touch".*

## Klear-Trace® Notes

- **Nursing Time and Sanity**

- Nurses expect to provide quality patient care without responding to frequent monitor alarms caused by loose leadwires and electrodes or motion-artifact alarms.
- *Klear-Trace leadwires have a strain relief feature to reduce the effects of infant activity and fit tightly into the cable.*

<sup>1</sup>Jorgensen K, Special Care Needed in Early Weeks to Protect Pre-Term Infant's Skin, *NeoNotes*, Summer 1996.

<sup>2</sup>Lund C, et al, Neonatal Skin Care: The Scientific Basis for Practice, *Neonatal Network*, Vol 18, No 4, June 1999.

<sup>3</sup>Jorgensen K, Integrating Comfort into Care, *NeoNotes*, Fall 1996.



**CASMED**<sup>®</sup>  
FOR WHAT'S VITAL



## Klear-Trace® Notes

- **Guidelines for Use:**
  - **Tips to Maximize Performance and Minimize the False Alarms**
- **Choose the appropriate** Klear-Trace electrode for the infant.
  - 4800 for infants less than 1000 grams.
  - 2000, 2500, or 4810 for larger infants.
- **Prepare the electrode site** using the NICU protocol.
  - Keep site free of any oils, lotions (eg. Aquaphor®) or vernix.
  - Make sure that the electrode site is completely dry.
  - Place chest leads along the mid-axillary line where there is maximum chest movement.
- **Gently remove the electrodes** from the plastic liner.
  - Lift electrodes from the edge; Do not pull on the leadwires.
  - Save the plastic liner -tape it on radiant warmer or to the interior wall of the incubator.
- Klear-Trace Electrodes can be removed for baths or procedures, then reapplied. If you remove electrodes, place them on the plastic liner on which they came, until they are reapplied on the infant.
- Keep the electrodes in the infant's microenvironment to prevent the adhesive from drying.
- If the edge of the electrode begins to lift, the gel adhesive is drying; apply one (1) drop of sterile water to the gel to re-hydrate the adhesive.
- **Open a Klear-Trace pouch only when you are ready** to apply on the infant.
  - The foil pouch keeps the hydrogel moist.
- Klear-Trace wires are designed to **fit very tightly into the cable** to prevent motion artifact alarms. Strain relief on the leadwires allows infant activity without affecting the lead/cable connection.
- **Clip the patient cable** to a gown or scrubs when caring for the infant outside the bed (eg. rocking chair); this will prevent the weight of the cable from pulling on the electrode and leadwires.
- If **replacing one electrode** save the other two in the folded pouch for future use. Remember to date the pouch.
- **"Knotting" the lead wires** will damage the wire.

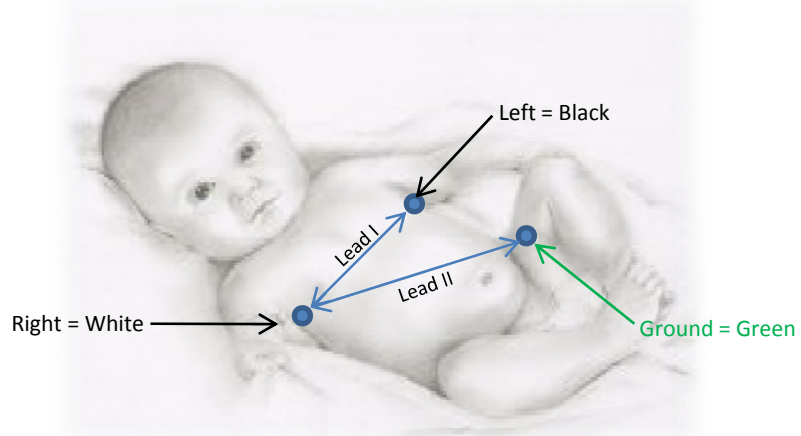
## Klear-Trace® Notes

- **Optimal Klear-Trace Electrode Lead Placement**

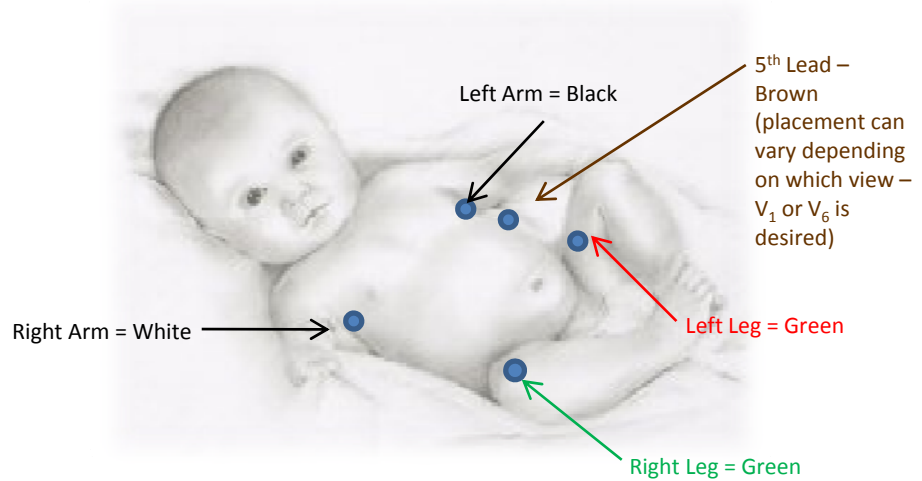
- **3-Lead Electrode Placement**

- Correct electrode placement is essential for the accurate detection of respiration. Each vital signs monitor manufacturer has a recommended placement that is optimal for respiration detection. The suggestions below are the most common.

- Place white lead on the right, mid-axillary, at the fifth to sixth intercostal space.
- Place black lead on the left, mid-axillary, at the fifth to sixth intercostal space.
- Place the ground lead wire (“green” or “red”) on the lower abdomen or leg.



- **5-Lead Electrode Placement**





## Klear-Trace® Notes

### • Trouble Shooting Guide

- **PROBLEM:** Too much motion artifact on the waveform.
- **RECOMMENDATION:**
  - Make sure the electrodes are sticking securely to the chest.
  - The gel adhesive may be dry or drying. Try to re-hydrate; if unsuccessful, replace the electrodes.
  - The cables may be old and the sockets may be stretched out, causing a weak connection. Check the connection and replace the patient cable if necessary.
  
- **PROBLEM:** The electrodes do not stick.
- **RECOMMENDATION:**
  - Make sure the electrode site is free of any vernix or oils. The skin should be completely dry in the area where the electrode is being applied.
  - The gel adhesive may be dry. Use a drop of sterile water to rehydrate the electrode. If unsuccessful, replace the electrodes.
  - Do not open the electrode pouch or remove the electrodes until needed. Opening the electrode pouch and connecting the electrodes to the monitor cable prior to the arrival of the infant exposes the hydrogel to the environment, reducing product life.
  - Use before the date on the pouch seal.
  
- **PROBLEM:** The electrodes don't last very long on low birthweight infants in high heat/humidity and phototherapy.
- **RECOMMENDATION:**
  - In these situations, the gel adhesive will actually absorb moisture from the environment and begin to lose its "stickiness." When this happens, the life of the electrode is shortened.
  - In very low birthweight infants, skin care is extremely important. It may be helpful/necessary to place the electrodes on the infant's back, feet or extremities for more satisfactory results.
  
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