Tools and Technology to Start Your CCHD Screening Program
Objectives

> What is Motion-Tolerant?

> Pulse oximetry system

> Monitors: Bedside, Handheld

> Confidence Indicators: Signal IQ, Perfusion Index

> Sensors: Adhesive, Reusable
What is Motion-Tolerant?

Physiologic Signal → Conventional Pulse Oximetry → Algorithmic Analysis → R/IR → Post Processor → Output Data

Digitized, Filtered & Normalized

- R/IR (Conventional Pulse Oximetry)
- DST® Adaptive Filter
- FST® Adaptive Filter
- SST™ Adaptive Filter
- MST™

Confidence Based Arbitrator → Post Processor

DST Masimo SET 97%
Pulse Oximetry System
2012 Radical-7
2012 Radical-7 LCD Display

- Alarm Limits Display
- PR Display
- Battery Status Indicator
- SpO₂ Display
- Pulse Waveform Display
- Perfusion Index Display
- Menu Access
- SpO₂ Display
- %SpO₂
- PR bpm
- PI
- RRa
- SpHb g/dL
- %SpMet
- SpCO
- PVI
- SpOC ml/dl
- Signal IQ

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Confidence Indicator: Signal IQ

- Displayed as horizontal bar with vertical spikes
- Vertical spikes coincide with the pulsation at the measuring site
- Height of spike indicates confidence

![Graphs showing signal quality]

- Good Signal Quality
- Reducing Signal Quality
- Low Signal Quality
Confidence Indicator: Signal IQ

> Plethysmographic waveform is clean and strong
> Confidence indicated by high level in Signal IQ-Note height of ‘spike’.

> Plethysmographic waveform is corrupted.
> Height of ‘spikes’ decreasing- confidence in resulting measurement diminishing.
Confidence Indicator: Perfusion Index (PI)

> What is PI?
  - Assessment of the pulse strength at the monitoring site
  - Numerical value between 0.02% and 20.0%
  - Lower values indicate lower perfusion
  - Measurement is influenced primarily by the amount of blood at the monitoring site

> If Perfusion Index (PI) < 0.70 in at least one limb, consider referring infant for further medical evaluation.

> Adding Perfusion Index to neonatal examination and saturation screening may increase sensitivity to some types of CCHD though may result in an increase in false positives¹

Rad-5 Display

- % SpO$_2$
- Signal IQ™ Indicator
- Perfusion Index Indicator
- Pulse Rate BPM
Sensors for CCHD Screening

Adhesive, Disposable, Single-Use  Reusable
Adhesive Sensors: Neonates < 3 kg = Neo sensor

Foot Application:
- Apply the sensor to either foot using the thinnest part of the foot – this is the lateral aspect
- The detector can be on either the sole of the foot or the top of the foot
- Ensure the emitter and detector are aligned.
- Wrap the tape around the foot.

Hand Application:
- Apply the sensor to the right hand using the thinnest part of the palm – this is the lateral aspect
- The detector should be on the fleshy part of the hand, this may be the back of the hand – dorsal aspect
- Ensure the emitter and detector are aligned.
- Wrap the tape around the hand.
LNCS Inf Infant Sensor

Great Toe Application

Thumb Application

Great Toe or Thumb Application
Patient Weighing 3 - 10 kg

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Multisite YI with Foam Wrap: Neonates > 1 kg
Applications of Y1 Wraps

<table>
<thead>
<tr>
<th>Body Weight</th>
<th>Clean Shield® Multisite Wrap</th>
<th>Standard Wrap</th>
<th>Foam Wrap</th>
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<td>1 kg ~ 3 kg</td>
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<td>3 kg ~ 10 kg</td>
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