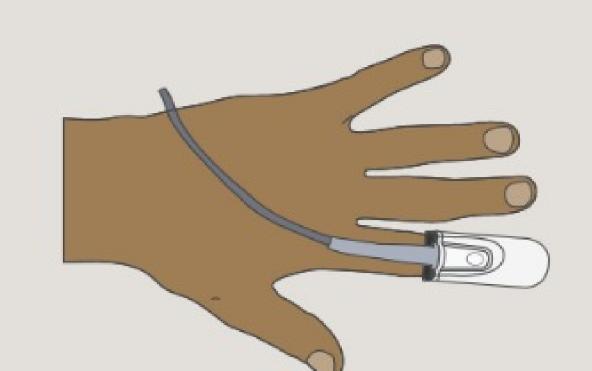
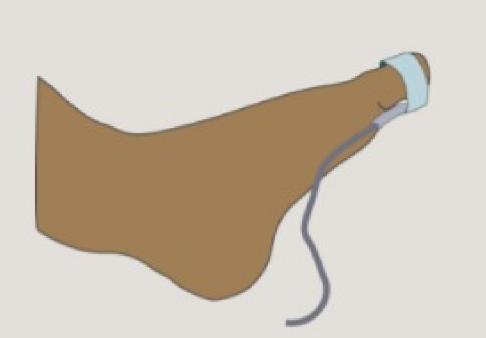


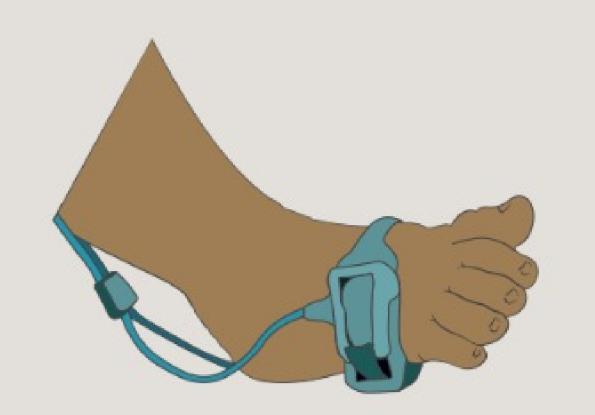
Choosing a probe site

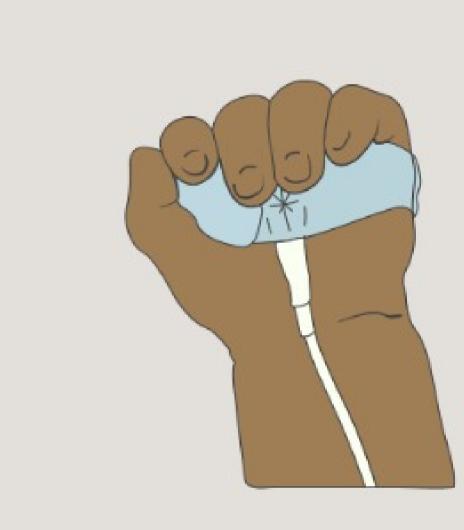
- Ensure probe is correct type for body measurement <u>site</u> (see manufacturer manual)
- Ensure probe is correct fit for person's size
- Ensure probe is <u>placed correctly</u> (i.e. straight and without air gaps)
- Fingers are the most common measurement site.
 Common alternatives include toes (children), palm/foot (neonates), ear, nose, and forehead
- Manufacturer may recommend to avoid the thumb or 5th digit; use 3rd or 4th digit as default
- Use palm or foot as default in neonates
- Avoid artificial pigment (e.g. tattoos, henna, nail polish), jewelry (e.g. rings & earrings) or long fingernails
- Choose probe site that is warmest with good pulses, capillary refill and signal strength
- Minimize probe movement by stabilizing measurement site and securing probe cable
- Try multiple probe sites if Sp02 does not match clinical condition





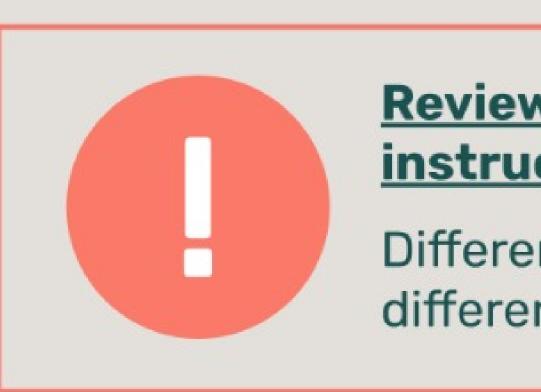






For a Reliable Sp02 Reading

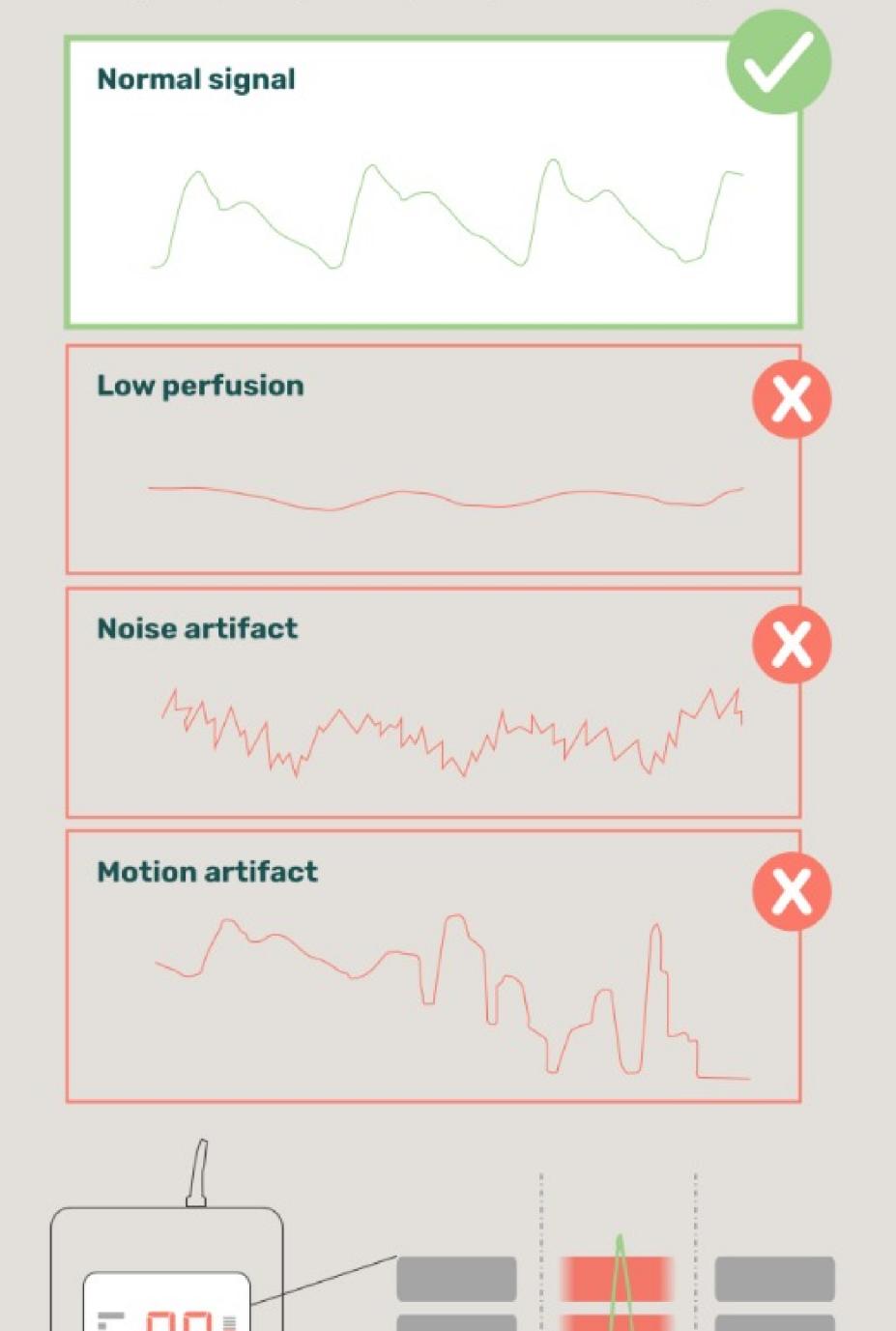
- Wait for >30 seconds of Sp02
 measurement with good signal quality
 before using Sp02
- Confirm signal quality by reviewing:
 Display waveform: for good amplitude
- and rhythm that matches pulse
 Signal quality indicator: must review user manual for device-specific info
- Sp02 rate matches ECG or pulse rate
 Good signal quality does not guarantee
- Sp02 accuracy
 Avoid measurement on same limb as tight
- bracelets, rings, or blood pressure cuff
 Shield probe detector from direct, ambient
- light
- Minimize patient movement
- Use multiple measurement sites if Sp02 is not consistent with clinical assessment or if signal quality is poor
- Ensure <u>proper probe type and placement</u>



Review manufacturer's instructions for operation

Different devices have different recommendations

Sample Waveforms (i.e., plethysmogram, pleth or PPG):

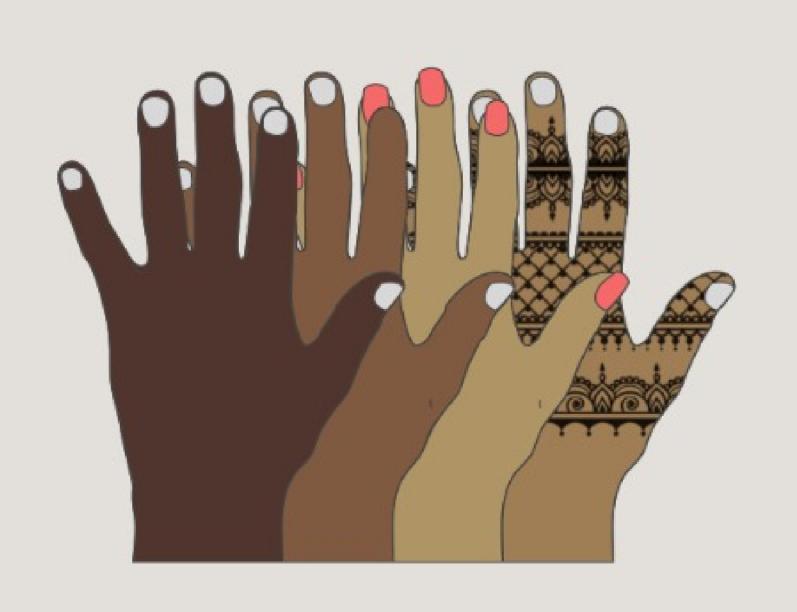


Known Limitations

- Typical accuracy of pulse oximeters may be approximately +3-5% (in the Sp02 range of 70-100%), but may be better or worse depending on the device & context
- Sp02 accuracy can be impacted by many factors including: skin pigment, low perfusion, low quality devices, carbon monoxide, methemoglobin, severe anemia, sickle cell disease, intravenous pigmented dyes & artificial nails
- Sp02 may over or underestimate arterial blood saturation, even when there is good signal quality (e.g. good waveform & accurate heart rate)
- If a <u>probe is mismatched for the patient's</u>
 size, <u>placed on a body part that it is not</u>
 specifically designed for, or <u>improperly</u>
 placed, Sp02 may be unreliable
- If a patient has <u>poor finger perfusion</u> (e.g. low blood pressure, cold hands, etc), Sp02 may be unreliable
- <u>Tightly-wound adhesive finger probes</u> or probe positioning far above or below the heart can impact SpO2 accuracy
- Reuse of single use probes may cause performance problems
- Review manufacturers' accuracy claims and instructions for optimal use



Many devices
are ±3%
of the
actual Sp02



Skin pigment, tattoos, henna, & fingernail polish may impact accuracy

Considerations for Neonates

- Ensure probe is intended for the neonate's age, size & measurement location
- Ensure neonate & environment are warm
- Consider foot or palm if site specific probes are available
- Foot probe may be best tolerated in awake neonates/infants
- Minimize movement by asking caregiver to hold or breastfeed neonate
- Inspect probe at least every 3 hours for proper fit & change probe location regularly to prevent skin breakdown, burns, & discomfort
- If abnormal reading, repeat on right palm (pre-ductal site)
- If poor signal quality:
- warm limb, adjust alignment & tightness,
 block external light, and change sites





Foot

ulnar arteries

