

Introducing Infant Flow Advance SIPAP

By

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Aim

- To introduce clinical practitioners to the new SiPAP machine



Objectives

- To define what is SiPAP
- To look at different modes able to be delivered by the SiPAP and relate to when appropriate to use in clinical practice
- To demonstrate how to initially set up the SiPAP machine and alter accordingly
- Nursing care

Introduction

- Infant flow sipap offers a comprehensive selection of modalities to provide non invasive ventilatory support to the neonatal patient.
- Certain patients may benefit from a non-invasive approach incorporating bi-level nasal CPAP and avoid the need for intubation. Still others may be effectively weaned from invasive ventilation earlier with a bi-level approach.

What is SIPAP?

- Infant flow SIPAP provides bi-level nasal CPAP for the spontaneously breathing neonate through the delivery of sighs above a baseline CPAP pressure. These sighs may be timed, at a rate specified by clinicians, or 'triggered' by patients own inspiratory efforts.

Modes of Operation

- CPAP
- CPAP and Apnoea
- Trigger BiPhasic
- BiPhasic
- BiPhasic + apnoea

NCPAP

- NCPAP – nasal continuous positive airway pressure using the Infant Flow Generator.
- NCPAP + apnoea – NCPAP with apnoea monitoring and alarm added. Apnoea interval is operator selectable.

Trigger BiPhasic

- BiPhasic tr – BiPhasic mode which relies on patient triggering. Each time the patient initiates a breathe the SIPAP machine will deliver a fully supported breathe.
- The level of support will have been set by the clinician, as will the apnoea interval. There is also a need to set up a back up rate to ensure some respiratory support in case of apnoeic episodes.
- As there is a need for the patient to actively trigger a breathe this mode is better suited to patients who have an adequate respiratory drive

BiPhasic

- BiPhasic – This mode is time triggered as opposed to patient triggered.
- The SIPAP machine will ensure a set amount of pressure supported breathes are delivered within a minute.
- The number of pressure supported breaths are set by the clinician as is the amount of support provided with each breathe and the inspiratory time.
- This mode is better suited to patients with a poor respiratory drive as can provide adequate support or to term babies who will need to synchronise with support provided. Rate needs to commence at same level as babies own respiratory drive, and be altered accordingly.
- BiPhasic + apnoea – BiPhasic mode with apnoea monitoring and alarm added. Apnoea interval is operator selectable.



Power LED

Alarm Mute / Reset

Transducer LED

1/4" LCD Display

NCPAP/ Pres Low
Flow Meter

Blender Control

Pres' High Flow Meter

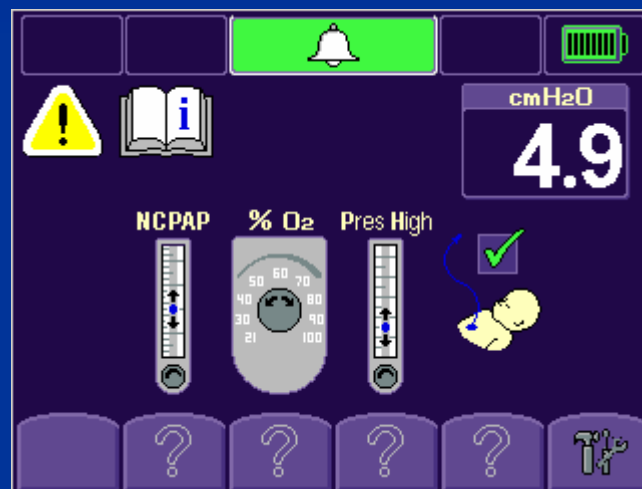
Proximal Pressure Line

Gas outlet to Patient

Transducer Interface
Connection

Calibration

- Prior to connecting to the patient, the operator needs to access the O₂ calibration screen by pressing the CAL button.
- Need to ensure that a minimum of 8 LPM is set on NCPAP
- Adjust oxygen to 21% - allow to stabilise. Confirm by touching the flashing button
- Adjust oxygen to 100% - allow to stabilise. Confirm by touching flashing button



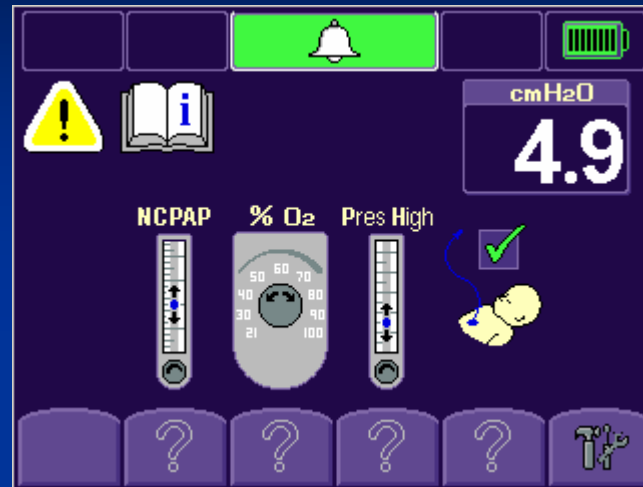
Successful Calibration



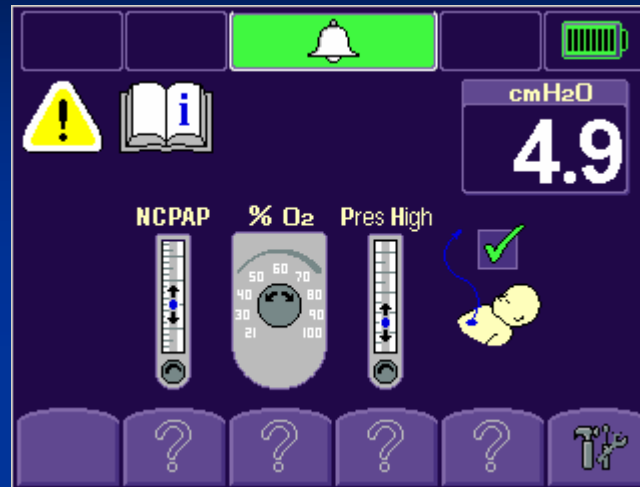
A calibration that has failed will display



Set Up Screen



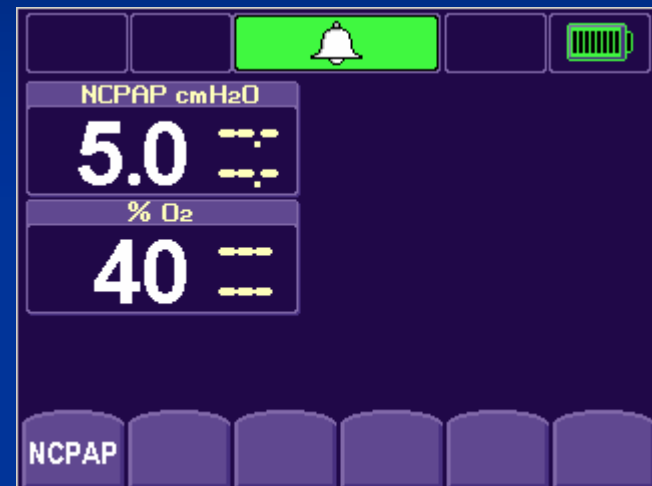
- Screen will appear as above
- First need to set required CPAP level using left hand flow dial – once digital display in right hand corner has stabilised press first question mark to confirm – tick will then appear
- Secondly need to set require oxygen using oxygen dial – once stabilised press second question mark to confirm – tick will then appear



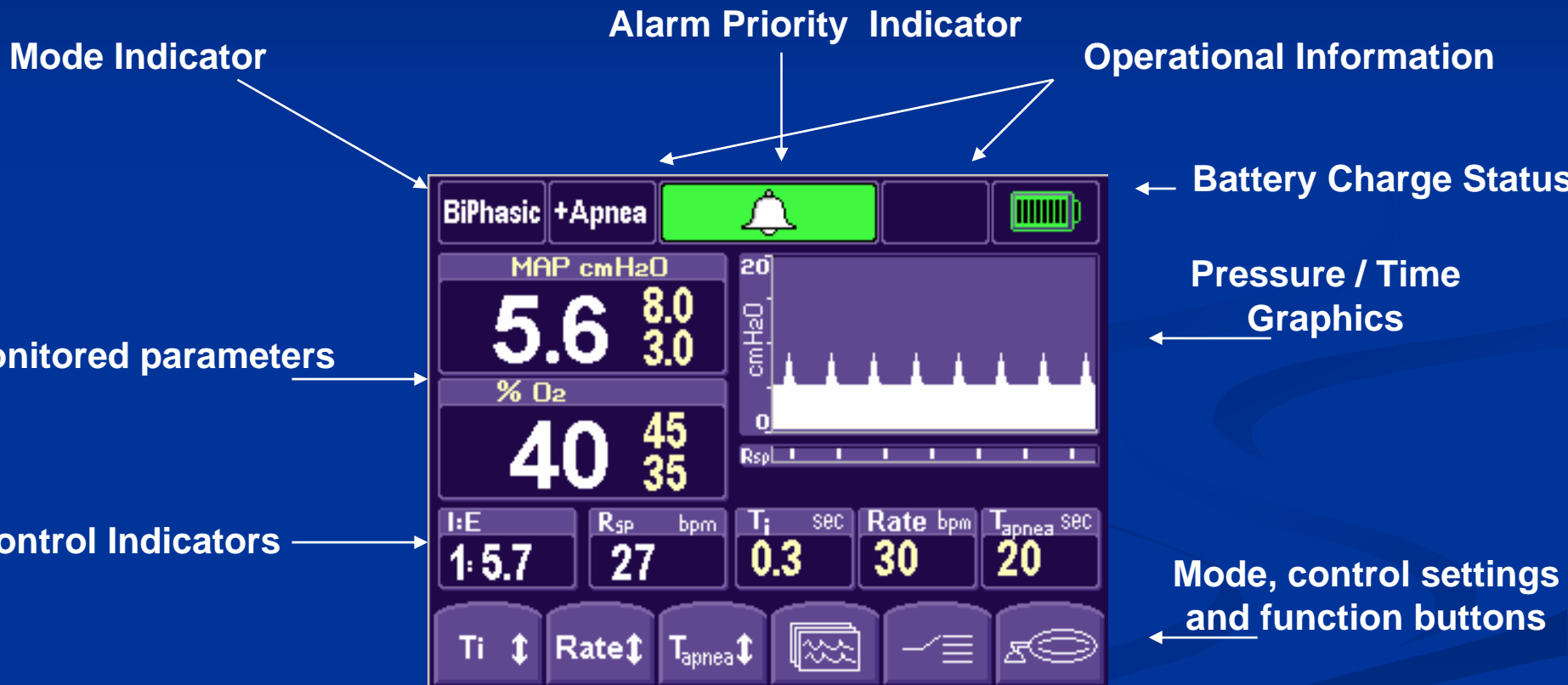
- Thirdly need to set pressure high level to 3-4 cms h20 above preset CPAP level - once stabilised press third question mark to confirm – tick will then appear
- Lastly need to confirm if using apnoea transducer (not using may limit modes which can be accessed)

Alarm set/confirm Screen

- To set alarms, touch the Alarm Mute / Reset button for 3 seconds. If this button is not touched within 2 minutes, the alarm limits will be automatically set.
- There are 2 alarms incorporated within the machine
 - Medium priority – flashes yellow
 - High priority – flashes red

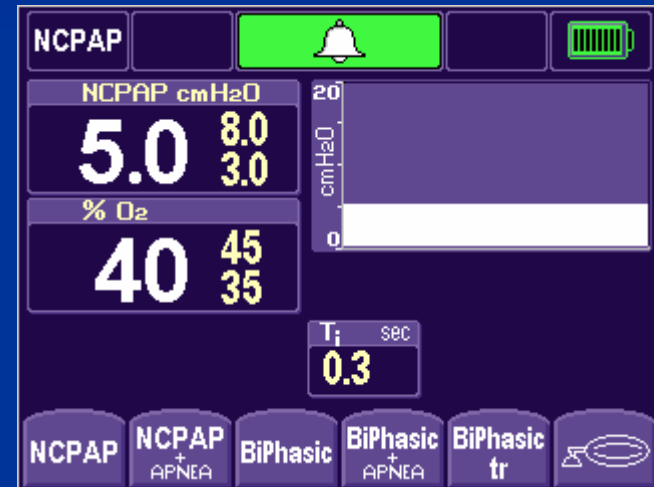


Display Screen Organization – Main Screen



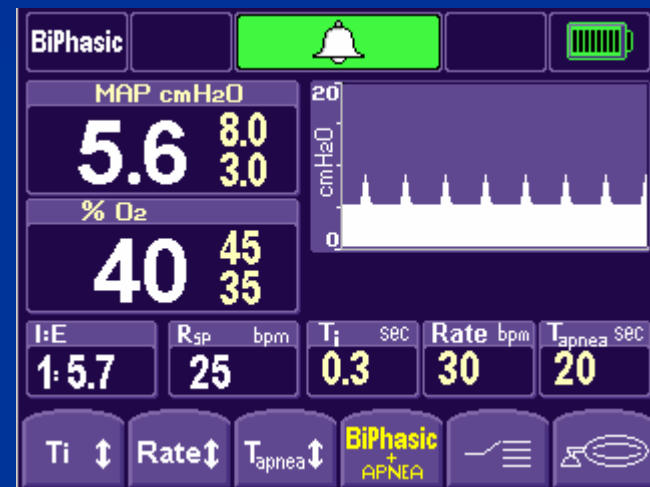
Mode Select Screen

- From this screen the operator can select a different mode of operation or continue in the currently operating mode by pressing one of the mode buttons on the bottom of the screen.
- After selecting the mode of operation, the screen changes to the Set Up Screen for the new mode.



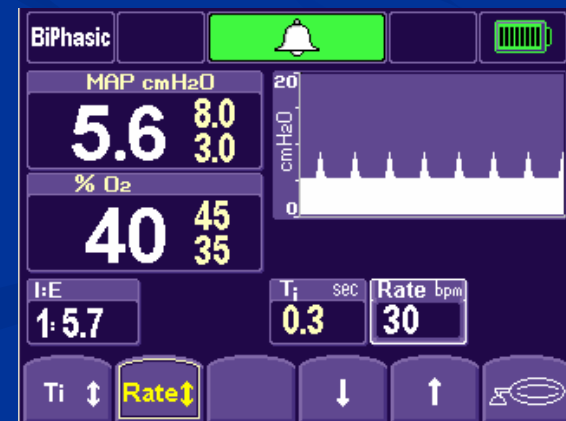
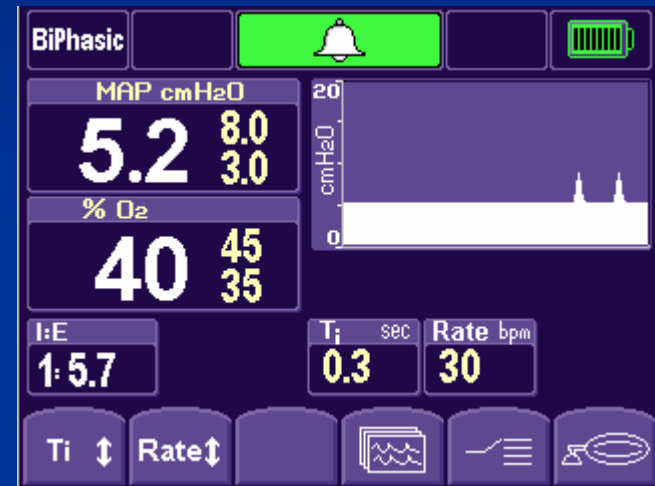
Setting up a new mode

- Controls associated with the proposed mode appear and are available for adjustment along the lower portion of the screen.
- The new mode and control settings are accepted and applied when the proposed mode button (highlighted) is pressed.
- The mode in active operation is displayed at all times in the mode indicator window (top left hand side) while a new mode is being configured.



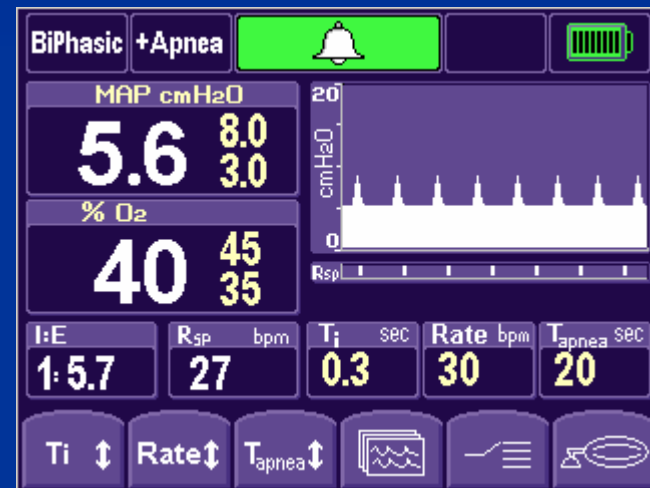
Parameter Adjust Screen

- During routine operation the operator can adjust controls available in the currently active mode. Only the controls active for the current operating mode are visible.
- To adjust a control, touch the button. The control and its associated numeric display will highlight. Press up or down arrows to adjust. Confirm change by pressing control again



Main screen display

- Shows adjustable controls, current settings, pressure time graphic and monitored parameters.
- With no screen interaction for 2 minutes the screen will automatically lock to prevent inadvertent changes
- Screens unlock with a touch of the unlock button



Setting the Apnoeic Interval

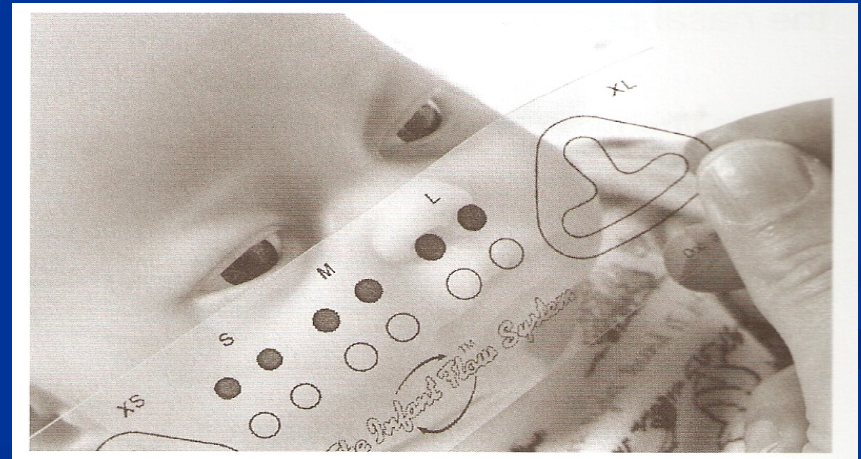
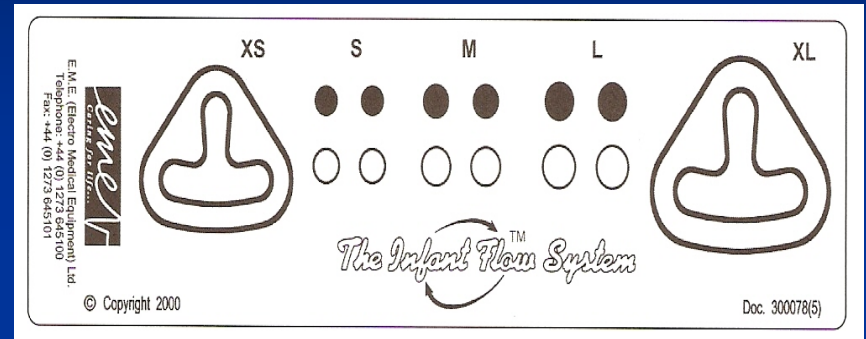
- The SIPAP machine is able to provide pressure supported breaths in the event of an apnoeic episode as long as all set up settings have been confirmed when initially switching on. If pressure high is not originally set this facility is not functional
- The SIPAP will automatically deliver one pressure supported breathe after detecting an apnoeic episode. Example if apnoea interval is set at 20 secs after this time the low priority alarm will sound and one pressure supported breathe will be delivered. If the patient remains apnoeic after a further 20 seconds the high priority alarm will sound
- It is possible for a manual breathe to be given in the event of apnoeic episodes by simply pressing the manual breathe icon

Troubleshooting

- There are several reasons why the alarm maybe activated please refer to operators manual for further guidance or contact EBME

The Fixation Technique

- Select correct size of prongs or mask
- Measure head – centre of forehead to nape of neck and back
- Select appropriate bonnet



Prongs or Mask?

- Prong fixation is generally the best choice as the best seal is obtained using the prongs
- Mask fixation has been designed for infants who develop sore nasal septums or for those infants whose nostrils are too big or too small for the prong fixations

Fixation Technique

- Weave generator straps through the buttonholes
- Place bonnet onto infant's head. Button holes should be positioned over infant's ears
- Gently insert mask or prongs into place
- Do not over tighten straps
- Split inspiratory and pressure lines and secure with secondary velcro ties

Final Checks

- Nose and ears in normal position
- Eyes clearly visible
- Generator is stable and secure
- Infant is receiving required level of CPAP
- Ensure infant is kept warm, comfortable and well oxygenated
- Observe and monitor vital signs

Nursing Care

- Hourly Assessment
 - Infant's nose in normal position and not pushed upwards
 - Eyes clearly visible
 - Correct level of CPAP is being delivered

Nursing Care

- At care times
 - Ensure skin around nasal area is kept clean and dry, document any changes
 - Clean skin with water, do not apply creams
 - Check prongs are clean and free from obstruction or water droplets

Nutrition

- Infants receiving CPAP can still receive enteral nutrition.
- Nasogastric tubes should not be used due to interruption in the seal necessary to maintain desired CPAP level – Increases WOB
- Orogastric tubes are recommended for evacuation of gas that accumulates in the stomach

Holistic Approach

- Humidification – Gases delivered to infant need to be humidified
- Routine suctioning not required – only when indicated
- Positioning of the infant – need to ensure maintaining a clear airway
- Use of NNS – if mouth open, continuous leak of gas from mouth
- Keep the infant as comfortable as possible

Any Questions?

Summary

- Reviewed the theory behind the SiPAP machine
- Looked at the different modes of delivering assisted support using SiPAP and defined when appropriate to use
- Practised how to set up and alter accordingly the SiPAP system
- Discussed nursing implications when caring for an infant on SiPAP