Puritan Bennett™ 980 ventilator system
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WE LOOK FORWARD TO WORKING WITH YOU.

The information in this pre-read guide is intended to lay the groundwork for your Puritan Bennett™ 980 ventilator training session. You may choose to read this entire overview of features and benefits before your training or focus on those sections that relate to your clinical environment.

This guide is designed to help make your training session as effective as possible by familiarizing you with the Puritan Bennett 980™ ventilator so you can have a more immediate impact on the treatment of your patients. Use this guide as a quick reference before, during, and after your training session.

This guide is provided as a convenience companion document to the Operator’s Manual. It is not intended to replace the Operator’s Manual, which should always be available while using the ventilator. It is important to familiarize yourself with all information in the Operator’s Manual relevant to your institution’s use of the ventilator, including on-screen help, instructions, warnings, and cautions.
Preparing for your Puritan Bennett™ 980 ventilator training session

The Puritan Bennett™ 980 ventilator system at a glance

The new Puritan Bennett™ 980 ventilator helps patients to breathe more naturally through some of the most innovative breath delivery technology available. Our simple, safe, and smart design† provides more natural ventilation that may help clinicians improve patient comfort.¹

Simple
Our innovative user interface features a highly customizable display with intuitive screen navigation.

Safe
The newly designed Puritan Bennett™ 980 ventilator provides a unique ventilator assurance feature and an integrated expiratory filtration system.

Smart
Advanced synchrony tools help clinicians set the ventilator to adapt to their patients’ unique needs and help provide the appropriate level of support throughout the breath.

†Compared to conventional volume control mechanical ventilation.
The Puritan Bennett™ 980 ventilator is intended for:

- Neonatal* through adult populations
- Invasive and noninvasive applications

The Puritan Bennett™ 980 ventilator is available in three configurations:

- Puritan Bennett™ 980 neonatal ventilator — for neonatal patients only
- Puritan Bennett™ 980 standard ventilator — for pediatric and adult patients
- Puritan Bennett™ 980 universal ventilator — for neonatal through adult patients

Intended uses and available configurations

- Innovative touch screen
- Status display
- Digital communication
- Unique filtration system
- Hot-swappable batteries
**Features and benefits**

Our innovative user interface features a highly customizable display with intuitive screen navigation.

**New patient setup**

On the patient setup screen, the gender and height you select will determine a predicted body weight (PBW), which in turn will determine a range of settings that are appropriate for use.

During patient setup you may set the following:

- Gender and height (or PBW)
- Ventilation type (invasive and noninvasive)
- Mode
- Mandatory type
- Spontaneous type
- Trigger type
- Primary settings, for example:
  - Rate
  - Tidal volume
  - Inspiratory pressure
  - $\text{O}_2$%  
  - PEEP

If you find the default settings conflict with your institutional guidelines, you can reconfigure the institutional defaults for New Patient Setup in Service Mode.

**Making changes to settings after initial setup**

After initial setup, it is easy to make settings changes using the “touch, turn, accept” method.

The touch screen automatically displays the following information, depending on the state of the ventilator:

- Ventilator, apnea, and alarm settings
- Patient data
- Waveforms
- Current alarm banners

In addition to the main patient ventilation parameter settings, the graphical user interface has a rotary encoder knob and several additional input keys.
The touch screen of the Puritan Bennett™ 980 ventilator is highly configurable to specific user and patient needs. The touch screen has up to five retrievable preset configurations, enabling you to choose how much or how little patient/ventilator information to display.

Monitoring patient status and making changes to ventilation parameters are also fast and easy. Both the patient’s current status and long-term trending data are quickly retrievable. Images with patient data may be downloaded via USB ports on the back of the ventilator.

All ventilation parameters are entered via the touch screen’s graphical user interface (GUI). Simple hand motions (swipe, double-tap, and drag-and-drop) activate most functions on the touch screen. These gestures will be familiar to any user of a smart phone, tablet, or mobile device.

Intuitive icons and graphics, and large, easy-to-read text make it simple to use the touch screen while working with a patient. Setting up the ventilator for a new patient is fast and easy.

Alarm management

The Puritan Bennett™ 980 ventilator provides low-, medium-, and high-priority alarms, each with a unique sound. If a high-priority alarm is not acknowledged within 60 seconds, the alarm volume escalates to maximum value, regardless of the user’s alarm volume setting.

Alarm violations are visually indicated in three places

- The dome lamp on top of the touch screen
- On alarm banners on the touch screen
- On alarm settings screen on the touch screen
Features and benefits (cont’d.)

The newly designed Puritan Bennett™ 980 ventilator provides a unique ventilator assurance feature and an integrated expiratory filtration system.

Ventilator assurance feature

Ventilator assurance is a new sophisticated safeguard system, unique to the Puritan Bennett™ 980 ventilator. In the event of certain system failures, the ventilator will continue to deliver ventilatory support as close to the ventilator’s settings as feasible. Most ventilators go into ventilator inoperative state under certain alert conditions. The Puritan Bennett™ 980 ventilator reduces the number of conditions where this could happen, which may provide a safer environment for the patient.

Unique filtration system

The Puritan Bennett™ 980 ventilator has an integrated heated expiratory filtering system. An increasing number of infection control protocols cite the use of N95 or N100 respirators by clinicians to reduce the risk of exposure to airborne pathogens. Clinicians should expect the same level of protection from exhaled gases from potentially infected patients. Puritan Bennett™ ventilator filtration is designed to meet this expectation.

Stand-by state

Stand-by state is a new feature for the Puritan Bennett™ 980 ventilator. To disconnect the patient for an extended period of time, a clinician can put the Puritan Bennett™ 980 ventilator into a stand-by state. The Puritan Bennett™ 980 ventilator senses when a patient is reconnected and automatically resumes ventilation at the previous settings. In fact, anytime a patient is connected to the machine, in any stage of setup, the ventilator will automatically detect that a patient is connected and will deliver ventilation.

Key benefits

Puritan Bennett™ 980 ventilator bacterial/viral filters have efficiencies of >99.999%.⁹
Key benefits
Proportional Assist Ventilation Plus (PAV™+ software):
- Promotes spontaneous breathing by requiring patient effort throughout the breath
- Automatically adjusts every 5 milliseconds to changes in the patient’s demand
- May help improve patient comfort
- Helps improve patient-ventilator synchrony

Advanced synchrony tools help clinicians set the ventilator to adapt to their patients’ unique needs and help provide the appropriate level of support throughout the breath.

PAV™+ software
PAV™+ software is a spontaneous breath type that enables the patient to dictate the breath he or she receives, and helps clinicians more clearly understand the work required by the patient to breathe.

Like other spontaneous breath types, the PAV™+ software assists patient efforts, but unlike other spontaneous breath types, the operator does not set pressure or volume. The operator sets the %Support setting (5% to 95%), tube type, and tube size. The %Support setting determines the percentage of the patient’s work of breathing that the mechanical support will offload.

The PAV™+ software provides ventilatory support proportional to the patient’s inspiratory effort, letting the patient determine the duration and depth of each breath. The PAV™+ software begins to assist an inspiration when flow (generated by the patient’s inspiratory muscles) appears at the patient wye. If the patient ceases inspiration, the assist also ceases.

How PAV™+ software works
The PAV™+ software measures the patient’s resistance (R) and compliance (C) every 4 to 10 breaths. It also measures flow and volume every 5 milliseconds. Through the use of the equation of motion, patient-generated muscular pressure (Pmus) and the actual work of breathing can be calculated in real time. It’s important to note that in mechanically ventilated patients, both R and C can vary considerably over time. The PAV+ software continuously and automatically measures and adjusts to these changes. This maintains the preselected percentage of assistance to the patient’s respiratory workload.
Key benefits

Leak Sync software:
- Quickly and automatically adjusts for leaks because of patient interfaces
- Helps ensure appropriate breath triggering and cycling, as well as valid patient monitoring data\(^6,7\)
- Promotes synchrony during invasive and noninvasive ventilation\(^6,7\)
- Reduces the occurrence of auto triggering in the presence of a leak\(^6,7\)
Key benefits
The Puritan Bennett™ 980 ventilator is:
- Designed specifically for neonates with low predicted body weight
- Designed to reduce nuisance alarms when nasal prongs are used

Neonatal ventilation
Ventilating our most vulnerable patients
The Puritan Bennett™ 980 neonatal and universal ventilators with Puritan Bennett™ NeoMode 2.0 software are designed for respiratory support for newborns weighing as little as 300 g. Specific features include:
- Proximal flow sensor — Measures flows, pressures, and tidal volumes right at the patient wye for neonatal applications.
- C_{20}/C — Helps clinicians potentially reduce the risk of over distention by monitoring compliance of the last 20% of each inspiration compared to the entire inspiration.
- Configurable O₂% elevation — Elevates O₂%; can be configured to increase to any value between 21% and 100%.
- Noninvasive (NIV)
- Trending — Captures up to 72 hours and more than 57 parameters of patient data to help you review the effectiveness of treatment over time.

Puritan Bennett™ NeoMode 2.0 software
The NeoMode 2.0 software enables clinicians to set tidal volumes as low as 2 mL in increments as small as 0.1 mL for values <5 mls.
Ventilating our most vulnerable patients

Puritan Bennett™ proximal flow system

The Puritan Bennett™ proximal flow system option measures flow, volume, and pressure at the patient wye. When the ventilator has a proximal flow sensor installed, both proximal flow and proximal pressure measurements are obtained and displayed on the main screen. These values are used in the display of graphics. No calibration is required when in patient use. To ensure accurate pressure and flow measurements, the ventilator performs an autozero function to calibrate the proximal flow sensor.

Key benefits

The Puritan Bennett™ 980 ventilator:

- Uses values from the proximal flow sensor in the display of graphics.
- Displays proximal flow, volume, and pressure data on the touch screen.
- Allows periodic expiratory phase purging to occur for accurate measurements.

2. Internal testing Puritan Bennett™ 980 ventilator human factors testing.

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