

Safety Issue Generates Practical Solutions

Sandra Stuban, RN, Fairfax, Virginia, stubanrn@aol.com

Accidents happen. But when you are a ventilator user, they can have deadly consequences. Because most of us ventilator users have limited use of our arms, and in some cases no use at all, we must rely on others to reconnect tubes that pop off and to respond to ventilator alarms in the middle of the night in a timely manner. In this sense we are dependent on others for our safety and our very existence. However, fatal accidents are unnecessary and preventable.



Sandy Stuban, RN, using her computer via a sensor next to her check, with son, Nick.

Prompted by the news of the accidental death of a ventilator user caused when the ventilator tube popped off his trach at night and the caregiver slept through the alarm, I asked an online ventilator discussion group, “How can we keep ourselves safer, especially at night?” The responses were swift, imaginative, practical, high-tech, low-tech and no-tech – a creative outpouring of ideas from vent users, and some respiratory therapists, to benefit other vent users.

Preventing disconnects. Silas and Dave use rubber bands, or ponytail holders, to prevent pop-offs. One end is threaded through the opening on the trach flange where the trach collar is attached; the other end goes up over the tube holding it firmly in place. Cathy uses a similar technique but with a strip of elastic gauze tied around her neck. Many commercial trach-securing, or anti-disconnect, devices are also available. Check IVUN’s Resource Directory for Ventilator-Assisted Living, www.post-polio.org/ivun/d.html.

Airway Pressure Monitors. These pressure monitors can be attached to bilevel or CPAP units or volume ventilators. Marcelo, who uses a BiPAP®, relies on this monitor to alarm when low pressure is detected, such as during disconnects or pop-offs. From her experience with this same system, Cathy says that its alarm is much louder than her ventilator alarm. Cyndy, a respiratory therapist working for a large ventilator manufacturer, also recommends a secondary alarm system because the system alarms when the ventilator alarms during pop-offs, providing twice the volume. Angela, also a respiratory therapist, while recommending this system, warns that occasionally a bilevel unit or an inline heat moisture exchanger (HME) can “fool” the low pressure alarm so it should be tested carefully first. Example: www.msdistributors.com/biomed/meh/BIPARHTM.

Baby Monitors. Many ventilator users say they rely on baby monitors at night to enhance and direct the alarm sound. The stationary component is placed beside the alarm output and the mobile unit stays close to the caregiver, preferably near their ear.

continued, page 3

Cell Phones and Pagers. Several vent users have their home phone number in memory dial in a cell phone kept in bed with them. When they need assistance, the home number rings for a caregiver sleeping in another room. Andrea and her son, who uses a bilevel unit, like this method because a ringing phone always wakes her up. Cynthia uses a pager at night to wake a sleeping caregiver.

Doorbells and Plug-in Flashlights. Blane has a buzzer, made from parts bought at RadioShack®, that he sleeps with at night. Andrea's son bought a wireless doorbell system. When her son pushes the button, it rings in his parents' bedroom.

Dan uses a doorbell as a call button as well but also uses plug-in flashlights as a backup during power outages. They are permanently plugged into an electrical outlet where they are constantly being charged. When the power goes out, the flashlights automatically turn on. Dan plugs his flashlights into extension cords so he can move the flashlight beam anywhere, not just up and down, and directly into the face of his sleeping caregiver.

Oximeters. Angela, the respiratory therapist, suggests using an oximeter with an alarm. The oximeter, placed on a finger or earlobe, monitors the percentage of hemoglobin saturated with oxygen in the blood. When this level falls, as occurs during pop-offs and hypoxia, the alarm sounds.

Panic Buttons. Marcelo recommends a one-touch alarm button that when activated sounds a screeching siren and flashes lights. *Example:* www.x10.com/security/pa5800_s.html.

Service Dogs. Joanne, the parent of two young adult vent users, has two extremely well-trained medical alert service dogs. In her experience, the dogs respond quicker, are persistent until a responsible person resolves the alarm, and on occasion sense a problem before the alarm even goes off. "When the vent alarms, both dogs start moving with the initial sound," says Joanne. Her dogs are from East Coast Assistance Dogs (www.ecad1.org), though not all service dog companies work with ventilator users.

Vibration Alarms. Carrie relies on two sensory alarms, sound and vibration, to wake one of her sleeping caregivers who is deaf. When the unit receives a signal from a transmitter, such as an alarm or baby monitor, it vibrates. Though it is designed to be worn close to the body, Carrie places hers under her caregiver's mattress.

Example: www.adcohearing.com/not_silent_call.html.

Walkie-Talkies. Dan says walkie-talkies can not only alert a caregiver at night but also have the benefit of working during power outages. Jeff added that some can be purchased with a VOX feature, meaning they are voice-activated so no buttons need to be pushed.

X10 Unit. John uses an X10 unit to flash the bedroom lights at night when the response to alarms is slow. Bonita also uses this unit to activate chimes, but her setup is different. As a C2 quadriplegic ventilator user, she uses her lips to trigger the switch which is positioned on a microphone stand with a flexible gooseneck near her bed. *Example:* www.interactplus.com/x10_technology. ▲

If you are interested in joining this online ventilator discussion group, send an email to vent-users-request@eskimo.com and type "subscribe" in the subject line.