As told by Elizabeth’s husband, George Ford

Sixty-six days after cardiac arrest Elizabeth Ford was diagnosed as being in a persistent vegetative state. She was moved to a long-term care facility where she made no progress for thirty-two months. But then, just one month after a correction of a pulmonary care problem, Elizabeth was able to answer simple yes or no questions.

What was the change pulmonary care? The staff stopped the intubation of cold oxygen. Elizabeth was allowed to breathe on her own.

This change in pulmonary care was a result of an alert patient advocate, George, Elizabeth’s husband.

It began when George first noticed the cold air wafting out of Elizabeth’s tracheal tube. When he looked more carefully, he also noticed Elizabeth’s lips were tinged with blue. Despite the reassurances of the staff, he was convinced she was cold, perhaps even suffering from hypothermia. Eventually, George brought a thermometer to check the temperature of oxygen as it entered her trachea. It was 63°F.

After conducting a little medical research, George learned that the temperature of gases at the trachea is normally only a half degree below normal body temperature, 95°F, a full 32°F warmer than the air entering Elizabeth’s trachea. This huge difference was due to the warming and humidification normally done by a person’s upper respiratory tract: nose, mouth, and throat. But for an intubated patient, the natural conditioning of inhaled gases is bypassed. This is why, he discovered, the official standards of care for pulmonology recommend that gases used for intubation should be humidified and warmed to 95°F.

Why wasn’t Elizabeth receiving warmed oxygen like awake patients are given? When he asked the staff, they reassured him that everything was fine. “Room temperature” gases were sufficient.

So, George dove deeper into the medical literature. He discovered a study conducted by a brain surgeon in Poland which showed that bypassing the upper respiratory tract with 72°F oxygen quickly produced a measurable drop in surface brain temperatures in just three minutes. In Elizabeth’s case, the oxygen was even colder, and she had been exposed to this low temperature inhalants not for just a few minutes but for years!

George’s alarm grew. Additional research strengthened his concern that his wife was suffering from localized hypothermia. The aortic pathway from the heart to the brain is very short and direct. Cooler air in the lungs means cooler blood which can lead to a cooler brain. But when he raised these concerns with the staff, they pushed back arguing that Elizabeth’s core (anal) body temperature was normal.

George headed back to internet medical libraries. After digging further, George found studies demonstrating that core body temperature can vary significantly from brain temperatures. Indeed, the portion of the brain known as the hypothalamus helps to regulate body temperatures. If the brain is cold, it would tell the rest of the body to generate more heat. Those instructions might help to offset the
cooler blood in other areas of the body more readily than the brain, especially when the brain is continuing to be fed cooler blood.

George continued to bring all these findings to the attention of the staff at Elizabeth’s long-term care facility. But they resisted the idea that their pulmonary care was improper. He was being dismissed as simply a grieving husband nitpicking over medical matters for which he had no training.

Finally, George asked why Elizabeth was still receiving intubated oxygen at all. The staff’s own tests showed that her blood-oxygen levels were normal. It was as if once an unresponsive patient was put onto assisted ventilation, they were simply left on it even though it was not necessary.

Pressing this point, George finally made progress. They removed the intubated oxygen. Elizabeth was fine without it. In fact, within a month it became clear that she was even better without it. She began to answer yes and no questions. When George later pressed her to talk even more, asking, “Do you feel like talking?” she answered, “I don’t wanna.” Another time she explained “I no power.”

George’s recordings of these conversations are part of a YouTube video he later created describing his wife’s case and his frustrations with the medical care she and other nonresponsive patients receive.

Why didn’t Elizabeth receive warmed gases from the first time she was intubated? After all, that’s clearly what is recommended by standard of care for intubated patients. Indeed, people with permanent tracheotomies will often complain of discomfort when the temperature of intubated gases is too low.

George speculates that many hospitals and nursing homes simply skip the step of warming gases for nonresponsive patients like Elizabeth because of the extra costs of maintaining and cleaning the heated nebulizers which regulate the temperature of inhaled gases.

In 2006, George succeeded in having a peer reviewed medical study published about his wife, a second patient, and a summary of the medical research he had found supporting his fears about the potential damage unintentional brain cooling can have on intubated non-responsive patients. Included in his paper was a survey of twenty health care facilities. The survey revealed that all twenty facilities admitted that the de facto standard of care for non-responsive patients that was different than that provided to alert patients. All twenty reported that they never, or only rarely, used a heated nebulizer for tracheotomized patients in a vegetative state.

Notably, the second case study described in George’s 2006 paper had an even a better outcome than Elizabeth. In that case, a 28-year-old man classified as in a persistent vegetative state had been receiving cold intubated oxygen for two months. After George had spoken to the man’s parents about what he had learned with Elizabeth’s case, the cold oxygen was removed. Within just six weeks, the man had recovered consciousness, movement, and had begun rehabilitation. George believes that the better results were due to correcting the problem within just a couple months after the mismanagement of pulmonary care had begun.

Today, George remains active in patient’s rights issues, especially advocating for persons diagnosed with being in a persistent vegetative state. Perhaps his greatest success has been seeing his paper and outreach efforts bear fruit in the Veteran’s Administration Hospital system, through which an email to the heads of pulmonology citing George’s concerns recommended universal adoption of equipment to warm inhalants for tracheotomized patients.
How many health care facilities have closed this divide between the standard of pulmonology care given to non-responsive patients versus their conscious counterparts? George worries that it is far too few.

At the very least, George’s experience underscores a very important truth. Family members should stay alert to the intuitions that prompt concerns about the care their loved ones are receiving.

As a loved one, your questions, and even your research of those medical questions, may make a difference for your loved one and future standards of care.