Patient dies at Nashville hospital after being set on fire from defibrillator paddles

Liz Cabrera 4 December 2022

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A patient at TriStar Centennial Medical Center in Nashville, Tennessee died Thanksgiving Day after being set on fire after hospital staff attempted to shock him with defibrillator paddles. According to the patient's spouse, Bobby Ray Stark had been bedridden for the past seven years after suffering several strokes that left him paralyzed. On November 17, he underwent a partial foot amputation before being transferred to TriStar Centennial Medical Center for treatment of a foot infection and bedsores.

According to WSMV4 News, the patient was in the hospital room awaiting foot surgery when he experienced a sudden drop in blood pressure, chest pain and an abnormal heart rhythm that required defibrillation. It was also reported by his spouse that he was connected to an oxygen tank. The hospital staff started advanced cardiovascular life support (ACLS) measures and a fire was sparked when the patient was shocked with defibrillator paddles.

The patient's spouse witnessed the entire horrific scene and described her husband's body being engulfed in flames. The patient sustained burns to his chest, face, head, hands, back, throat, lungs, and his beard was burned off. The patient was transferred to the burn unit where he succumbed to his burn injuries later that evening.

In a statement, the hospital extended its deepest sympathies to the family and stated that they are reviewing the care provided to Mr. Stark and the functionality of the equipment. The patient's spouse and daughter are demanding answers and the implementation of protocols to prevent this from happening to someone else.

Although these events are uncommon, researchers recommend that health care workers go through regular

routine team training to decrease the incidence of these events and to understand what actions to take when they occur. This training should include knowledge about the three ingredients for the creation of a fire during a procedure, also known as the "fire triangle": an oxidizer (oxygen), an ignition source (defibrillator) and a fuel (body hair, bed linen, gown or sterile skin preparation), which were likely sources that caused the horrific event.

This fall, hospital capacity has reached record levels in hospitals across the country due in large part to cases of flu, COVID-19 and pediatric respiratory illnesses like RSV that are filling emergency departments. This is stressing the already overburdened health care system where workers are stretched thin by poor staffing levels and unsustainable workloads. Numerous studies have warned that overcrowding and understaffing significantly increase the chances of serious safety events and poor outcomes for patients.

In a recent letter to President Biden, penned by 33 different medical groups, emergency medicine doctors and nurses, painted a devastating picture of conditions in hospital emergency rooms, warning of the serious consequences that have been and will be faced by patients and communities if something is not done to stop the spread of the "tripledemic" and provide urgent assistance to hospitals across the country.

While the tragic death of Mr. Stark is still under investigation, the capacity, staffing levels and overall conditions at TriStar Centennial Medical Center are likely to reveal more about the incident.

In a newsletter published in 2009 by the Anesthesia Patient Safety Foundation (APSF), when defibrillation pads or paddles are not applied properly and do not make full contact with the skin an electric arc can occur when a patient is defibrillated. Then, if there is a high concentration of oxygen flowing during the discharge then body hair and fabric fibers can be ignited by the arc and spread into a large fire.

This phenomenon is referred to as the surface-fiberflame propagation and occurs when oxygen concentrations are above 50 percent. This phenomenon happens when the fine nap fibers on cotton towels, drapes and linens serve as a fuel. A fire can also ignite when a fine sublayer of hair traps oxygen where there is a high concentration of oxygen, especially when coated with alcohol.

Another risk for ignition is chemical solutions such as skin preparations. A chemical widely used in hospitals is ChloraPrep, which is a preoperative, rapid-acting skin preparation applied to the body prior to surgery to reduce bacterial load across various body regions. The patient in Nashville was scheduled for foot surgery and a preoperative skin preparation was likely applied to his body prior to the event.

This horrific event points to the importance of regular training in safety measures to prevent deadly events such as this, but this may prove difficult during a time when hospitals throughout the US are experiencing an alarming surge of respiratory viruses that is stretching hospital staff and resources to their breaking point. The risk of death and other serious health outcomes increases when there is a lack of beds and staff. Research has already demonstrated how overcrowding emergency in departments can lead to worse outcomes for patients receiving emergency treatment and such overcrowding can impact patients in other areas of the hospital as well.

In an article published last month in the journal *Health Services Research*, researchers from Penn State and the University of California, San Francisco examined 5 million discharge records from hospitals across California between October 2015 and the end of 2017. They found that patients throughout a hospital were 5.4 percent more likely to die of any cause on days when that hospital's emergency department was the most crowded.



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