



### **D1 New Suicide Modalities: The Use of a Plastic Bag and Helium - First Case Report in Puerto Rico**

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After this presentation, attendees will better understand the pathophysiology of oxygen displacement by helium and learn information needed in order to process a case like this, should you encounter one. This presentation will impact the forensic science community by giving the attendees the information needed in order to understand the pathophysiology and process autopsy evidence in a case of this nature. It also adds to the growing list of case reports of this type of suicide.

In statistical terms, suicide (defined as the act of voluntarily taking his/her own life) in Puerto Rico has shown a relatively stable trend during the last decade, shadowing the trend in the United States. Although the methods by which the act is performed have not varied much, new worrisome tendencies have been described in literature. Suicide by hanging is the most common method used in Puerto Rico (for both men and women) and the second most common in the United States. While the use of a plastic bag around the head as a suicide tool had been described for some time, its practice was boosted in 1991 after the publication of the book, *“Final Exit: The Practicalities of Self-Deliverance and Assisted Suicide for the Dying.”* Directed towards terminally ill patients, the book presented multiple mechanisms for a dignified death, including, in full detail, the “exit bag” mechanism. In 2002, the third edition of the book included a chapter on the utilization of inert gases as a faster way to reach their objective. Inert gases (e.g., argon, radon, helium) accelerate the death by effectively displacing or substituting the oxygen being aspirated, and depriving the body (especially the brain) of it. Only twenty suicide cases using this methodology have been reported in international scientific literature. Since helium is seldom searched for in the toxicological analysis of a forensic autopsy, it has been hypothesized that the real incidence may be exponentially higher, possibly reaching into the thousands. A case is presented of a 30-year-old male who five years previously had been diagnosed with bipolar disorder, who was found dead on the floor of a hotel room with an inflated plastic bag around his head, and closed around the neck by an elastic strap. Underneath the bag, a rubber tube entered the bag, connected by a T-fitting connecting to two helium canisters, which were empty by the time the body was found. A piece of elastic strap circled his waist through the belt loops and restrained his wrists without the use of a knot. No suicide note was found on the scene. The scene investigation revealed no sign of forced entry. The deceased had possession of the book, *“Final Exit,”* which was found at his residence. Autopsy revealed mild pulmonary congestion, eyelid petechial hemorrhages, and pressure marks around the neck, wrists, and waist. Toxicology was positive for Buspirone. Airway headspace gas sampling was not performed due to lack of equipment. After ruling out secondary involvement and taking into consideration the scene, family interview and the circumstances around the death, the cause of death was determined to be asphyxia secondary to helium inhalation and the manner of death was determined to be suicide. This is the first suicide case seen in Puerto Rico’s Forensic Science Institute utilizing this method.

#### **Helium, Suicide, Puerto Rico**