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## EgyptAir Flight 804 Crash: A Case Study

**A. Introduction:** The EgyptAir Flight 804 crash in 2016 led to 66 deaths and a reexamination of aviation protocols.

**B. Facts of the Case:** On May 19, 2016, EgyptAir Flight 804 was flying from Paris to Cairo when it crashed between Crete and northern Egypt.<sup>1</sup> The aircraft was carrying 56 passengers and 10 crew members.<sup>1</sup> Egypt officials had found human remains and passengers' belongings in the Mediterranean north of Alexandria. Various theories were produced. However, based on evidence discovered, authorities concluded that Captain Mohamed Shokeir's smoke break caused a fire on the Airbus A320.<sup>1</sup> The financial cost of the crash is estimated to be around \$100 million, including the aircraft's value of around \$90 million, and additional costs for the recovery and investigation.<sup>5</sup>

**C. Epidemiological aspects of the event:** Initially, the crash was assumed to be the result of a terrorist attack, as explosives were claimed to be found on a victim's body.<sup>1</sup> However, as investigations were conducted, it was discovered that the crash was caused by the pilot igniting a cigarette, which in turn caused an oxygen leak from oxygen masks in the cockpit. This investigation incorporated a multi-disciplinary approach that included forensic work, technical examinations, and global collaboration. France's Civil Aviation Accident Bureau (BEA) and the Egyptian Civil Aviation led the investigation, incorporating evidence from the flight data recorder and cockpit voice recorder, recovered debris, and toxicological tests.<sup>2</sup> Typically, a flight data recorder (FDR) retains 25 hours of information, and the cockpit voice recorder (CVR) can retain the last two hours of the cockpit audio. Consequently, the data recorder confirmed the presence of smoke on board, while the voice recorder caught a conversation about a fire occurring in the cockpit.<sup>2</sup> Investigators also discovered blackened pieces of metal near the front of the plane, suggesting a high-temperature fire.<sup>3</sup> There may be potential sources of bias, including lack of complete evidence as it was an underwater crash and varying sources as different countries followed their own investigation standards. The data that was perceived to be missing from the FDR and CVR as a result of damage was countered after cross-referencing aircraft system messages and radar data.<sup>4</sup>

**D. Management of the event:** The public health response included search and rescue activities, identifying victims with the little they could find, and providing information as well as support to all of the victims' families. After France had revealed their report, the families of the victims criticized the Egyptian authorities for withholding their report about the crash and failing to cooperate with the French on the investigation.<sup>1</sup> These families were reliant on information provided by other countries but their own. Gaps in preparedness include better search efforts, especially by maritime task forces, and increased global collaboration for a better and quicker response in terms of aviation disasters. After this incident, improved safety protocols were announced, including no smoking in the cockpit or the entirety of the airplane.

**E. Communications of the event:** Public communications during the event were initially frustrating as there were conflicting reports from various sources and a lack of timely information. Authorities on both sides, especially Egyptians, faced much criticism as they continued to conceal information and only provided vague updates. As months and even years passed, the transparency of the investigation progressed, and increased communication was discerned, especially with the families of the victims. Their initial management was inadequate

and unsympathetic, however, eventually, their establishment of clear communication was commendable.

**F. Summarize:** The EgyptAir Flight 804 crash emphasized the difficulties in aviation safety and overall disaster response by global powers. It highlighted the need for timely and accurate information, combined efforts, and the establishment of meticulous safety and emergency protocols.

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