

Case Report

Volume 12 Issue 5 - September 2023  
DOI: 10.19080/JAICM.2023.12.555849

J Anest & Inten Care Med

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# In Flight Preterm Birth is There a Doctor on Board?



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**Submission:** September 08, 2023; **Published:** September 20, 2023

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## Abstract

This case report describes a case of in-flight preterm birth. In-flight medical emergencies can occur when a passenger or crew member becomes ill or injured during a flight. Preterm birth, defined as birth before 37 completed weeks of gestation, is a significant public health concern worldwide due to its association with increased neonatal morbidity and mortality. Although in-flight medical emergencies and onboard deaths are uncommon, they pose a significant challenge to the airline industry. The medically austere environment, coupled with limitations on prudent practice and associated liabilities, requires physicians and other healthcare providers traveling on flights to be aware of these factors.

**Keywords:** Birth; Preterm Birth; In Flight Emergencies

## Introduction

Prematurity is a complex condition associated with increased risk of morbidity and mortality. The estimated preterm birth rate is 8.7 (6.3–13.3) in Europe, and it remains the leading cause of death in early childhood worldwide [1]. We present a case involving a preterm birth during a flight. In-flight emergencies on commercial flights are uncommon, averaging 18 events per million of revenue passengers. Furthermore, the rate of death resulting from in-flight medical emergencies is similarly very low, approximately 0.21 deaths per million passengers. The least prevalent medical condition is cardiac arrest events (0.09 events per million), whilst the most pervasive is syncope events (5.46 events per million). The ten most common in-flight categories of medical conditions are syncope, gastrointestinal, respiratory, neurological, cardiovascular, trauma, psychiatric/psychological, allergic, infectious and endocrine events, in order of declining incidence. Data based upon a considerable amount of representative datasets, including more than 1.5 billion patient-passengers from different geographical settings, including both domestic and international flights [2].

## Case History

On August 25th, 2022, during a flight from Istanbul to Kuala Lumpur, we provided emergency medical assistance to a 28-year-old Malaysian woman who experienced a premature birth on board. During the flight, the patient suffered intense abdominal pain and vaginal bleeding. Upon her distress signal, the cabin crew

requested the assistance of onboard medical personnel, to which we promptly responded. Despite linguistic barriers, we gathered all essential details regarding her medical history and symptoms. She was in her 27th week of her first pregnancy and had felt pain and noticed reduced fetal movement for roughly 12 hours before the flight, but had not confided in anyone about it. Her intent was to return to Kuala Lumpur to consult her obstetrician. Onset of vaginal bleeding was noted during the flight. From her maternity records, we ascertained that her most recent visit to a gynecologist had been over two weeks prior, and she had been prescribed antihypertensives during her pregnancy.

No fetal anomalies were identified on her latest ultrasonographic examination. To ensure patient confidentiality, the flight attendant ensured privacy for the patient by requesting other passengers to vacate the premium class. Our initial vaginal examination revealed a fully dilated cervix, with the baby's head positioned above the pelvic inlet and the fetal membranes intact. Her vital parameters, including blood pressure, heart rate, and oxygen saturation, were within physiological limits. We established an intravenous line and infused 500 ml of 0.9% isotonic saline solution to maintain venous access. Subsequent to the initiation of the IV, the patient reported an increased sensation of perineal wetness and escalating pain. A follow-up pelvic examination indicated rupture of membranes with the fetal head advancing below the pelvic inlet and was visible.

The patient was repositioned to optimize delivery, and the cabin crew was apprised of the imminent birth. The premature birth occurred rapidly, resulting in a stillborn baby, enveloped in the fetal membrane. Post membrane incision, physical examination confirmed fetal demise, evidenced by a pallor-tinged gray complexion. Placental inspection revealed no abnormalities. Postpartum, the paramount clinical objective was hemorrhage control and maternal stabilization. To augment uterine tone and minimize hemorrhage, we administered 5 IU of Oxytocin. Continuous monitoring of hemorrhagic volume and vital parameters was maintained during the emergency descent. Upon touchdown at Chennai airport (India), the patient was transitioned into the care of local emergency medical services.

## Discussion

A significant number of people fly globally, which can result in a notable frequency of in-flight medical emergencies, particularly on longer journeys. However, most of these in-flight medical situations are not critical and can be readily addressed by the flight attendants or onboard medical experts [3]. According to WHO preterm birth is a live birth that occurs before 37 completed weeks of pregnancy. Preterm birth is further classified as extremely preterm (<28 weeks), very preterm (28 to <32 weeks), and moderate (32 to <34 weeks) to late preterm (34 to <37 weeks) [4]. Every year, around 15 million babies are born prematurely across the globe, which equates to an 11% global preterm birth rate. Preterm births result in the loss of 1 million children before they reach 5 years of age, making it the foremost cause of death in this age group.

In fact, 18% of all deaths in children under 5 and a staggering 35% of deaths in newborns (younger than 28 days) can be attributed to preterm birth. Although these rates fluctuate between and within countries, it's particularly alarming in low-to middle-income nations, with Southeast Asia and sub-Saharan Africa bearing the brunt [5]. Between 1929 and 2018, there were 74 infants born on 73 commercial flights. Seventy-one of the infants survived delivery, two died shortly after delivery and the status of one is unknown. Seventy-seven percent of the flights were designated international flights, and 26% of all flights were diverted due to the in-flight emergency births. The gestational age at delivery ranged from 25 to 38 weeks with 10% of the infants born at 37–38 weeks, 16% born at 34–36 weeks, 19% born at 31–33 weeks and 12% born prior to 32 weeks. Physicians, nurses, the flight crew and other medical personnel provided medical assistance in 45% of the births [6].

Limited medical support on flights, owing to an absence of specialized health personnel and necessary medical tools, might lead to unplanned aircraft detours during in-flight medical emergencies. Collectively, the percentage of for in-flight medical emergencies necessitating a diversion ranged between 1.1% and 13%. Such diversions entail more than just additional costs. The

time taken to reach a medical facility can be significantly longer than expected and, in some situations, might even be impossible [7]. European regulations establish a baseline requirement for emergency medical supplies. Consequently, all passenger aircraft registered in Europe must have a first-aid kit on board, and all cabin crew members should be proficient in its use [8]. In addition to the required material, all airlines provide additional non-compulsory equipment. Most often, disinfection wipes, immobilization casts, hand disinfection, and surgical masks.

European airlines stock a diverse range of medications to address in-flight medical emergencies. In terms of pharmaceuticals, 14% of these airlines don't go beyond the standard drug list. Among the supplemental medications provided by airlines are solutions for dry eyes (55%),  $\beta_2$ -mimetics and theophylline (50%), digitalis (45%), heparin (27%), non-steroidal anti-inflammatory drugs (27%), sympathomimetic drugs (22%), glucose (23%), sedatives (23%), and corticosteroids (18%) [9]. While all airlines provide the basic medical emergency materials mandated by European aviation regulations, there are notable variations in the provision of supplementary equipment. The medical equipment provided by many airlines falls short when it comes to addressing specialized emergencies like neonatal resuscitation.

## Conclusion

In-flight medical emergencies can be stressful experiences for passengers, crew members and healthcare professionals. Many airlines have protocols in place for handling medical emergencies, including contacting medical professionals on the ground for assistance. It is important to be aware of and understand the strengths and limitations of the medical equipment on board commercial aircraft when managing in-flight medical emergencies.

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DOI: [10.19080/JAICM.2023.12.555849](https://doi.org/10.19080/JAICM.2023.12.555849)

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