

## **Diversion of Airplanes for Medical Emergencies at Taoyuan International Airport**

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**Abstract :** Introduction: Since 2016, the annual number of passengers on commercial flights at Taoyuan International Airport (TIA) has been ~40 million. Due to the outbreak and spread of COVID-19, the number of international flights sharply diminished in recent years. However, TIA is located at an East-Asian flight transportation junction; thus, many commercial and cargo flights continue service. When severe medical events happen on a commercial airliner, the decision to divert or not is based on consideration of both medical and operational issues. This study discusses the events related to the diversion of airplanes or reentry after taxiing for medical emergencies at Taoyuan International Airport. Background: We analyzed emergency medical records from the medical clinic of TIA from January 1, 2017, to December 31, 2022, for patients who needed emergency medical services but were unable to reach the airport clinic by themselves. We also collected data for patients treated after diversion from other airports or reentry after taxiing due to medical emergencies. Information such as when and where the event occurred, chief signs and symptoms, the tentative diagnosis (using the ICD-9-CM), management, and the sociodemographic features of the passengers were extracted from the medical records. Summary of Cases: TIA handled approximately 152 million passengers and 1,093,762 flights during the study period; a total of 2,804 emergencies occurred during this time period. Thirty-three medical emergencies warranted diversion (21 cases) or reentry (12 cases); 13 cases were diverted from Asia-Pacific flights and five from Asia-North America flights. The age of the passengers with diversion emergencies ranged from 2-85 years (mean,  $46 \pm 20$ -years-old). Twenty-seven patients were transported to an emergency department, and four patients died. For all cases of diversion or reentry, the most common diagnoses were neurogenic problems (42.4%), Out-of-hospital cardiac arrest (OHCA) (15.2%), and cardiovascular problems (12.1%). Discussion: Most aircraft diversions were related to syncope, seizure, and OHCA. The decision to divert depends on medical and operational considerations. Emergency conditions are often serious; thus, improvement of the effectiveness of cooperation between airlines and medical teams remains a challenge.

**Keywords :** diversion, syncope, seizure, OHCA

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