

# **Global burden of the COVID-19 associated patient-related delay in emergency healthcare: a panel of systematic review and meta-analyses**

**Mogharab Vahid, Ostovar Mahshid, Ruszkowski Jakub, Maroof Hussain Syed Zohaib, Shrestha Rajeev, Uzair Yaqoob, Aryanpoor Poorya, Nikkhoo Amir Mohammad, Parasta Heidari, Rasekh Jahromi Athar, Rayatdoost Esmaeil, Ali Anwar, Javdani Farshid, Roohie Farzaneh, Ghanaatpisheh Aref, Habibzadeh Seyed Reza, Foroughian Mahdi, Ahmadi Sayyed Reza, Akhavan Reza, Abbasi Bita, Shahi Behzad, Hakemi Arman, Bolvardi Ehsan, Bagherian Farhad, Motamed Mahsa, Taherzadeh Boroujeni Sina, Jamalnia Sheida, Mangouri Amir, Paydar Maryam, Mehrasa Neda, Shirali Dorna, Sanmarchi Francesco, Saeed Ayesha, Azari Jafari Narges, Babou Ali, Kalani Navid, Hatami Naser.**

## **Abstract**

**Background:** Apart from infecting a large number of people around the world and causing the death of many people, the COVID-19 pandemic seems to have changed the healthcare processes of other diseases by changing the allocation of health resources and changing people's access or intention to healthcare systems.

**Objective:** To compare the incidence of endpoints marking delayed healthcare seeking in medical emergencies, before and during the pandemic.

**Methods:** Based on a PICO model, medical emergency conditions that need timely intervention was selected to be evaluated as separate panels. In a systematic literature review, PubMed was queried for each panel for studies comparing the incidence of various medical emergencies before and during the COVID-19 pandemic. Markers of failure/disruption of treatment due to delayed referral were included in the meta-analysis for each panel.

**Result:** There was a statistically significant increased pooled median time of symptom onset to admission of the acute coronary syndrome (ACS) patients; an increased rate of vasospasm of aneurismal subarachnoid hemorrhage; and perforation rate in acute appendicitis; diabetic ketoacidosis presentation rate among Type 1 Diabetes Mellitus patients; and rate of orchiectomy among testicular torsion patients in comparison of pre-COVID-19 with COVID-19 cohorts; while there were no significant changes in the event rate of ruptured ectopic pregnancy and median time of symptom onset to admission in the cerebrovascular accident (CVA) patients.

**Conclusions:** COVID-19 has largely disrupted the referral of patients for emergency medical care and patient-related delayed care should be addressed as a major health threat.

**Keywords:** COVID-19, SARS-COV-2, Pandemic, Emergency department