



Review

Defusing COVID-19: Lessons Learned from a Century of Pandemics

Graciela Mujica ^{1,†}, Zane Sternberg ^{2,†}, Jamie Solis ¹, Taylor Wand ¹, Peter Carrasco ^{3,4},
Andrés F. Henao-Martínez ⁵ and Carlos Franco-Paredes ^{5,6,*}

¹ University of Colorado School of Medicine, 13001 E 17th Pl, Aurora, CO 80045, USA; graciela.mujica@cuanschutz.edu (G.M.); Jamie.solis@cuanschutz.edu (J.S.); taylor.wand@cuanschutz.edu (T.W.)

² University of Colorado Denver, 13001 E 17th Pl, Aurora, CO 80045 USA; zane.sternberg@cuanschutz.edu

³ International Association for Immunization Managers, Washington, DC, 20037 USA; rcphs@aol.com

⁴ Department of Immunization and Vaccines, World Health Organization, Geneva, Switzerland

⁵ Division of Infectious Diseases, Department of Medicine, Anschutz Medical Center, University of Colorado, Aurora, CO 80220, USA; andres.henaomartinez@cuanschutz.edu

⁶ Hospital Infantil de México, Federico Gomez, México City, 06720 México

* Correspondence: Carlos.franco-paredes@cuanschutz.edu

† These two authors contributed equally.

Received: 3 November 2020; Accepted: 26 November 2020; Published: date

Abstract: Amidst the COVID-19 global pandemic of 2020, identifying and applying lessons learned from previous influenza and coronavirus pandemics may offer important insight into its interruption. Herein, we conducted a review of the literature of the influenza pandemics of the 20th century; and of the coronavirus and influenza pandemics of the 21st century. Influenza and coronavirus pandemics are zoonoses that spread rapidly in consistent seasonal patterns during an initial wave of infection and subsequent waves of spread. For all of their differences in the state of available medical technologies, global population changes, and social and geopolitical factors surrounding each pandemic, there are remarkable similarities among them. While vaccination of high-risk groups is advocated as an instrumental mode of interrupting pandemics, non-pharmacological interventions including avoidance of mass gatherings, school closings, case isolation, contact tracing, and the implementation of infection prevention strategies in healthcare settings represent the cornerstone to halting transmission. In conjunction with lessons learned from previous pandemics, the public health response to the COVID-19 pandemic constitutes the basis for delineating best practices to confront future pandemics.

Keywords: pandemic; COVID-19; coronavirus; SARS-CoV-1; SARS-CoV-2; MERS; SARS; influenza