The spread of a new virus has caused a worldwide effort to combat the COVID-19 pandemic. Humans, however, have experienced many viral outbreaks in the past. Historical data can help inform current analyses and decisions. Thus, this infographic compares COVID-19 with past pandemics and outbreaks to showcase similarities and differences. This can allow for a better understanding of COVID-19 in the context of past events and the changing perspectives over the past century.

# COVID-19 vs. History's Pandemics

## TOTAL DEATHS COMPARED

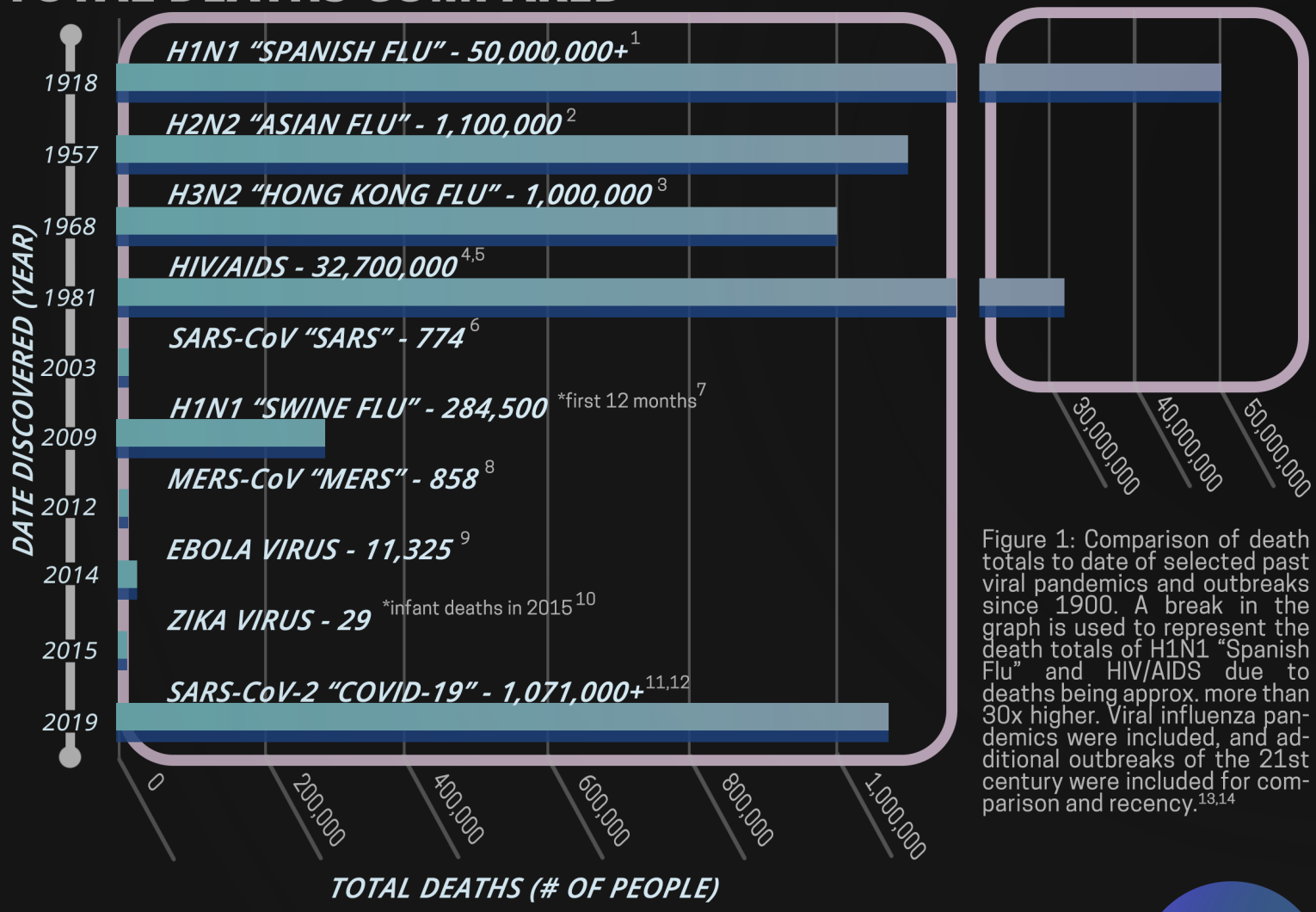


Figure 1: Comparison of death totals to date of selected past viral pandemics and outbreaks since 1900. A break in the graph is used to represent the death totals of H1N1 "Spanish Flu" and HIV/AIDS due to deaths being approx. more than 30x higher. Viral influenza pandemics were included, and additional outbreaks of the 21st century were included for comparison and recency.[13,14]

## ESTIMATION OF CONTAGIOUSNESS

The Basic Reproductive Ratio ($R_0$) is a value used to represent the number of secondary cases that would be caused by one infected person in a susceptible population.[15] $R_0$ can vary and depends on many variables such as human activity, seasonal factors, the pathogen, and modeling assumptions. When used correctly, it is a crucial epidemiological estimation of the contagiousness of a disease.[15]

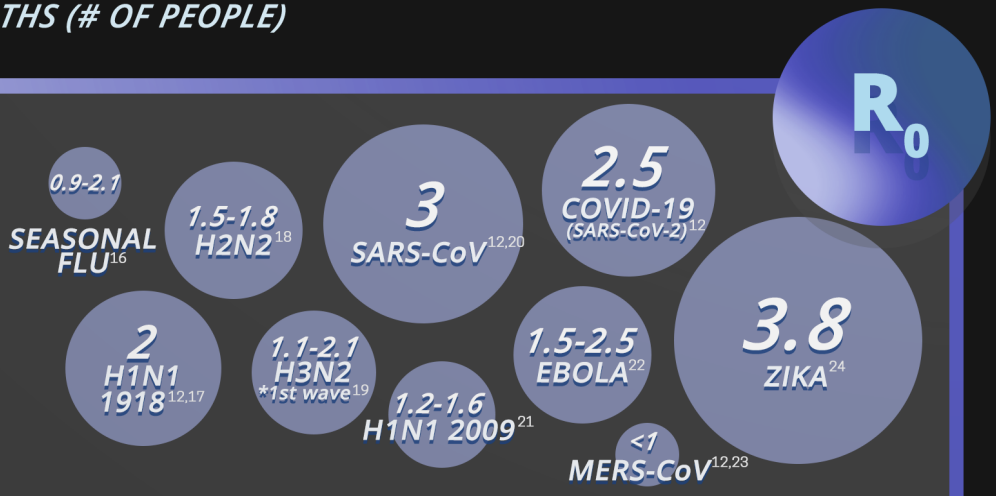


Figure 2: The Basic Reproductive Ratio ($R_0$) of viral outbreaks were represented using circle sizes proportional to their values. Values were pulled from literature and rounded, but may vary by study.

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Received 15 October 2020
Accepted 12 November 2020
Published 4 December 2020

**ARTICLE INFORMATION**

**Senior Editor**
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# RESPONSES & PERCEPTIONS

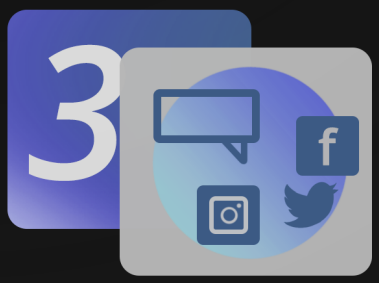
Advancements in technology, globalization, and changing news perceptions have influenced pandemic management over the years.[25] Since 1918, these changing factors have shifted the way outbreaks are responded to and perceived.


## *H1N1 "SPANISH FLU"*

The Spanish Flu infected one-third of the world's population, with its spread heightened by the war.[1,26] Despite the isolation and hygiene measures that were put in place, the lack of vaccines and antibiotics led to an inevitably disastrous outcome.[1] Nonetheless, it sparked increasing research on influenza.[26]

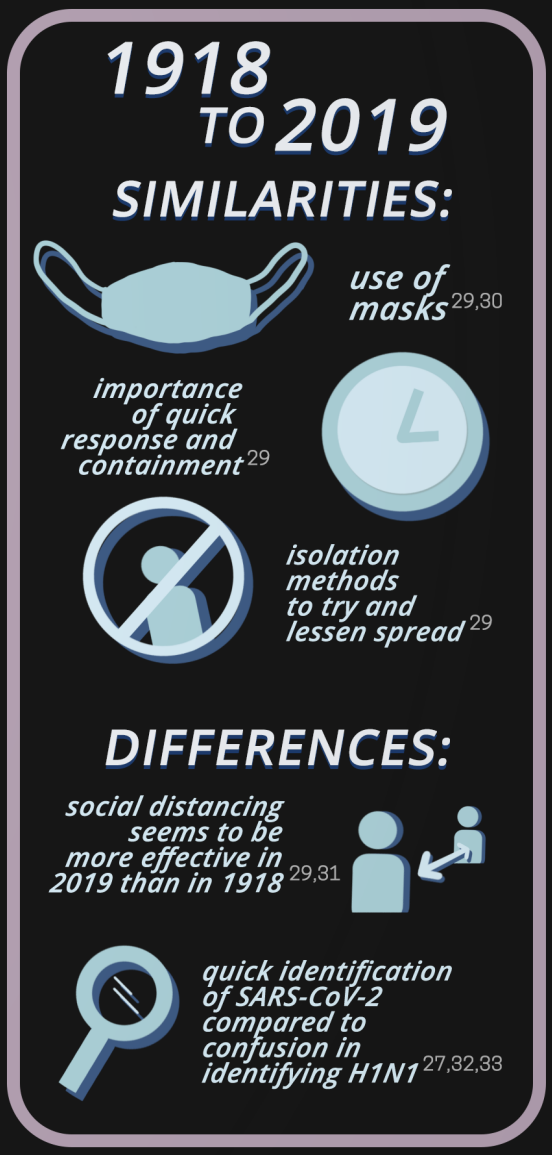
## *THE MID-1900s AND ADVANCEMENTS*

Viruses were discovered and isolated from people in the 1930s.[27] By the second half of the 20th century, the World Health Organization played a major role in the surveillance of disease, presenting itself as a reliable source of pandemic information.[26] By this time, vaccinations for influenza were widely accepted.[26]


## *21ST CENTURY OUTBREAKS AND CONSIDERATIONS*

By the 21st century, politics became heavily involved in preparedness as pandemics were sometimes treated as a "security threat".[26(p.96)] Additionally, SARS, H1N1, Ebola, and ZIKA brought a focus on mental health, balancing preparedness and panic, quickly containing outbreaks, and critically evaluating information on social media.[10,28]

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