

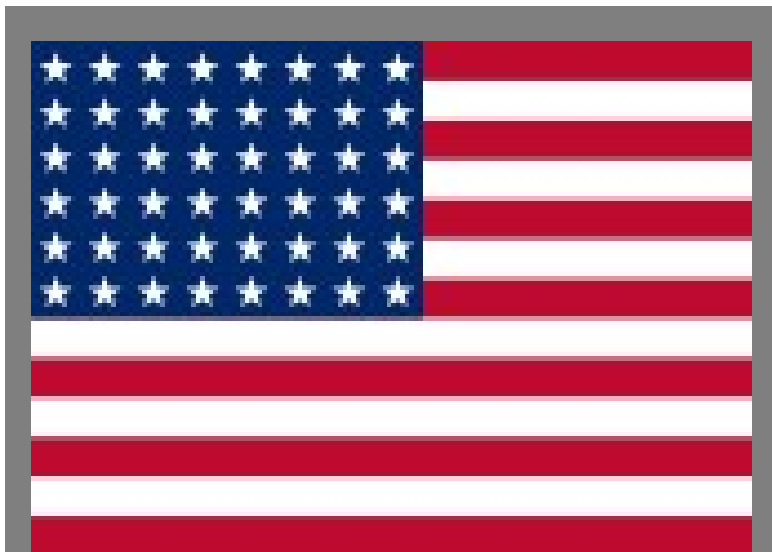


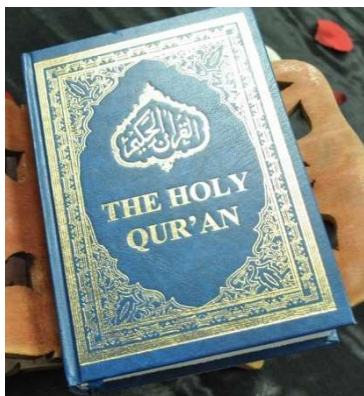
# A 15-minute primer on the pandemic

**Sohail Z Husain, MD**

*serving* as President

Association of Ahmadi Muslim  
Scientists (AAMS) USA



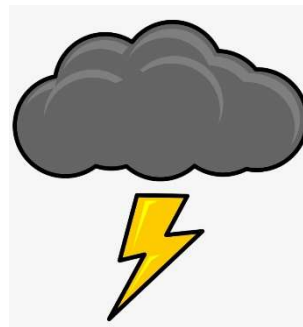


إِنَّمَا أَمْرُهُ إِذَا أَرَادَ شَيْئًا أَنْ يَقُولَ لَهُ كُنْ فَيَكُونُ ﴿٨٣﴾

**Verily His command, when He intends a thing, is only that He says to it, 'Be!,' and it is. (36:83)**

Almighty Allah can allow extraordinary tribulations to surface

Abrupt arrival of a pandemic



He can also cause exceptional cures to be made in record time



# Primer on the pandemic

- A timeline of the pandemic
- A timeline of the science to tackle the pandemic
- What's next?

# **TIMELINE OF THE PANDEMIC**

I was in London at the AMRA UK Conference, listening to an epic call for Ahmadis to go into science by the Khalifa

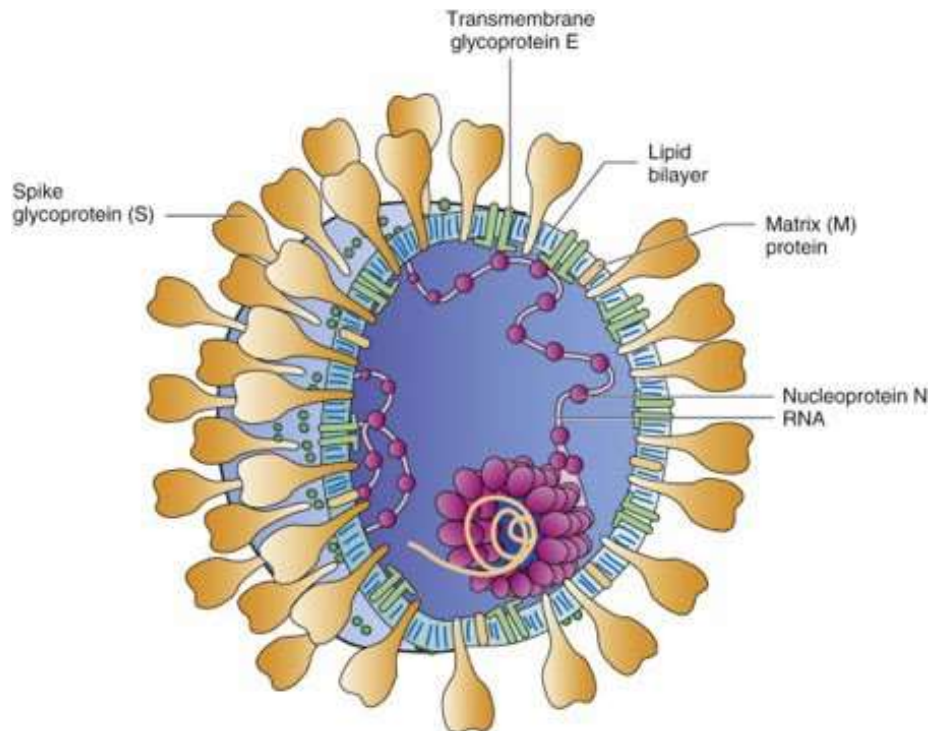
A novel coronavirus is publicly identified as the source of the outbreak

**Dec 31<sup>st</sup>, 2019**

**Dec 14<sup>th</sup>, 2019**

**Jan 8<sup>th</sup>, 2020**

A mysterious outbreak of pneumonia cases reported in Wuhan, China



### Coronaviruses

- Enveloped RNA virus
- Corona-like appearance
- Second most frequent reason for the common cold

The novel coronavirus is >95% similar to a virus in **bats**



Jan 23<sup>rd</sup>, 2020



**Bats the vector in common for 2 novel coronaviruses in the last 2 decades**

Severe Acute Respiratory Syndrome (**SARS**)-CoV (2003-2004)

—> 8,000 cases, 10% mortality, 32 countries (in 3 months)

—Bats → Cats, Raccoon Dogs → Humans

• Middle East Respiratory Syndrome (**MERS**)-CoV (2012-)

—> 2,500 cases, 35% mortality, 27 countries

—Bats → Camels → Humans

• **New SARS-CoV (2019-)?**

—Bats →→ Humans



## The fears of health scientists are real



Human-to-human transmission confirmed, and the Wuhan lockdown begins

The virus gets its name, SARS-CoV-2  
The disease it causes is called COVID-19

Imperial College London mathematical models warn that health care systems will be overwhelmed

Jan 20-23

Feb 5

Feb 11

Mar 11

Mar 16

The Diamond Princess Cruise is quarantined, and the transmission rate is concerning

The WHO declares the coronavirus outbreak a pandemic

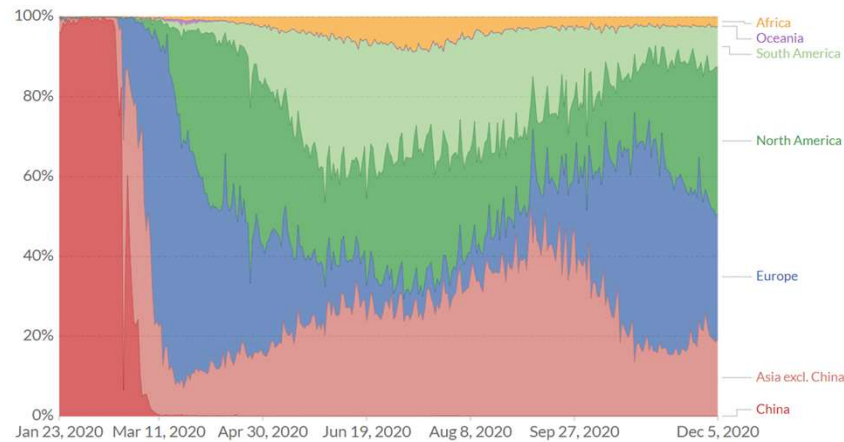
# Sadly, the US takes the lead, in COVID-19 infections

## Daily confirmed COVID-19 cases

The number of confirmed cases is lower than the number of total cases. The main reason for this is limited testing.

Our World in Data

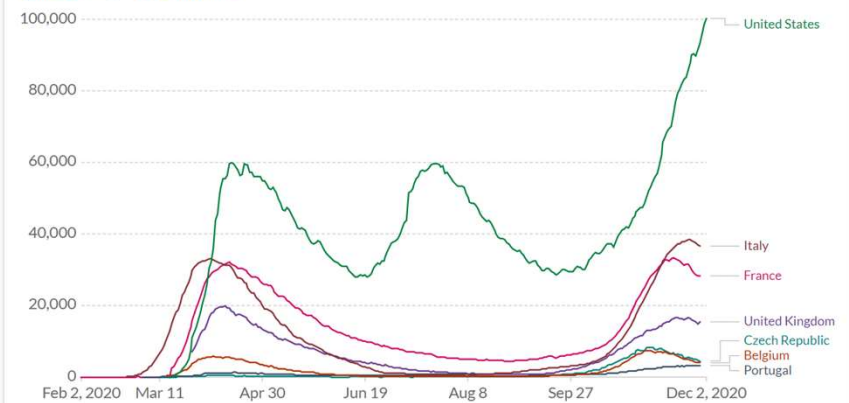
Relative



Source: Johns Hopkins University CSSE COVID-19 Data - Last updated 6 December, 06:06 (London time) OurWorldInData.org/coronavirus • CC BY

## Number of COVID-19 patients in hospital

Our World in Data



Source: European Centre for Disease Prevention and Control (ECDC) and COVID Tracking Project OurWorldInData.org/coronavirus • CC BY

Feb 2, 2020  Dec 2, 2020



# there were missteps... to learn from



HCQS

Emergency use authorization (EUA) for hydroxychloroquine (**based on poorly constructed studies**; 4 months later found to be ineffective in a well-design trial)

Asymptomatic carriers play a large role in transmission of the virus (**we wish we had known earlier**)

US and Europe confront second and third waves

April 3

August

March 2020

Apr 24

October

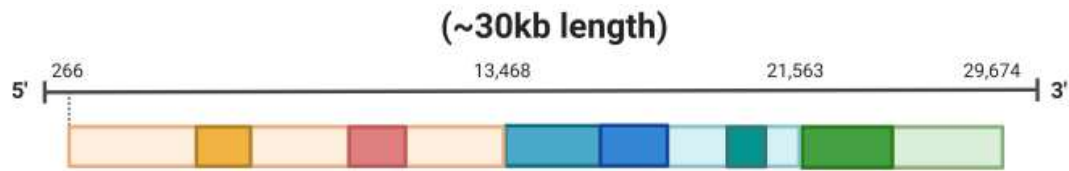
US public health officials finally advise that people wear cloth masks (**late advice**)

First confirmed case of reinfection (**long term immunity not guaranteed after recovery from infection**)



# **A TIMELINE ON THE SCIENCE TO TACKLE THE PANDEMIC**

# Science in action

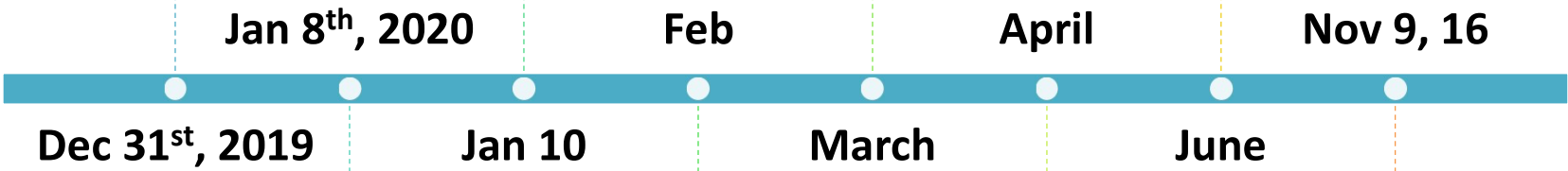


A mysterious outbreak

The genetic sequence of the virus is posted online

Vaccine trials launched

Dexamethasone reduces fatality by up to 1/3 in hospitalized patients

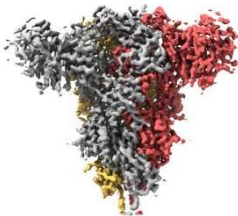
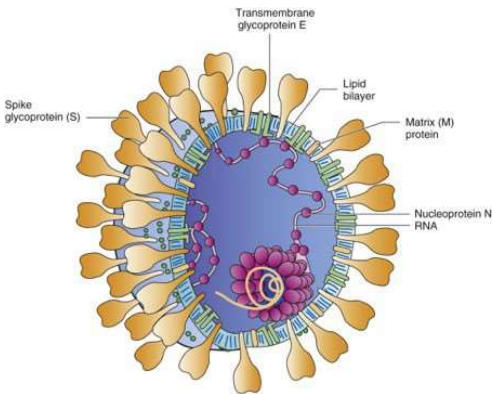


A novel coronavirus identified

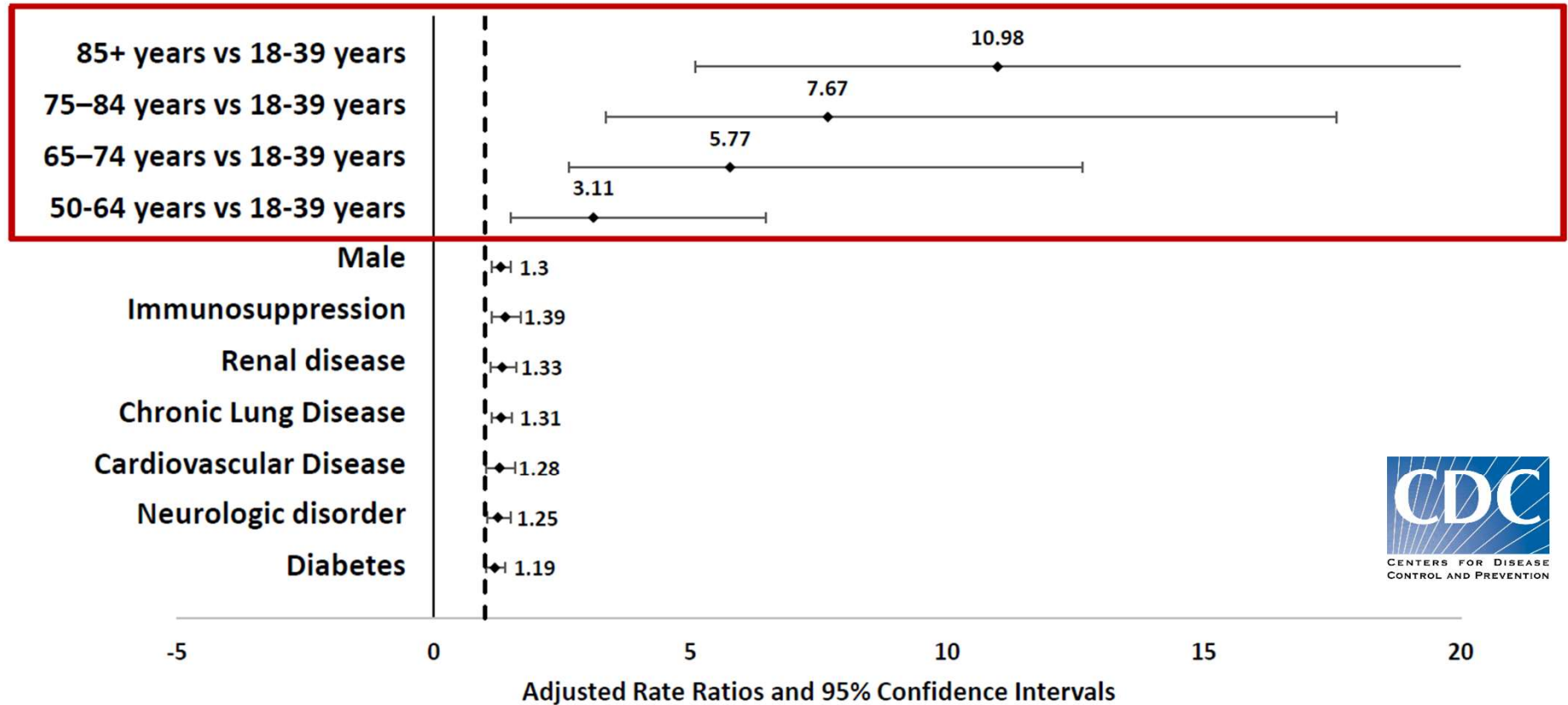
Atomic-level structure of the spike protein imaged

First evidence that a vaccine can protect monkeys

Pfizer/BioNTech, then Moderna, reveal vaccine efficacy nearing 95%

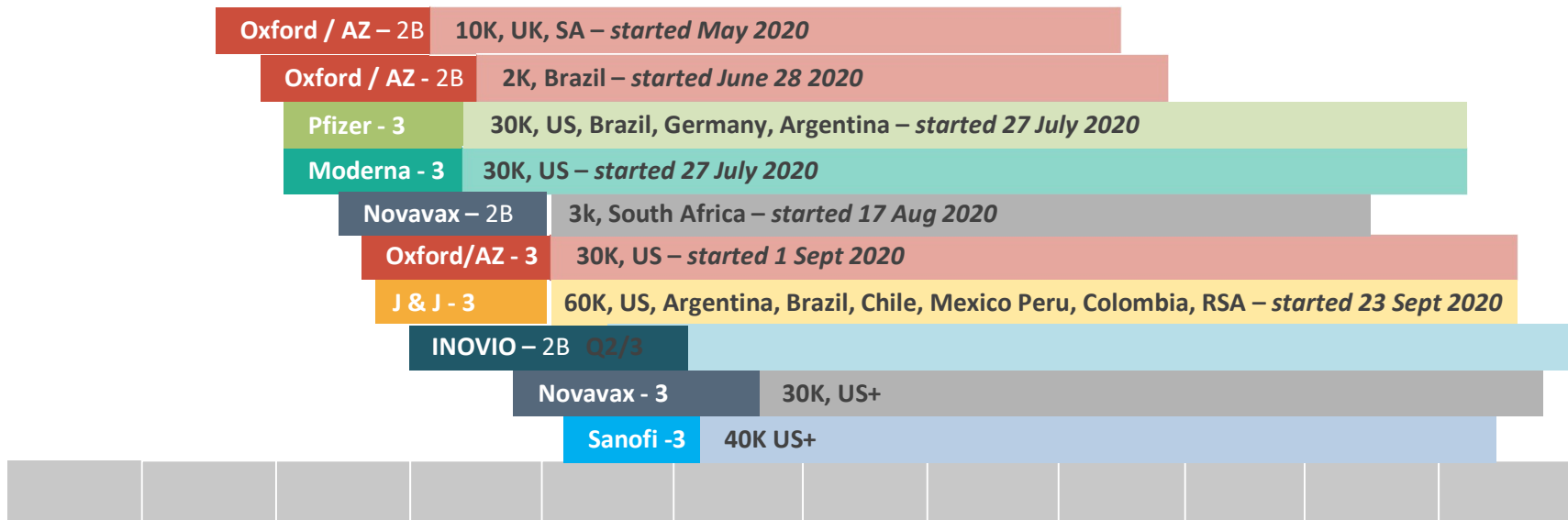


# We learned early on: Older age is the strongest predictor of death from COVID-19, even more than high risk medical conditions



## The race to vaccine trials was intense...

“Compete with one another in good works” (HQ 2:149)



**WHAT'S NEXT?**

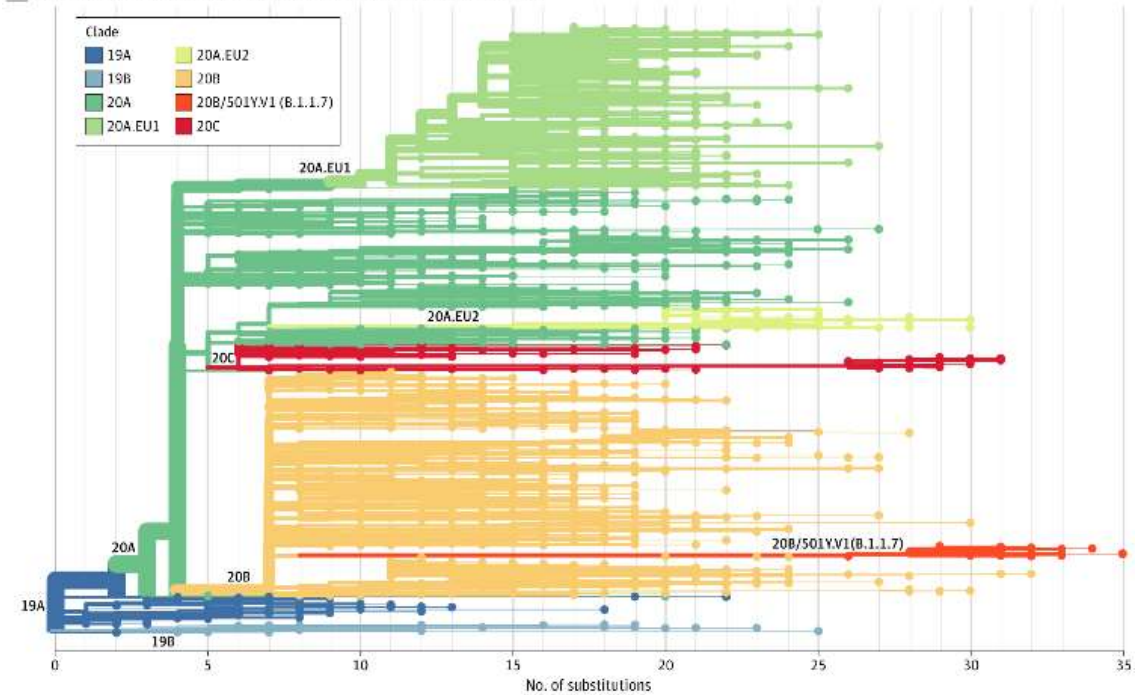


**Sir Winston Churchill  
1942**

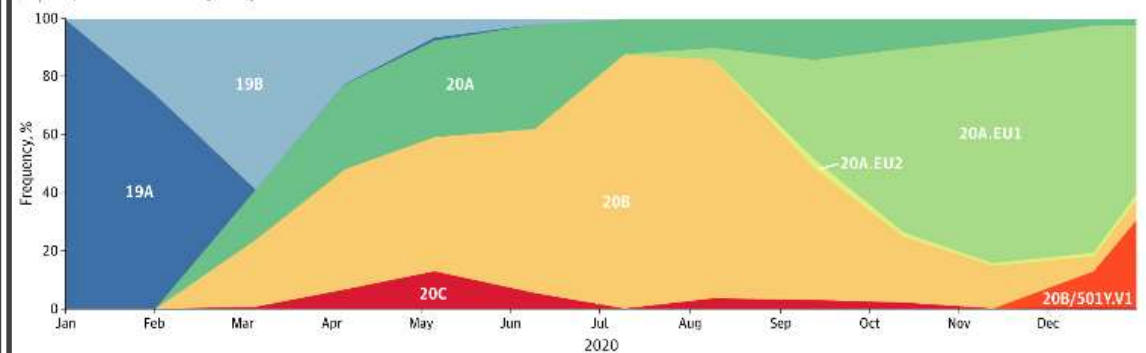
- “This is not the end. It is not even the beginning of the end. But it is, perhaps, the end of the beginning.”

Time will tell whether the SARS-CoV-2 variants escape the first generation of vaccines

A Phylogenetic tree of circulating lineages of SARS-CoV-2 in the United Kingdom

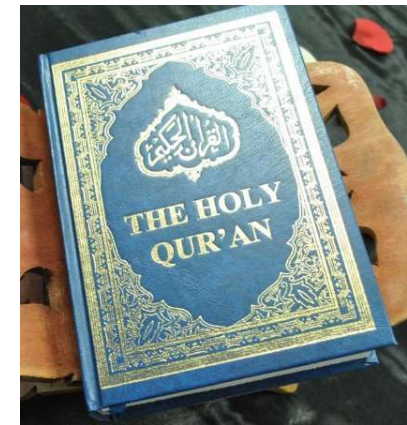


B Frequencies of circulating lineages of SARS-CoV-2 over time





- Allah can allow pandemics to abruptly emerge, and He can also cause them to quickly end, through His Grace and Mercy
- The timeline on the pandemic, the science of SARS-CoV-2, and the race to the vaccine is a story about facing great odds and working together to uncover lifesaving biology
- There will be more scientific questions to solve
- This is the best time to be a scientist



Address of the Khalifa from Dec 2019

- “consider it your mission to pursue excellence within your chosen field”
- “develop a greater understanding of the world and develop new technologies or systems through which humanity can benefit”

