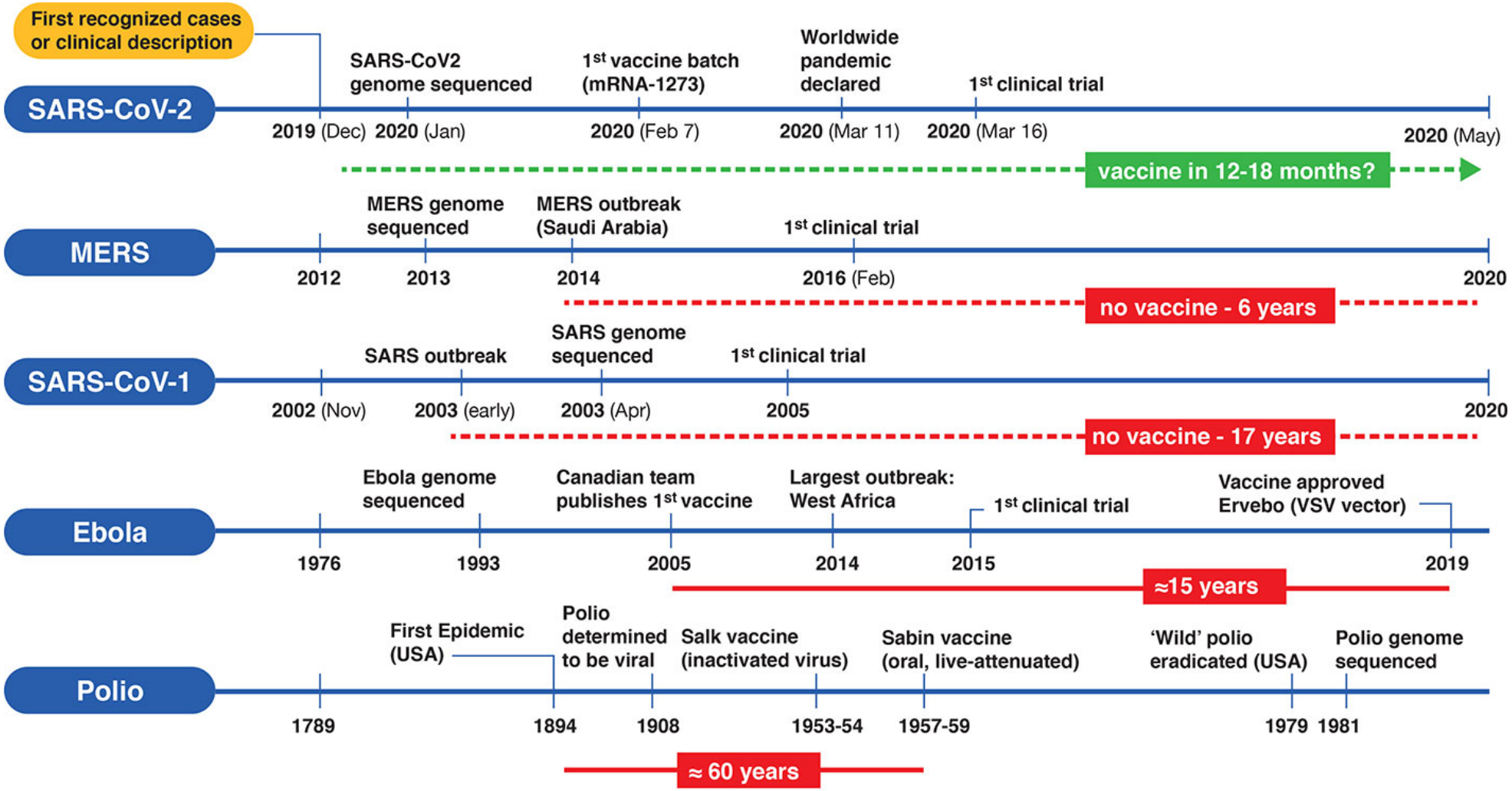
Vaccines against SARS-CoV-2

Developments & Implications

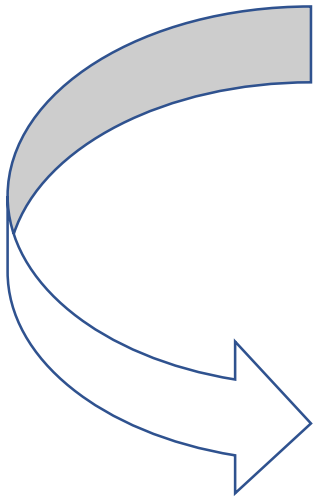
Bioshares

History Has Been Made



A Snapshot of the Global Race for Vaccines Targeting SARS-CoV-2 and the COVID-19 Pandemic
Funk CD et al Front. Pharmacol., 19 June 2020 | https://doi.org/10.3389/fphar.2020.00937

Leading mRNA Vaccine Candidates against SARS-CoV-2



Time to First Results		
Company/s	Pfizer/Biontech	Moderna
Candidate	BNT162b2	mRNA-1273
Description	prefusion Spike protein of SARS-CoV-2 (modified nucleosides); Lipid nanoparticle formulation; intramuscular injection	prefusion Spike protein of SARS-CoV-2 (modified nucleosides); Lipid nanoparticle formulation; intramuscular injection
Date first patient dosed, Phase I	23/04/2020	16/03/2020
Date-Interim Results Phase III	09/11/2020	16/11/2020
Days to Interim Results Phase III	*200*	*245*

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Phase III Data		
Candidate	BNT162b2	mRNA-1273
Subjects	44,000	30,000 (fully enrolled October 22) 8,000 with chronic conditions
Dosing	30 µg at day 1 and day 21	100 µg at day 1 and day 29
Age Breakdown		18-24, 5% 25-44, 29% 45-64, 39% 65+, 25%
Efficacy	95% efficacy	Interim readout - 94.5% efficacy
Efficacy based on	162 infections in placebo versus 8 in vaccine group	90 infections in placebo versus 5 in vaccine group (final to be based on 151 cases)
Efficacy (Older people)	>94% efficacy in adults over 65 years of age	
Safety	Only Grade 3 adverse event greater than 2% in frequency was fatigue at 3.8% and headache at 2.0%	Grade 3 (severe) events greater than or equal to 2% in frequency after the first dose included injection site pain (2.7%), and after the second dose included fatigue (9.7%), myalgia (8.9%), arthralgia (5.2%), headache (4.5%), pain (4.1%) and erythema/redness at the injection site (2.0%)
Safety	10 severe cases of COVID-19 in placebo versus 1 in vaccine arm	11 severe cases of COVID-19 in placebo versus 0 in vaccine arm

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Other Features		
Candidate	BNT162b2	mRNA-1273
Storage	-70°C±10°C (temperature-controlled thermal shippers utilizing dry ice), After storage for 15 days in the Pfizer thermal shipper, vaccination centers can transfer the vials to 2-8°C storage conditions for an additional five days	Stable at 2° to 8°C (36° to 46°F), 30 days (standard home or medical refrigerator) Long-term storage conditions at standard freezer temperatures of -20°C (-4°F) for 6 months
Manufacturing volumes	up to 50 million doses in 2020 and up to 1.3 billion doses by the end of 2021 Biontech EU Facility to produced 60 million/ month	20 million doses by end 2020 500-1,000 million doses 2021
Pricing	(e) US$19.50 dose	Small volume US$32-37/dose Large volume (US) $US25/dose
Review and approval	VIRBPAC to meet Dec 10; "While we cannot predict how long the FDA's review will take, the FDA will review the request as expeditiously as possible, while still doing so in a thorough and science-based manner, so that we can help make available a vaccine that the American people deserve as soon as possible." (FDA, 20/11/2020)	

Implications

Approval followed by deployment of a mRNA vaccine candidates will:

Give public health agencies and governments the confidence to reduce population controls
Allow the recovery of damaged sectors to begin

First run vaccinations will likely used to protect vulnerable (at-risk) groups and specified health care workers

Stocks
Investment flows will return to transport, travel and tourism sectors
Diagnostic and specific SARS-CoV-2 drug developers stock plays will be less attractive