

# Lessons from COVID-19 and the need for paradigm shift in fighting Disease X

**Linfa WANG**

**Professor, Programme in Emerging Infectious Diseases  
Executive Director, PREPARE, MoH**

# Key messages/lessons

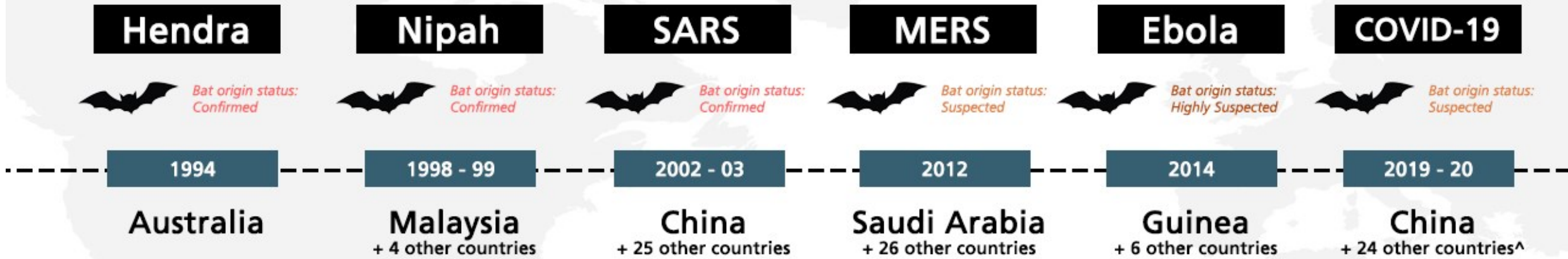
---

- SARS-CoV-2 is a “known unknown”
- Spillover happens more often than we thought
- Paradigm shift is required to fight Disease X



# SARS-CoV-2 is a “known unknown”!

*Summary of major emerging zoonotic virus outbreaks with confirmed or suspected bat-borne origin (1994-2019)*



# Frequency of virus jumping species

- Investigation of disease outbreaks (not necessary pandemics)
- Surveillance based on detection of viral genetic materials
- Surveillance based on detection of virus-specific antibodies









ARTICLE



<https://doi.org/10.1038/s41467-022-31860-w>

OPEN

# A strategy to assess spillover risk of bat SARS-related coronaviruses in Southeast Asia

Cecilia A. Sánchez <sup>1</sup>, Hongying Li <sup>1</sup>, Kendra L. Phelps <sup>1</sup>, Carlos Zambrana-Torrel <sup>2</sup>, Lin-Fa Wang <sup>3</sup>, Peng Zhou<sup>4</sup>, Zheng-Li Shi <sup>4</sup>, Kevin J. Olival <sup>1</sup> & Peter Daszak <sup>1</sup>✉

**More than 60,000 people are exposed to SARSr-CoVs annually in Southeast Asia.**

# Limitations of the current vaccines

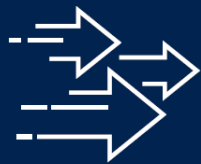
---

- **Breadth:** Immunity is very narrow and unable to prevent infection of variants and/or future sarbecoviruses
- **Longevity:** Short duration of immunity
- **Locality:** No/not sufficient mucosal immunity

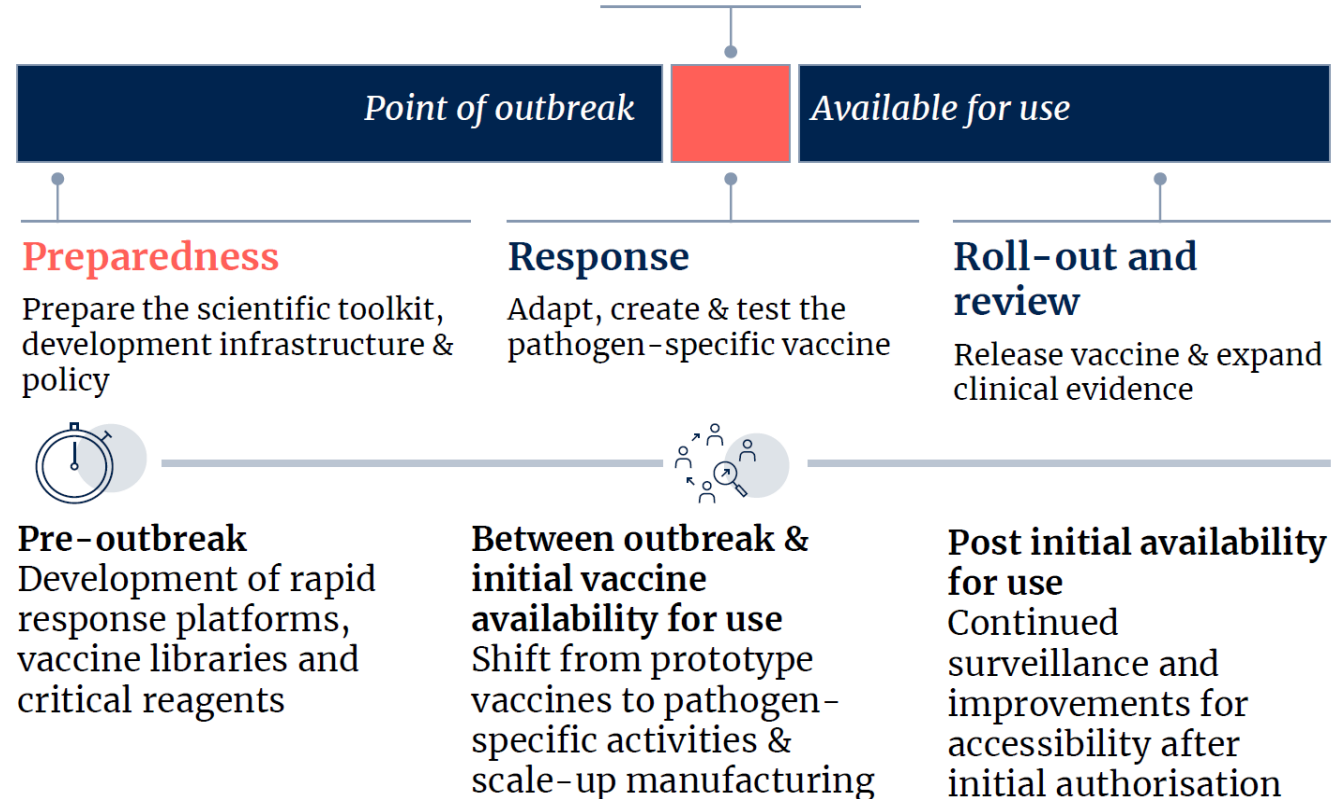
# Pre-emptive (in advance) development and rapid deployment

- Prototype pathogen – broad spectrum vaccine
- “Universal” antibody vaccine for early intervention

Achieving maximal response acceleration will require a **paradigm shift**



Response acceleration under **specific scenarios**



**Paradigm shift:** significant front-loading in preparedness, and breaking the firewall between development and intervention





**PREPARE**



Programme for  
Research in  
Epidemic  
Preparedness  
And  
REsponse

*Thank you!*