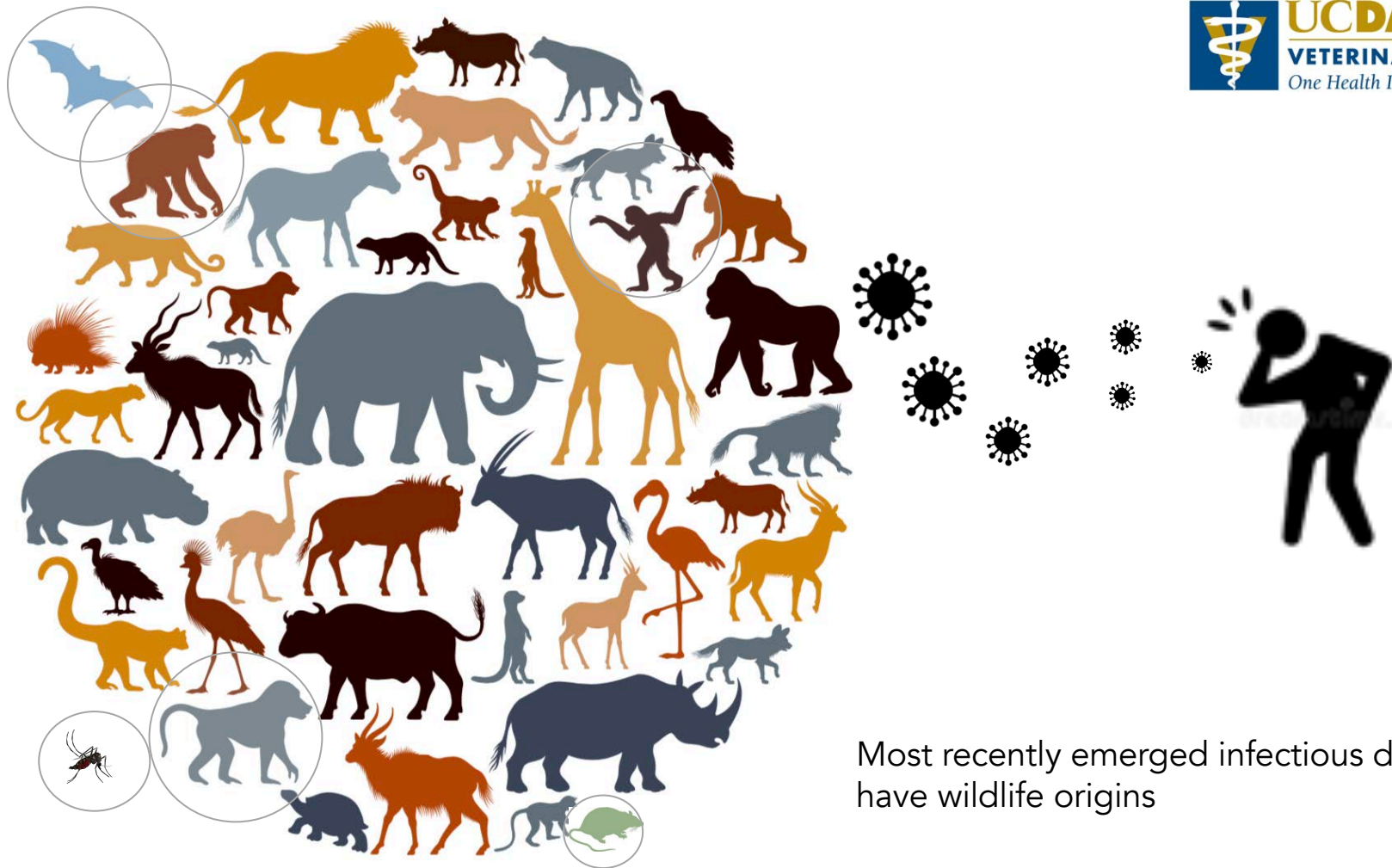


ADVANCING POLICY FOR A PANDEMIC ERA



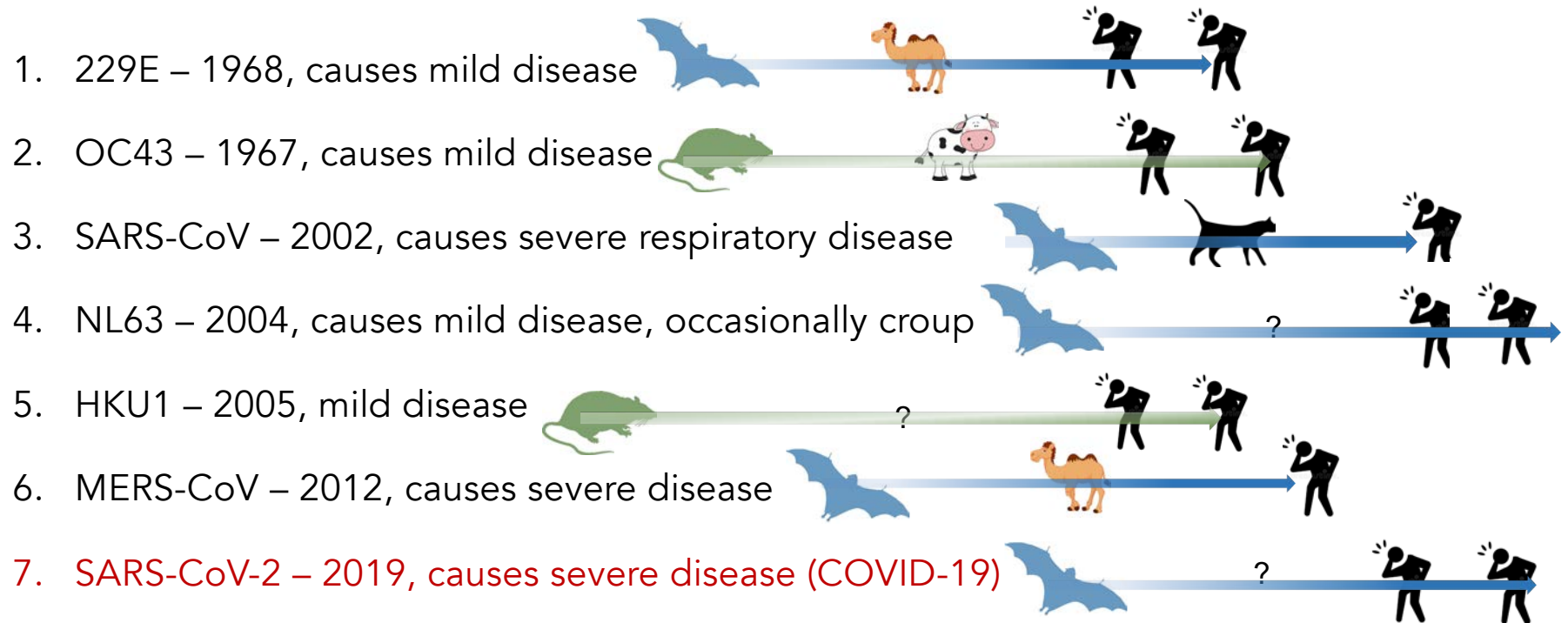
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Most recently emerged infectious disease
have wildlife origins

Human Coronaviruses

Virus name – date of first discovery, most common disease manifestation, suspected sources



Emergence of a Pandemic Threat



Virus Spillover Risk from Wildlife

Global shifts in mammalian population trends reveal key predictors of virus spillover risk

Christine K. Johnson¹, Peta L. Hitchens², Pranav S. Pandit¹, Julie Rushmore¹, Tierra Smiley Evans¹, Cristin C. W. Young¹ and Megan M. Doyle¹

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Species in global decline because of exploitation and habitat loss shared more viruses with people

- Declines in habitat for wild mammals, due to deforestation, development, and conversion to cropland
- Exploitation of wildlife through hunting and the live wild animal trade





Habitat Loss and Spillover Risk

- Movement of wildlife species to accommodate fragmentation and loss of habitat
- Increased interactions with wildlife along the perimeters

A tiger's face is partially visible, peering through a dense thicket of green, feathery leaves. The tiger's eyes are yellow and focused forward. The background is dark, making the green leaves and the tiger's face stand out.

Risk in the Wildlife Trade

-
- Transit conditions, lack of health screening at import, and holding areas conducive to spreading disease

Science 369 (6502), 379-381.
DOI: 10.1126/science.abc3189

Wildlife Trade –

an ideal epidemiologic setting for virus spillover

- Animals harvested from natural habitat
 - Risks associated with hunting and transport
- Animals raised on wildlife farms
 - Health and safety regulations in wildlife farming are often insufficient
- Disease risk increases from initial capture to point of sale
 - Crowded in cages, close contact among different species, worsening health caused by captivity and transport



Accelerated Global Change

- Agricultural development, industrialization, urbanization
- Globalization and movement at the international scale
- Substantial net gains in human well-being and economic development
- Degradation of ecosystem services
- Increasingly frequent emerging infectious diseases

Transition to One Health
and science-based policy



Millennium Ecosystem Assessment, 2005. *Ecosystems and Human Well-being: Synthesis*.
Island Press, Washington, DC.