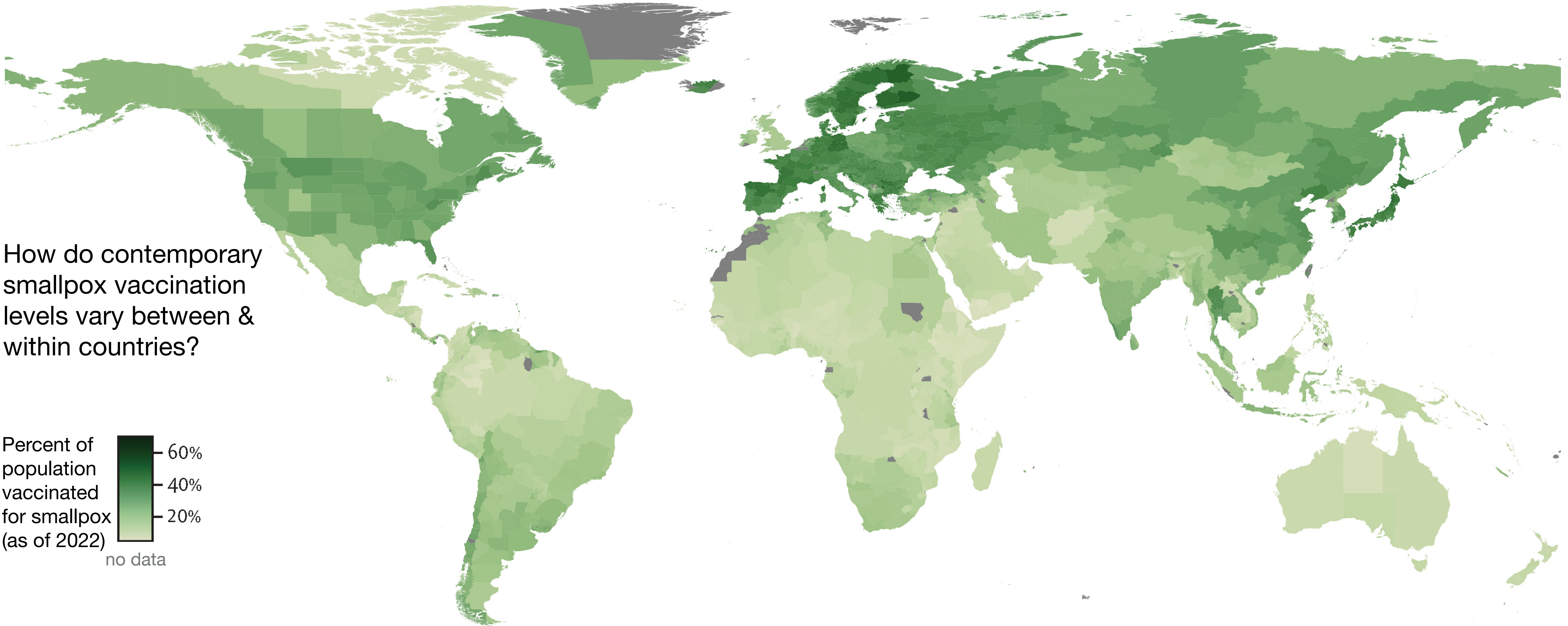


The global landscape of smallpox vaccination history

Implications for current and future orthopoxvirus susceptibility

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Demography drives contemporary smallpox vaccination heterogeneity

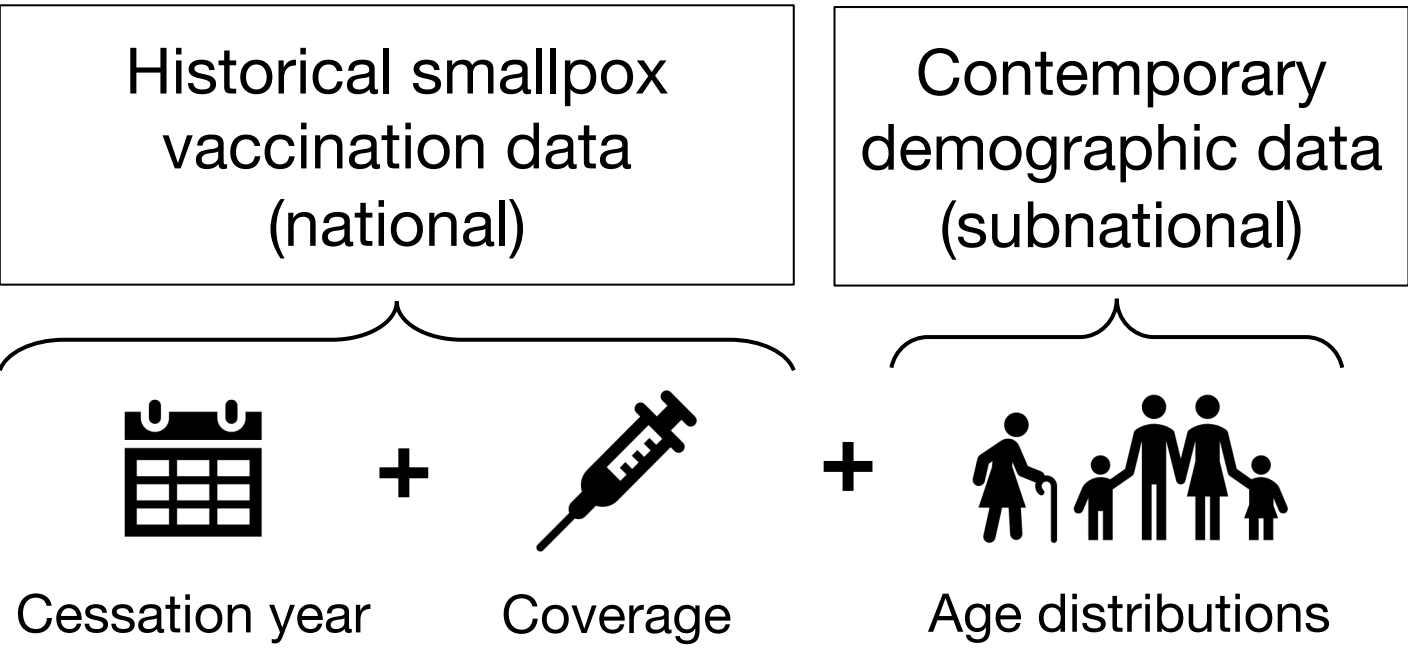
Younger populations are less vaccinated & at greater risk of orthopoxvirus infection

Methods

Motivation

- Historical smallpox vaccination efforts were **heterogeneous** leaving a modern **patchwork** of long-lasting **protection**
- This protection is relevant today due to:
 - Ongoing mpox outbreaks
 - Increasing orthopoxvirus spillover
 - Possibility of smallpox bioterrorism
- We characterized **contemporary** levels of population vaccination against smallpox

Approach



Due to limited data & small expected effects, we did not consider:

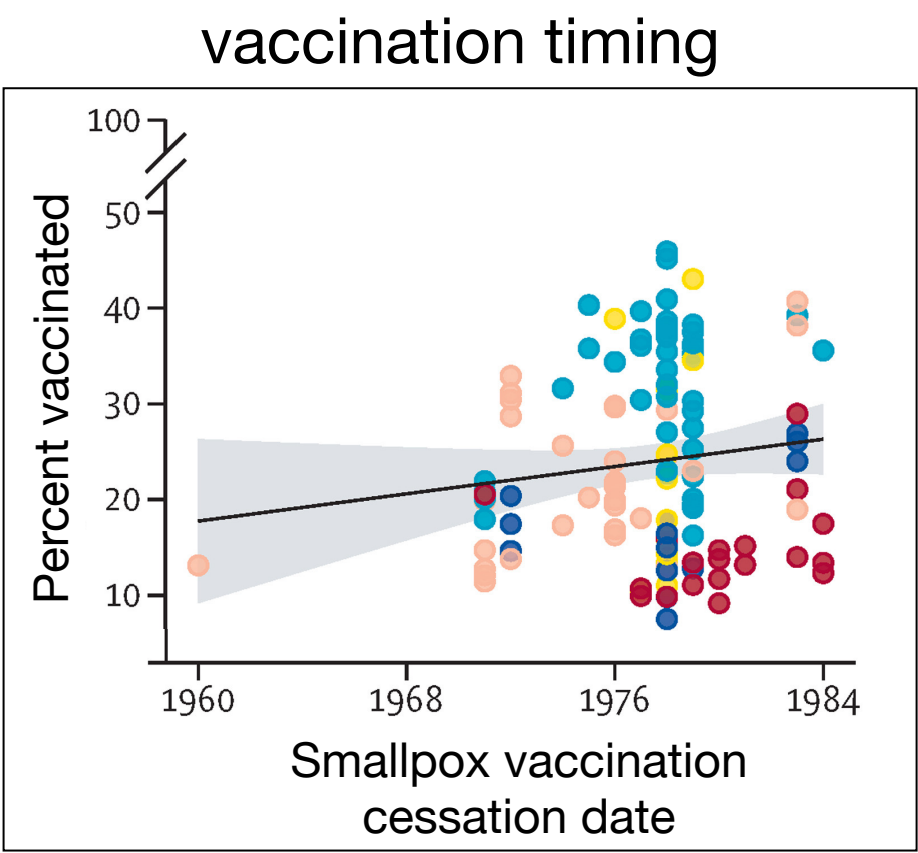
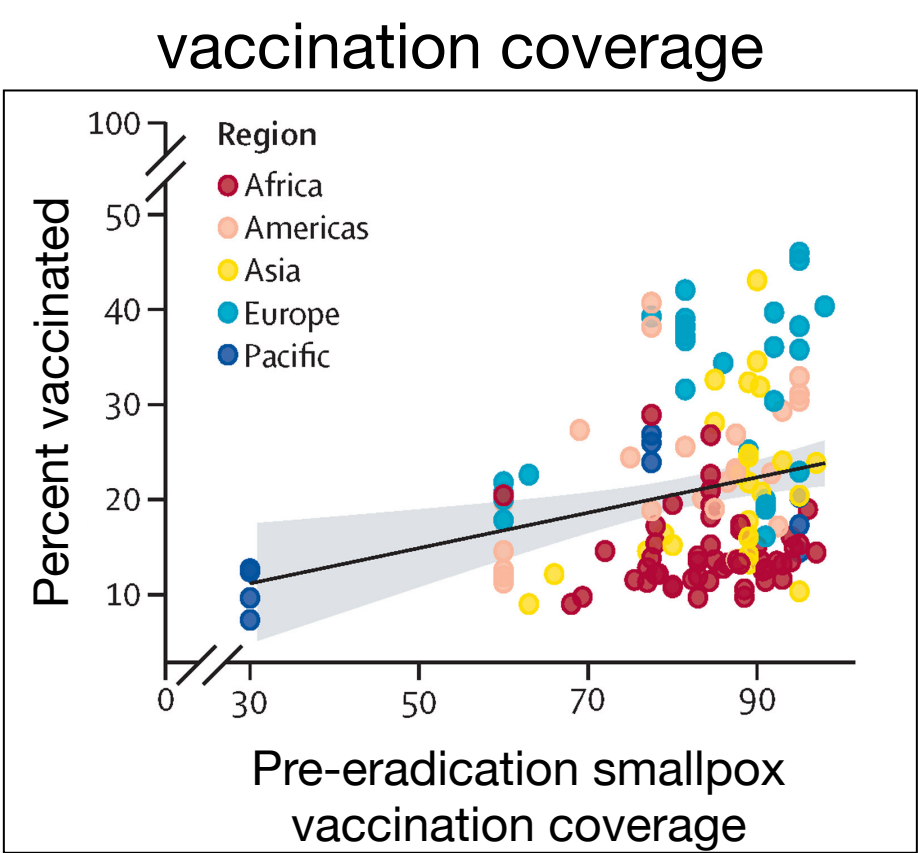
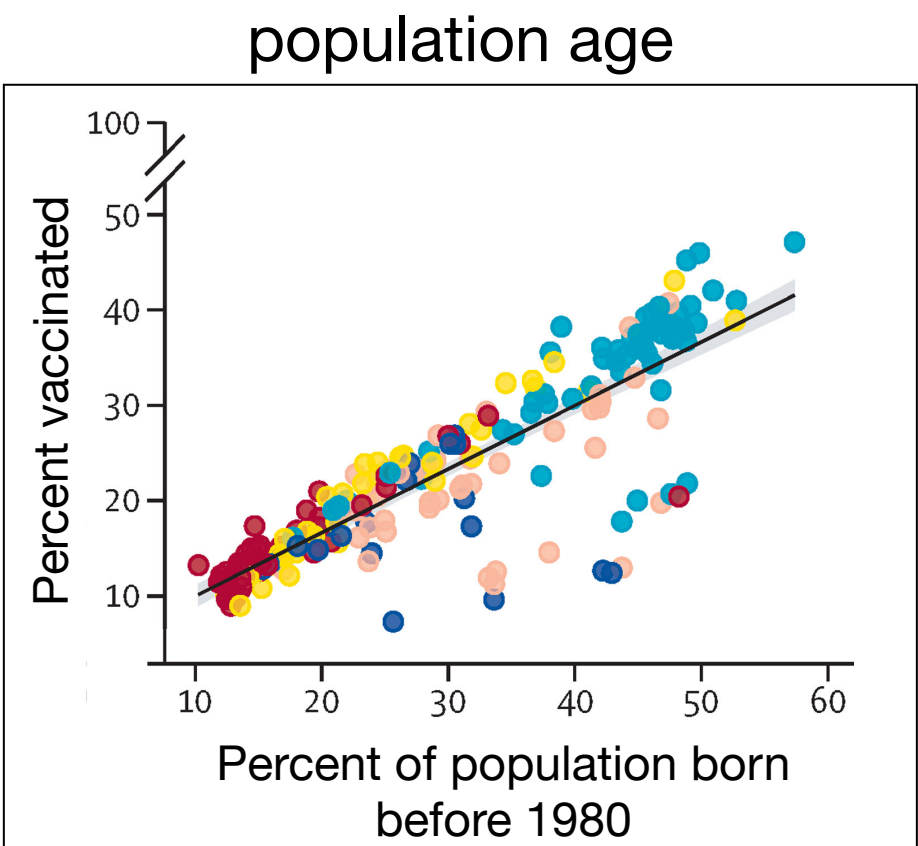
- Natural immunity
- Military vaccinations

Takeaways

- There is currently **substantial global protection** against orthopoxviruses
- But **significant geographic heterogeneity** in protection, driven by demographic differences
- Our estimates can be used to
 - Assess current & future risk
 - Allocate vaccine supplies
 - Predict transmission dynamics

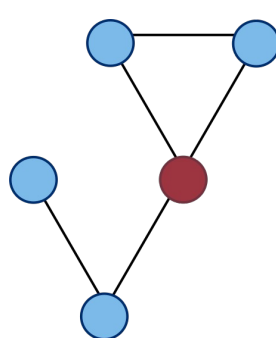
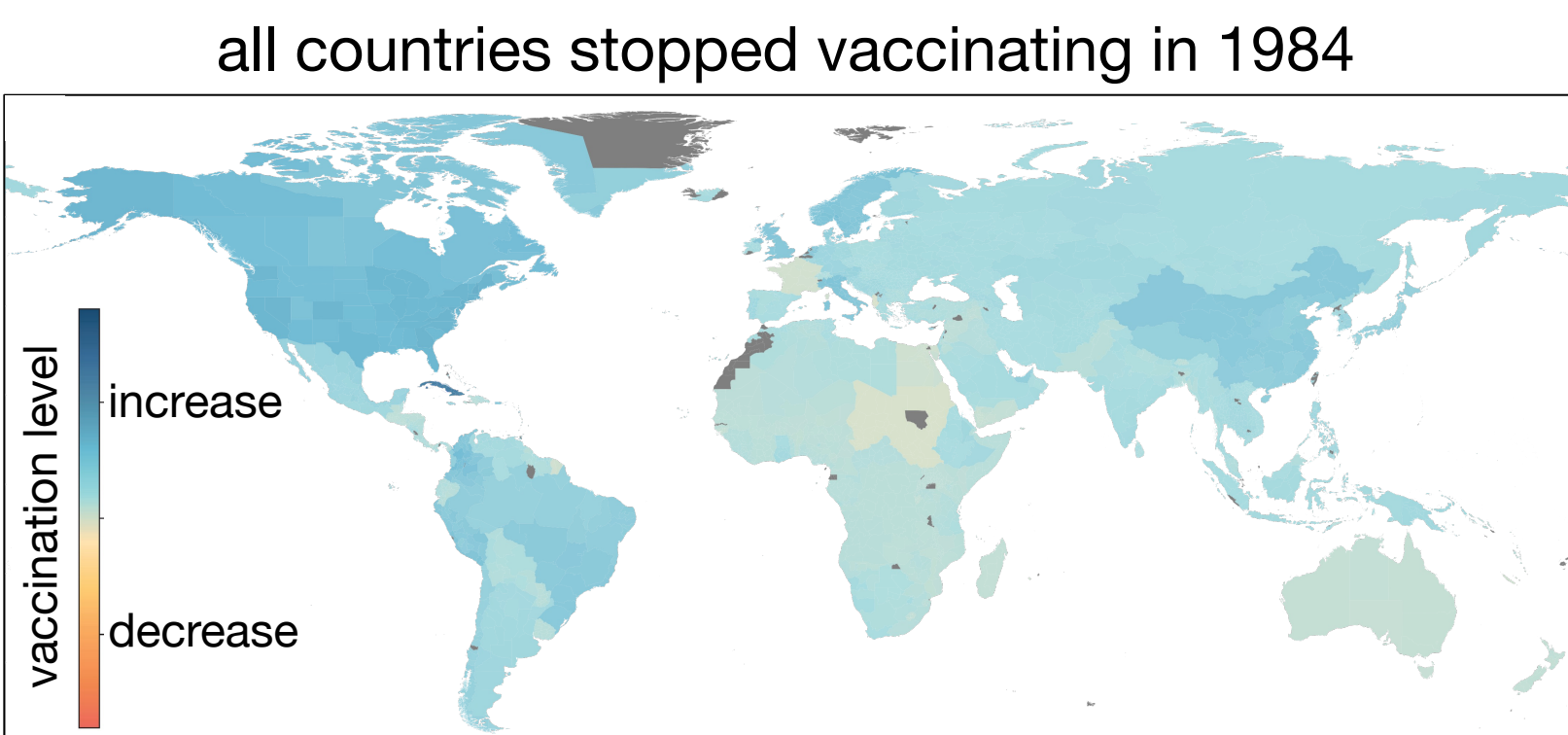
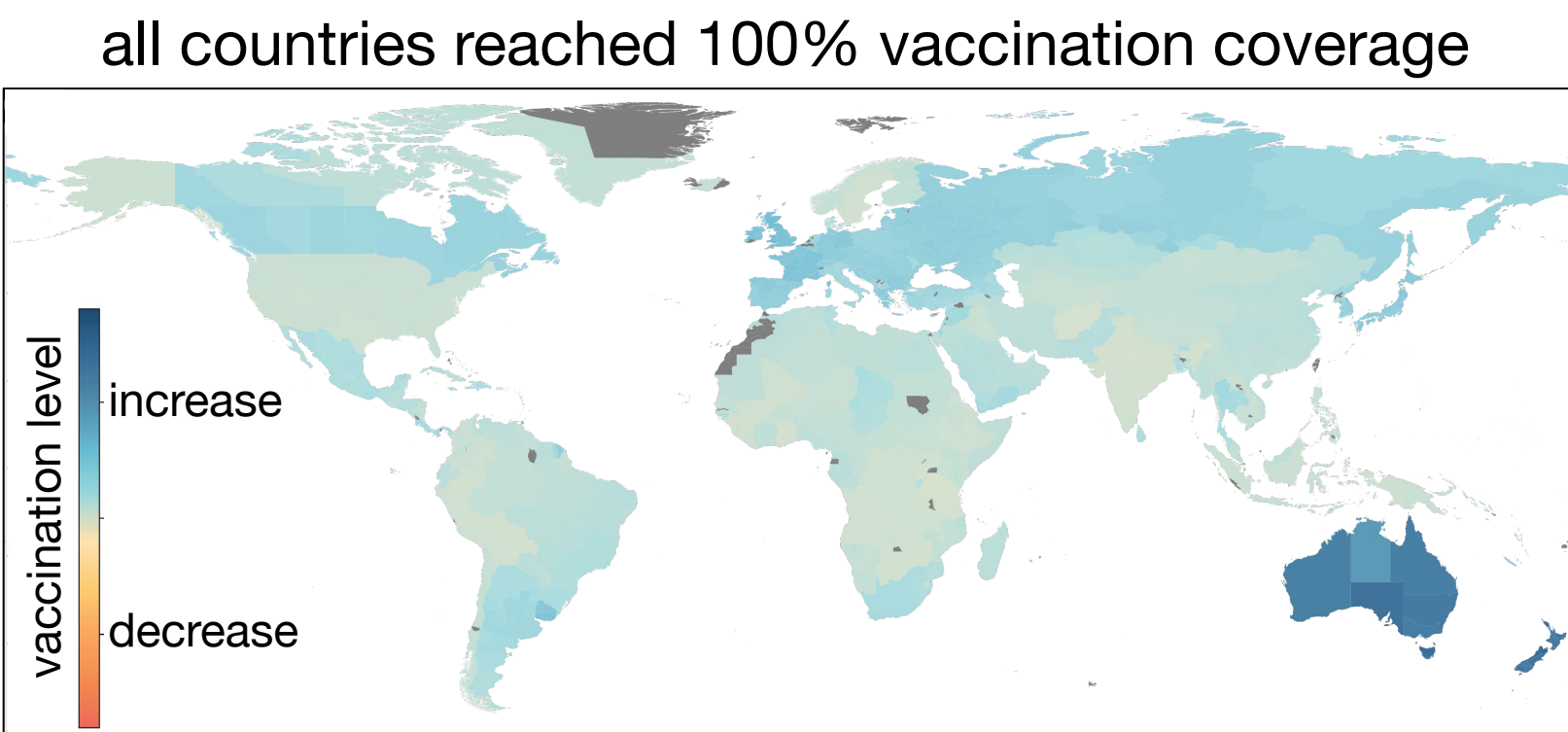
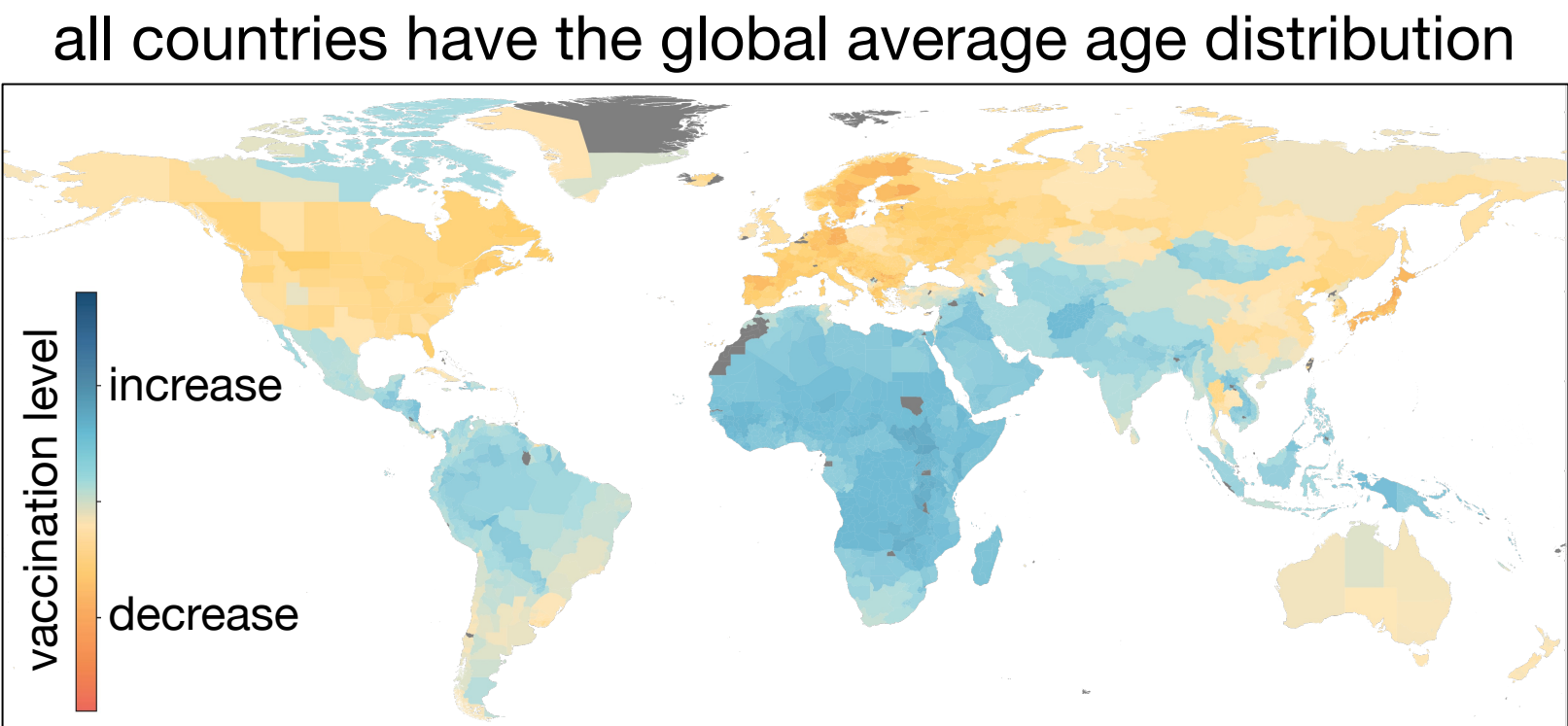
Drivers of heterogeneity

How is contemporary vaccination associated with...



Hypothetical scenarios

How do predicted contemporary vaccination levels change if...



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ESTIMATES

