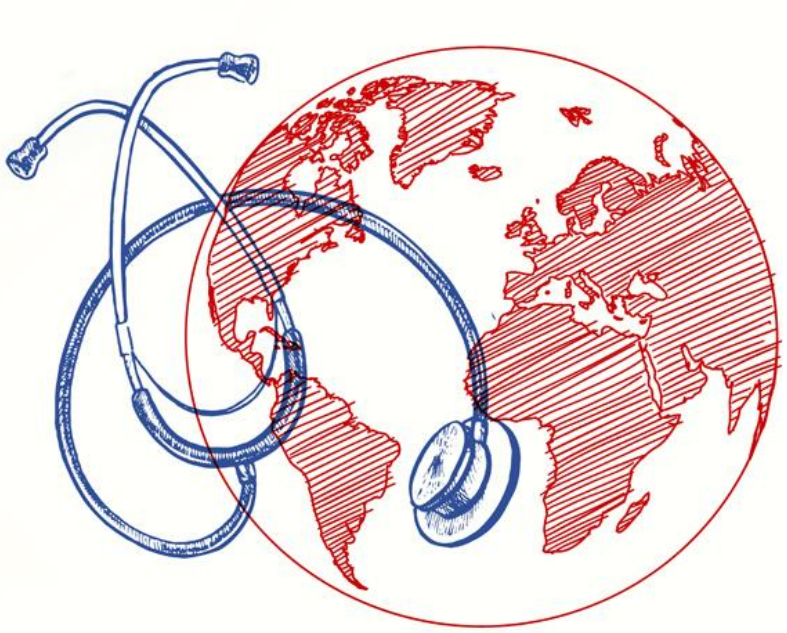
Global Health Cast 79

October 02, 2024



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What we talk about today

- US FDA approves first influenza vaccine that does not need to be administered by a health care provider
- Study suggests waning protection of Mpox vaccine
- Travel could be the best defense against aging, say researchers
- Jordan becomes the first country to receive WHO verification for eliminating leprosy (aka Hansen's disease)
- New Drug treatment for RSV?
- PCV-fractional doses: Less is still effective

US FDA approves first influenza vaccine that does not need to be administered by a health care provider

FDA NEWS RELEASE

FDA Approves Nasal Spray Influenza Vaccine for Self- or Caregiver-Administration

First Influenza Vaccine That Does Not Need to be Administered by a Health Care Provider

People interested in the self or caregiver option will complete a screening and eligibility assessment when they order the vaccine. If eligibility is established, the pharmacy writes the prescription and ships the vaccine to the person who placed the order.

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https://www.fda.gov/news-events/press-announcements/fda-approves-nasal-spray-influenza-vaccine-self-or-caregiver-administration

Study suggests waning protection of Mpox vaccine

Rapid Decline of Mpox Antibody Responses Following MVA-BN Vaccination

Ai-ris Y. Collier, Katherine McMahan, Catherine Jacob-Dolan, Jinyan Liu, Erica N Borducchi, Bernard Moss, Dan H. Barouch

doi: https://doi.org/10.1101/2024.09.10.24313399

The replication-incompetent modified vaccinia Ankara-Bavarian Nordic vaccine (MVA-BN; Jynneos) was deployed during the 2022 clade IIb mpox outbreak. ***In this study, we show that the MVA-BN vaccine generated mpox serum antibody responses that largely waned after 6-12 months.***

- MVA-BN provided 66% efficacy as a 2-dose regimen and 36% efficacy as a 1-dose regimen at peak immunity during the 2022 mpox outbreak.
- Data demonstrates that MVA-BN vaccination generated mpox antibodies that largely waned after 6-12 months.
- In participants who received the 2-dose MVA-BN vaccine, mpox antibody responses at 12 months were comparable or lower than peak antibody responses in people who received the 1-dose MVABN vaccine that provided limited protection.
- Serum antibody titers following vaccination have been shown to correlate with protection against mpox challenge in nonhuman primates, whereas CD4+ and CD8+ T cell responses did not correlate with protection, suggesting the potential relevance of serum antibody titers following MVA-BN vaccination in humans.

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Travel could be the best defense against aging

The principle of “entropy increase” is a universal law describing a natural progression from order to disorder. This paper is innovatively the first to take the principle as a theoretical basis for assessing how tourism influences human health from a sociomateriality perspective.

Despite a growing emphasis on the intersection of tourism and health, there remains a need for further theoretical development in this evolving field—particularly tourism’s positive and negative impacts on physical, mental, and social health based on physiological measures. From an entropy point of view, positive travel experiences could help maintain a low-entropy state (i.e., bodily health) by influencing four key systems. This interdisciplinary investigation illustrates a transition in the research paradigm from “health tourism” to “health and tourism.”

Jordan: first country to receive WHO verification for eliminating leprosy

"*Jordan's elimination of this age-old disease is a historic milestone in public health and a huge success for efforts to eliminate leprosy globally,*"
said Saima Wazed, WHO Regional Director for South-East Asia who heads WHO's Global Leprosy Programme.

"The fight against leprosy around the world is more than a fight against a disease. It is also a fight against stigma, and a fight against psychological and socio-economic harm. I congratulate Jordan on its achievement."

A drug to treat RSV-bronchiolitis in infants

- **BACKGROUND** RSV is a leading cause of severe illness in infants, with no effective treatment.
- **METHODS**
  - Phase 3, multicenter, double-blind, randomized, placebo-controlled trial conducted in China, enrolled participants 1 to 24 months of age, hospitalized with RSV infection. Participants were randomly assigned, in a 2:1 ratio, to receive ziresovir (10 to 40 mg by body weight) or placebo, administered twice daily, for 5 days.
  - Primary end point: change from baseline to day 3 (defined as 48 hours after the first administration) in the Wang bronchiolitis clinical score (total scores range from 0 to 12, with higher scores indicating greater severity of signs and symptoms).
- **RESULTS**
  - ITT population included 244 participants, safety population included 302.
  - Reduction from baseline in the Wang bronchiolitis clinical score at day 3 was significantly greater with ziresovir than with placebo Reduction of RSV viral load at day 5 was greater in the ziresovir group than in the placebo group
  - Incidence of adverse events was 16% with ziresovir and 13% with placebo, mostly diarrhea (in 4% and 2% of participants, respectively), elevated liver-enzyme level (in 3% and 3%, respectively), and rash (in 2% and 1%).
  - **Resistance-associated mutations were identified in 15 participants (9%) in the ziresovir group.**
- **CONCLUSIONS**
  - Ziresovir treatment reduced signs and symptoms of bronchiolitis in infants and young children hospitalized with RSV infection. No safety concerns were identified. (Funded by Shanghai Ark Biopharmaceutical; AIRFLO ClinicalTrials.gov number, NCT04231968.

Zhao et al., N Engl J Med 2024;391:1096-107. DOI: 10.1056/NEJMoa2313551

Fractional doses of PCVs

- **BACKGROUND** PCVs are life saving but expensive components of routine immunization schedule.
- **METHODS** Assessment of fractional doses of (2+1 schedule) PCV10 and PCV13 on immunogenicity and on carriage by noninferior analysis in Kenya. Immunogenicity assessed 4 weeks after the primary series and 4 weeks after the booster. Noninferiority declared 4 weeks after primary series if the difference in the percentage of participants with a threshold response was not more than 10% and 4 weeks after administration of the booster if the ratio of the geometric mean concentration (GMC) of IgG was more than 0.5. Noninferiority: at least 8 of the 10 vaccine types in the PCV10 groups or at least 10 of the 13 vaccine types in the PCV13 groups. Carriage was assessed when participants were 9 months and 18 months of age.
- **RESULTS**
  - 40% dose of PCV13 were noninferior for 12/13 serotypes after primary series; for 13/13 serotypes after booster.
  - 20% dose of PCV13 and 40% and 20% doses of PCV10 was NOT noninferior to the full doses.
  - Vaccine serotype-type carriage prevalence was similar across PCV13 groups at 9 months and 18 months of age.
- **CONCLUSIONS** In a three-dose schedule (two primary doses and a booster), 40% doses of PCV13 were noninferior to full doses for all included serotypes. Lower doses of PCV13 and PCV10 did not meet the criteria for noninferiority. (Funded by the Bill and Melinda Gates Foundation and others; ClinicalTrials.gov number, NCT03489018; Pan African Clinical Trial Registry number, PACTR202104717648755.)

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