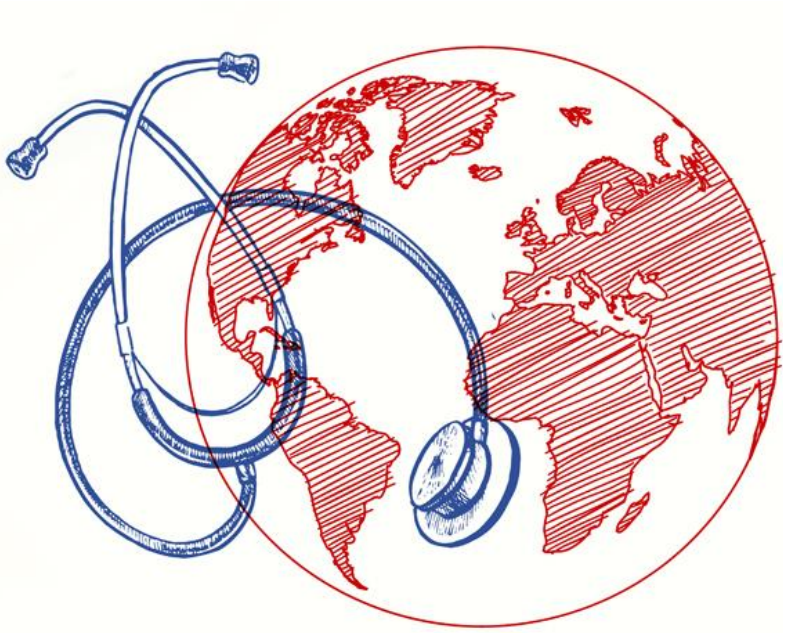
Global Health Cast 60

February 19, 2024



Dr. Melvin Sanicas

𝕏 @Vaccinologist

Prof. Dr. Joe Schmitt

𝕏 @Prof_Schmitt

What we talk about today

- Mild flu tied to 2x risk of heart attack, stroke in older patients
- 1st fatal case of Alaskapox: man undergoing cancer treatment
- Ebola vaccine cut deaths in half during DRC outbreak
- Vaccine-specific Adverse Event or side effects of COVID vaccination – 1 Bell´s Palsy (BP)
- CDC updated vaccination recommendations Immunization Schedules | CDC

Mild flu tied to 2x risk of heart attack, stroke in older patients

The Journal of Infectious Diseases

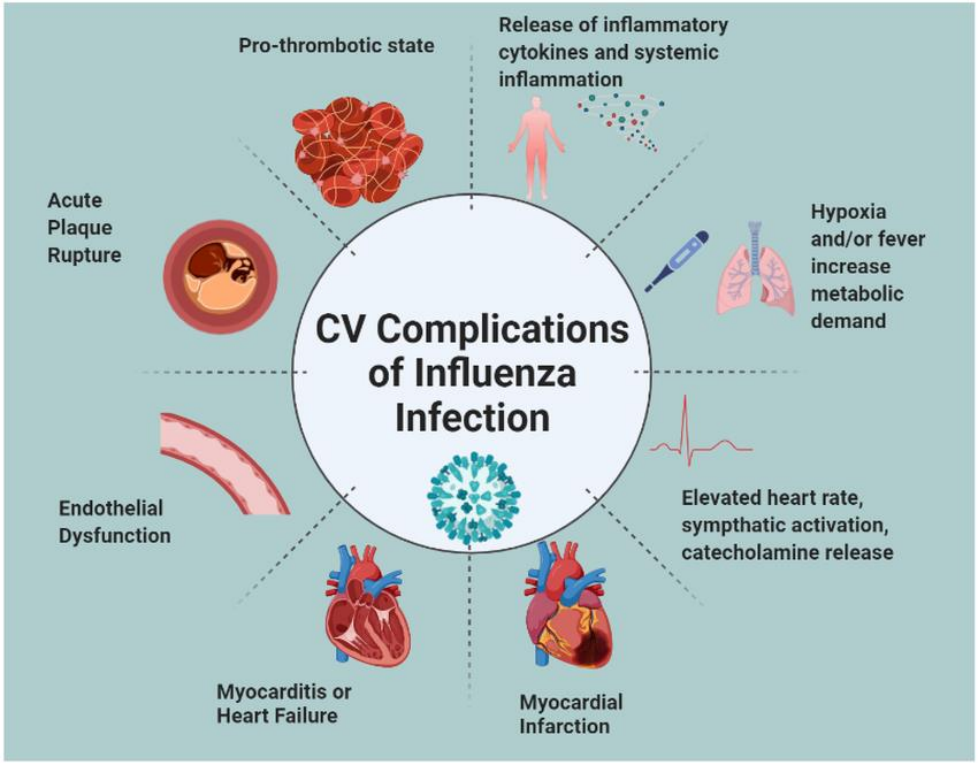
MAJOR ARTICLE

Risk of cardiovascular events after influenza: a population-based Self Controlled Case Series study, Spain 2011-2018

Cintia Muñoz-Quiles[a, b, *], Mónica López-Lacort[a, b, *], Arantxa Urchueguía[a, b], Javier Díez-Domingo[a, b, c], Alejandro Orrico-Sánchez[a, b, c]

[a]Vaccines Research Unit. Fundación para el Fomento de la Investigación Sanitaria y Biomédica de la Comunitat Valenciana, FISABIO-Public Health, Valencia, Spain; [b]CIBER de Epidemiología y Salud Pública, Instituto de Salud Carlos III, Madrid, Spain; [c]Universidad Católica de Valencia San Vicente Mártir, Valencia, Spain.

MANUSCRIPT



"This work reinforces the official recommendations for influenza prevention in at-risk groups and should also increase the awareness of even milder influenza infection and its possible complications in the general population."

State of Alaska Epidemiology **Bulletin**

Department of Health
Heidi Hedberg, Commissioner
Anne Zink, MD, Chief Medical Officer

3601 C Street, Suite 540
Anchorage, Alaska 99503

Division of Public Health
Lindsey Kato, MPH, Director

https://health.alaska.gov/dph/Epi
24 Hour Emergency (800) 478-0084
Local (907) 269-8000

Editors:
Joe McLaughlin, MD, MPH
Louisa Castrodale, DVM, MPH

Bulletin No. 2
February 9, 2024

Fatal Alaskapox Infection in a Southcentral Alaska Resident

Background

Orthopoxviruses are double-stranded DNA viruses, and many are zoonotic, occurring in a range of mammalian taxa.[1] Alaskapox virus (AKPV) is a recently discovered orthopoxvirus that was first identified in an adult living near Fairbanks in 2015.[2]

Seven AKPV infections to date have been reported to the Alaska Section of Epidemiology (SOE). Until December 2023, all reported infections occurred in residents of the Fairbanks area and involved self-limiting illness consisting of a localized rash and lymphadenopathy.[3] Small mammal testing in the Fairbanks area identified evidence of current or prior AKPV infection in four different species (though mostly in red-backed voles).[4] Evidence suggestive of prior AKPV infection has also been documented in at least one domestic pet linked to a patient. The extent of AKPV's geographic distribution and animal reservoirs remain unknown. This *Bulletin* describes a recently reported fatal case of Alaskapox in a resident of the Kenai Peninsula.

Case Report

In mid-September 2023, an elderly man from the Kenai Peninsula with a history of drug-induced immunosuppression secondary to cancer treatment noted a tender red papule in his right axilla. Over the next 6 weeks, he presented to his primary provider and the local emergency department (ED) several times for clinical evaluation of the lesion and was prescribed multiple antibiotic regimens. A punch biopsy revealed no evidence of malignancy or bacterial infection. Despite antibiotic therapy, the patient experienced fatigue and increasing induration and pain in the right axilla and shoulder. On November 17, he was hospitalized due to extensive progression of presumed infectious cellulitis that impacted the range of motion of his right arm. The patient was subsequently transferred to a hospital in Anchorage.

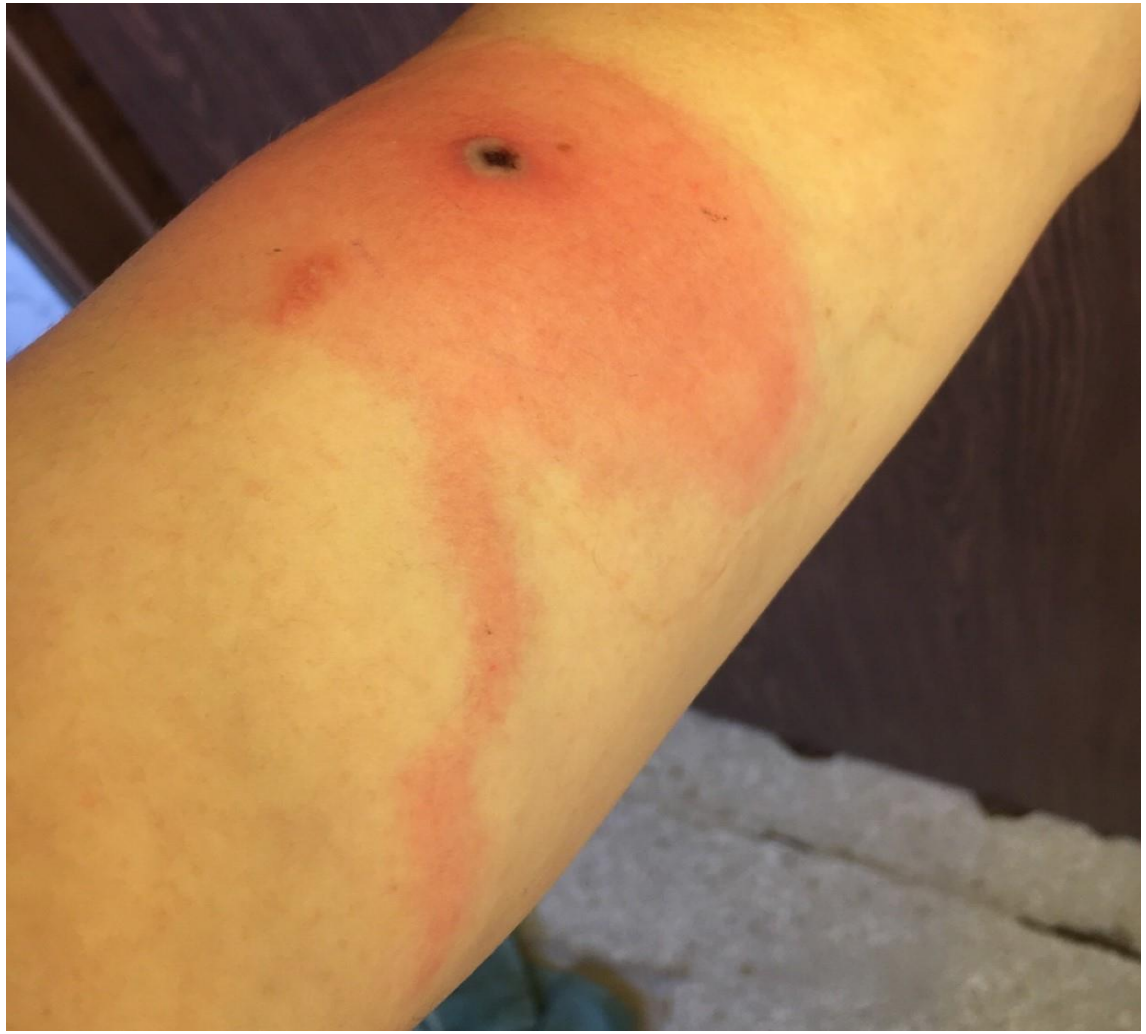
that regularly hunted small mammals and frequently scratched the patient, including one notable scratch near his right axilla in the month prior to rash onset. The patient did not report other recent contact with small mammals but did report gardening in his backyard through September 2023. Serum and mucosal swabs collected from the stray cat were submitted to CDC for antibody and orthopoxvirus testing; all tests were negative.

Discussion

This is the first case of severe Alaskapox infection resulting in hospitalization and death. The patient's immunocompromised status likely contributed to illness severity. Moreover, being the first case of Alaskapox identified outside of the Interior region, it indicates that AKPV appears to be more geographically widespread in Alaska's small mammals than previously known and warrants increased statewide awareness among clinicians. The route of exposure in this case remains unclear, although scratches from the stray cat represent a possible source of inoculation through fomite transmission. SOE is working with the University of Alaska Museum and CDC to test small mammals for AKPV outside of the Interior region.

Recommendations

1. Clinicians should become familiar with the clinical features of Alaskapox and consider testing for orthopoxvirus infection in patients with a clinically compatible illness.[2-4]
2. Promptly report suspected Alaskapox cases to SOE at 907-269-8000; SOE staff can help facilitate testing.
3. Advise outpatients with suspected Alaskapox to avoid touching lesions, keep lesions dry and covered, practice good hand hygiene, avoid sharing cloth that might have been in contact with lesions, and launder clothing and linens separately from other household items.[5]



Rare virus Alaskapox
1st reported fatal case

GLOBAL HEALTH PRESS

https://epi.alaska.gov/bulletins/docs/b2024_02.pdf

id-ea.org

Ebolavirus Ecology and Transmission

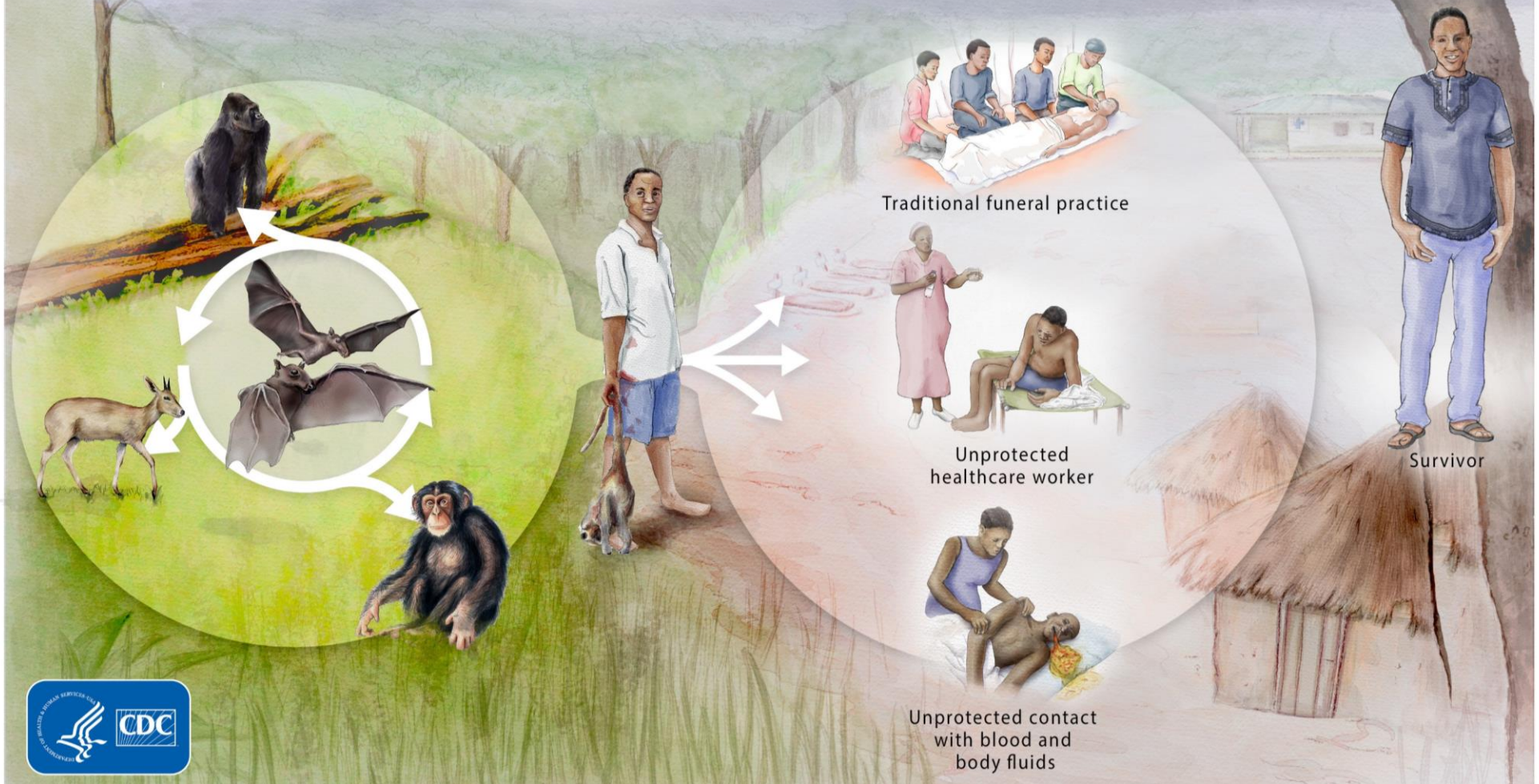
Infection with an ebolavirus causes Ebola disease, a zoonotic disease that involves animals and people.

Animal-to-Animal Transmission
Evidence suggests that bats are the reservoir hosts for ebolaviruses. Bats carrying an ebolavirus can spread the virus to other animals, like apes, monkeys, and duikers (antelopes), as well as to people.

Spillover Event
A "spillover event" occurs when an animal (bat, ape, monkey, duiker) or person becomes infected with an ebolavirus through contact with the reservoir host. This contact could occur through hunting or preparing the animal's meat for eating.

Human-to-Human Transmission
Once an ebolavirus has infected the first person, spread of the virus from one person to another can occur through contact with the blood and body fluids of sick people or with the bodies of those who have died of Ebola disease.

Survivor
Survivors of Ebola disease face new challenges after recovery. Some survivors report effects such as tiredness and muscle aches. Although rare, the virus can persist in certain parts of the body (brain, eyes, placenta, and testicles) and spread through contact to other people.



ARTICLES | ONLINE FIRST

Subscribe Save

Case fatality risk among individuals vaccinated with rVSVΔG-ZEBOV-GP: a retrospective cohort analysis of patients with confirmed Ebola virus disease in the Democratic Republic of the Congo

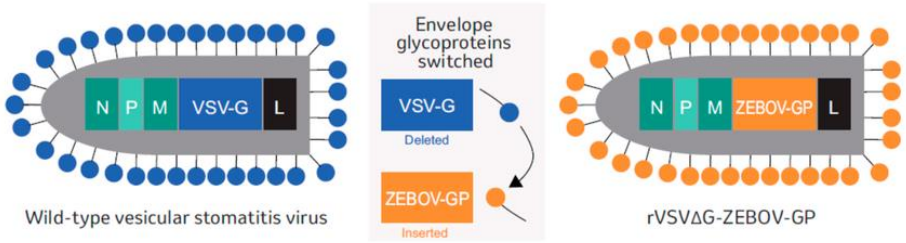
Rebecca M Coulborn, MPH • Mathieu Bastard, MSc • Nicolas Peyraud, PhD • Etienne Gignoux, MPH • Francisco Luquero, PhD • Bérengère Guai, RN • et al. Show all authors

Published: February 07, 2024 • DOI: https://doi.org/10.1016/S1473-3099(23)00819-8 • Check for updates

ERVEBO® (Ebola Zaire Vaccine, Live also known as V920, rVSVΔG-ZEBOV-GP or rVSV-ZEBOV) is **approved** by the U.S. Food and Drug Administration (FDA**) for the prevention of disease caused by Ebola virus (EBOV; species *Zaire ebolavirus*) in individuals 12 months of age and older** as a **single dose** administration.

Interpretation

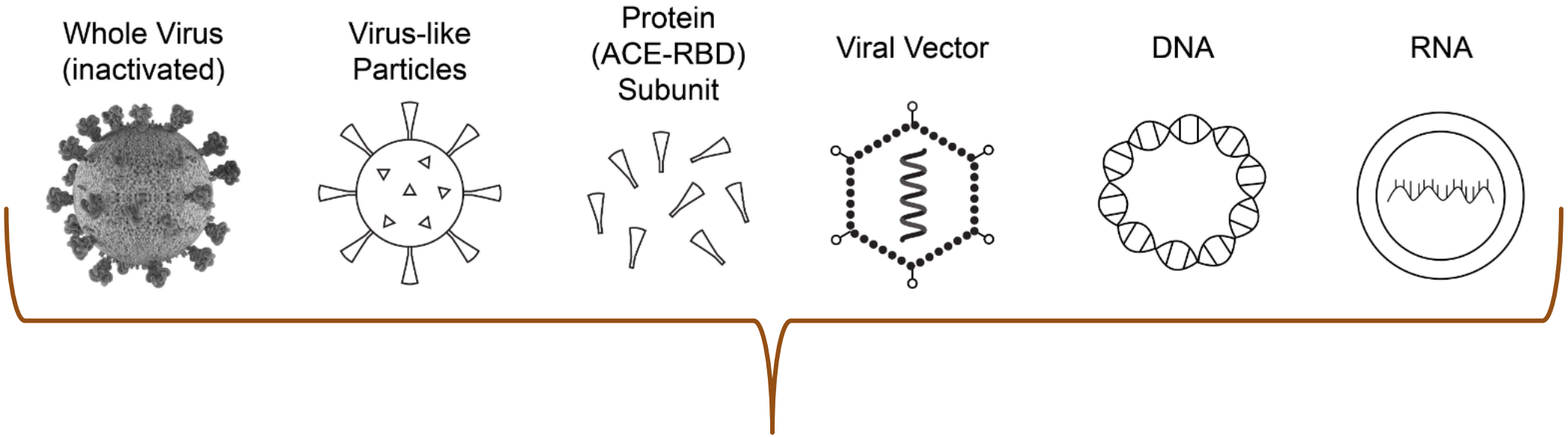
To our knowledge, this is the **first observational study describing the protective effect of rVSVΔG-ZEBOV-GP vaccination against death among patients with confirmed Ebola virus disease** admitted to an Ebola health facility. Vaccination was protective against death for all patients, even when adjusted for Ebola virus disease-specific treatment, age group, and time from symptom onset to admission.



GLOBAL HEALTH PRESS

SARS-CoV-2 Vaccine Platforms: Vaccine-specific AE

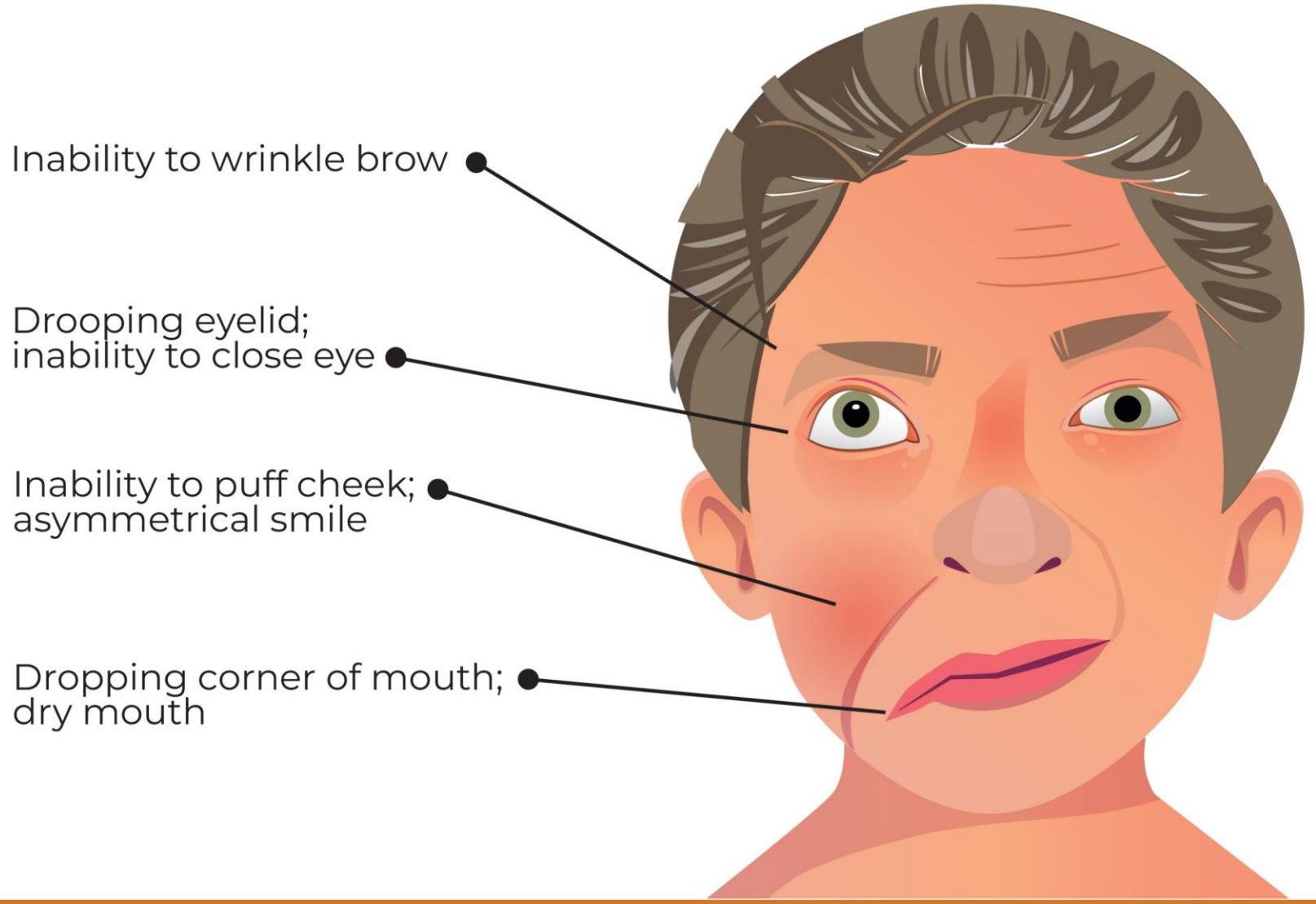
Coincidental or Causal Association? Frequency?



?

1. **Facial Paralysis (Bell´s Palsy, BP)**
2. **Diseases from activation of the clotting system**
3. **Myocarditis**

FACIAL NERVE PALSY



BP after SARS-CoV-2 vaccination is usually mild and self-limited

Facial nerve paralysis, Bell's palsy, 3D illustration showing female with one-sided facial nerve paralysis Stock Illustration 1893057028 | Shutterstock (2024-02-16)

Facial paralysis (Bell´s Palsy) following COVID vaccination
Systematic Review and Meta-Analysis

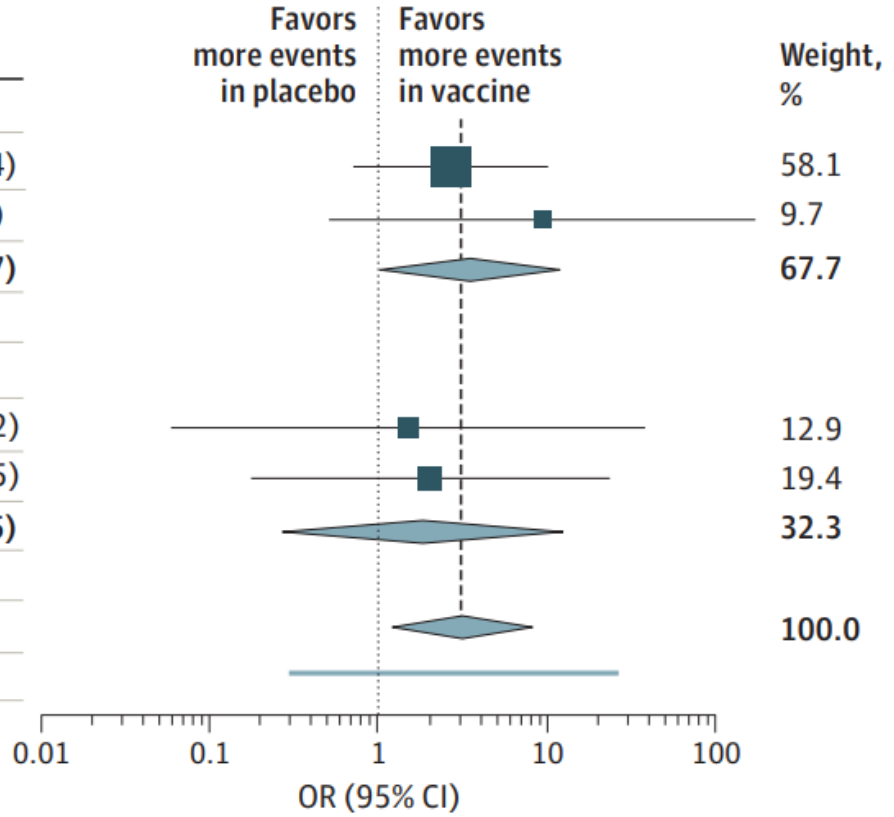
	Cases	Total	Per 1,000,000
First dose	10,139	59,235,299	171.2
Second dose	206	4,888,784	42.1
Unspecified vaccines	3,445	12,386,275	278.1
Oxford/AstraZeneca ChAdOx1 nCoV-19	5,933	33,224,858	178.6
Sinovac	65	1,407,798	46.2
Pfizer/BioNTech BNT162b2	5,242	199,455,808	26.3
Janssen (Johnson & Johnson) Ad26.COV2-S	809	128,085,700	6.3
Moderna	1,923	307,350,232	6.3
Total	**17,417**	**687,371,182**	**25.3**

BP after SARS-CoV-2 vaccination is usually mild and self-limited

Khurshid M et al. Ann Med Surg (Lond). 2022 Oct;82:104758. doi: 10.1016/j.amsu.2022.104758

Figure 1. Bell Palsy Events in Groups of Vaccine Recipients vs Saline Placebo Recipients, With Data From Randomized Clinical Trials

Source	Vaccine group Events, No.	Vaccine group Participants, No.	Placebo group Events, No.	Placebo group Participants, No.	OR (95% CI)
mRNA vaccine platform					
El Sahly et al,[35] 2021 (Moderna)	8	15 184	3	15 162	2.66 (0.71-10.04)
Thomas et al,[36] 2021 (Pfizer/BioNTech)	4	18 860	0	18 846	9.00 (0.48-167.09)
Total		**34 044**		**34 008**	**3.57 (1.09-11.67)**
Heterogeneity: $\chi^2_1 = 0.55$ ($P = .46$), $I^2 = 0\%$					
Viral vector vaccine platform					
Falsey et al,[38] 2021 (Oxford/AstraZeneca)	1	21 587	0	10 792	1.50 (0.06-36.82)
Sadoff et al,[37] 2022 (Janssen)	2	21 894	1	21 882	2.00 (0.18-22.05)
Total		**43 481**		**32 674**	**1.80 (0.26-12.35)**
Heterogeneity: $\chi^2_1 = 0.02$ ($P = .89$), $I^2 = 0\%$					
Total		**77 525**		**66 682**	**3.00 (1.10-8.18)**
Prediction interval					**(0.29-26.13)**
Heterogeneity: $\chi^2_3 = 0.84$ ($P = .84$), $I^2 = 0\%$					
Test for subgroup differences: $\chi^2_1 = 0.35$ ($P = .55$)					



Dashed line indicates the point estimate of the overall effect; dotted line, no effect; diamonds, overall effects. OR indicates odds ratio.

GLOBAL HEALTH PRESS
id-ea.org

Figure 2. Bell Palsy Events in Groups of mRNA-Vaccinated Participants vs Unvaccinated Participants, With Data From Observational Studies

Source	Vaccinated group: Events, No.	Vaccinated group: Participants/doses, No.	Unvaccinated group: Events, No.	Unvaccinated group: Participants, No.	OR (95% CI)	Weight, %
Cohort subgroup						
Klein et al,[42] 2021	543	11 845 128	2379	11 845 128	0.23 (0.21-0.25)	13.2
Lai et al,[46] 2022 (first dose)	1	138 141	3	136 743	0.33 (0.03-3.17)	3.6
McMurry et al,[44] 2021 (second dose)	10	41 909	30	41 909	0.33 (0.16-0.68)	10.5
McMurry et al,[44] 2021 (first dose)	16	68 266	45	68 266	0.36 (0.20-0.63)	11.3
Shasha et al,[43] 2022 (second dose)	8	131 033	12	131 033	0.67 (0.27-1.63)	9.4
Shasha et al,[43] 2022 (first dose)	23	233 159	24	233 159	0.96 (0.54-1.70)	11.3
Barda et al,[41] 2021	81	923 692	59	923 692	1.37 (0.98-1.92)	12.5
Bardenheier et al,[45] 2021	1	16 924	0	11 072	1.96 (0.08-48.19)	2.1
Lai et al,[46] 2022 (second dose)	4	119 664	2	118 300	1.98 (0.36-10.80)	5.3
Total		**13 517 916**		**13 509 302**	**0.59 (0.34-1.01)**	**79.2**
Heterogeneity: $\chi^2_8 = 133.4$ ($P < .001$), $I^2 = 94\%$						
Case-control subgroup						
Shemer et al,[39] 2021	21	65	16	46	0.89 (0.40-1.99)	9.9
Wan et al,[40] 2022 (Pfizer/BioNTech subset)	14	45	256	1353	1.94 (1.01-3.69)	10.9
Total		**110**		**1399**	**1.37 (0.64-2.90)**	**20.8**
Heterogeneity: $\chi^2_1 = 2.17$ ($P = .14$), $I^2 = 54\%$						
Total		**13 518 026**		**13 510 701**	**0.70 (0.42-1.16)**	**100.0**
Prediction interval					**(0.13-3.83)**	
Heterogeneity: $\chi^2_{10} = 175.75$ ($P < .001$), $I^2 = 94\%$						
Test for subgroup differences: $\chi^2_1 = 3.18$ ($P = .07$)						

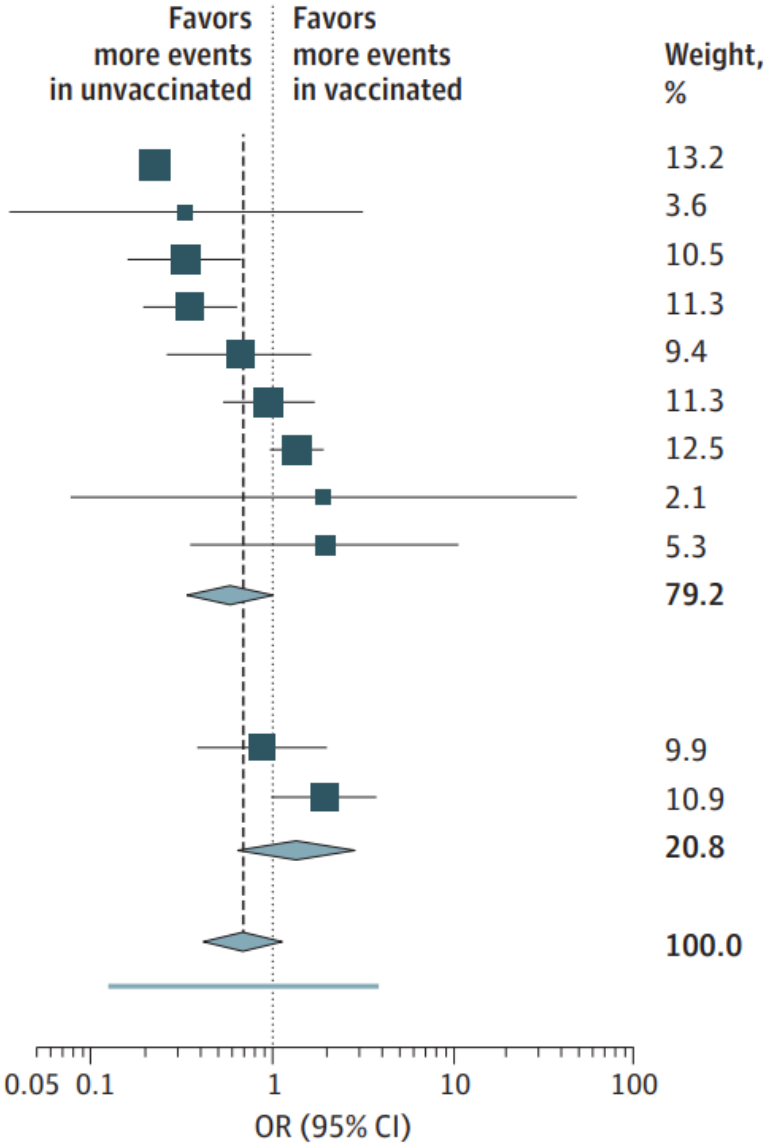
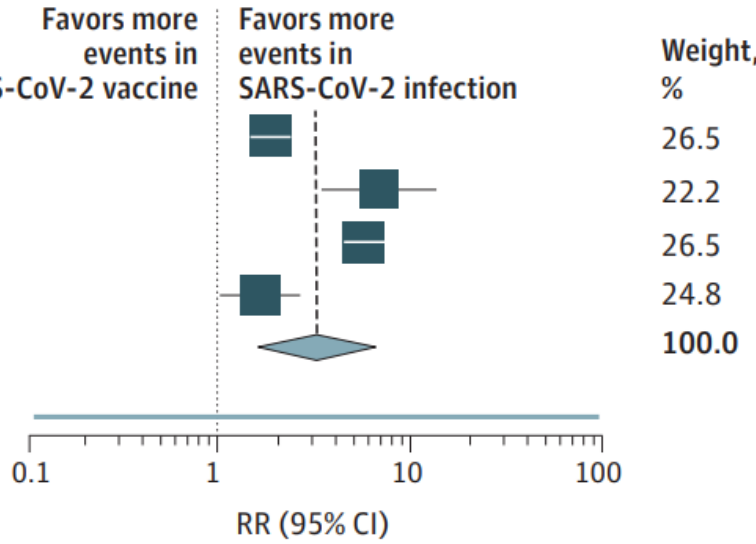


Figure 4. Bell Palsy in Groups of SARS-CoV-2 Infection vs SARS-CoV-2 Vaccine Recipients, With Data From Observational Studies

Source	Total No. of infected patients	Total No. of vaccine recipients/doses	RR (95% CI)	Weight, %
Patone et al,[56] 2021	2005280	32552534	1.84 (1.45-2.33)	26.5
Tamaki et al,[55] 2021	348088	63551	6.80 (3.50-13.21)	22.2
Li et al,[57] 2022 (SIDIAP database)	288030	4372633	5.71 (4.50-7.25)	26.5
Barda et al,[41] 2021	180674	923692	1.64 (1.06-2.55)	24.8
Total	**2822072**	**37912410**	**3.23 (1.57-6.62)**	**100.0**
Prediction interval			**(0.11-96.91)**	

Heterogeneity: $\chi^2_2 = 57.14$ ($P < .001$), $I^2 = 95\%$



Dotted line indicates no effect; diamond, overall effect. RR indicates risk ratio; SIDIAP, Spanish database of Information System for Research in Primary Care.

GLOBAL HEALTH PRESS
id-ea.org

Conclusion

- **Observational studies**: mRNA SARS-CoV-2–vaccinated participants had
  - no significant increase in BP incidence vs the unvaccinated participants.

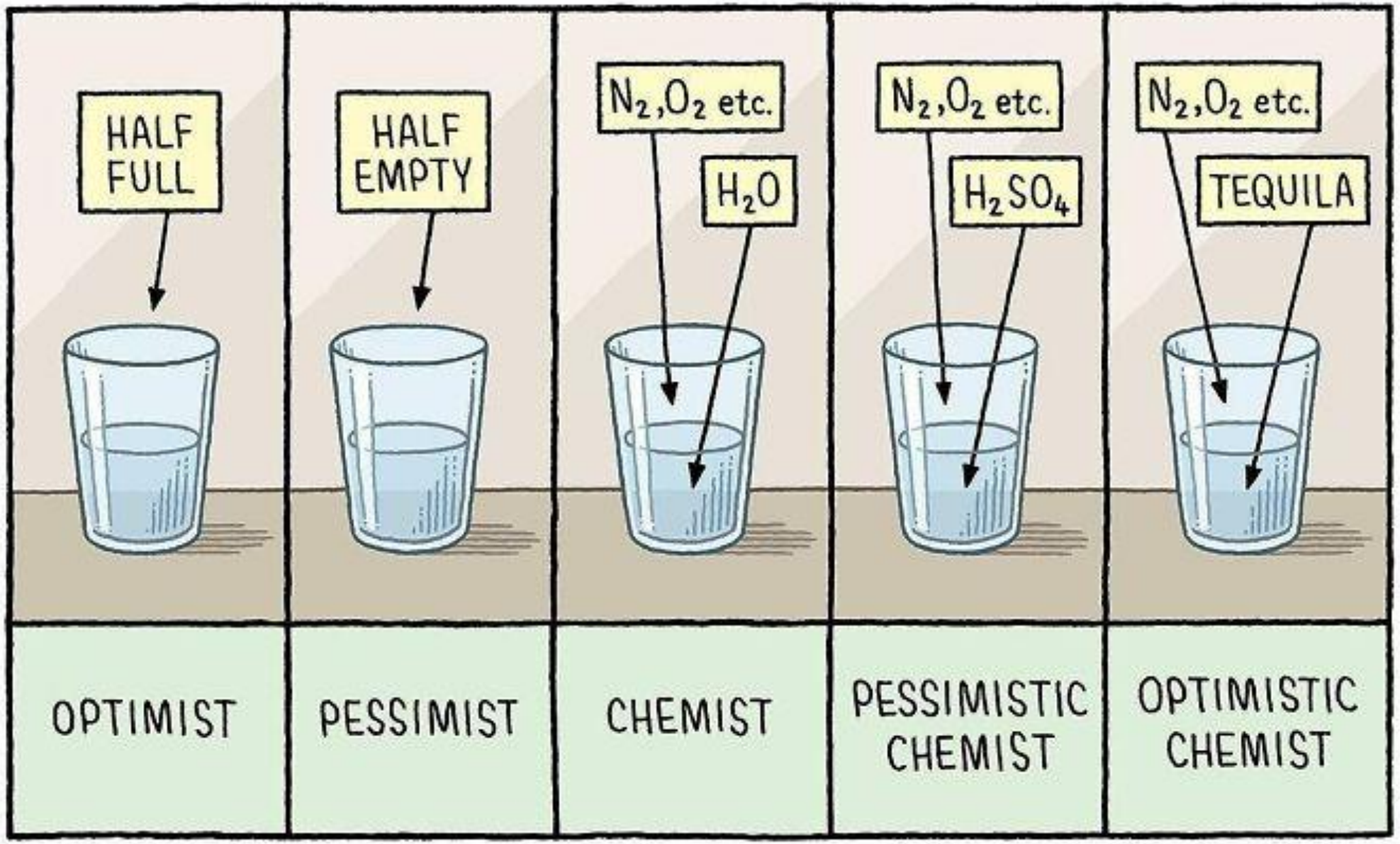
- Current study: Strong association between the SARSCoV-2 vaccine and BP in 4 RCTs,
  - Conclusion: **BP is a result of SARS-CoV-2 vaccine exposure**.

- **SARS-CoV2 *vaccination* does cause BP; BUT:**
- **SARS-CoV-2 *infection* has 3.23- fold higher BP risk vs. *vaccination*;**
- **This favors a protective role of vaccination in reducing the incidence of BP associated with exposure to SARS-CoV-2.**

Rafati et al., JAMA Otolaryngology–Head & Neck Surgery 2023 Vol. 149 Issue 6 Pages 493-504. DOI: 10.1001/jamaoto.2023.0160

What we talk about today

- Mild flu tied to 2x risk of heart attack, stroke in older patients
- 1st fatal case of Alaskapox: man undergoing cancer treatment
- Ebola vaccine cut deaths in half during DRC outbreak
- Vaccine-specific Adverse Event or side effects of COVID vaccination – 1 Bell´s Palsy (BP)
- CDC updated vaccination recommendations Immunization Schedules | CDC


HALF FULL
HALF EMPTY
N_2, O_2 etc.
H_2O
N_2, O_2 etc.
H_2SO_4
N_2, O_2 etc.
TEQUILA
OPTIMIST
PESSIMIST
CHEMIST
PESSIMISTIC CHEMIST
OPTIMISTIC CHEMIST
TOM GAULD for NEW SCIENTIST