VACCINE HESITANCY TO VACCINE RESISTANCE

As COVID-19 vaccinations are being administered around the globe, you've probably seen your social media feeds fill up with joyful vaccine selfies and excited appointment updates. Chances are, you also have someone in your life who is skeptical. Most of us do — and that is making the public health officials concerned.

Vaccine hesitancy is often fuel for heated public debate, but conversations about vaccines don't have to be contentious. In fact, being willing to have them is one of the most impactful ways we can influence global health. As with many emotionally-charged topics, knowing how to start the conversation can be the hardest part.

Vaccines bring us closer to a world where everyone thrives, but it's a team effort. By having conversations, you can bring your friends and family along on our global health journey.

Vaccine resistance is the evolutionary adaptation of pathogens to infect and spread through vaccinated individuals, analogous to antimicrobial resistance. It concerns both human and animal vaccines. Although the emergence of a number of vaccine resistant pathogens has been well documented, this phenomenon is nevertheless much more rare and less of a concern than antimicrobial resistance.

Vaccine resistance may be considered a special case of immune evasion, from the immunity conferred by the vaccine. Since the immunity conferred by a vaccine may be different from that induced by infection by the pathogen, the immune evasion may also be easier (in case of an inefficient vaccine) or more difficult (would be the case of the universal flu vaccine). We speak of vaccine resistance only if the immune evasion is a result of evolutionary adaptation of the pathogen (and not a feature of the pathogen that it had before any evolutionary adaptation to the vaccine) and the adaptation is driven by the selective pressure induced by the vaccine (this would not be the case of an immune evasion that is the result of genetic drift that would be present even without vaccinating the population).

Some of the causes advanced for less frequent emergence of resistance are

- vaccines are mostly used for prophylaxis, that is before infection occurs, and usually act to suppress the pathogen before the host becomes infectious
- most vaccines target multiple antigenic sites of the pathogen
- different hosts may produce different immune responses to the same pathogen

If vaccine resistance emerges, the vaccine may retain some level of protection against serious infection, possibly by modifying the immune response of the host away from immunopathology.

So it is always a better option to get vaccinated in the present pandemic situation to fight with COVID emerging new strains.

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