Sneeze-vector And Sexually Transmitted Vaccines

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Hypothesis

Intra-nasal vaccine delivery (e.g. Flumist) has become a popular alternative to injections: just as naturally occurring viruses can enter the body through the respiratory system, so can artificially attenuated or inactivated viruses, or vaccines. The ability of vaccine strains to act effectively after entering the body through the mouth or nose raises the possibility that vaccines could also spread, like natural viruses, from person to person. If so, then we have potential new mechanisms for inoculating populations: sneeze-vector vaccines. A sexually transmitted vaccine would represent an alternate transmission pathway. For example, retransmittable vaccines could be given to individuals who come to clinics with respiratory and sexually transmittable viruses. The effect would be to introduce the vaccine to social networks of people who would otherwise have received virus.

Developing optimal re-transmittable vaccines would require overcoming various engineering problems. However, a person might already, in principle, be able to inoculate another by sneezing after receiving Flumist, simply through mechanical transmission. In addition, vaccinia, the naturally occurring virus used as a smallpox vaccine, may already be able to cause several generations of accidental contagious inoculations [1]. To optimize the process of deliberate vaccine retransmission, vaccine strains might be crafted, to the extent possible, to be virile (alive and reproducing) but not virulent (disease-causing). Overall, the cost-benefit ratio for broadcasted immunization must be favorable with respect to infecting non-consenting and immunocompromised individuals with even a weakened version of a virus.

Bioengineering, epidemiological, and sociological problems of re-transmittable vaccines might or might not be able to be overcome. But, in cases where a harmful virus threatens a large population of individuals who have poor access to vaccines, the idea of inoculating a few individuals with a vaccine that can spread like a virus might be nothing to sneeze at.

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References

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