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Title: Short sighted viruses

Abstract: With extremely short generation times and high mutability, many viruses can rapidly evolve and adapt to changing host environments. This ability allows viruses to evade host immune responses, evolve new behaviours, and exploit within-host ecological niches. However, natural selection typically generates adaptation in response to the immediate selection pressures that a virus experiences in its current host. Consequently, I will argue that some viruses, particularly those characterised by long durations of infection and ongoing replication, may be susceptible to short-sighted evolution, whereby a virus' adaptation to its current host will be detrimental to its onward transmission within the host population. I will propose that viruses that are vulnerable to short-sighted evolution exhibit life history strategies that minimise its effects, and describe the various mechanisms by which this may be achieved. These concepts provide a new perspective on the way in which some viruses have been able to establish and maintain global pandemics.