

THE HARD PART OF THE MEASLES ENDGAME. HINTS FROM BEHAVIOURAL EPIDEMIOLOGY

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The dramatic difficulties faced by the measles global elimination plan might be symptomatic, beyond the “objective” difficulties that are intrinsic to measles elimination compared to other vaccine preventable infectious disease, of globally changing perceptions and attitudes about infection and vaccination, of which industrialised countries might just represent the tip of the iceberg. Modern behavioural epidemiology (BE) [?] models aid to unfold the complexities underlying such phenomena and give insight on the determinants of vaccine uptake under endgame conditions, and on the related communication efforts and key related parameters. In this work we consider a general BE model capturing the sources of conflict between private and public interest that might be detrimental for herd immunity as a public good. The model analysis provides a number of useful formulas for vaccine uptake under elimination condition. We use such formulas, and the underlying critical parameters, to provide a number of hints on the complexity of the measles endgame whose understanding will be critical to win the hardest challenge of the endgame, namely to maintaining high levels of vaccine uptake in situation of increasingly generalised absence of measles infection. In particular, we will (i) clarify the determinants of vaccine coverage during endgame phases, (ii) disentangle, within public health communications on the topic, the distinct role played by the type and content of the communication vs its intensity, (iii) identify how the communication priorities will evolve during the various stages of the endgame depending on the setting considered.

References

- [1] Manfredi, P. and d'Onofrio, A. (2013). *Modeling the Interplay Between Human Behavior and the Spread of Infectious Diseases*. New York, US: Springer.