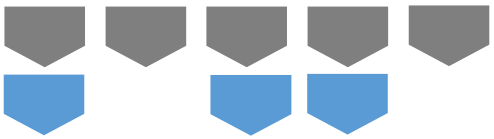
2021; **115**: 213–221
doi:10.1093/trstmh/traa171 Advance Access publication 17 February 2021

Scenarios: Settings 1 & 2 (interruption and mitigation)



Year

For both mitigation and acceleration strategies, if even a relatively low level of systematic non-compliance is assumed ($\rho = 0.3$), the probability of achieving EPHP is decreased, although it would still be considerably greater than with annual MDA (at least a 10-fold increase in probability of achieving EPHP for either MA1 or MA2). However, the model assumes that individuals who are unlikely to adhere to treatment recommendations are randomly distributed throughout the population,[22] whereas in reality, it is not only how many people are repeatedly missed by MDA, but who are missed, that determines the overall success of a programme. A study of trachoma-endemic communities in Niger, for example, indicated that people who do not present for treatment are in fact less likely to be infected with ocular . [illegible] .[33] A study in Ethiopia indicated that levels of refusal were extremely low, at 0.6% of those offered azithromycin,[34] with travelling during the campaign given as a major reason for non-treatment. Whether a protocol of repeated treatment rounds within a short space of time (MA1) or evenly spaced throughout the year (MA2) will maximise the probability of reaching all individuals targeted will likely be context-specific, but if systematically missed people are in fact less likely to be infected, the impact of non-adherence will be overestimated by the model. Another potentially important assumption of the model is that at the individual level, the infection-clearance outcome of receiving antibiotics is essentially binary and applied instantaneously. In reality, however, even if an individual does not clear infection after treatment, their bacterial load is likely to be reduced. The implication of this is that the model predictions for MA1, in which three MDA rounds are delivered very close to each other, are likely to be somewhat pessimistic. Further empirical data on heterogeneity of bacterial load and efficacy of treatment for a given bacterial load would improve the biological realism of this aspect of the model.

Within the model framework used here, the higher transmission rates and baseline prevalence levels are simulated by increasing the transmission parameter. This parameter does not have a directly interpretable meaning in itself but can be considered a proxy for the range of factors that facilitate transmission of ocular . [illegible] infection. These include overcrowding, lack of access to clean water and comorbidities. The model does not currently incorporate the potential reduction in transmission afforded by facial cleanliness and environmental improvement interventions, which also form part of the WHO strategy for trachoma control in addition to MDA, due to uncertainty regarding their relative importance in reducing transmission.[2] As such, the model predictions could be considered conservative. However, there are many potential indirect effects for COVID-19 on ocular . [illegible] transmission in addition to the interruption to MDA that are as yet unknown. Given directives on physical distancing and the increased promotion of hygiene practices such as handwashing, it may be that transmission of . [illegible] will decrease following COVID-19 in some settings. However, other possible consequences of COVID-19, such as migration, changes to health-seeking behaviour and economic hardship, may exacerbate the increases in infection predicted by the model.

Conclusion

The COVID-19 pandemic represents an unprecedented challenge to communities and healthcare systems worldwide. While the current interruption to NTD control activities is clearly in line with the urgent need to minimise the spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), it is crucial that trachoma programmes are resumed at the same coverage levels as before interruption, as soon as is practicable. Fur-

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