among MSM. Oropharynx to oropharynx transmission through kissing is estimated to account for nearly three quarters of all incident cases (71.6% [64.4–80.5%]) of gonorrhoea in MSM. Substantially increasing annual oropharynx screening for gonorrhoea from the current 40% to 100% may only halve the prevalence of gonorrhoea in MSM. In contrast, the use of mouthwash with moderate efficacy (additional 1% clearance per daily use) would further reduce the corresponding prevalence rates to 3.1% (2.2%–4.4%), 3.8% (2.3%–4.9%) and 0.10% (0.06%–0.11%), and a high efficacy mouthwash (additional 1.5% clearance per daily use) may further halve the gonorrhoea prevalence. Without oropharynx to oropharynx transmission, we could not replicate current prevalence data.

Conclusion Our model suggests that kissing may play a key role in NG transmission among MSM. Focusing on STI screening alone is not sufficient to control the rising epidemic. Promotion of regular mouthwash may achieve near elimination of gonorrhoea in MSM.