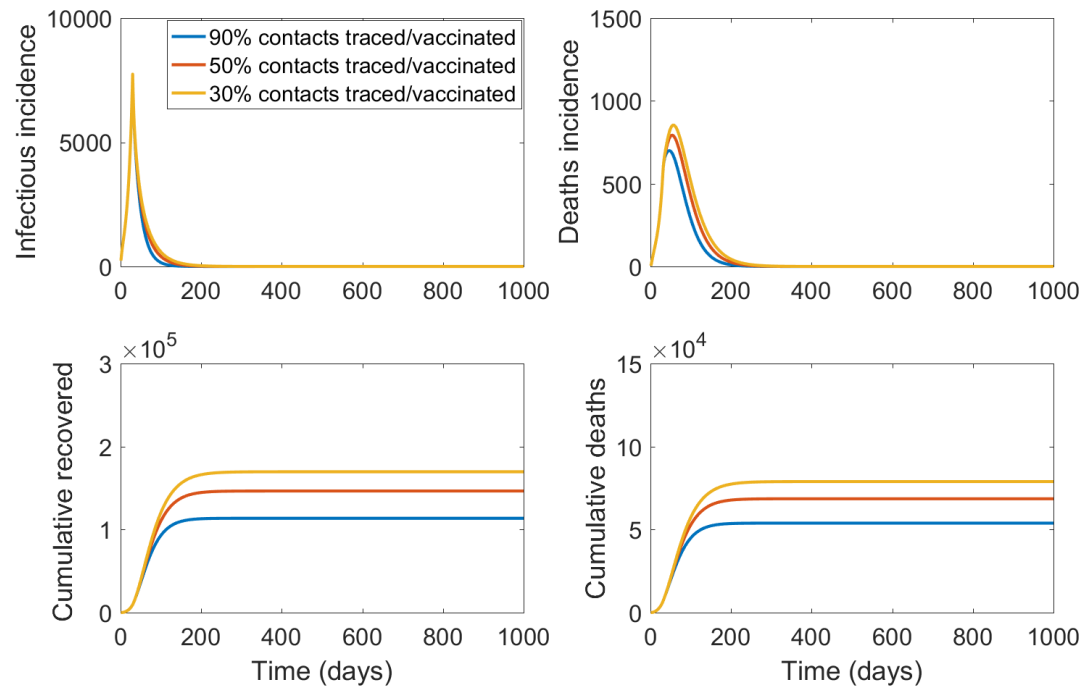
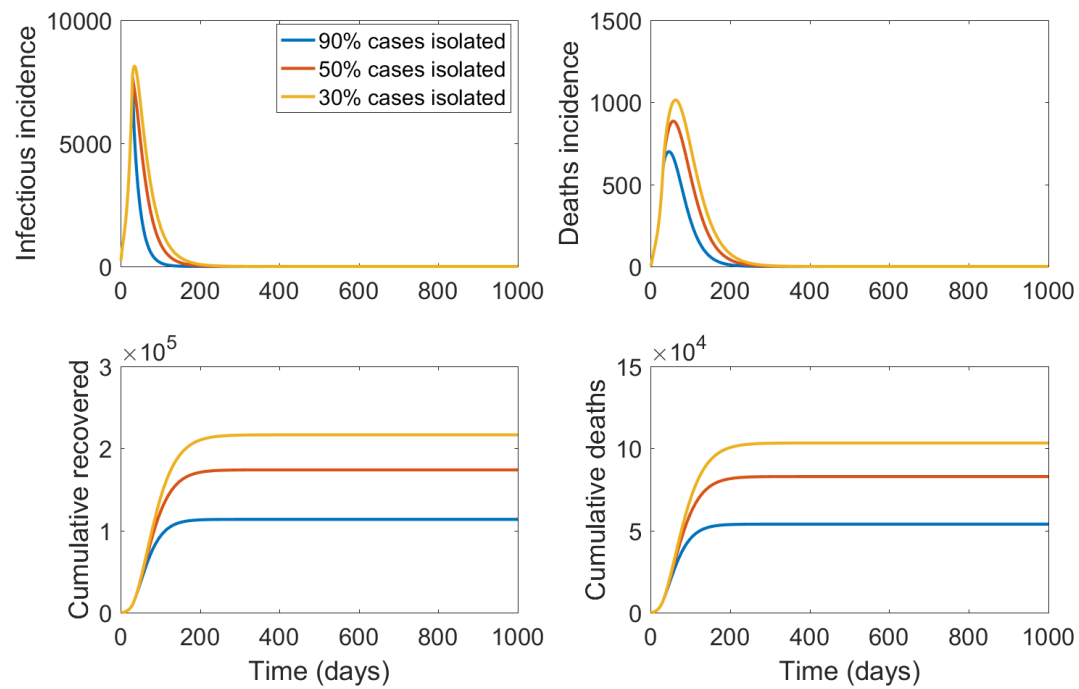


Supplementary Information



Supplementary Figure 1: The influence of varying rates of ring vaccination, with case isolation constant at 90% for 10000 initial infected.



Supplementary Figure 2: The influence of varying rates of case isolation, with ring vaccination constant at 90% for 10000 initial infected.

Supplementary Table 1. Epidemic outcomes for varying levels of case isolation, contact tracing and vaccination and response time, for an initial attack of 10,000 cases

	Contacts traced=30%			Contacts traced=50%			Contacts traced=70%			Contacts traced=90%		
	T=20	T=30	T=40	T=20	T=30	T=40	T=20	T=30	T=40	T=20	T=30	T=40
Cases isolated=30%										94148 45386 139530 542420 24815 156	216570 103330 319900 1244200 56743 194	500280 236810 737090 2872500 130810 233
Cases isolated=50%				350.34M 166.63M 516.96M 1159.3M 12.126M 2915	350.68M 166.79M 517.47M 1160.3M 12.172M 3059	351.46M 167.17M 518.68M 1162.7M 12.279M 3199	169800 80278 250080 759100 28270 334	392370 184390 576760 1752600 64838 419	908730 425100 1333800 4058800 149710 503	75675 36435 112110 395640 22087 130	173910 82880 256790 906520 50350 163	401290 189670 590960 2091000 115870 197
Cases isolated=70%				154490 72323 226810 424580 27693 310	350730 166250 523270 980830 63382 395	826710 383290 1210000 2271600 146130 479	85321 40535 125860 315390 23078 160	196340 92529 288870 724670 52565 204	453340 212180 665530 1673300 120890 249	61193 29389 90583 280360 20127 114	140490 66829 207320 641720 45699 136	323800 152710 476520 1478600 104930 166
Cases isolated=90%	73808 34562 108307 85738 24853 121	169620 78897 248510 196780 56437 160	391030 180710 571750 453700 129540 198	63772 30072 93844 126840 22722 106	146430 68547 214970 2090700 51515 139	337350 156790 494140 669730 118160 173	55890 26542 82433 159930 20793 94	128250 60427 188680 366110 47064 123	295310 138040 433360 842860 107880 152	49531 23691 73223 187360 19028 109	113610 53884 167490 428410 43007 119	261490 122960 384450 985660 98524 134

In each scenario the 6 numbers in a column represent: total recovered, total deaths, total cases, total doses, number of beds needed in the same day and time to the end of the epidemic, which is set to less than 100 new infected per day in the entire world. **M**=million. The green cells indicate that the epidemic persists for more than 4000 days.