

Human Health Impact of Cross-Connections in Non-potable Reuse Systems

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Table S1. Simulated pathogen concentrations [\log_{10} per L] in greywater: percentiles of concentration^a.

	40000-persons Residential			1000-persons Residential			4500-persons Office		
	5%	50%	95%	5%	50%	95%	5%	50%	95%
<i>Campylobacter</i>	-0.3	1.1	2.7	-Inf	-Inf	1.5	-Inf	-1.2	1.5
<i>Cryptosporidium</i>	-1.3	0.3	1.9	-Inf	-Inf	0.7	-Inf	-Inf	0.7
<i>Norovirus</i>	4.5	5.1	6.0	0.9	3.8	5.7	2.9	3.8	4.7
<i>Rotavirus</i>	2.4	3.6	5.0	-Inf	-Inf	4.1	-Inf	1.5	3.9

a. -Inf indicates a concentration of 0 #/L.

Table S2. Simulated pathogen concentrations [\log_{10} per L] in onsite wastewater: percentiles of concentration^a.

	40000-persons Residential			1000-persons Residential			4500-persons Office		
	5%	50%	95%	5%	50%	95%	5%	50%	95%
<i>Campylobacter</i>	2.4	3.7	5.1	-Inf	-Inf	4.2	-Inf	2.3	5.2
<i>Cryptosporidium</i>	1.4	3.0	4.2	-Inf	-Inf	3.4	-Inf	-Inf	4.4
<i>Norovirus</i>	7.1	7.5	8.1	3.5	6.5	8.2	6.5	7.5	8.6
<i>Rotavirus</i>	5.1	6.2	7.4	-Inf	-Inf	6.8	-Inf	5.0	7.6

a. -Inf indicates a concentration of 0 #/L.

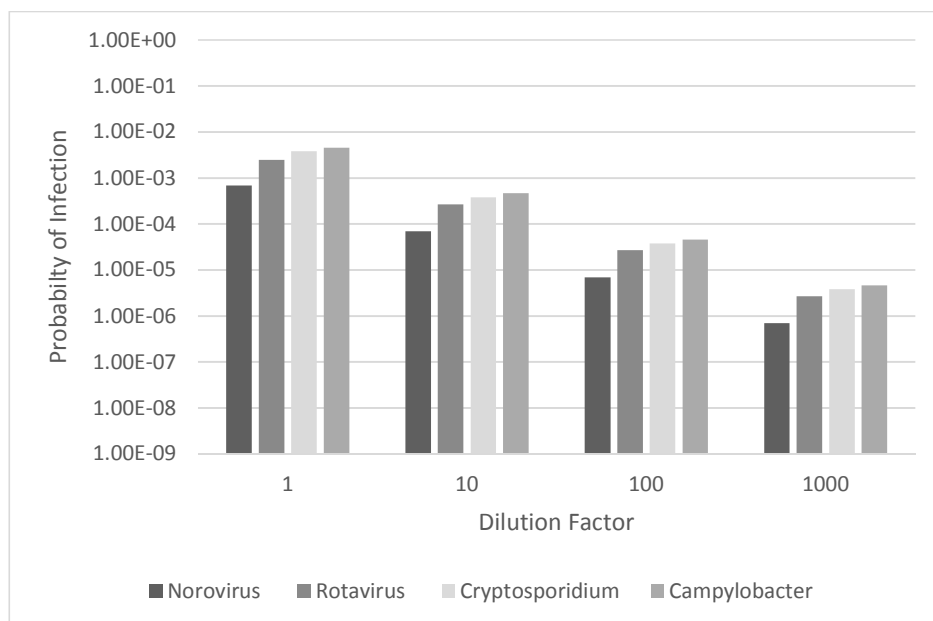


Figure S1. 95th percentile event probability of infection for ingestion of potable water contaminated by domestic, non-potable reclaimed wastewater from residential collection of 40,000 people.¹ .

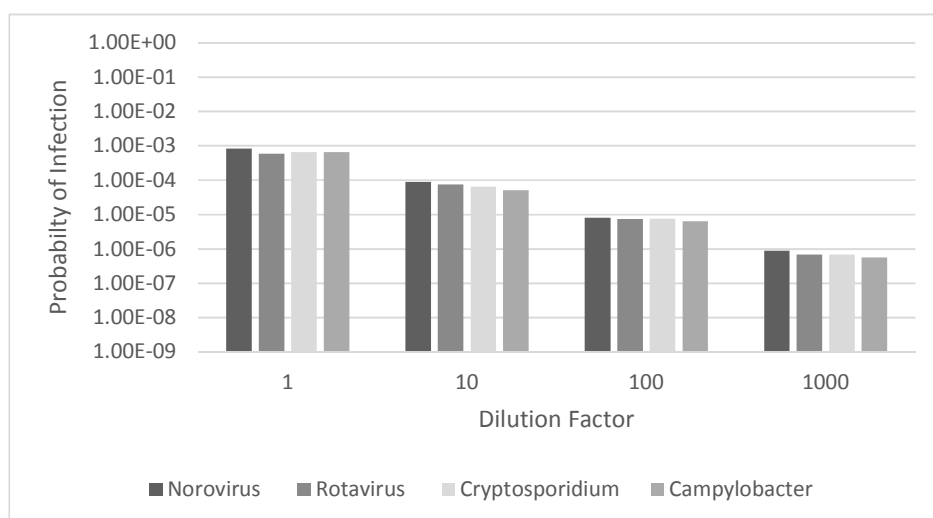


Figure S2. 95th percentile event probability of infection for ingestion of potable water contaminated by domestic, non-potable reclaimed wastewater from residential collection of 1,000 people.¹ .

¹ The dilution factor is expressed as 1 part intrusion water: X parts total water. *Norovirus* lower-bound dose-response results and *Cryptosporidium* upper-bound dose-response results presented.

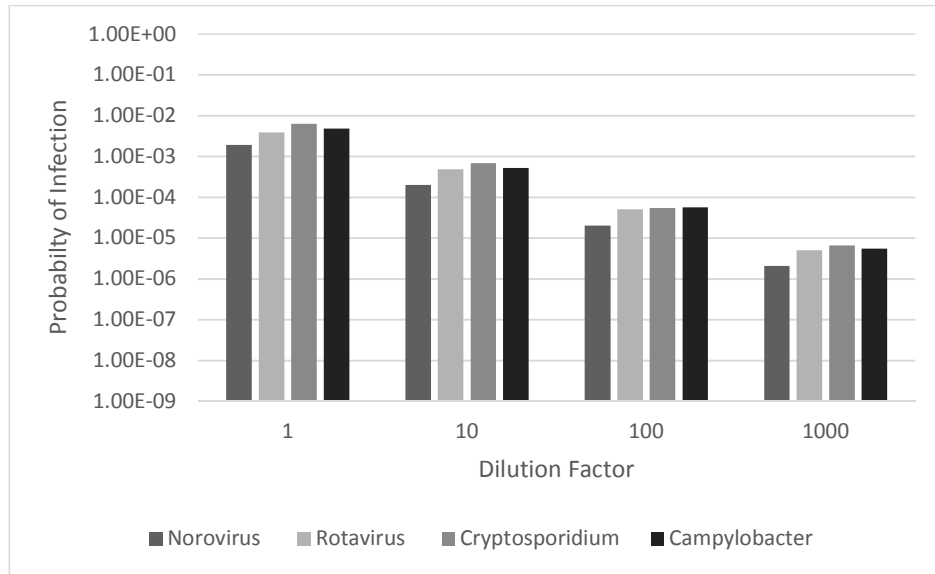


Figure S3. 95th percentile event probability of infection for ingestion of potable water contaminated by domestic, non-potable reclaimed wastewater from office collection of 4,500 people.¹ .

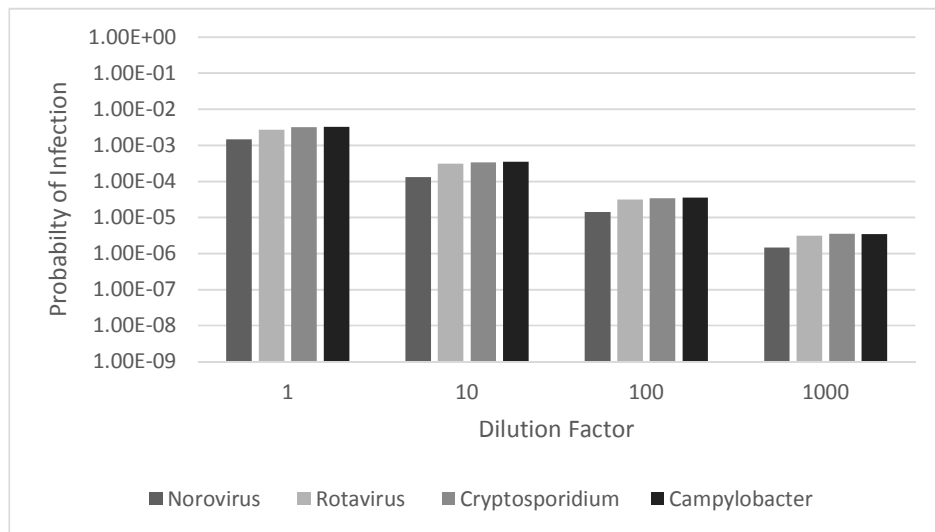


Figure S4. 95th percentile event probability of infection for ingestion of potable water contaminated by domestic, non-potable reclaimed greywater from residential collection of 40,000 people. ¹ .

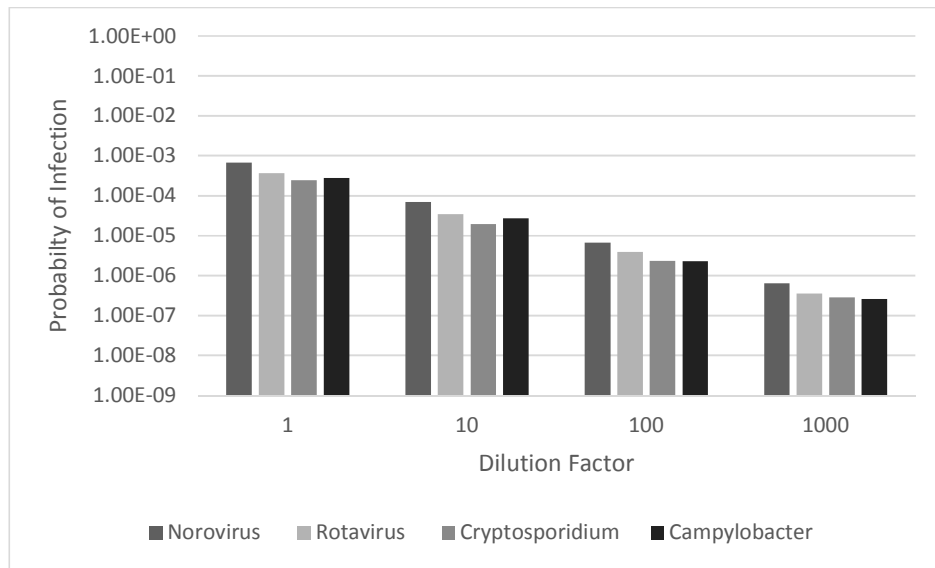


Figure S5. 95th percentile event probability of infection for ingestion of potable water contaminated by domestic, non-potable reclaimed greywater from residential collection of 1,000 people.¹

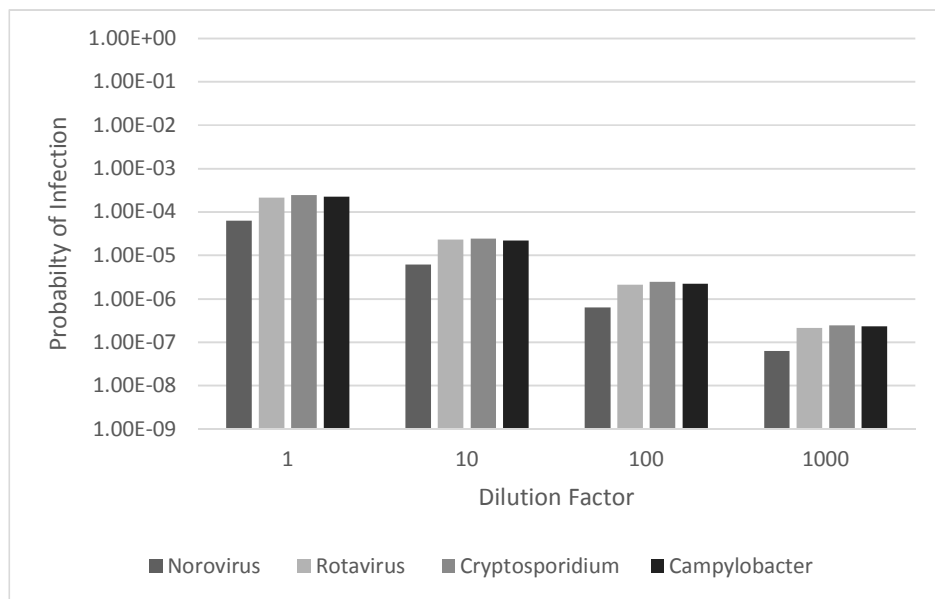


Figure S6. 95th percentile event probability of infection for ingestion of potable water contaminated by domestic, non-potable reclaimed greywater from office collection of 4,500 people.¹

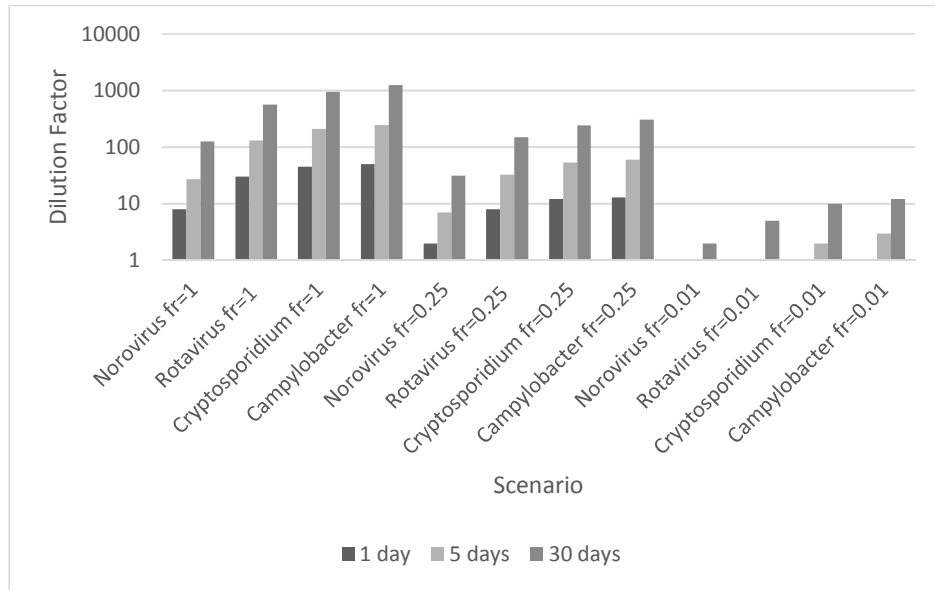


Figure S7. Safe dilution factor of intrusion of non-potable reclaimed wastewater (generated by 40,000-person residential collection and treated for indoor reuse) to potable water supply that results in a 95th percentile annual risk of infection from non-potable indoor reuse equivalent to 10^{-4} ppy.²

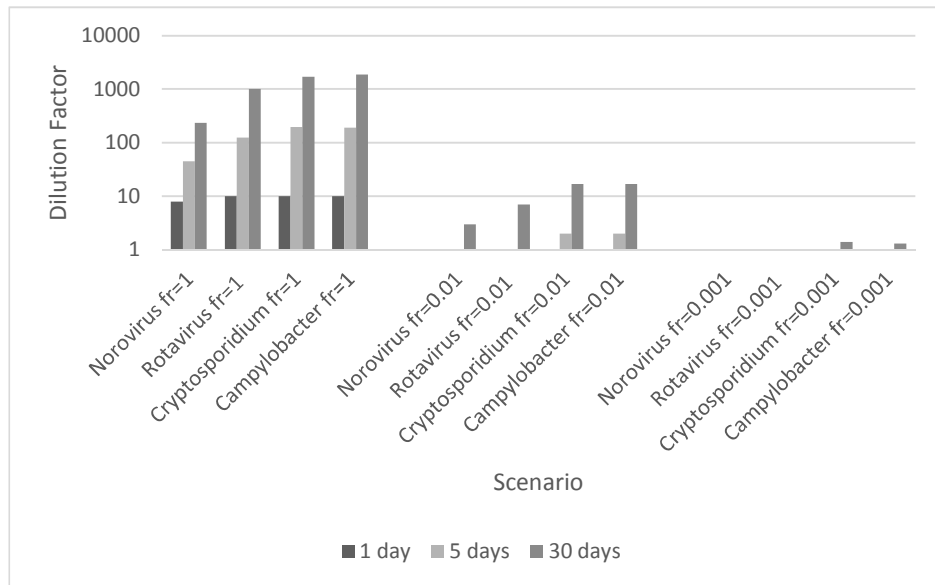


Figure S8. Safe dilution factor of intrusion of non-potable reclaimed wastewater (generated by 1,000-person residential collection and treated for indoor reuse) to potable water supply that results in a 95th percentile annual risk of infection from non-potable indoor reuse equivalent to 10^{-4} ppy.²

² The intrusion event duration was either 1, 5 or 30 days for various fractions of the population exposed to the intrusion event (fr). *Norovirus* lower-bound dose-response results and *Cryptosporidium* upper-bound dose-resposne results presented.

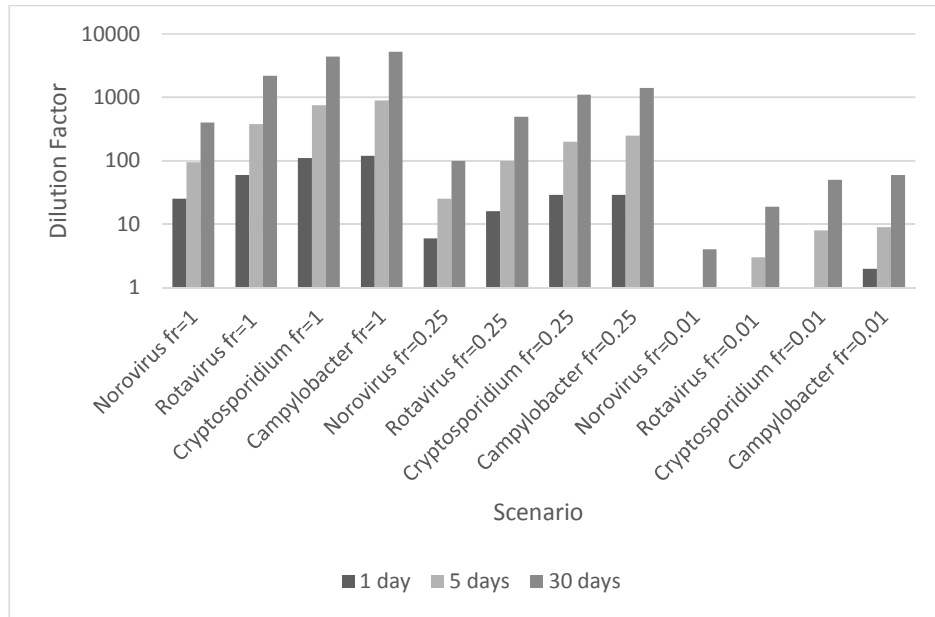


Figure S9. Safe dilution factor of intrusion of non-potable reclaimed wastewater (generated by 4,500-person office collection and treated for indoor reuse) to potable water supply that results in a 95th percentile annual risk of infection from non-potable indoor reuse equivalent to 10^{-4} ppy.²

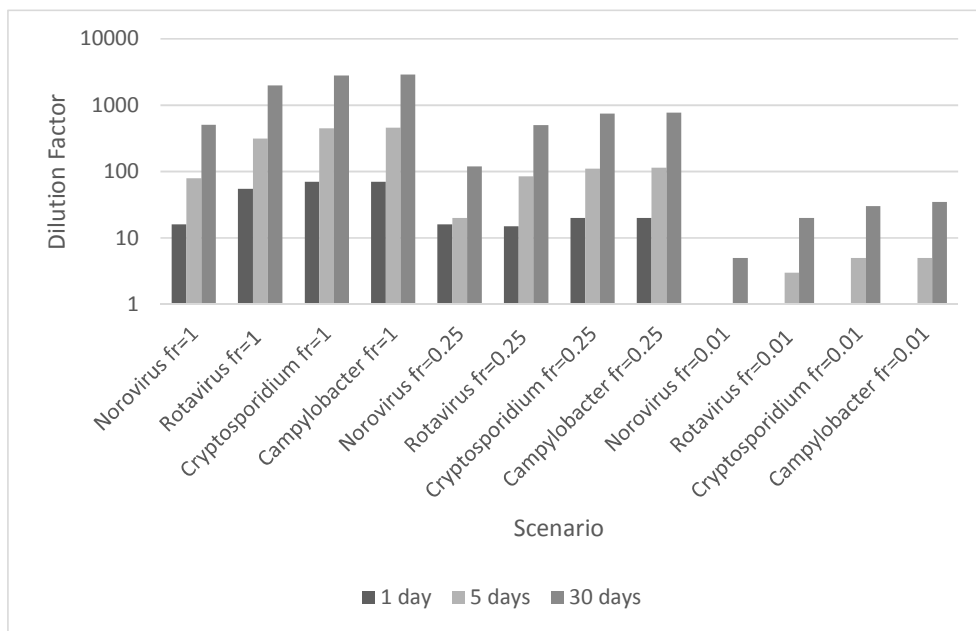


Figure S10. Safe dilution factor of intrusion of non-potable reclaimed greywater (generated by 40,000-person residential collection and treated for indoor reuse) to potable water supply that results in a 95th percentile annual risk of infection from non-potable indoor reuse equivalent to 10^{-4} ppy.²

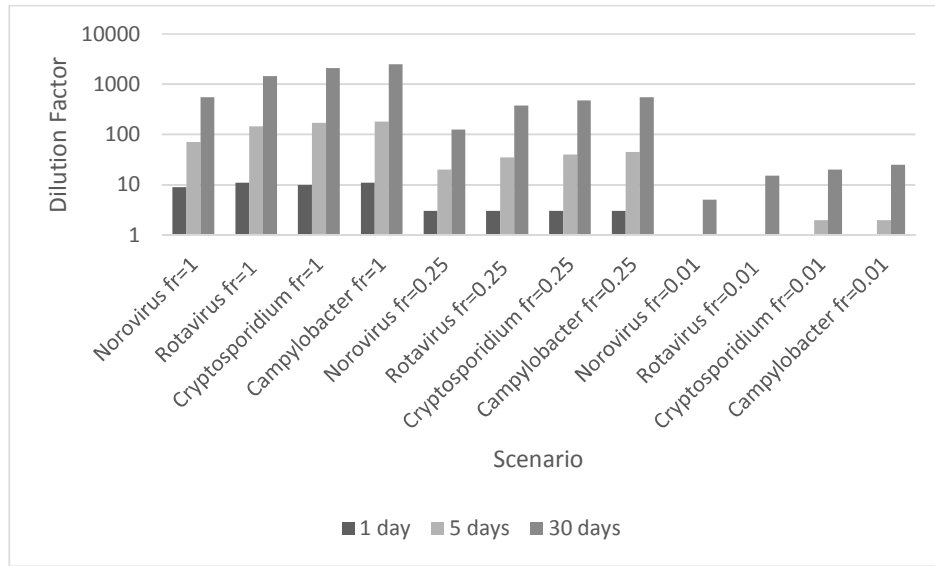


Figure S11. Safe dilution factor of intrusion of non-potable reclaimed greywater (generated by 1,000-person residential collection and treated for indoor reuse) to potable water supply that results in a 95th percentile annual risk of infection from non-potable indoor reuse equivalent to 10^{-4} ppy. ²

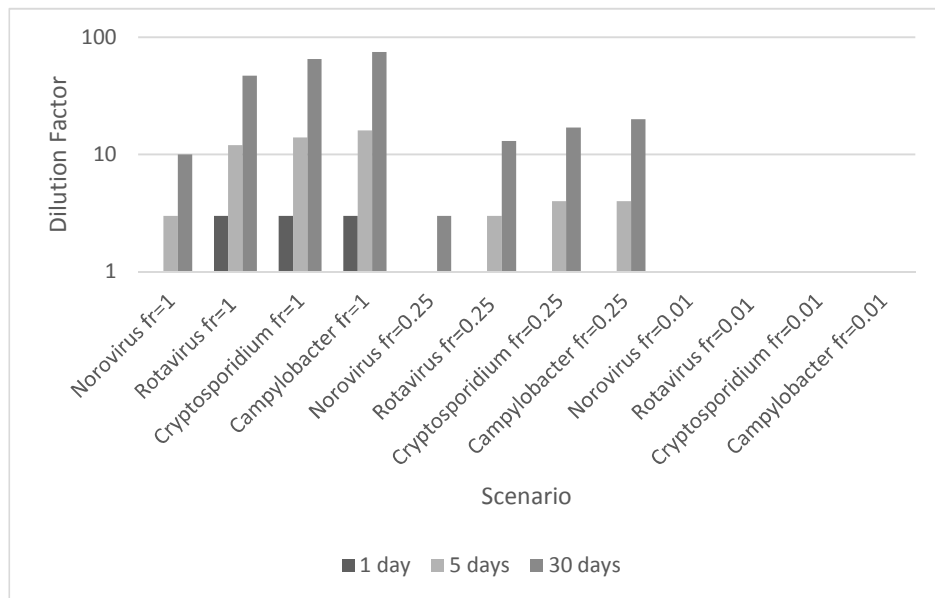


Figure S12. Safe dilution factor of intrusion of non-potable reclaimed greywater (generated by 4,500-person office collection and treated for indoor reuse) to potable water supply that results in a 95th percentile annual risk of infection from non-potable indoor reuse equivalent to 10^{-4} ppy. ²

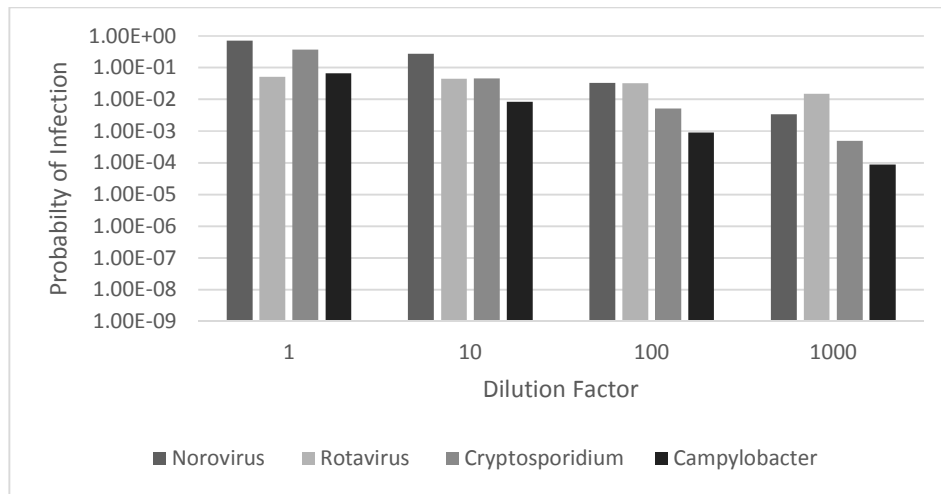


Figure S13. 95th percentile event probability of infection for ingestion of domestic, non-potable reclaimed wastewater contaminated by domestic wastewater generated by a 40,000-person residential collection system.¹ .

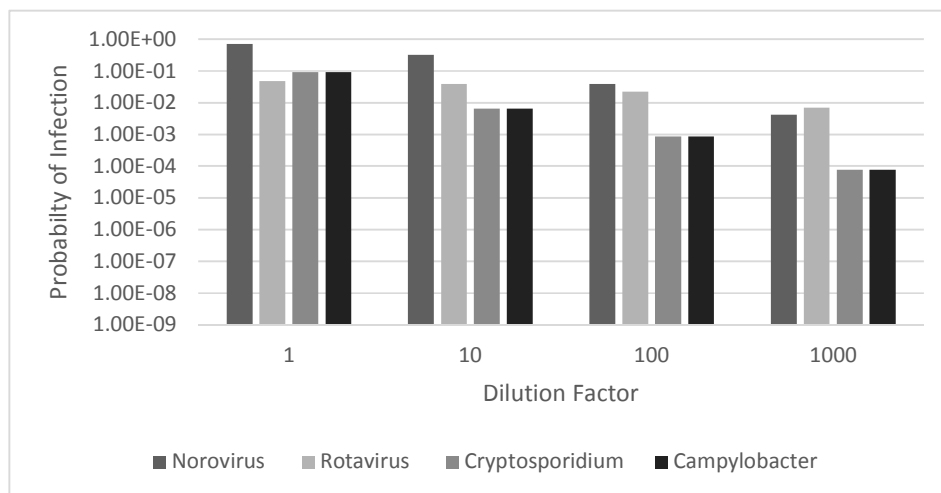


Figure S14. 95th percentile event probability of infection for ingestion of domestic, non-potable reclaimed wastewater contaminated by domestic wastewater generated by a 1,000-person residential collection system.¹ .

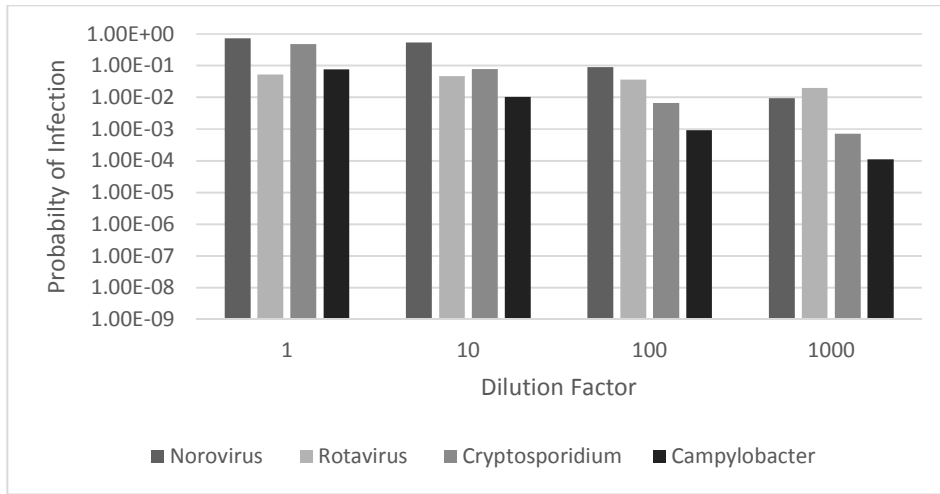


Figure S15. 95th percentile event probability of infection for ingestion of domestic, non-potable reclaimed wastewater contaminated by domestic wastewater generated by a 4,500-person office collection system.¹ .

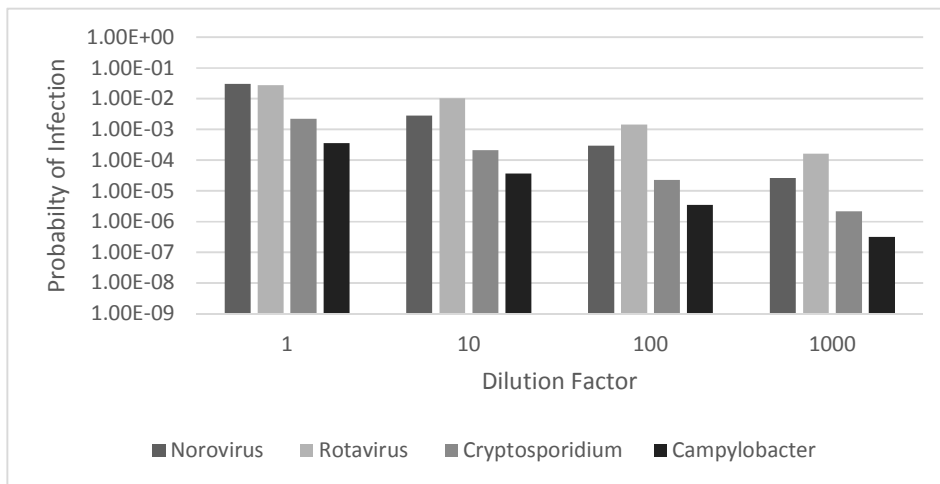


Figure S16. 95th percentile event probability of infection for ingestion of domestic, non-potable reclaimed greywater contaminated by domestic greywater generated by a 40,000-person residential collection system.¹ .

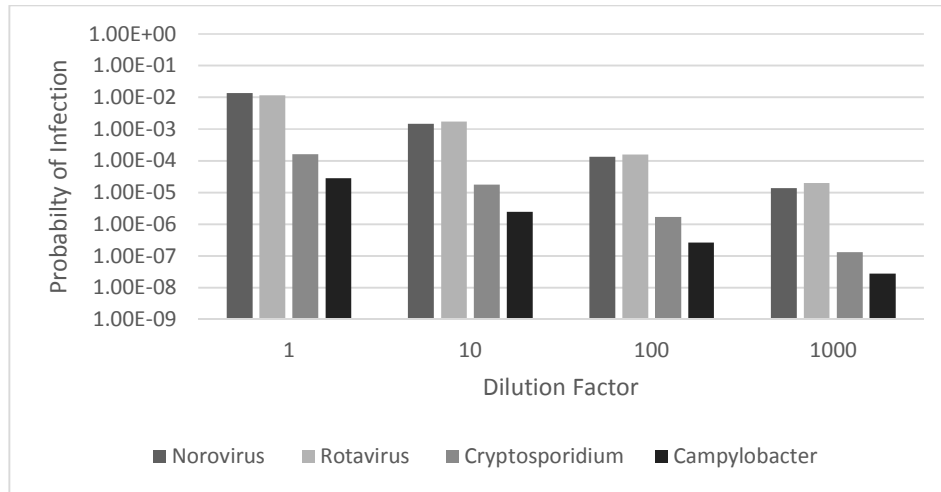


Figure S17. 95th percentile event probability of infection for ingestion of domestic, non-potable reclaimed greywater contaminated by domestic greywater generated by a 1,000-person residential collection system.¹

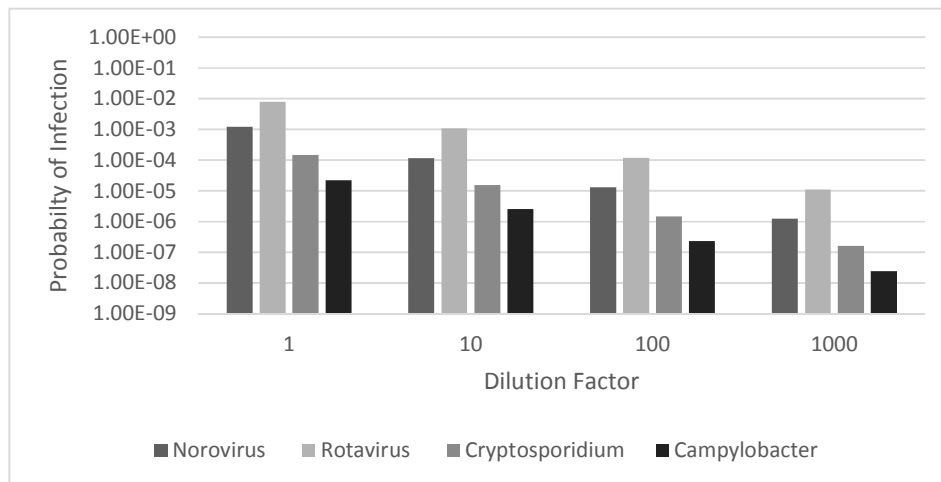


Figure S18. 95th percentile event probability of infection for ingestion of domestic, non-potable reclaimed greywater contaminated by domestic greywater generated by a 4,500-person office collection system.¹

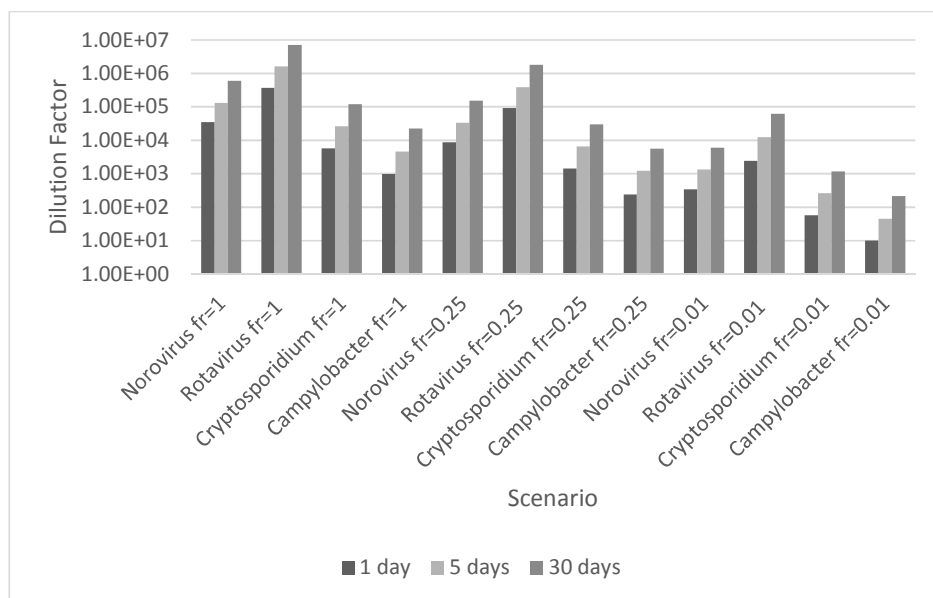


Figure S19. Safe dilution factor of intrusion of residential wastewater (generated by 40,000-person collection) to non-potable reclaimed water supply that results in a 95th percentile annual risk of infection from non-potable domestic, indoor reuse equivalent to the benchmark (10^{-4} ppy).²

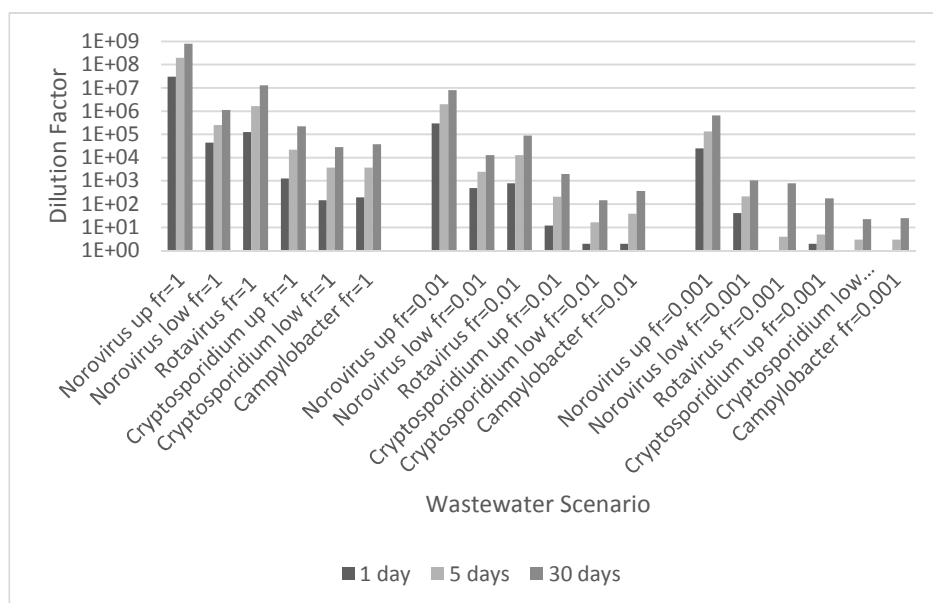


Figure S20. Safe dilution factor of intrusion of residential wastewater (generated by 1,000-person collection) to non-potable reclaimed water supply that results in a 95th percentile annual risk of infection from non-potable domestic, indoor reuse equivalent to the benchmark (10^{-4} ppy).²

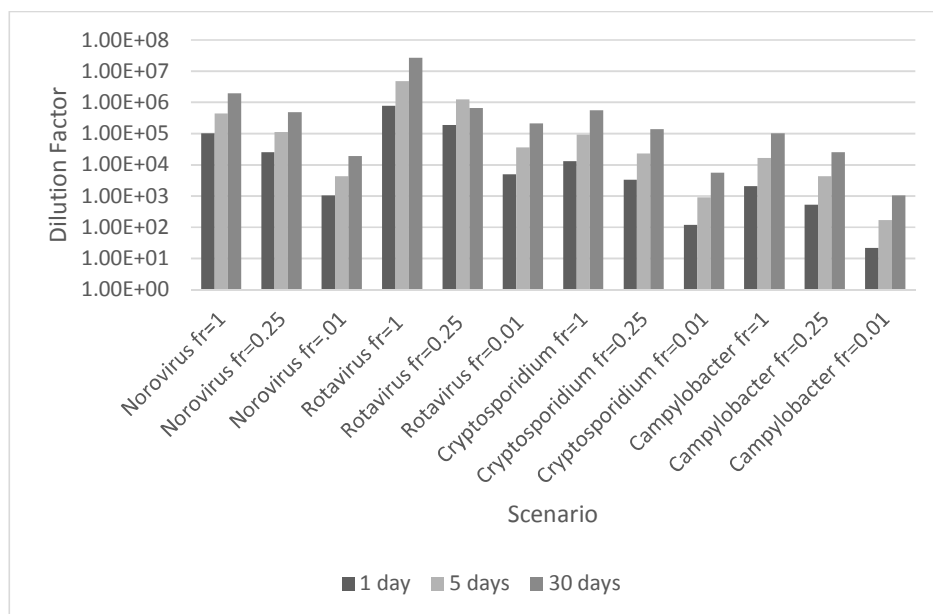


Figure S21. Safe dilution factor of intrusion of office wastewater (generated by 4,500-person collection) to non-potable reclaimed water supply that results in a 95th percentile annual risk of infection from non-potable domestic, indoor reuse equivalent to the benchmark (10^{-4} ppy). ².

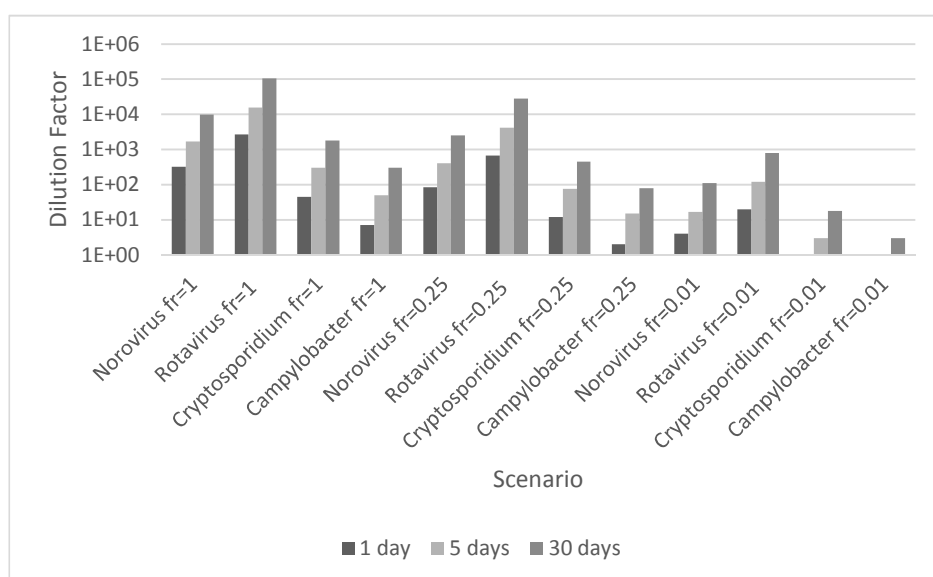


Figure S22. Safe dilution factor of intrusion of residential greywater (generated by 40,000-person collection) to non-potable water supply that results in a 95th percentile annual risk of infection from non-potable domestic, indoor reuse equivalent to the benchmark (10^{-4} ppy). ².

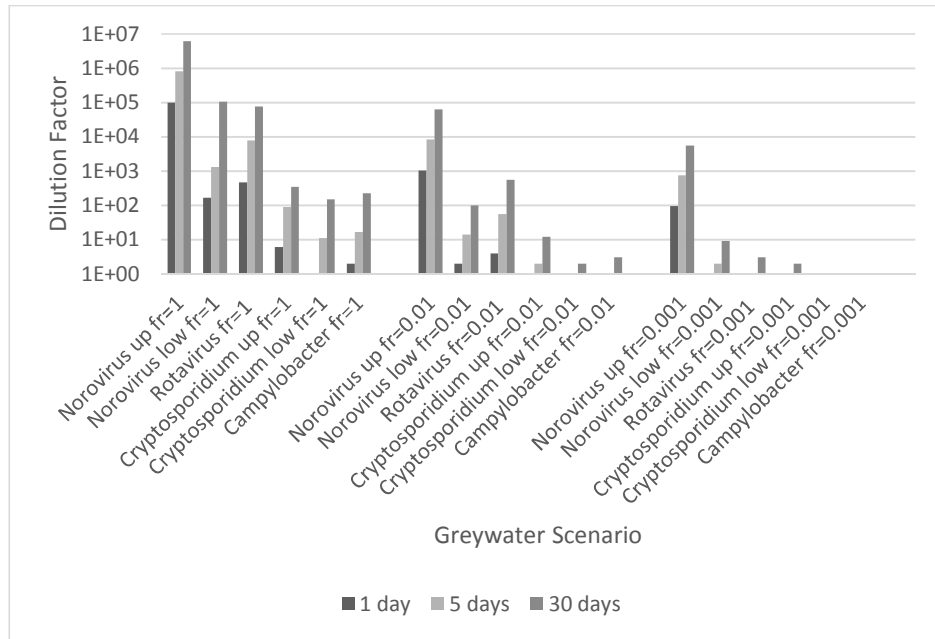


Figure S23. Safe dilution factor of intrusion of residential greywater (generated by 1,000-person collection) to non-potable water supply that results in a 95th percentile annual risk of infection from non-potable domestic, indoor reuse equivalent to the benchmark (10^{-4} ppy).²

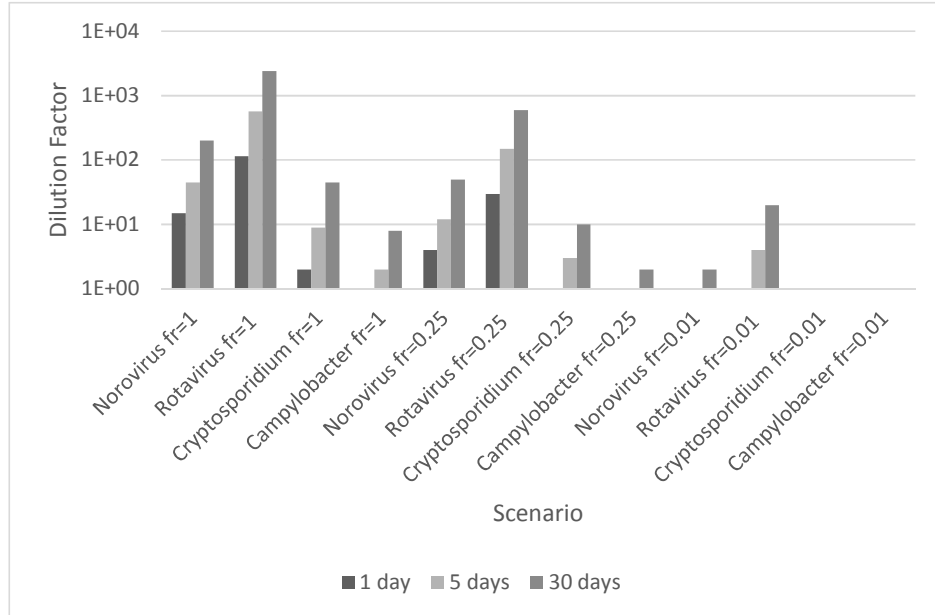


Figure S24. Safe dilution factor of intrusion of residential greywater (generated by 4,500-person collection) to non-potable water supply that results in a 95th percentile annual risk of infection from non-potable domestic, indoor reuse equivalent to the benchmark (10^{-4} ppy).²