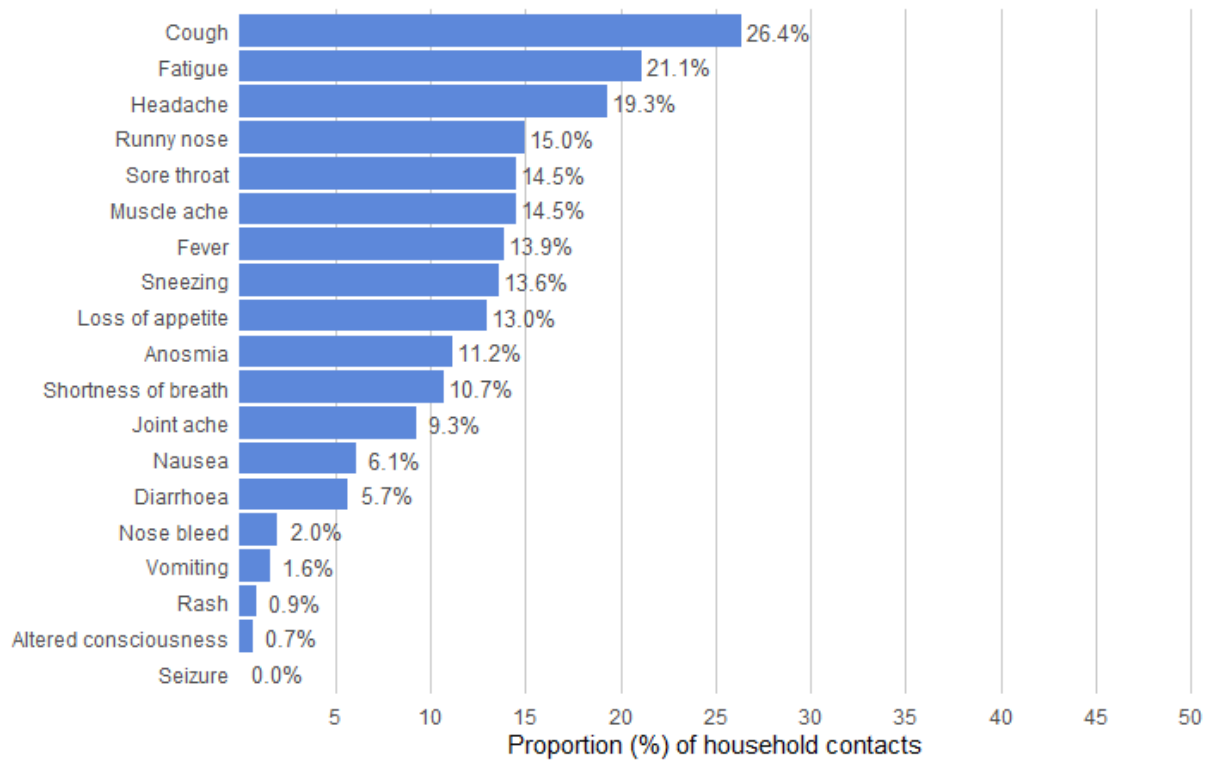


Supplement 3

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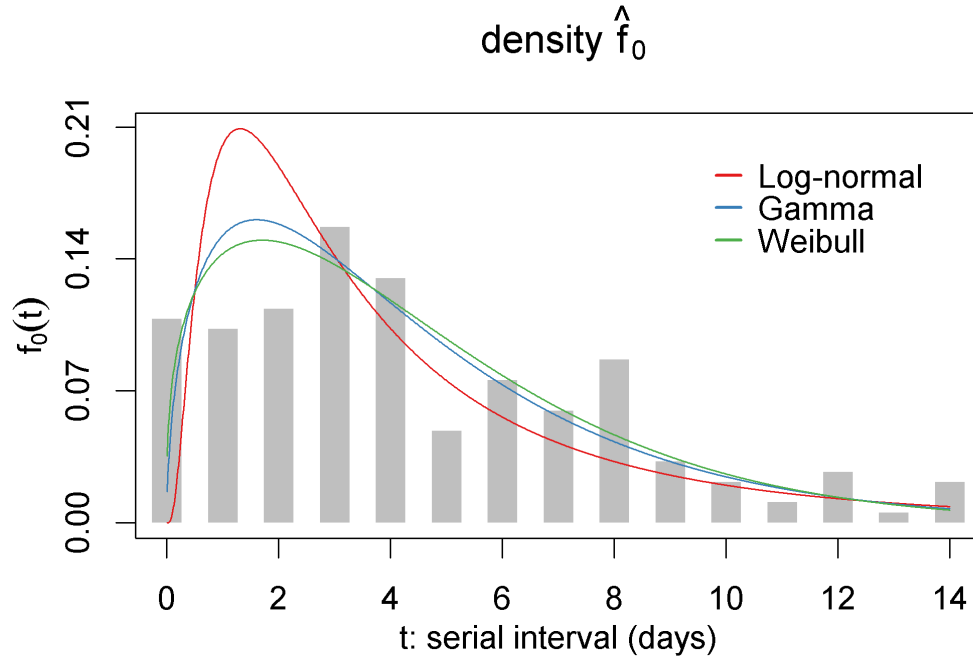
Supplementary Figure 1: Proportion of household contacts reporting symptoms during follow-up period

Supplementary Table 1: Adjusted secondary attack rates and odds ratios for secondary infection (probable and confirmed secondary cases with co-primaries included)

	variable	levels	SAR	95% CI		OR	95% CI	
household	household size	2	0.39	0.28	0.49	1.00		
		3	0.36	0.26	0.46	0.84	0.38	1.90
		4	0.31	0.22	0.40	0.64	0.29	1.40
		>=5	0.22	0.12	0.32	0.36	0.14	0.94
characteristics of contact	gender	Male	0.32	0.25	0.39	1.00		
		Female	0.29	0.22	0.36	0.83	0.49	1.40
	age group	<18	0.26	0.18	0.35	0.65	0.31	1.30
		18-34	0.33	0.24	0.42	1.00		
		35-64	0.33	0.26	0.41	1.00	0.53	1.90
65+	0.24	0.024	0.45	0.54	0.11	2.60		
characteristics of primary case	gender	Male	0.35	0.27	0.42	1.00		
		Female	0.26	0.19	0.33	0.59	0.31	1.10
	age group	<18	0.67	0.28	1.10	8.00	0.81	79
		18-64	0.29	0.24	0.34	1.00		
		65+	0.38	0.18	0.58	1.70	0.55	5.30
	hospital admission	without hospital adm.	0.35	0.28	0.42	1.00		
		with hospital adm.	0.24	0.17	0.31	0.49	0.26	0.91
	cough/sneeze	no cough/sneeze	0.25	0.14	0.35	1.00		
cough/sneeze		0.32	0.26	0.37	1.50	0.69	3.30	

Supplementary Table 2: Adjusted secondary attack rates and odds ratios for secondary infection (confirmed secondary cases only)

	variable	levels	SAR	95% CI		OR	95% CI	
household	household size	2	0.17	0.079	0.26	1.00		
		3	0.13	0.05	0.20	0.63	0.19	2.10
		4	0.12	0.044	0.19	0.55	0.16	1.90
		>=5	0.051	0	0.11	0.18	0.03	1.00
characteristics of contact	gender	Male	0.11	0.056	0.16	1.00		
		Female	0.094	0.041	0.15	0.79	0.30	2.10
	age group	<18	0.048	0.0088	0.087	0.22	0.056	0.88
		18-34	0.14	0.054	0.22	1.00		
		35-64	0.14	0.076	0.20	0.97	0.34	2.80
	65+	0.30	0.031	0.57	4.20	0.48	36	
characteristics of primary case	gender	Male	0.12	0.055	0.18	1.00		
		Female	0.085	0.038	0.13	0.62	0.21	1.80
	age group	<18	0.47	0.30	0.64	22.00	4.50	106
		18-64	0.096	0.052	0.14	1.00		
		65+	0.098	0	0.20	1.00	0.19	5.40
	hospital admission	without hospital adm.	0.14	0.078	0.20	1.00		
		with hospital adm.	0.061	0.018	0.11	0.31	0.094	1.00
cough/sneeze	no cough/sneeze	0.035	0	0.079	1.00			
	cough/sneeze	0.12	0.07	0.17	5.60	0.95	33	



Supplementary Figure 2: Fit baseline unadjusted density $f_0(t)$ on Log-normal, Gamma, Weibull (for households with index case being in the household at the time of onset)

The parametrisation we follow in this report for Log-normal, Gamma, and Weibull, is given below

$$f_{\text{Log-normal}}(t) = \frac{1}{t\sigma\sqrt{2\pi}} \exp\left(\frac{-(\log(t) - \mu)^2}{2\sigma^2}\right), \quad \sigma: \text{scale}, \mu: \text{shape}$$

$$f_{\text{Gamma}}(t) = \frac{\beta^\alpha}{\Gamma(\alpha)} t^{\alpha-1} \exp(-\beta t), \quad \beta: \text{scale}, \alpha: \text{shape}$$

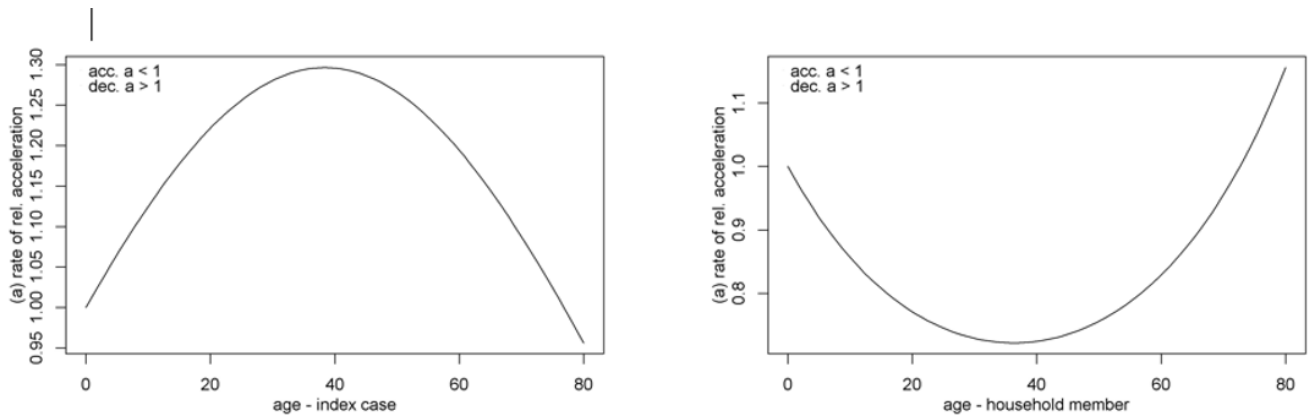
$$f_{\text{Weibull}}(t) = \lambda\gamma(\lambda t)^{\gamma-1} \exp(-(\lambda t)^\gamma), \quad \lambda: \text{scale}, \gamma: \text{shape}$$

Supplementary Table 3: parameters for serial interval models

	model parameters						serial interval	Goodness of fit parametric models	Type of households
	Shape			Scale			Mean		
Log-normal (unadj)	mu	mu_lb	mu_ub	sigma	sigma_lb	sigma_ub	mean	AIC	All households
	1.15	1.01	1.30	0.94	0.86	1.02	4.90	926.19	
Gamma (unadj)	alpha	alpha_lb	alpha_ub	beta	beta_lb	beta_ub	mean	AIC	
	1.56	1.29	1.87	0.35	0.28	0.43	4.50	907.42	
Weibull (unadj)	lambda	lambda_lb	lambda_ub	gamma	gamma_lb	gamma_ub	mean	AIC	
	0.20	0.18	0.23	1.33	1.19	1.48	4.50	906.01	
Log-normal (unadj)	mu	mu_lb	mu_ub	sigma	sigma_lb	sigma_ub	mean	AIC	Households with index case being in the household at the time of onset
	1.21	1.05	1.37	0.91	0.82	1.01	5.06	779.63	
Gamma (unadj)	alpha	alpha_lb	alpha_ub	beta	beta_lb	beta_ub	mean	AIC	
	1.65	1.35	2.03	0.35	0.28	0.45	4.67	762.4	
Weibull (unadj)	lambda	lambda_lb	lambda_ub	gamma	gamma_lb	gamma_ub	mean	AIC	
	0.20	0.17	0.22	1.38	1.22	1.55	4.67	760.88	

Supplementary Table 4: Crude serial interval, all households

	varname	level	serial interval	conf.low	conf.high
household	household size	2	4.15	3.32	5.18
		3	5.88	4.72	7.33
		4	4.92	4.05	5.97
		5	4.56	3.58	5.8
primary case	imported	non-imported	5.52	4.67	6.52
		imported	4.46	3.8	5.23
	cough	no cough	5.89	4.82	7.2
		cough	4.68	4.09	5.36
	fever	no fever	4.56	3.72	5.58
		fever >37C	5.01	4.32	5.8
	age group	18-64	4.83	4.23	5.51
		<18	3.83	2.22	6.61
		65+	6.46	4.92	8.48
	gender	Male	4.76	4.07	5.56
		Female	5.09	4.29	6.04
	hospital admission	no hosp.	4.74	4.09	5.48
		hosp. admission	5.34	4.46	6.4
	complications	without compl.	4.72	4.14	5.37
		with compl.	6.33	4.87	8.23
	contact	gender	Male	4.95	4.2
Female			4.85	4.14	5.68
age group		18-34	5.11	4.13	6.31
		<18	5.15	4.35	6.09
		35-64	4.51	3.78	5.39
		65+	6.84	4.69	9.97



Supplementary Figure 3: effect of age of primary case and contact on serial interval

Age modelled as a continuous variable. $a < 1$ reduces the serial interval $a > 1$ prolongs the serial interval (fitting Accelerated Failure Time Model (AFT))

$Y = \log(T) = -\Sigma \beta X + \sigma W$, $T \sim Weibull$, W error term \sim extreme value distribution

$a = \exp(\Sigma \beta X)$, factor of relative acceleration of survival function $S(t, X) = S_0(t \exp(\Sigma \beta X))$

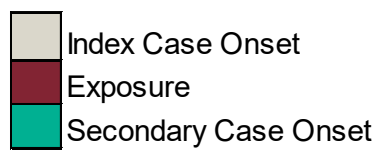
Citation: <https://data.princeton.edu/pop509/ParametricSurvival.pdf>

Supplementary Table 5: Adjusted Serial Interval (for households with primary case being in the household at the time of onset), using marginal means

age_interaction	SI	SI_lb	SI_ub
<18 -> <18	3.89	0.83	6.88
<18 -> 18-34	4.04	0.87	7.14
<18 -> 35-64	3.39	0.73	5.99
<18 -> 65+	4.26	0.91	7.53
18-64 -> <18	5.14	1.1	9.09
18-64 -> 18-34	5.34	1.14	9.44
18-64 -> 35-64	4.48	0.96	7.92
18-64 -> 65+	5.63	1.21	9.96
65+ -> <18	6.35	1.36	11.23
65+ -> 18-34	6.59	1.41	11.67
65+ -> 35-64	5.53	1.19	9.79
65+ -> 65+	6.95	1.49	12.3

Weibull fit AFT multivariable regression

Secondary case	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
Case 1	Index Case Onset	Exposure			Secondary Case Onset										
Case 2	Index Case Onset	Exposure					Secondary Case Onset								
Case 3	Index Case Onset	Exposure		Secondary Case Onset											
Case 4	Index Case Onset				Exposure		Secondary Case Onset								
Case 5	Index Case Onset	Exposure			Secondary Case Onset										
Case 6	Index Case Onset	Exposure					Secondary Case Onset								
Case 7	Index Case Onset	Exposure											Secondary Case Onset		
Case 8	Index Case Onset	Exposure							Secondary Case Onset						
Case 9	Index Case Onset					Exposure				Secondary Case Onset					
Case 10	Index Case Onset	Exposure				Secondary Case Onset									
Case 11	Index Case Onset	Exposure			Secondary Case Onset										
Case 12	Index Case Onset		Exposure				Secondary Case Onset								



Supplementary Figure 4: Incubation period among confirmed secondary cases with a point source exposure