Exposure variable (within last 14 days)	Model UA 1 (unadjusted)	Model UA 2 (unadjusted)	Model UA 3 (unadjusted)	Model UA 4 (unadjusted)	Model UA 5 (unadjusted)	Model UA 6 (unadjusted)	Model UA 7 (unadjusted)
(n = 83,004	n = 83,004	n = 83,004	n = 69,461	n = 69,461	n = 83,004	n = 83,004
Count of cases within own household	8.20***						
	(8.19 - 8.81)						
Count of staff member cases within the		1.17***					
linked school		(1.16 – 1.18)					
Count of pupil cases within the linked			1.12***				
school			(1.11 – 1.12)				
Count of pupil cases within the linked				1.19***			
school (non-year group)				(1.18 – 1.20)			
Count of pupil cases in the linked school					1.48***		
within the same year group					(1.45 – 1.50)		
Count of cases in staff member's homes						1.47***	
linked to the school.						(1.16 – 1.18)	
Count of cases in pupils' homes linked to							1.09***
the school.							(1.08 – 1.09)

Table S1 – Odds ratios of Univariate models for exposure variables. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 "' 0.1 ' ' 1.

Table S2 – Odds ratios of Univariate models for confounder variables.

0 - 4 (ref)	(n = 83,004)		(00.004)	MS4	MS5	(n =	(n =	MS9	MS10
0 - 4 (rof)		83,004)	(n = 83,004)	(n = 83,004)	(n = 83,004)	83,004)	83,004)	(n = 83,004)	(n = 83,004)
0 - 4 (161)									
0.0	1.62*** (1.47 -			!	•		1	•	1.57***
0-9	1.78)								(1.43 - 1.73)
10 14	2.49*** (2.27 -								2.69***
10 – 14	2.73)								(2.40 - 3.02)
15 10	2.62***/2.15 4.10								3.84***
15 – 19	3.03 * * (3.15 - 4.19								(3.25 - 4.53)
20 24	5.16*** (4.20 -								2.18** (1.28
20 – 24	6.34)								- 3.71)
25 20	4.60*** (3.96 -								2.16** (1.29
25 – 29	5.34)								- 3.34)
20 24	4.55*** (3.96 -								2.01** (1.21
30 – 34	5.24)								- 3.08)
25 20	4.41*** (3.82 -								1.05 * /1.11
35 – 39	5.24)								1.85* (1.11 -
40 44	5.59*** (4.77 -								2.23** (1.34
40 – 44	6.25)								- 3.71)
45 40	5.58*** (4.89 -								2.39***
45 – 49	6.39)								(1.43 - 3.97)
50 54	5.50*** (4.77 -								2.45***
50 – 54	6.35)								(1.47 - 4.09)
55 50	5 20*** 4 52 . C 40\								2.55***
55 – 59	5.39*** 4.53 - 6.40)								(1.52 - 4.29)
	5.52*** (4.22 -								2.70***
60 – 64	7.21)								(1.54 - 4.74)
	0 == * (1 0 = 0 :=)								1.47 (0.58 -
65 – 69	2.77* (1.25 - 6.12)								3.76)
	4.39** (1.48 -								2.35 (0.71 -
70 – 74	13.01)								7.76)
	0-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65-69 70-74	1.78) 2.49*** (2.27 - 2.73) 15 - 19 3.63*** (3.15 - 4.19) 20 - 24 5.16*** (4.20 - 6.34) 4.60*** (3.96 - 5.34) 4.55*** (3.96 - 5.24) 4.41*** (3.82 - 5.24) 4.41*** (3.82 - 5.24) 4.55*** (4.77 - 6.25) 5.58*** (4.89 - 6.39) 50 - 54 5.50*** (4.77 - 6.35) 55 - 59 5.39*** 4.53 - 6.40) 60 - 64 7.21) 65 - 69 2.77* (1.25 - 6.12) 4.39** (1.48 - 6.39)	1.78) 2.49*** (2.27 - 2.73) 15 - 19 3.63*** (3.15 - 4.19) 20 - 24 5.16*** (4.20 - 6.34) 4.60*** (3.96 - 5.34) 4.55*** (3.96 - 5.24) 35 - 39 4.41*** (3.82 - 5.24) 40 - 44 5.59*** (4.77 - 6.25) 5.58*** (4.89 - 6.39) 5.50 - 54 5.50*** (4.77 - 6.35) 55 - 59 5.39*** 4.53 - 6.40) 60 - 64 5.52*** (4.22 - 7.21) 65 - 69 2.77* (1.25 - 6.12) 4.39** (1.48 - 70 - 74	10-9 1.78) 2.49*** (2.27- 2.73) 15-19 3.63*** (3.15-4.19) 20-24 5.16*** (4.20- 6.34) 4.60*** (3.96- 5.34) 4.55*** (3.96- 5.24) 35-39 4.41*** (3.82- 5.24) 40-44 5.59*** (4.77- 6.25) 5.58*** (4.89- 6.39) 50-54 5.50*** (4.77- 6.35) 55-59 5.39*** 4.53-6.40) 5.52*** (4.22- 7.21) 65-69 2.77* (1.25-6.12) 4.39** (1.48-	1.78) 2.49*** (2.27 - 2.73) 15 - 19 3.63*** (3.15 - 4.19) 20 - 24 5.16*** (4.20 - 6.34) 4.60*** (3.96 - 5.34) 30 - 34 4.55*** (3.96 - 5.24) 35 - 39 4.41*** (3.82 - 5.24) 40 - 44 5.59*** (4.77 - 6.25) 45 - 49 5.59*** (4.77 - 6.35) 55 - 59 5.39*** 4.53 - 6.40) 5.52*** (4.22 - 7.21) 65 - 69 2.77* (1.25 - 6.12) 70 - 74 4.39*** (1.48 -	1.78) 2.49*** (2.27 - 2.73) 15 - 19 3.63*** (3.15 - 4.19) 20 - 24 5.16*** (4.20 - 6.34) 25 - 29 4.55*** (3.96 - 5.34) 30 - 34 4.55*** (3.96 - 5.24) 35 - 39 4.41*** (3.82 - 5.24) 40 - 44 5.59*** (4.77 - 6.25) 45 - 49 6.39) 50 - 54 5.50*** (4.77 - 6.35) 55 - 59 5.39*** 4.53 - 6.40) 60 - 64 5.52*** (4.22 - 7.21) 65 - 69 2.77* (1.25 - 6.12) 70 - 74 4.39** (1.48 -	1.78) 2.49*** (2.27- 2.73) 15 - 19 3.63*** (3.15 - 4.19) 20 - 24 5.16*** (4.20- 6.34) 4.50*** (3.96- 5.34) 30 - 34 4.55*** (3.96- 5.24) 35 - 39 4.41*** (3.82- 5.24) 40 - 44 5.59*** (4.77- 6.25) 5.58*** (4.89- 6.39) 50 - 54 5.59*** (4.77- 6.35) 55 - 59 5.39*** 4.53 - 6.40) 60 - 64 70 - 74 4.39** (1.48-	1.78) 2.49*** (2.27- 2.73) 15 - 19 3.63*** (3.15 - 4.19) 20 - 24 5.16*** (4.20- 6.34) 25 - 29 4.60*** (3.96- 5.34) 30 - 34 4.55*** (3.96- 5.24) 35 - 39 4.41*** (3.82- 5.24) 40 - 44 5.59*** (4.77- 6.25) 45 - 49 5.50*** (4.89- 6.39) 50 - 54 5.50*** (4.77- 6.35) 55 - 59 5.39*** 4.53 - 6.40) 60 - 64 5.52*** (4.22- 7.21) 65 - 69 2.77* (1.25 - 6.12) 4.39*** (1.48 -	1.78) 2.49*** (2.27- 2.73) 15-19 3.63*** (3.15-4.19) 20-24 5.16*** (4.20- 6.34) 25-29 4.60*** (3.96- 5.24) 35-39 4.41*** (3.82- 5.24) 40-44 5.59*** (4.77- 6.25) 45-49 5.59*** (4.77- 6.39) 50-54 5.50*** (4.77- 6.35) 55-59 5.39*** 4.53-6.40) 60-64 5.52*** (4.22- 7.21) 65-69 2.77* (1.25-6.12) 4.39** (1.48-

	75 – 79	14.82*** (3.32 - 66.35)								7.96* (1.64 - 38.68)
	NA-1-/ 5 \	00.55)					1	1		36.06)
	Male(ref.)		4 27***				ļ	ļ		
Gender			1.37***							1.04* (0.99 -
	Female		(1.31 -							1.09)
			1.44)	0.51***		I	1	1		
	Rural town and fringe in									0.60***
	sparse setting			(0.41 - 0.64)						(0.47 - 0.75)
	Rural village and			0.64)		ļ	l			0.89' (0.79 -
	dispersed			0.90'						1.01)
	Rural village and			0.64***						
	dispersed in a sparse			(0.41 -						0.69***
Residential	setting			1.02)						(0.60 - 0.81)
Settlement Type	Setting			1.16**						
Settlement Type	Urban city and town			(1.09 -						1.13***
	organi dicy and comi			1.24)						(1.05 - 1.21)
				0.70**						
	Urban city and town in a			(0.54 -						0.79' (0.61 -
	sparse setting			0.89)						1.01)
	Rural town and fringe			,						
	(ref.)									
	Primary (ref.)									
I				I	1.04 (0.94 -		I	I	I	0.60***
	Middle				1.16)					(0.53 - 0.69)
	N DDII				0.33* (0.14 -					0.42' (0.17 -
School Type	Nursery or PRU				0.82)					1.03)
	Socondoni				1.47***					0.81***
	Secondary				(1.40 - 1.54)					(0.74 - 0.89)
	Special				1.78***					0.81** (0.69
	Special				(1.58 - 2.02)					- 0.95)
		1			1	4				

	Pupil (ref.)							
School relation	Staff			2.74*** (2.60 - 2.88)				2.72*** (1.77 - 4.69)
Number of staff within school					1.01*** (1.01 - 1.01)			1.00** (1.00
Number of pupils within the school						1.01*** (1.01 - 1.01)		1.00*** (1.00 - 1.00)
Number within household							1.26*** (1.24 - 1.28)	1.35*** (1.33 - 1.38)

Table S3 – Odds ratios of fully-adjust models. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 "' 0.1 ' ' 1.

Exposure variable (within last 14 days)	M1 Staff and Pupil	M2 – Staff Outcomes	M3 – Pupil Outcomes
(within last 14 days)	Outcomes	(n = 13,543)	(n = 69,461)
	(n = 83,004)		
Count of cases within own household	11.81***	39.86***	9.39***
	(11.02 – 12.15)	(35.01 – 45.38)	(8.94 – 9.88)
Count of staff member cases within the linked	0.93***	0.92'	0.97
school	(0.89 – 0.97)	(0.85 – 1.00)	(0.91– 1.01)
Count of pupil cases within the linked school	0.97***	0.98	0.92***
(non-year for M3)	(0.95 – 0.98)	(0.93 – 1.02)	(0.89 – 0.94)
Count of pupil cases in the linked school within	-	-	1.12***
the same year group			(1.08 – 1.15)
Count of cases in staff member's homes linked	1.11***	1.09**	1.17***
to the school.	(1.07 – 1.15)	(1.02 – 1.17)	(1.12 – 1.22)

Supplemental material

Count of cases in pupils' homes linked to the school.		1.07*** (1.06 – 1.09)	1.04* (1.01 – 1.07)			1.08*** (1.06 - 1.10)
		(1.06 – 1.09)	(1.01 – 1.07)			(1.06 - 1.10)
Confounder	Category			Pupil only o	category	
Variable						
Age Group	0 - 4 (ref)			Year Group	Below Year 1	0.33***
						(0.26 - 0.47)
	5 - 9	1.47***	-		Year 1	0.42***
		(1.30 - 1.66)				(0.29 -0.60)
	10 – 14	2.75***	-		Year 2	0.49***
		(2.37 – 3.19)				(0.34 - 0.70)
	15 – 19	3.91***	-		Year 3	0.50***
		(3.15 – 4.84)				(0.35 - 0.72)
	20 – 24	1.88	0.45*		Year 4	0.55***
		(0.99 – 3.56)	(0.23 - 0.92)			(0.38 - 0.78)
	25 – 29	1.68	0.43*		Year 5	0.56**
		(0.90 - 3.11)	(0.22 - 0.85)			(0.40 - 0.81)
	30 – 34	1.43	0.35**		Year 6	0.61**
		(0.77 – 2.65)	(1.78 - 0.69)			(0.43 - 0.86)
	35 – 39	1.28	0.29***		Year 8	0.68**
		(0.69 – 2.38)	(0.15 – 0.57)			(0.59 - 0.79)
	40 – 44	1.37	0.30***		Year 9	0.75***
		(0.74 - 2.54)	(0.16 - 0.60)			(0.65 - 0.87)
	45 – 49	1.56	0.34**		Year 10	0.85*
		(0.85 - 2.89)	(0.18 - 0.67)			(0.74 - 0.98)
	50 – 54	1.75'	0.41**	-	Year 11	-
		(0.95 - 3.24)	(0.21 - 0.79)		(ref)	
	55 – 59	1.83'	0.44*			
		(0.98 – 3.41)	(0.22 - 0.87)			
	60 – 64	1.77.	0.47			
		(0.91 – 3.45)	(0.22 - 0.98)			

	65 – 69	0.95	0.25*	
		(0.33 - 2.71)	(0.08 - 0.82)	
	70 – 74	1.46	0.38	7
		(0.37 - 5.73)	(0.07 - 1.83)	
	75 – 79	4.60	1.00	
		(0.71 - 29.91)	(0.11 - 9.44)	
Gender	Male(ref.)			
	Female	0.97	0.85.	0.98
		(0.90 - 1.03)	(0.70 - 1.02)	(0.92 – 1.06)
Residential	Rural town and fringe in	0.65**	0.50*	0.73*
Settlement	sparse setting	(0.49 - 0.86)	(0.26 - 0.96)	(0.53 – 1.00)
Туре	Rural village and	0.86′	0.79	0.90
	dispersed	(0.73 – 1.02)	(0.57 – 1.09)	(0.54 – 0.90)
	Rural village and	0.64***	0.51**	0.70**
	dispersed in a sparse	(0.52 - 0.79)	(0.34 – 0.77)	(0.54 – 0.90)
	setting			
	Urban city and town	1.04	1.00	1.04
		(0.95 - 1.13)	(0.83 – 1.20)	(0.94 – 1.15)
	Urban city and town in a	0.72*	0.51	0.79
	sparse setting	(0.52 - 0.99)	(0.23 - 1.14)	(0.55 – 1.13)
	Rural town and fringe			
	(ref.)			
School Type	Primary (ref.)			
	Middle	0.65***	0.62*	0.75′
		(0.54 - 0.78)	(0.41 - 0.93)	(0.54 – 1.04)
	Nursery or PRU	0.56	0.43	0.80
		(0.19 - 1.66)	(0.05 - 3.94)	(0.23 – 2.76)
	Secondary	0.80***	0.82′	0.90
		(0.71 - 0.91)	(0.65 – 1.03)	(0.64 -1.27)
	Special	1.10	1.00	0.98

		(0.90 – 1.33)	(0.75 – 1.35)		(0.66 – 1.45)
School	Pupil (ref.)		-	1	-
relation	Staff	2.99***	-		-
		(1.70 - 5.37)			
Number of staff	within school	1.00**	1.00	1	1.00
		(1.00 – 1.00)	(0.99 - 1.00)		(1.00 – 1.00)
Number of pupi	ils within the school	1.00*	1.00	1	1.00*
		(1.00 – 1.00)	(1.00 - 1.00)		(1.00 – 1.00)
Number within	household	0.64***	0.65***		0.65***
		(0.61 - 0.65)	(0.61 - 0.70)		(0.63 – 0.68)

Missing variable	Total number of individuals with missing variable
Residential Anonymous Linking Field	4,778
Residential Settlement Type	5,587
School Type	350
Number of staff within the school	842
Number of pupils within the school	189
Other (data linkage issue)	1,508

Table S4 – Number of individuals with missing variables at the individual-level (in the Welsh COVID-19 e-cohort) before being confirmed eligible for the modelling cohort. Note this is not a count of distinct individuals, multiple persons may have multiple missing variables.