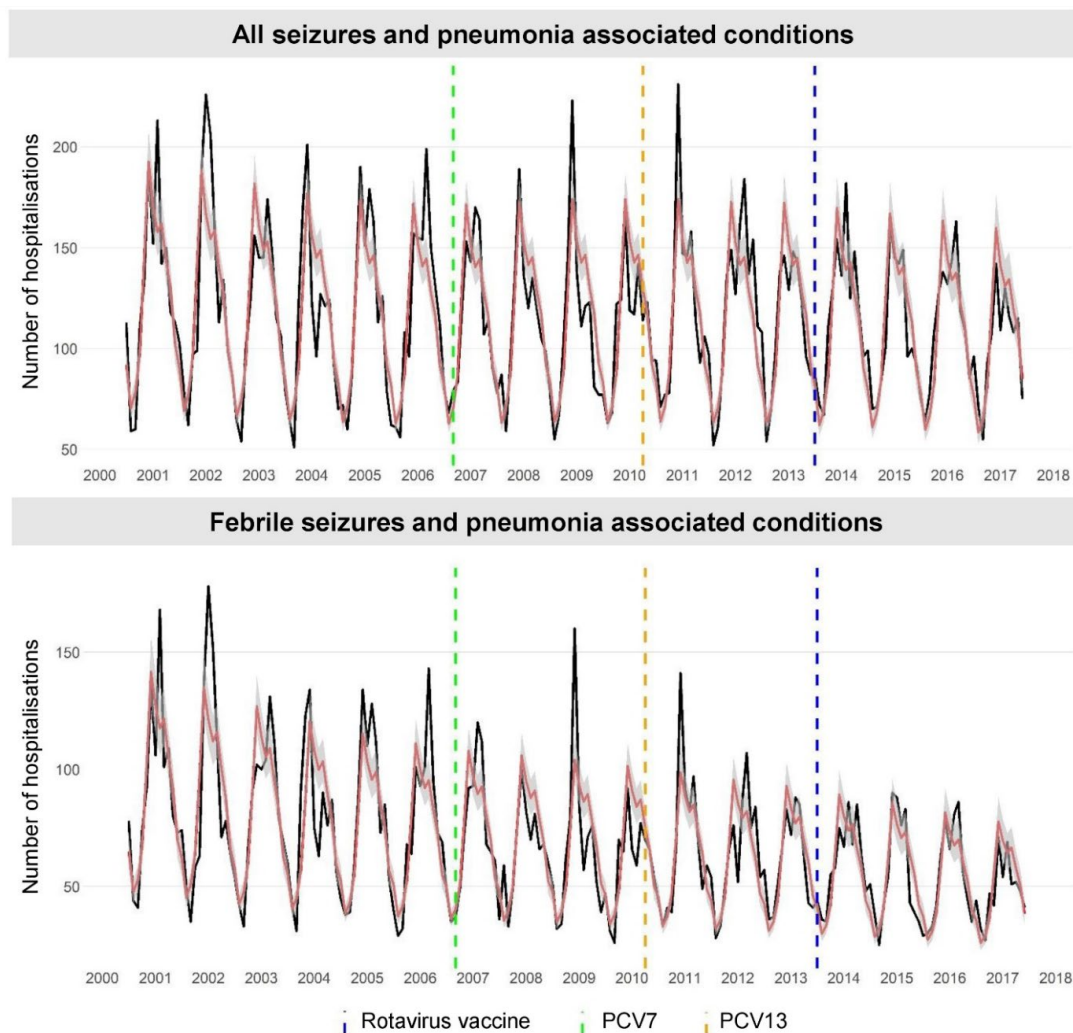


Supplementary Materials



Supplementary Figure 1: Monthly trends in hospitalisations for validation groups for children <5 years of age in England, July 2000 to June 2017.

Each analysis examines trends, including a comparison of observed incidence (black line) in England with expected incidence (red line) and associated 95% confidence intervals (grey shaded area) in the absence of vaccination. Expected incidence and 95% confidence intervals are based on predictions from regression models fitted to data for the period July 2000 to June 2013 for each outcome measure. The blue hashed line represents the introduction of rotavirus vaccine in the UK in July 2013; the green hashed line represents the introduction of the 7 valent pneumococcal conjugate vaccine (PCV7) in September 2006; and, the yellow hashed line represents the replaced of PCV7 with the 13 valent pneumococcal conjugate vaccine (PCV13) in the UK in April 2010.

Supplementary Table 1: Number of seizure and febrile seizure hospital admissions and co-diagnoses, in children <5 years of age in England, between July 2000 and June 2017.

	Co-diagnosis	Febrile Seizures	All-seizures
		Yearly Median (IQR)	Yearly Median (IQR)
0-59 months of age			
	<i>Acute gastroenteritis</i>	534 (471 - 560)	1096 (963 - 1255)
	<i>Pneumonia</i>	799 (722 - 928)	1370 (1339 - 1441)
	<i>J06.9: Acute upper respiratory infection-unspecified</i>	4169 (3380 - 4620)	4925 (4303 - 5441)
	<i>J03.9: Acute tonsillitis-unspecified</i>	1776 (1493 - 1971)	2070 (1673 - 2420)
	<i>B34.9: Viral infection-unspecified</i>	1048 (981 - 1181)	1503 (1447 - 1587)
	<i>Co-diagnosis absent</i>	3421 (2586 - 4537)	7606 (6465 - 9138)
	<i>Any co-diagnosis</i>	15007 (13241 - 15977)	31909 (30878 - 32588)
0-11 months of age			
	<i>Acute gastroenteritis</i>	99 (84 - 106)	211 (196 - 249)
	<i>Pneumonia</i>	101 (97 - 112)	214 (189 - 220)
	<i>J06.9: Acute upper respiratory infection-unspecified</i>	564 (468 - 621)	698 (600 - 750)
	<i>J03.9: Acute tonsillitis-unspecified</i>	166 (144 - 192)	190 (154 - 223)
	<i>B34.9: Viral infection-unspecified</i>	167 (152 - 184)	232 (222 - 244)
	<i>Co-diagnosis absent</i>	552 (413 - 720.5)	1874 (1563.5 - 2085)
	<i>Any co-diagnosis</i>	2242 (1993 - 2312)	7100 (6448 - 7208)
12-23 months of age			
	<i>Acute gastroenteritis</i>	273 (251 - 294)	496 (415 - 584)
	<i>Pneumonia</i>	416 (368 - 503)	563 (521 - 615)
	<i>J06.9: Acute upper respiratory infection-unspecified</i>	2114 (1679 - 2427)	2379 (2018 - 2686)
	<i>J03.9: Acute tonsillitis-unspecified</i>	891 (713 - 954)	996 (766 - 1080)
	<i>B34.9: Viral infection-unspecified</i>	521 (439 - 577)	672 (614 - 678)
	<i>Co-diagnosis absent</i>	1590 (1200 - 2159)	2545 (2124 - 3271)
	<i>Any co-diagnosis</i>	7340 (6241 - 7772)	10827 (10641 - 11330)
24-59 months of age			
	<i>Acute gastroenteritis</i>	149 (126 - 162)	407 (352 - 433)
	<i>Pneumonia</i>	285 (256 - 323)	622 (587 - 630)
	<i>J06.9: Acute upper respiratory infection-unspecified</i>	1491 (1170 - 1615)	1841 (1655 - 2040)
	<i>J03.9: Acute tonsillitis-unspecified</i>	707 (663 - 836)	913 (764 - 1090)
	<i>B34.9: Viral infection-unspecified</i>	378 (339 - 435)	642 (598 - 669)
	<i>Co-diagnosis absent</i>	1292 (1013.5 - 1725.75)	3244.5 (2830 - 3712)
	<i>Any co-diagnosis</i>	5389 (5007 - 5968)	13595 (13359 - 14753)

IQR: Interquartile range