Supplemental material

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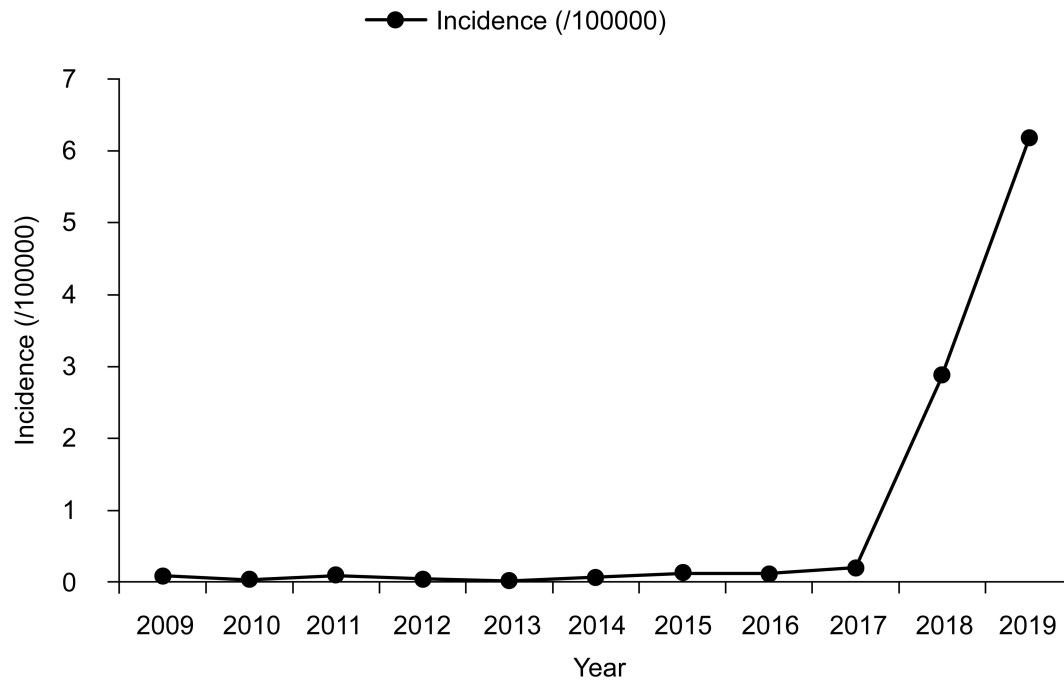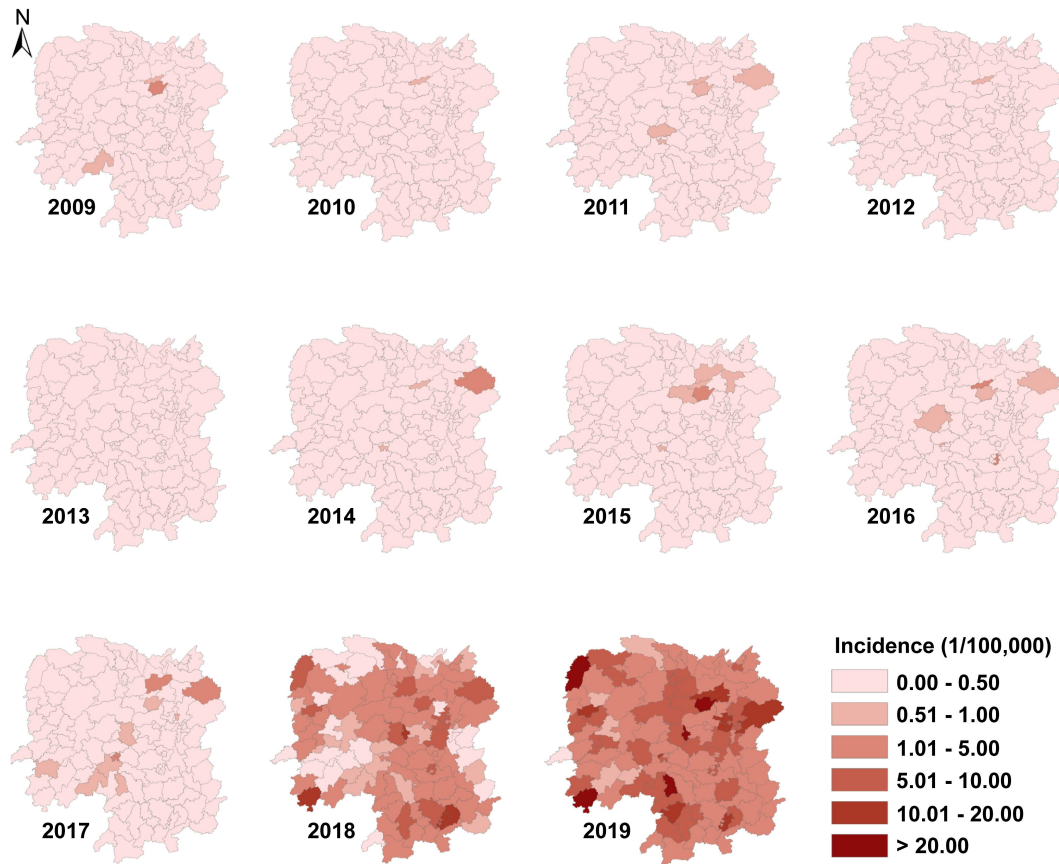
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SUPPLEMENTARY MATERIAL

Supplementary Figure 1. Annual incidence rate of pertussis in Hunan Province, China, 2009–2019.

Supplementary Figure 2. Annual incidence of pertussis at county level in Hunan Province, China, 2009–2019.

Supplementary Table 1. Global spatial autocorrelation analysis of pertussis incidence in Hunan Province, China, 2009–2019.

Year	Moran's *I*	Z-Score	*P*-Value
2009	0.189	3.928	<0.001
2010	0.341	7.021	<0.001
2011	0.207	4.134	<0.001
2012	0.122	2.860	0.004
2013	0.013	0.401	0.688
2014	0.058	1.317	0.188
2015	0.302	5.931	<0.001
2016	0.016	0.501	0.617
2017	0.128	2.571	0.010
2018	0.198	3.866	<0.001
2019	0.107	2.169	0.030

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Supplementary Table 2. The clusters of pertussis cases detected by using the purely

spatial scan statistics

Cluster type	Counties (n)	Radius (km)	Observed cases	Expected cases	*LLR*	*RR*	*P*
Most likely	20	73.75	2,151	1,431.45	207.00	1.74	<0.001
Secondary	1	0	167	47.23	92.23	3.60	<0.001
2nd Secondary	1	0	98	17.42	89.16	5.69	<0.001
3rd Secondary	1	0	173	59.20	72.68	2.97	<0.001
4th Secondary	2	24.93	212	90.80	59.66	2.38	<0.001
5th Secondary	4	12.63	151	96.28	13.46	1.58	<0.001
6th Secondary	13	102.83	318	245.60	10.16	1.31	0.003

LLR, larger log likelihood ratio; RR, relative risk

Supplementary Table 3. Clusters of pertussis cases detected by spatial-temporal scan

statistics

Cluster type	Time frame	Radius (km)	Cluster areas (n)	Observed	Expected	*LLR*	*RR*	*P*
Most likely	2019/03-2019/09	91.45	26	1422	531.76	574.97	3.12	<0.001
Secondary	2019/03-2019/10	0	1	129	20.32	130.60	6.45	<0.001
2nd Secondary	2019/04-2019/09	0	1	100	13.79	112.48	7.35	<0.001
3rd Secondary	2018/04/-2019/08	24.93	2	190	69.54	71.59	2.78	<0.001

LLR, larger log likelihood ratio; RR, relative risk