

# Spatiotemporal patterns of the COVID-19 pandemic in Mexico at the municipality level Supplementary Material

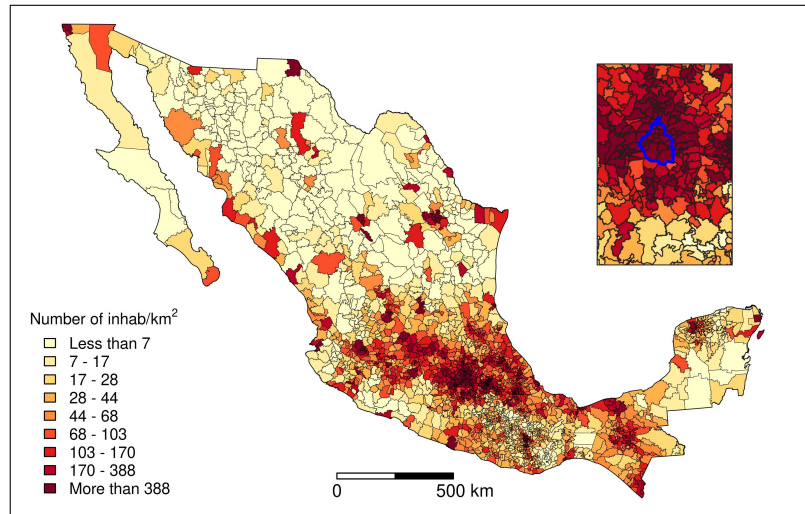
J.F. Mas

These Supplementary Materials contain maps of population density, weekly new cases number and clusters with associated their relative risk.

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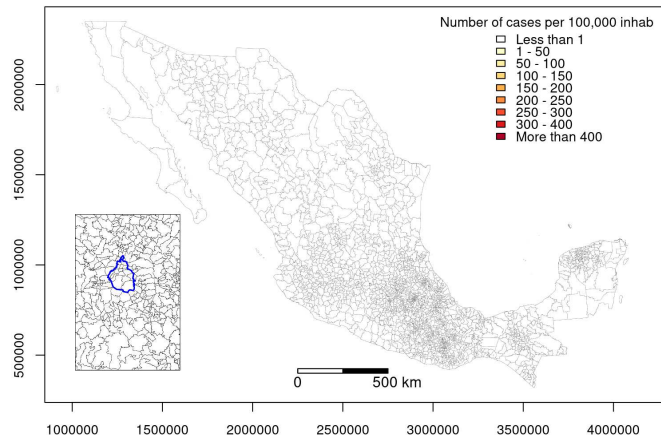
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# 1 Map of population density

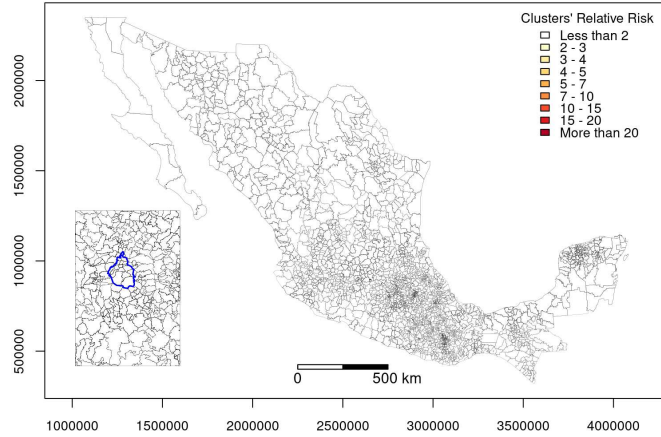


## 2 Maps of weekly new cases and clusters

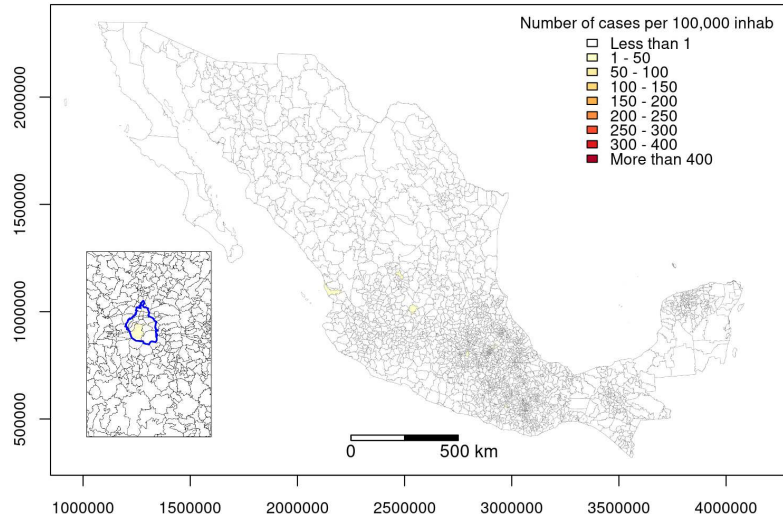
Cases week 9 (2020-02-23 to 2020-02-29)



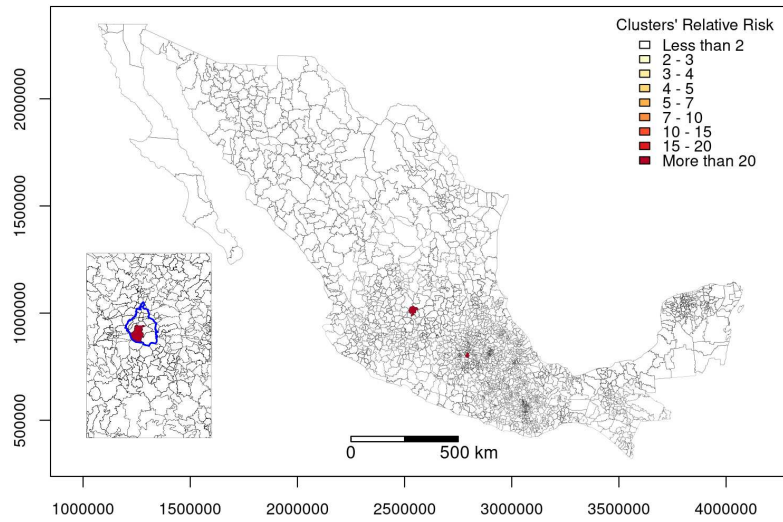
RR week 9 (2020-02-23 to 2020-02-29)



**Cases week 10 (2020-03-01 to 2020-03-07)**

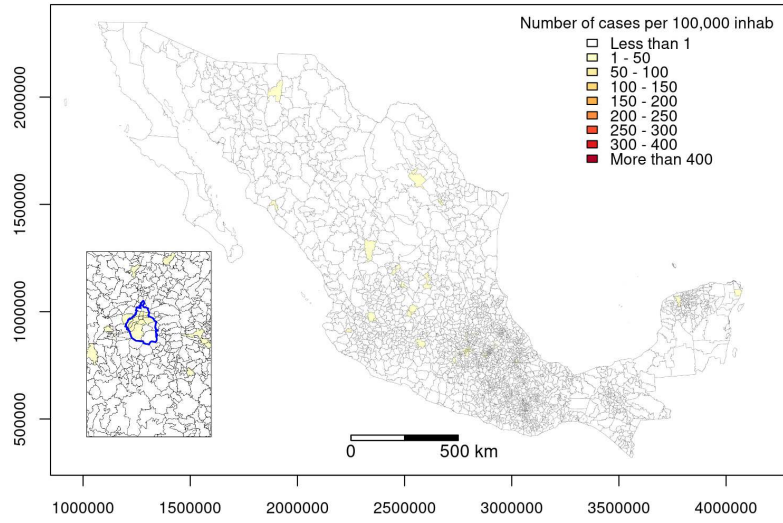


**RR week 10 (2020-03-01 to 2020-03-07)**

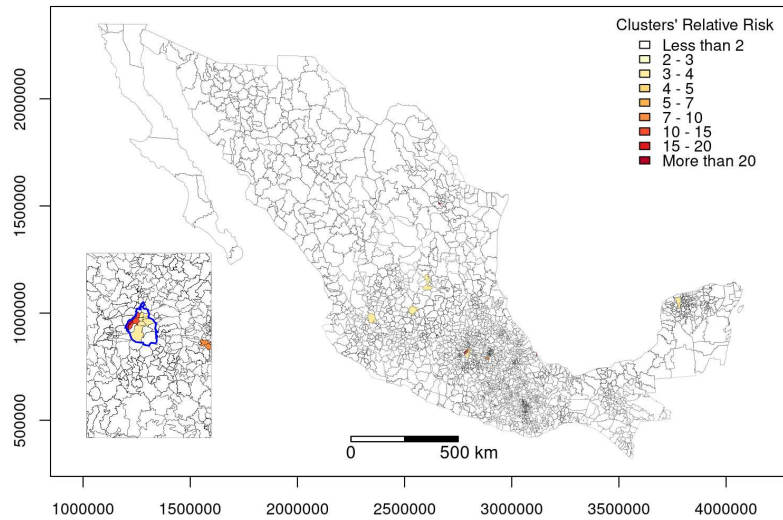




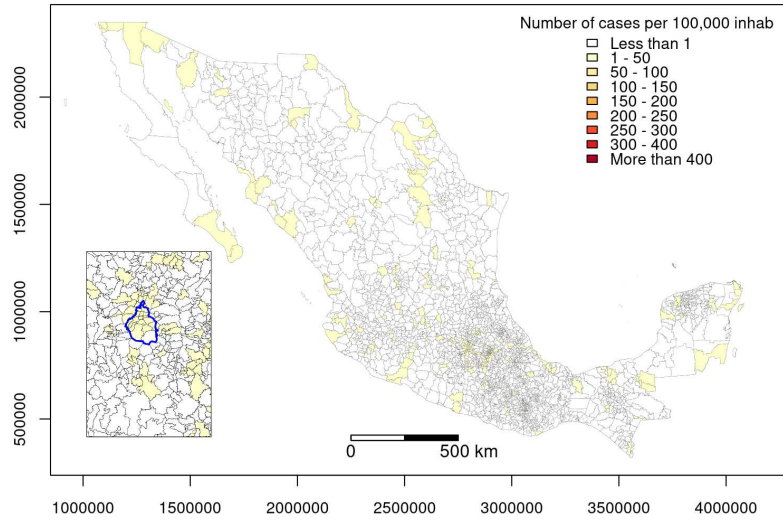
**Cases week 12 (2020-03-15 to 2020-03-21)**



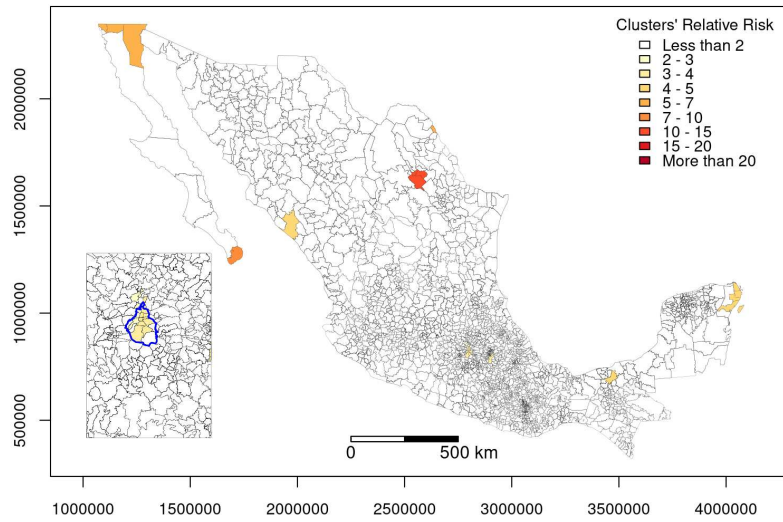
**RR week 12 (2020-03-15 to 2020-03-21)**



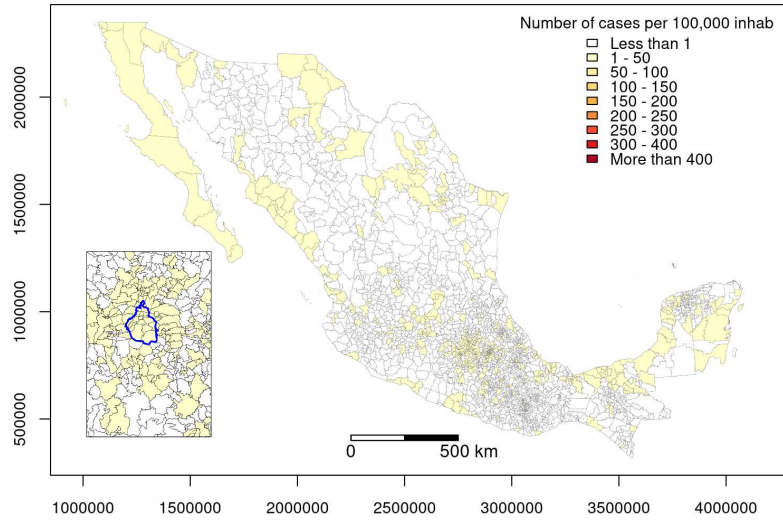
**Cases week 14 (2020-03-29 to 2020-04-04)**



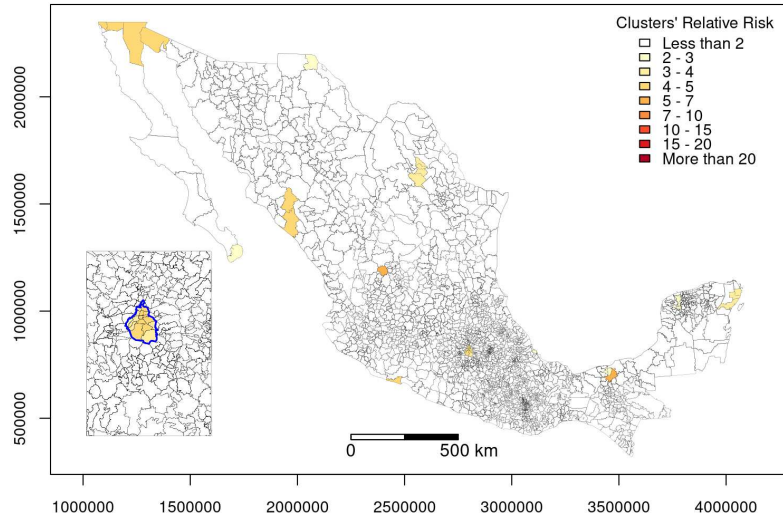
**RR week 14 (2020-03-29 to 2020-04-04)**



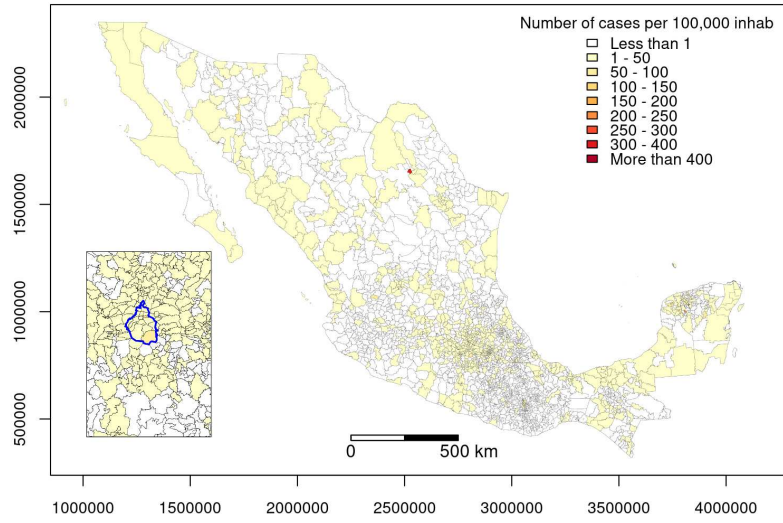
**Cases week 16 (2020-04-12 to 2020-04-18)**



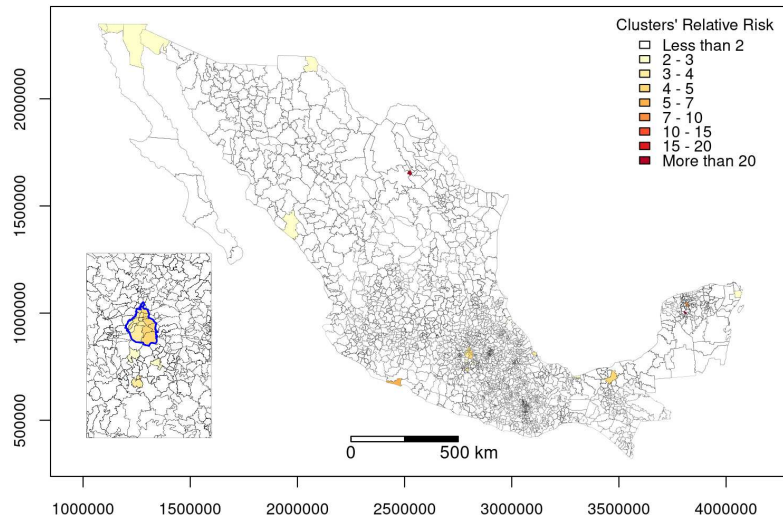
**RR week 16 (2020-04-12 to 2020-04-18)**



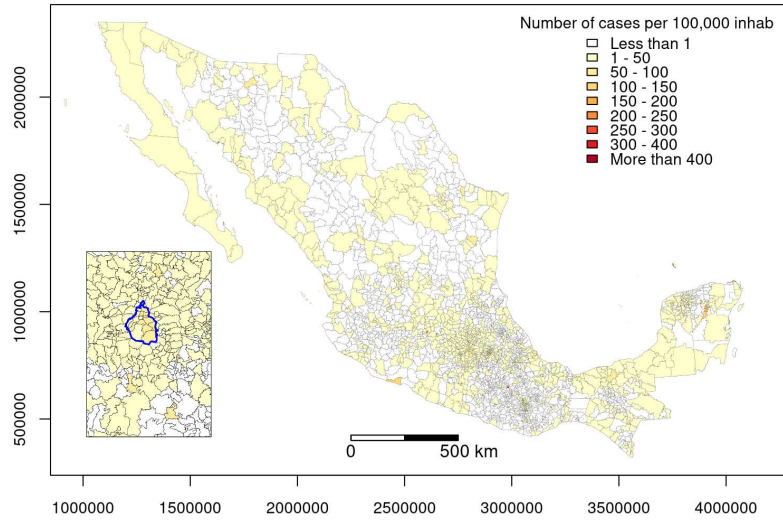
**Cases week 18 (2020-04-26 to 2020-05-02)**



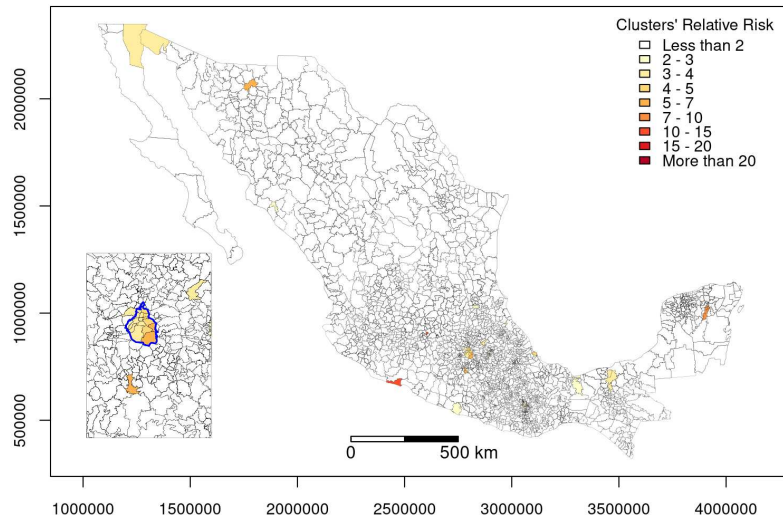
**RR week 18 (2020-04-26 to 2020-05-02)**



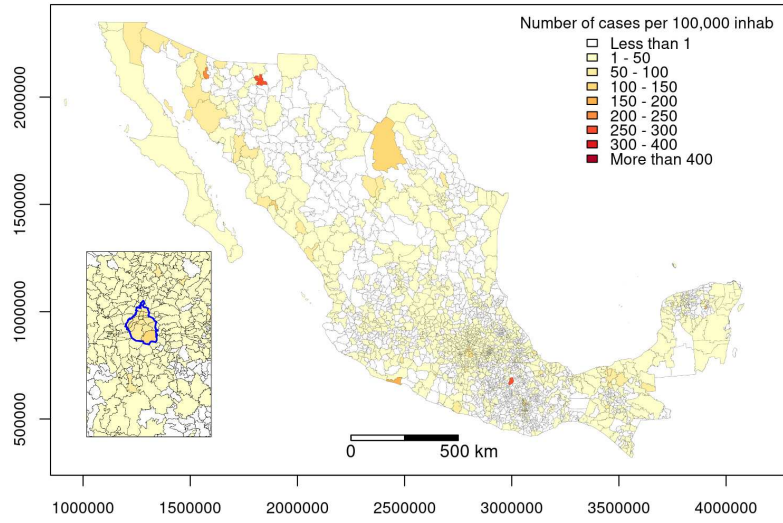
**Cases week 20 (2020-05-10 to 2020-05-16)**



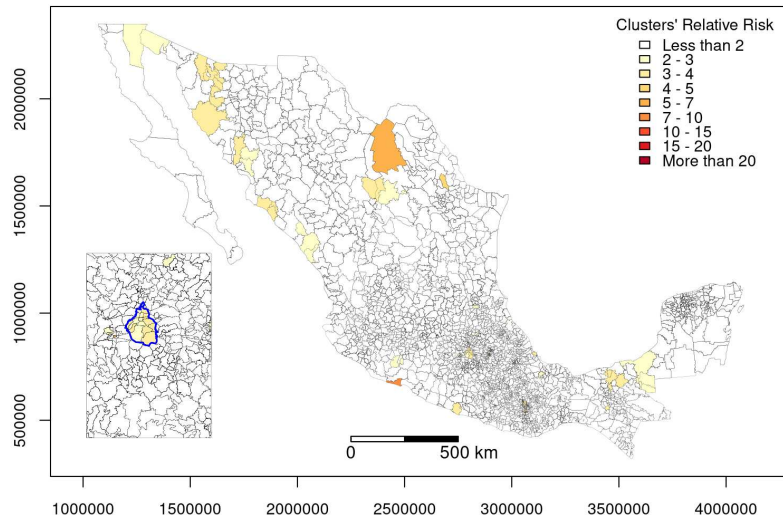
**RR week 20 (2020-05-10 to 2020-05-16)**



**Cases week 22 (2020-05-24 to 2020-05-30)**

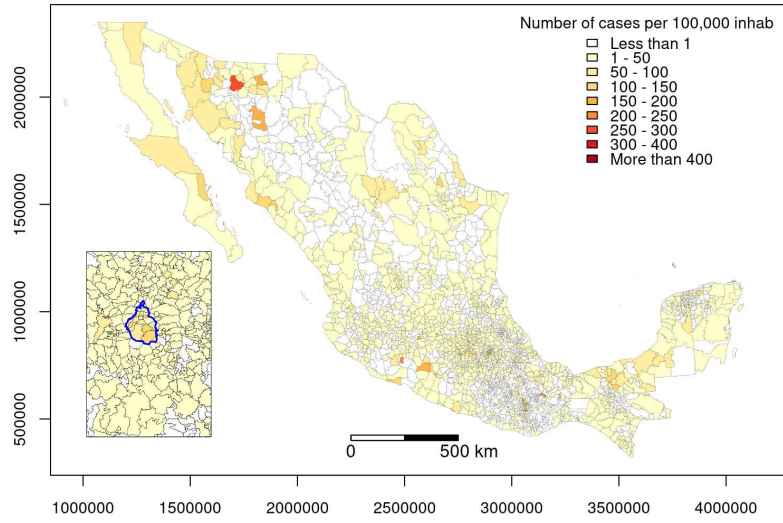


**RR week 22 (2020-05-24 to 2020-05-30)**

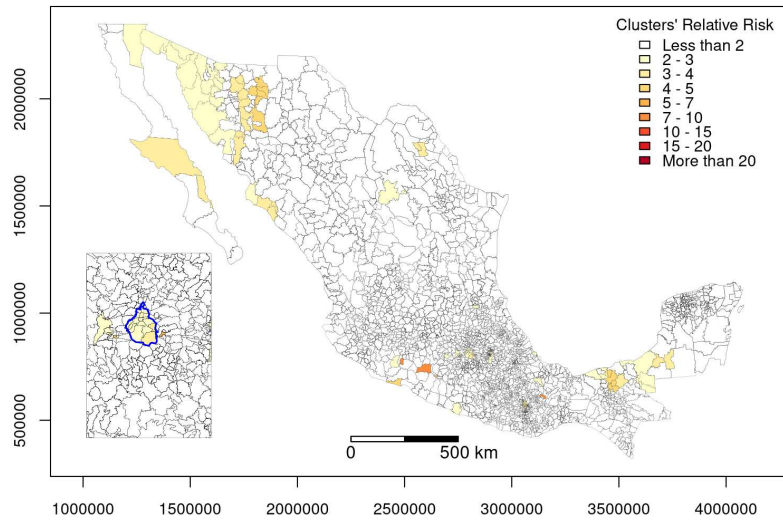




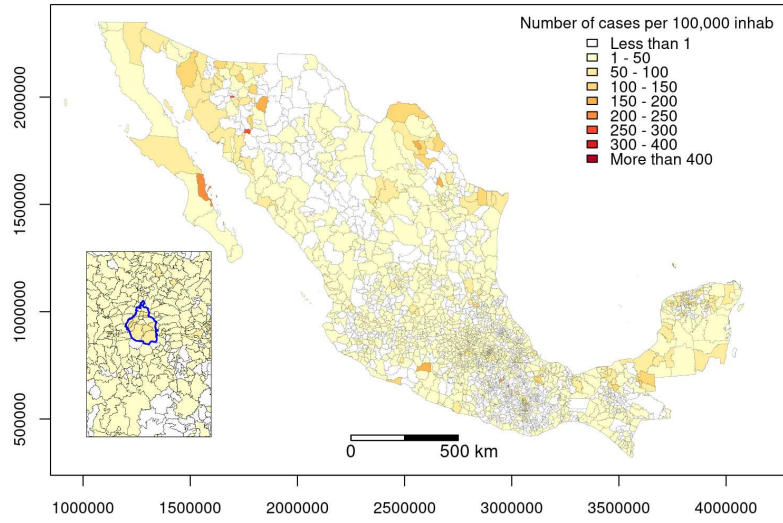
**Cases week 24 (2020-06-07 to 2020-06-13)**



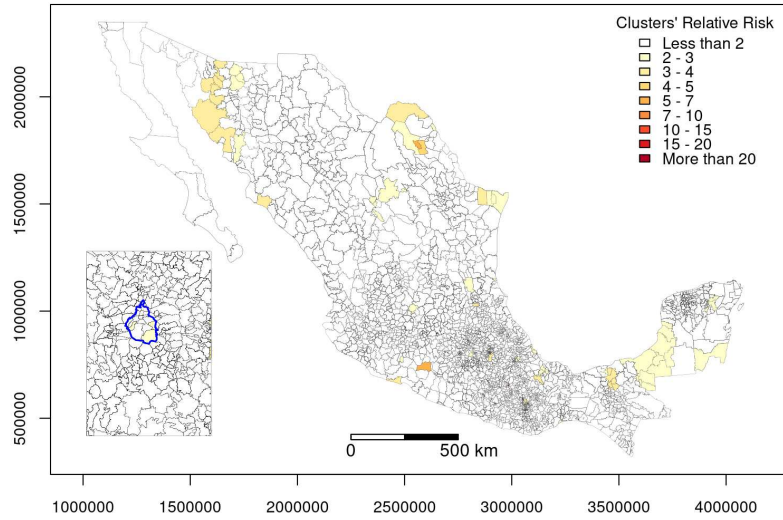
**RR week 24 (2020-06-07 to 2020-06-13)**



**Cases week 26 (2020-06-21 to 2020-06-27)**

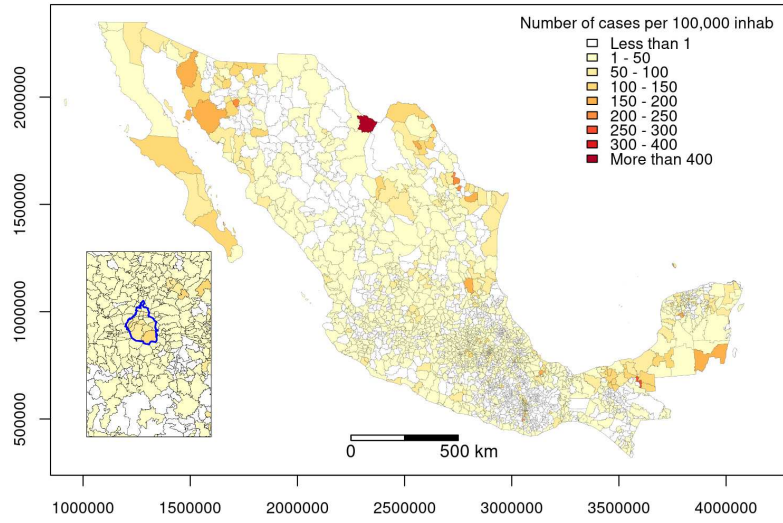


**RR week 26 (2020-06-21 to 2020-06-27)**

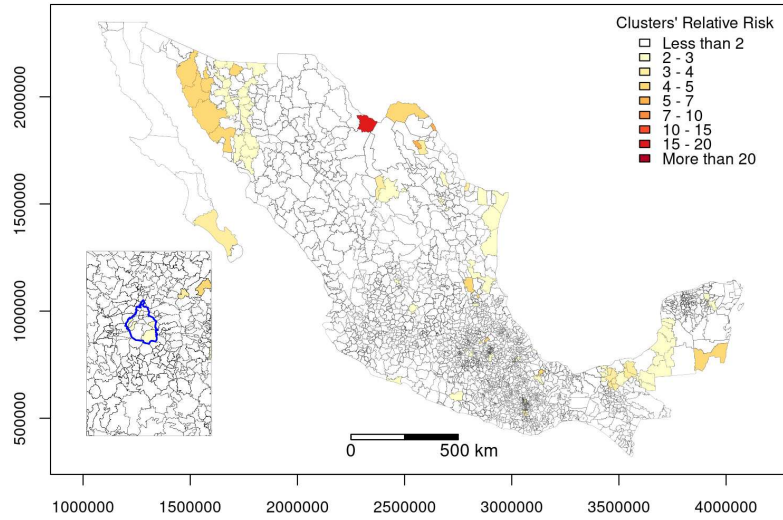




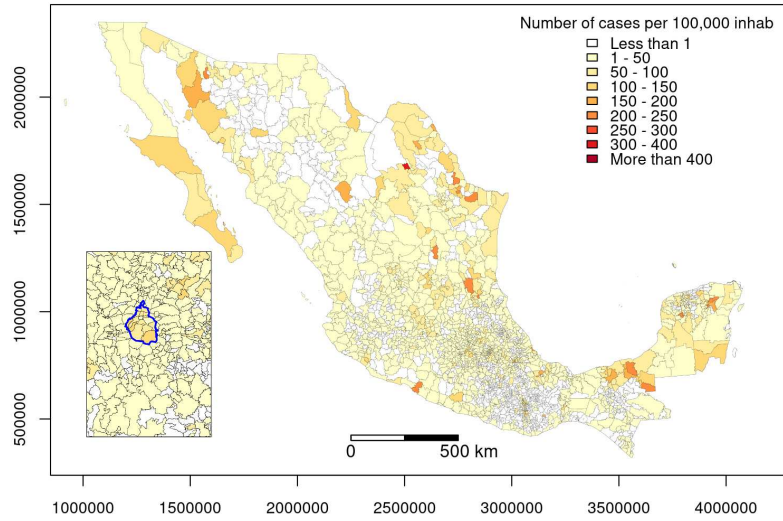
**Cases week 28 (2020-07-05 to 2020-07-11)**



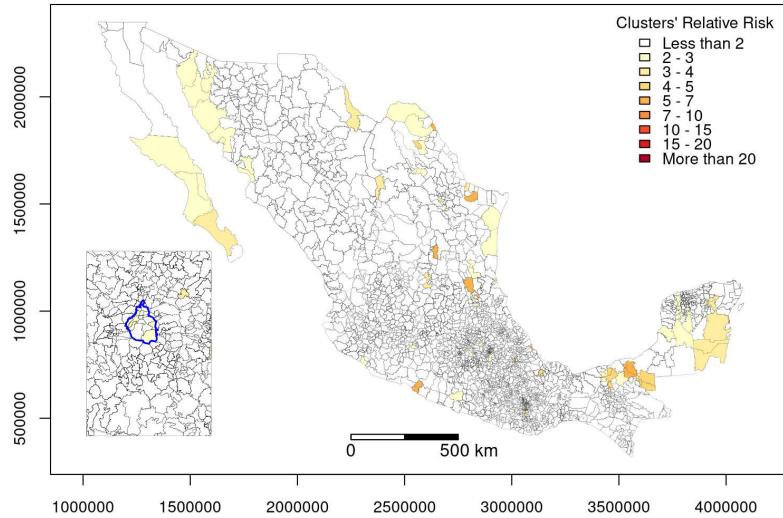
**RR week 28 (2020-07-05 to 2020-07-11)**



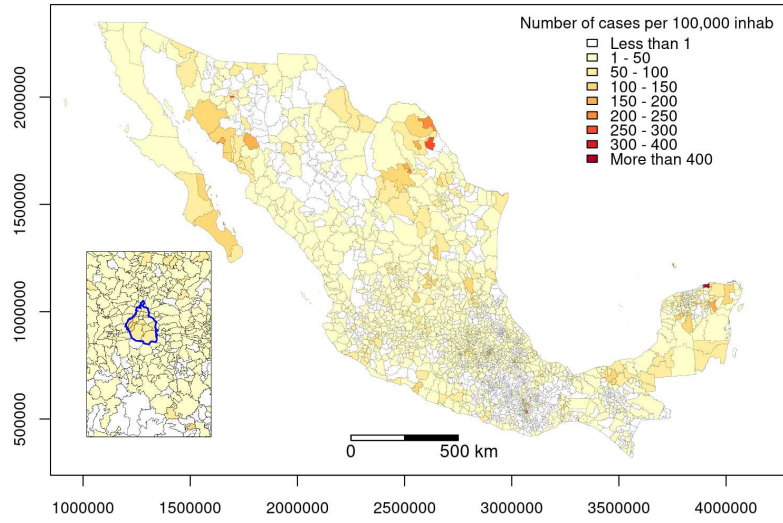
**Cases week 30 (2020-07-19 to 2020-07-25)**



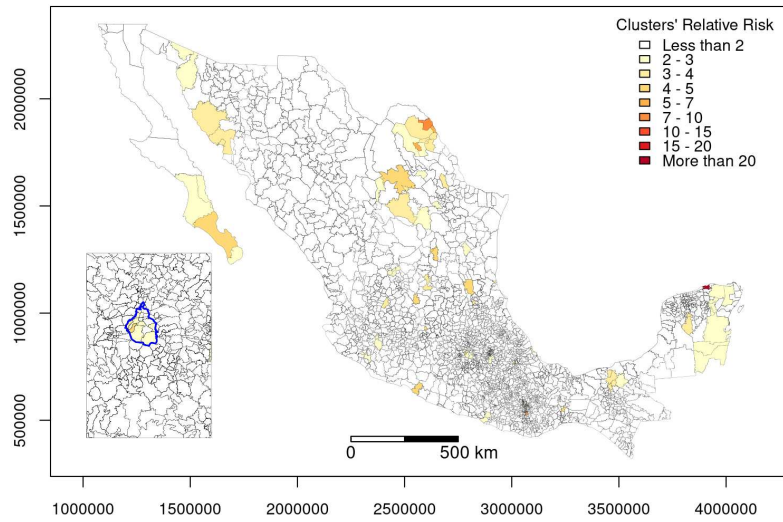
**RR week 30 (2020-07-19 to 2020-07-25)**



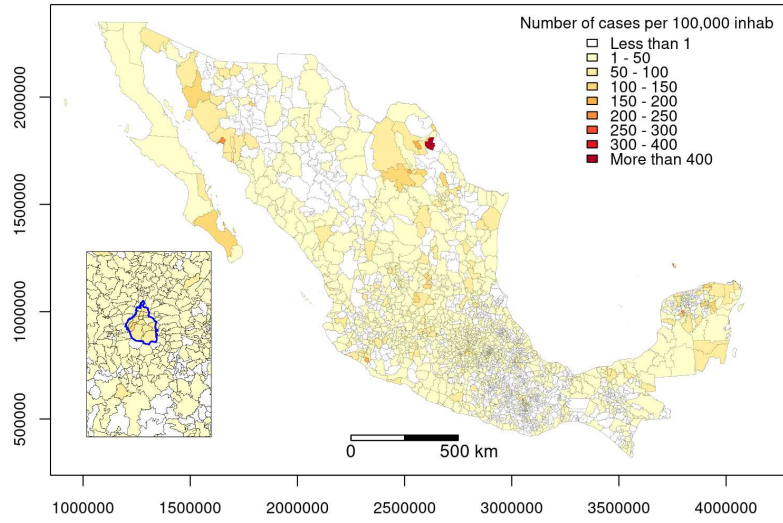
**Cases week 32 (2020-08-02 to 2020-08-08)**



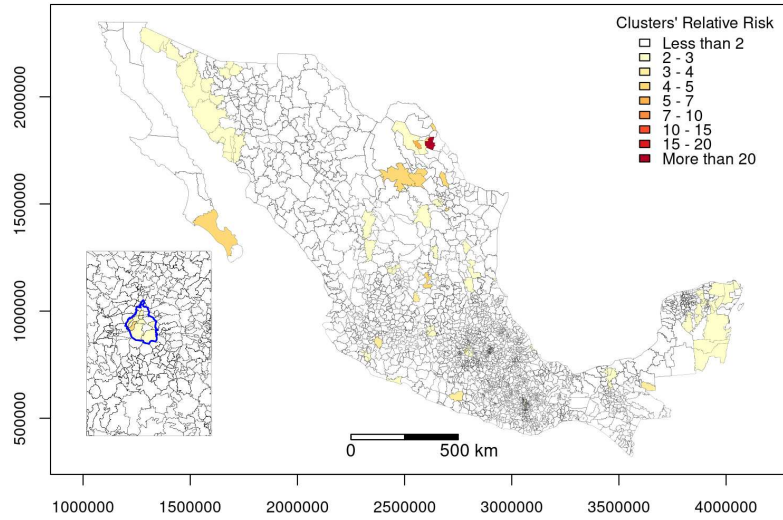
**RR week 32 (2020-08-02 to 2020-08-08)**



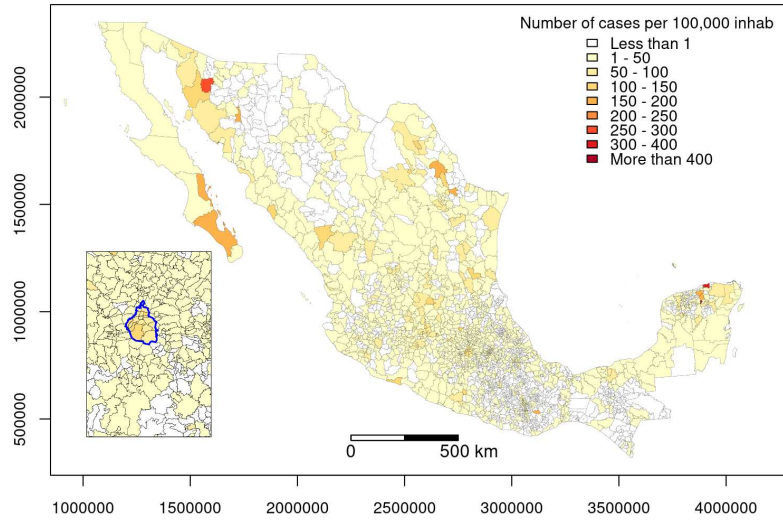
**Cases week 34 (2020-08-16 to 2020-08-22)**



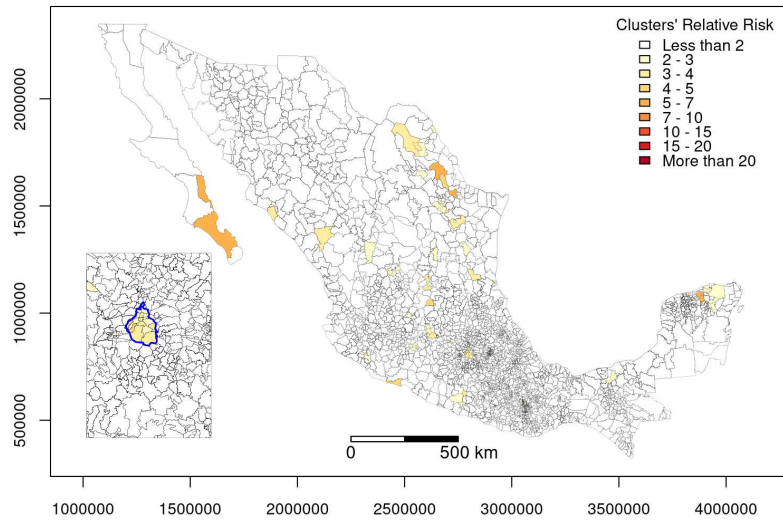
**RR week 34 (2020-08-16 to 2020-08-22)**



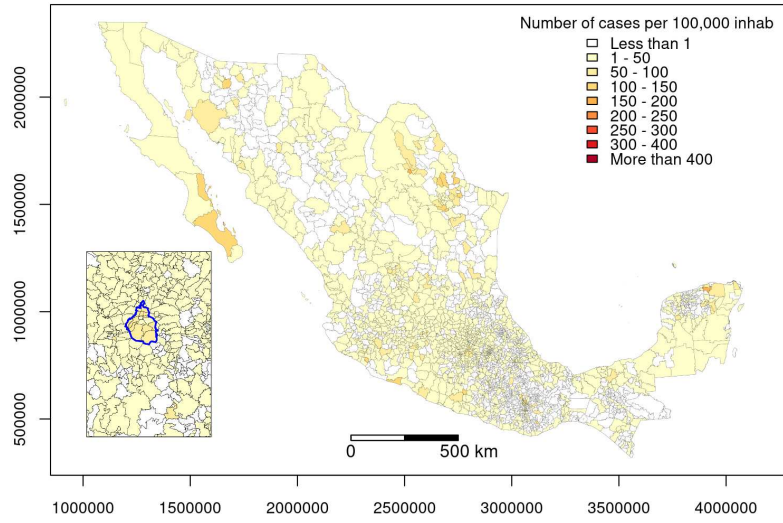
**Cases week 36 (2020-08-30 to 2020-09-05)**



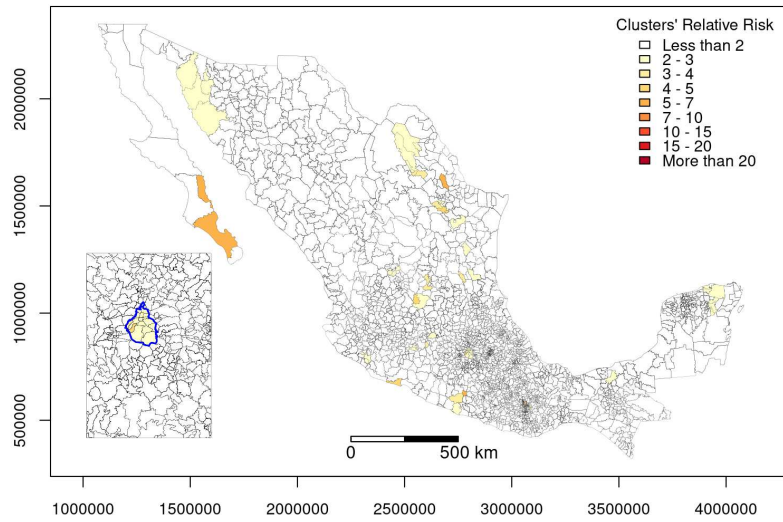
**RR week 36 (2020-08-30 to 2020-09-05)**



**Cases week 38 (2020-09-13 to 2020-09-19)**

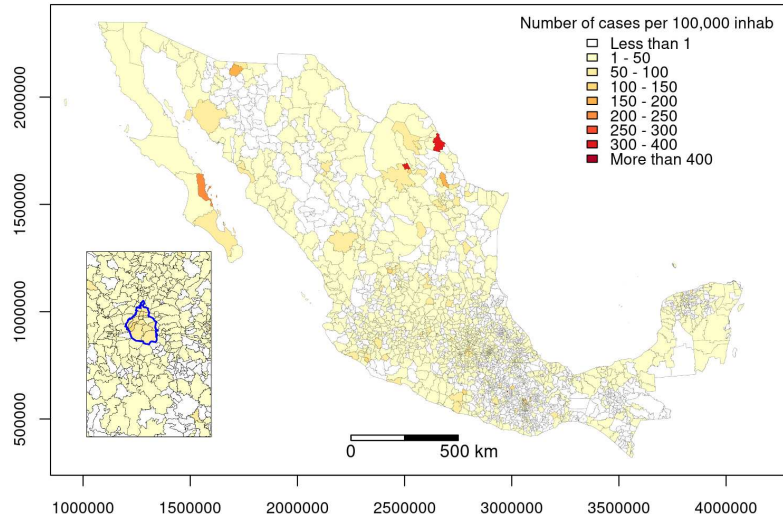


**RR week 38 (2020-09-13 to 2020-09-19)**

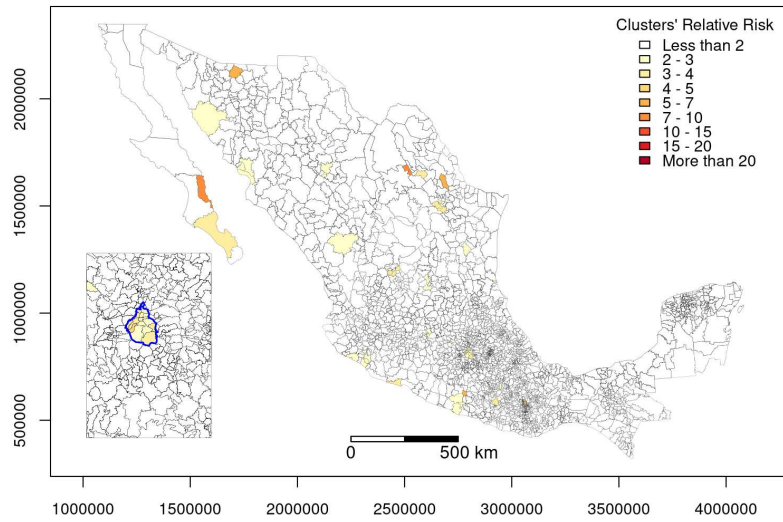




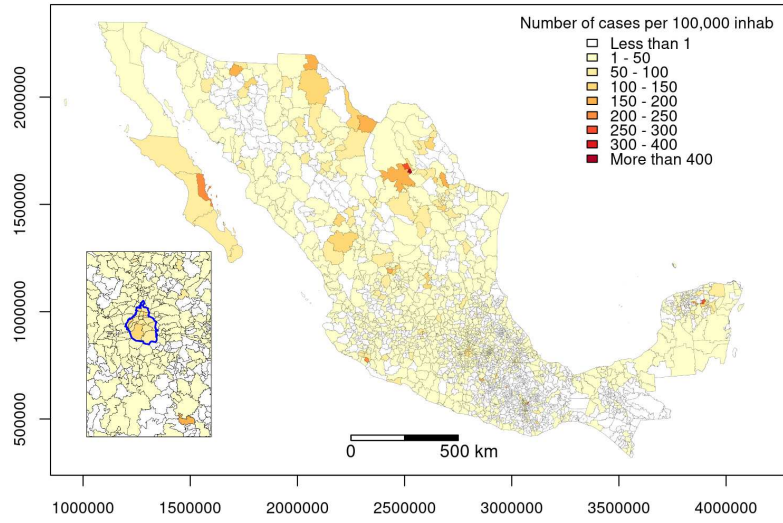
**Cases week 40 (2020-09-27 to 2020-10-03)**



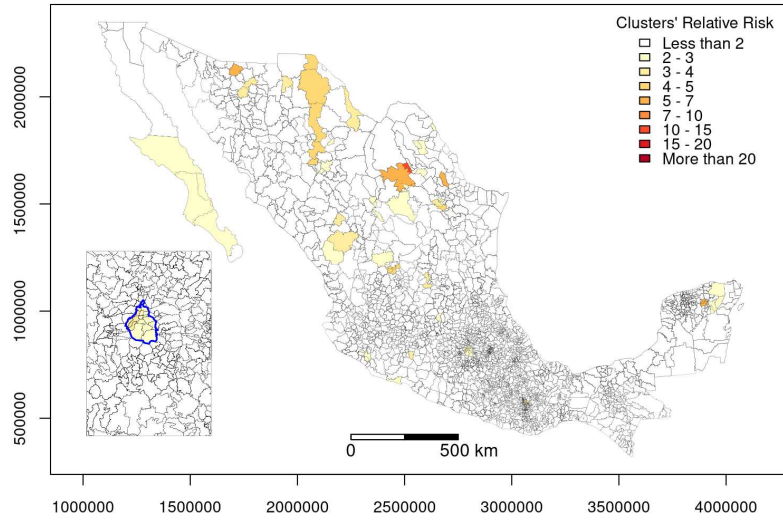
**RR week 40 (2020-09-27 to 2020-10-03)**



**Cases week 42 (2020-10-11 to 2020-10-17)**

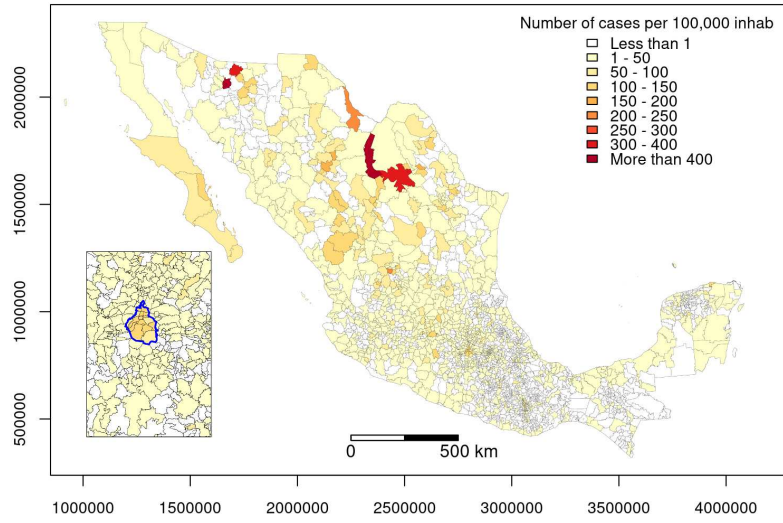


**RR week 42 (2020-10-11 to 2020-10-17)**

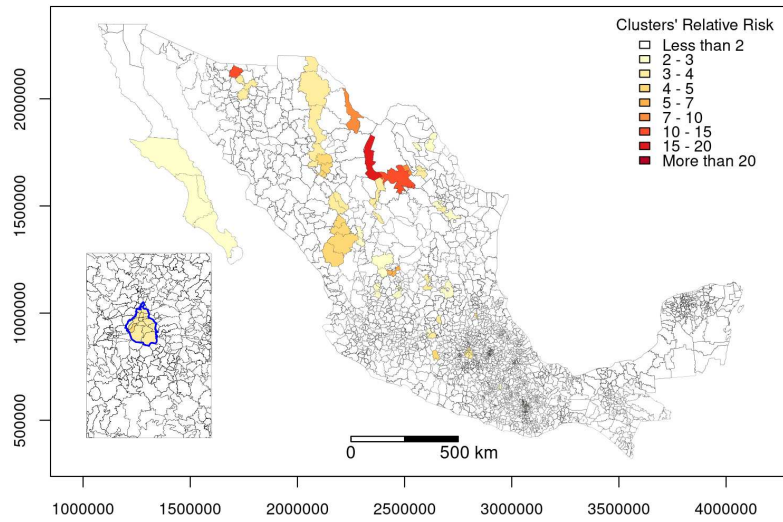




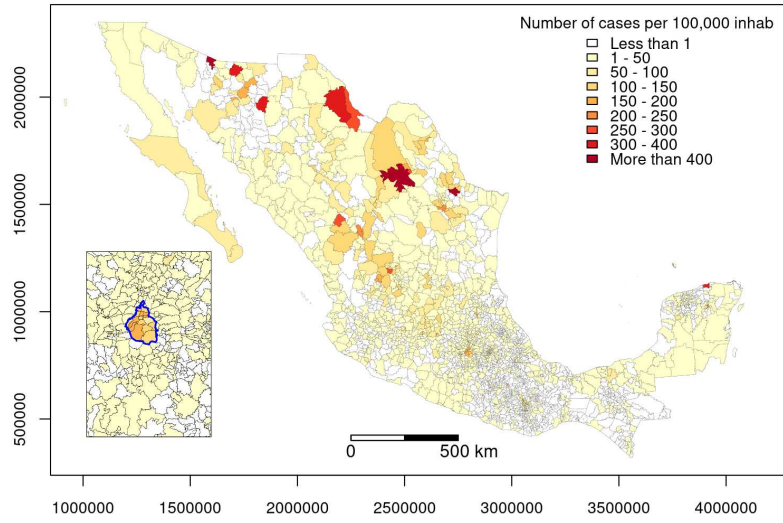
**Cases week 44 (2020-10-25 to 2020-10-31)**



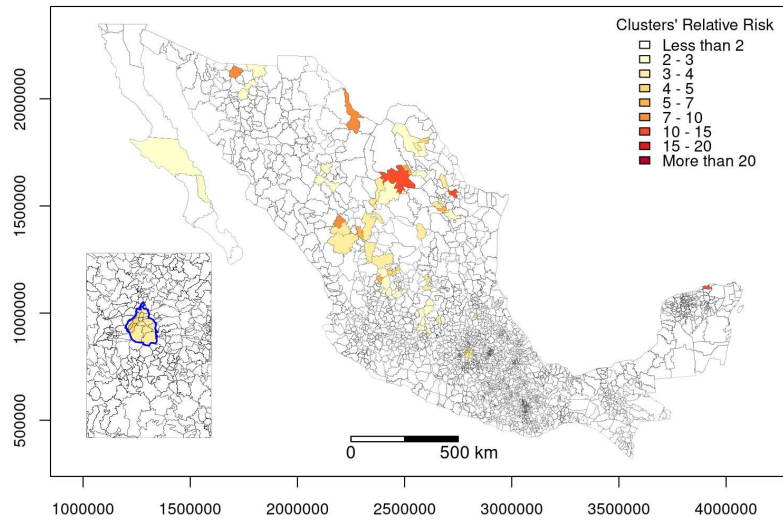
**RR week 44 (2020-10-25 to 2020-10-31)**



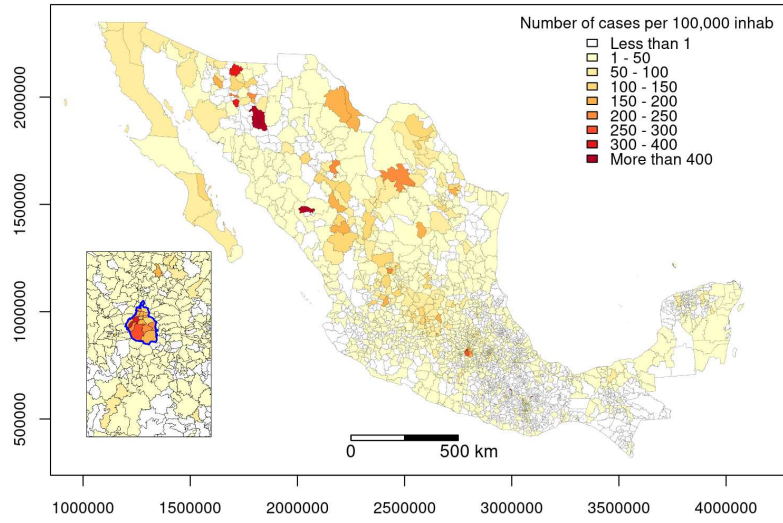
**Cases week 46 (2020-11-08 to 2020-11-14)**



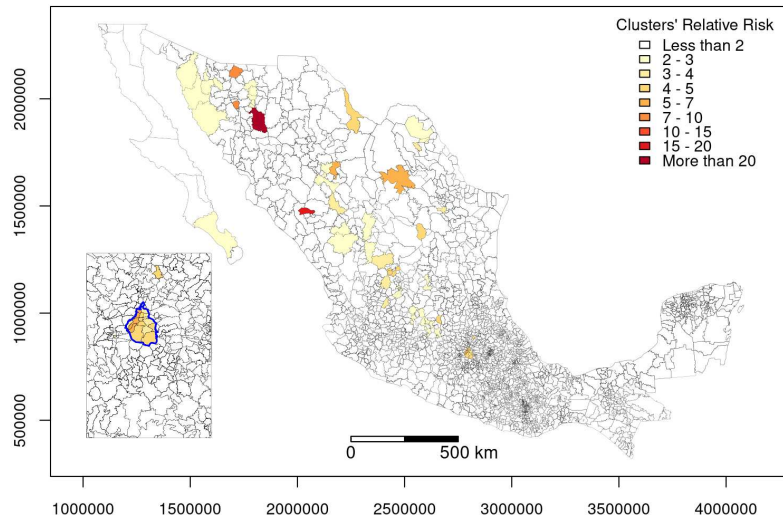
**RR week 46 (2020-11-08 to 2020-11-14)**



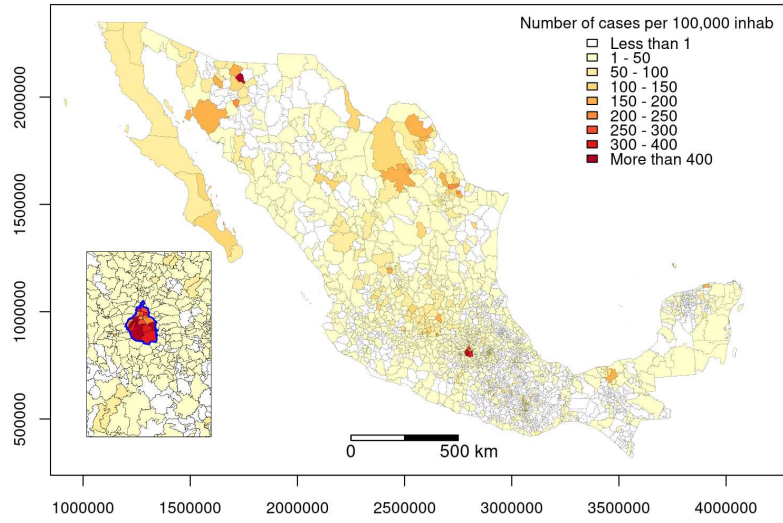
**Cases week 48 (2020-11-22 to 2020-11-28)**



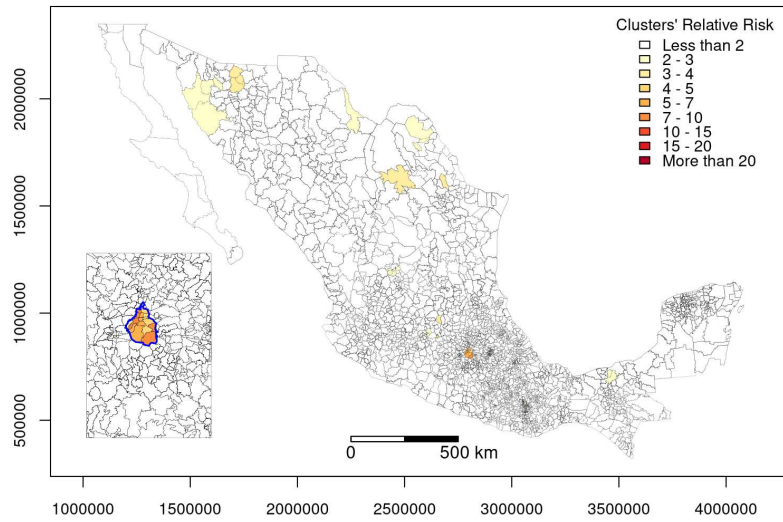
**RR week 48 (2020-11-22 to 2020-11-28)**



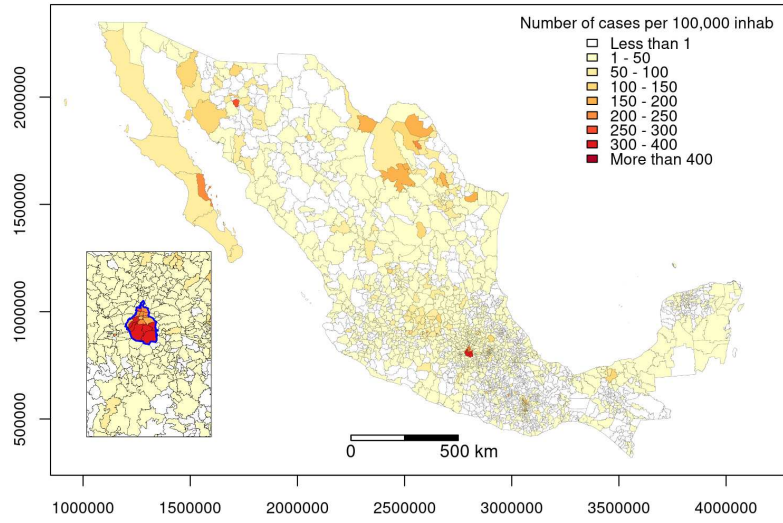
**Cases week 50 (2020-12-06 to 2020-12-12)**



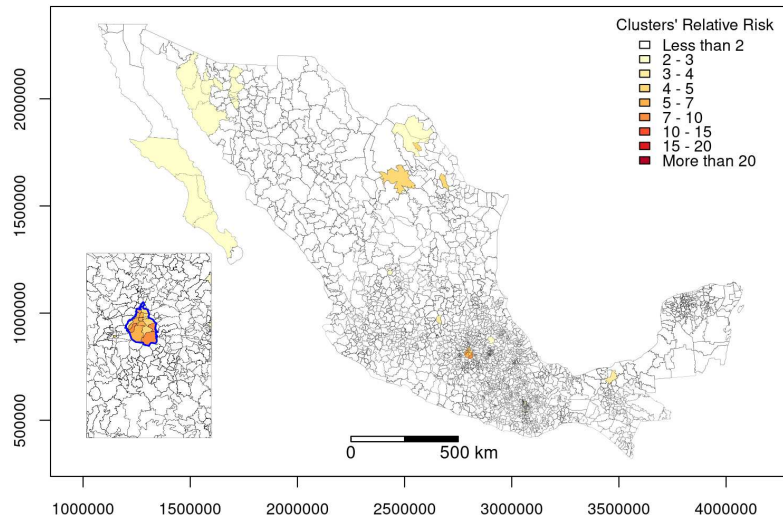
**RR week 50 (2020-12-06 to 2020-12-12)**



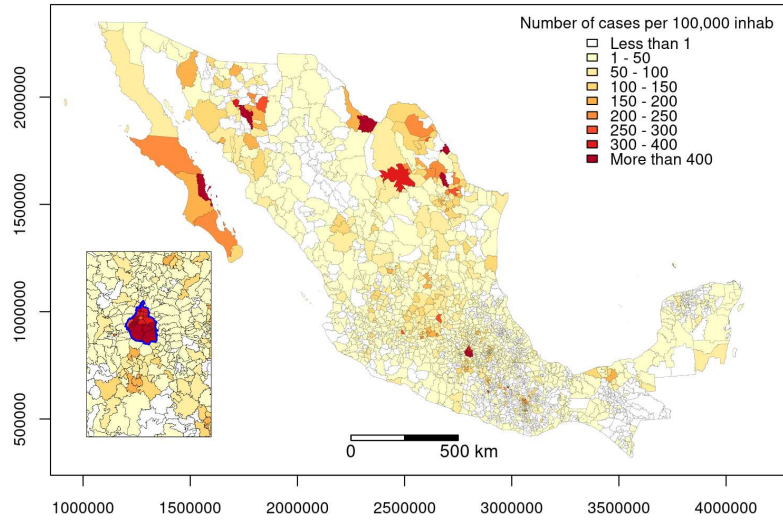
**Cases week 52 (2020-12-20 to 2020-12-26)**



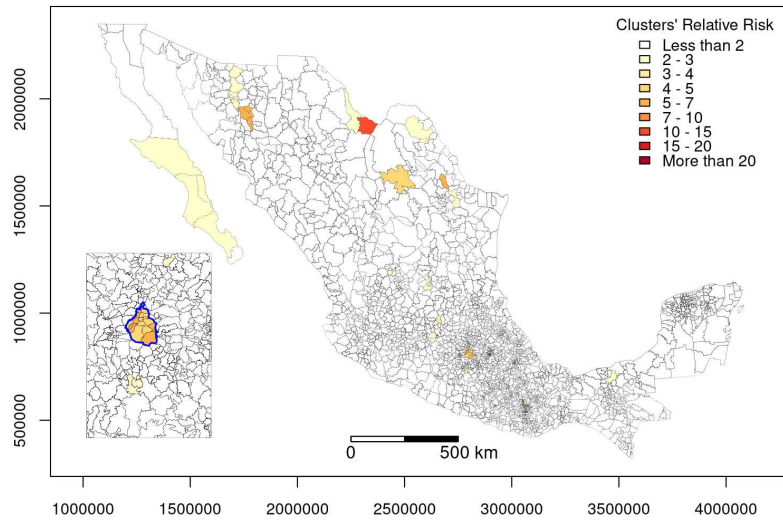
**RR week 52 (2020-12-20 to 2020-12-26)**



**Cases week 54 (2021-01-03 to 2021-01-09)**

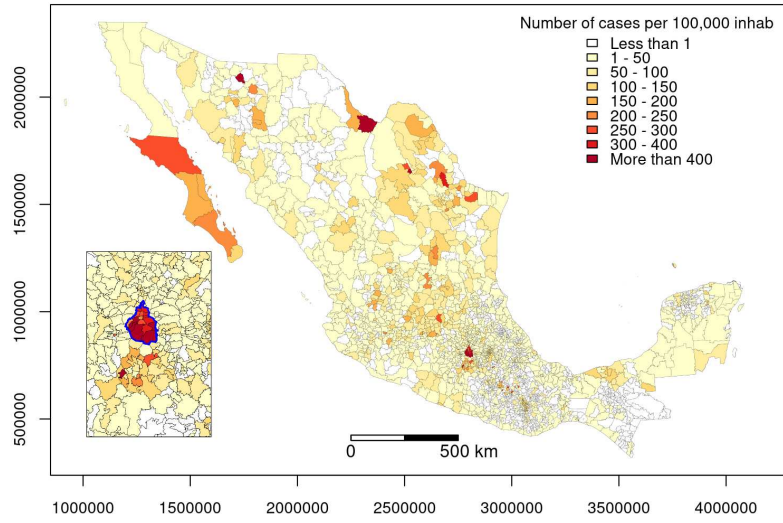


**RR week 54 (2021-01-03 to 2021-01-09)**

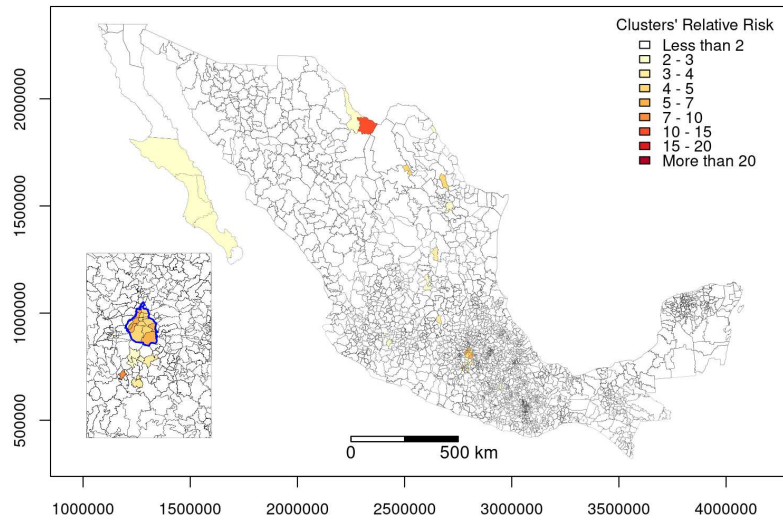




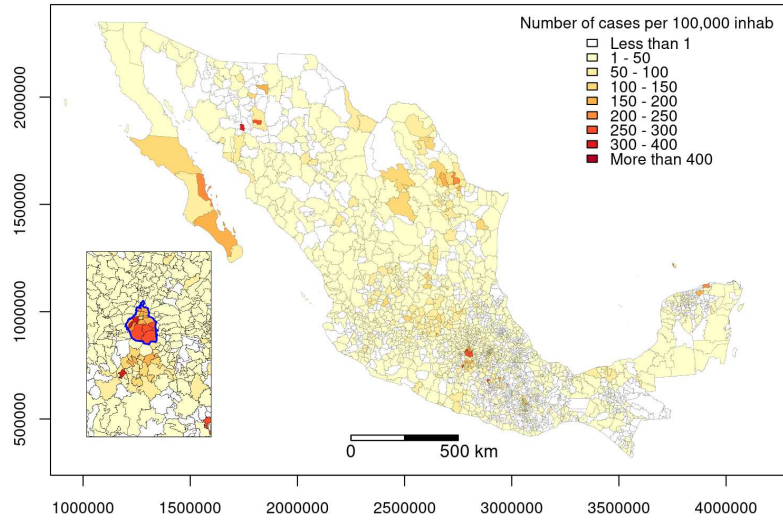
**Cases week 56 (2021-01-17 to 2021-01-23)**



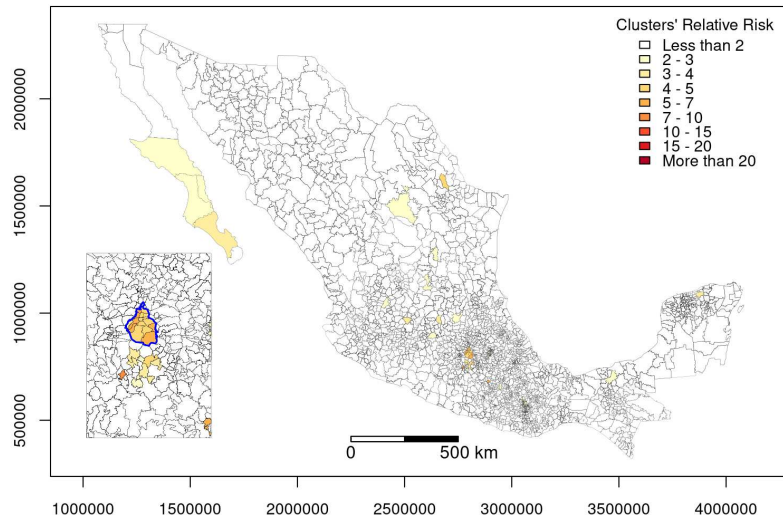
**RR week 56 (2021-01-17 to 2021-01-23)**



**Cases week 58 (2021-01-31 to 2021-02-06)**

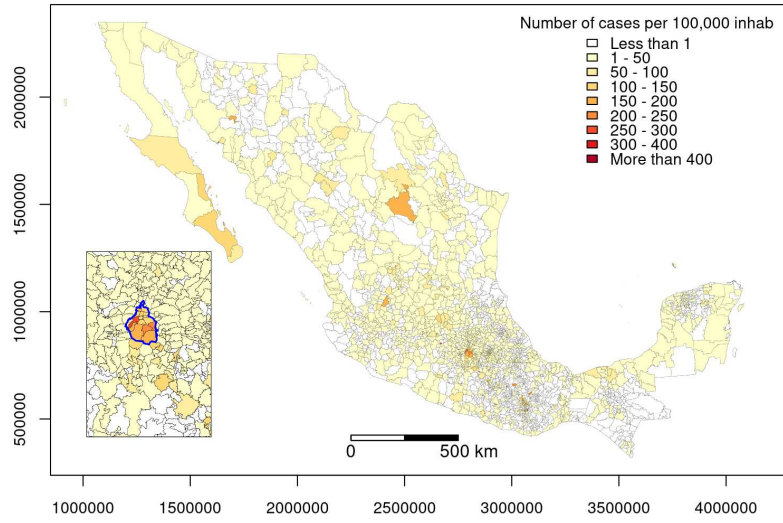


**RR week 58 (2021-01-31 to 2021-02-06)**

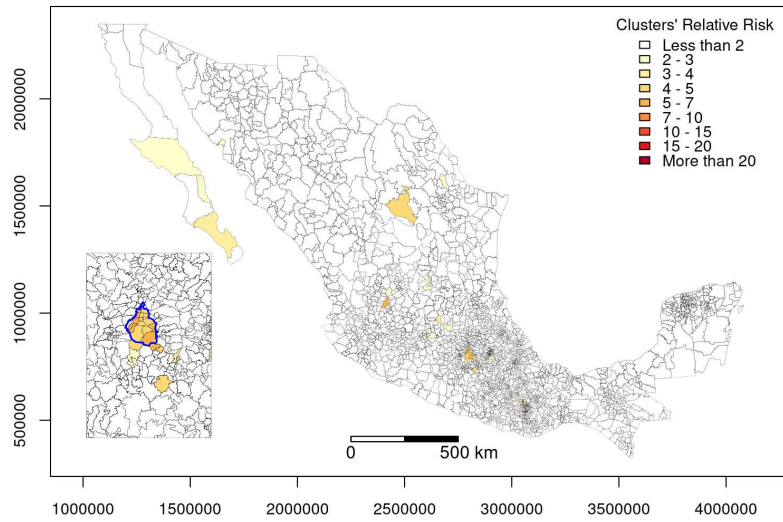




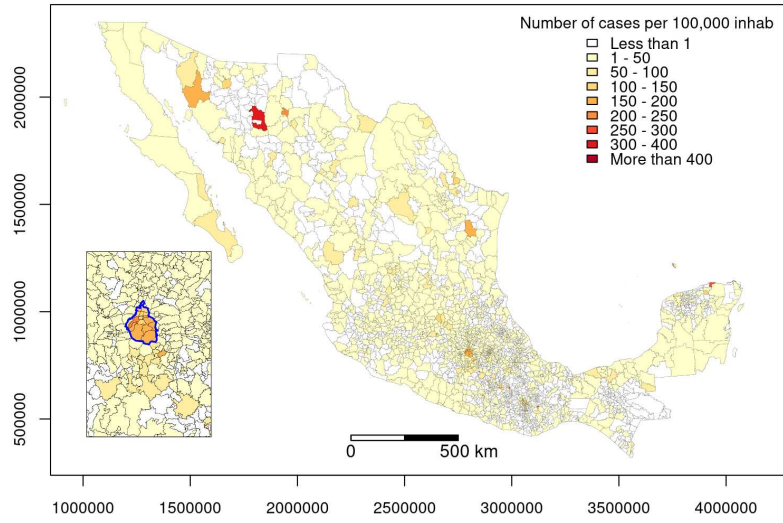
**Cases week 60 (2021-02-14 to 2021-02-20)**



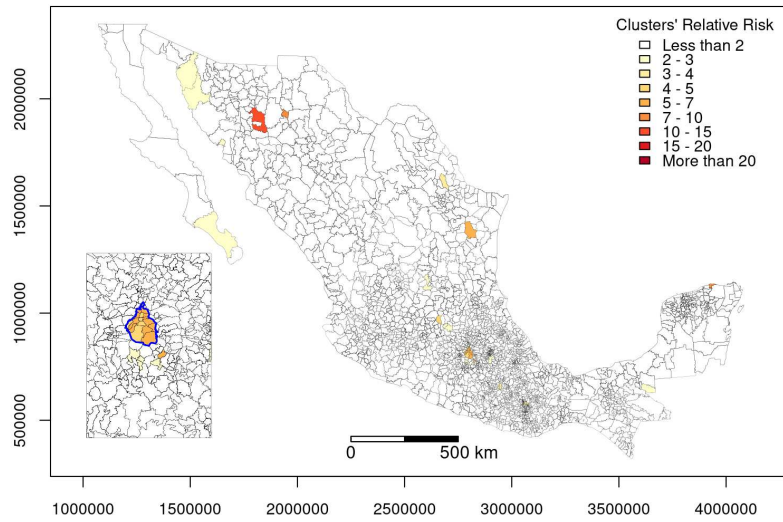
**RR week 60 (2021-02-14 to 2021-02-20)**



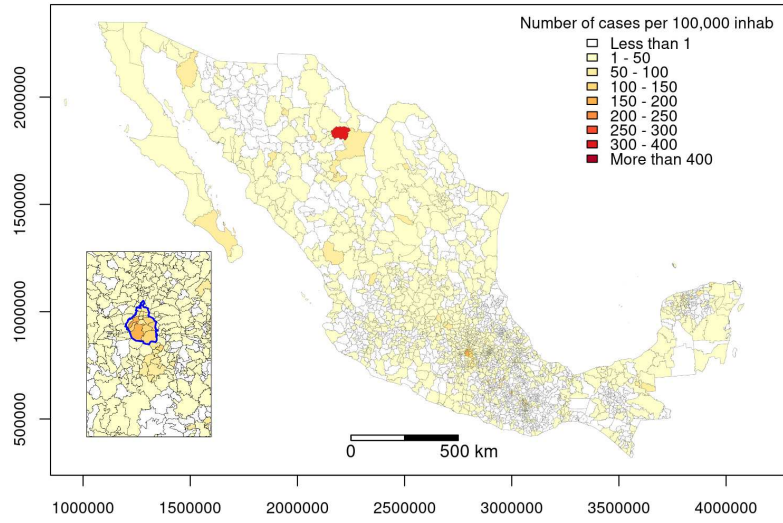
**Cases week 62 (2021-02-28 to 2021-03-06)**



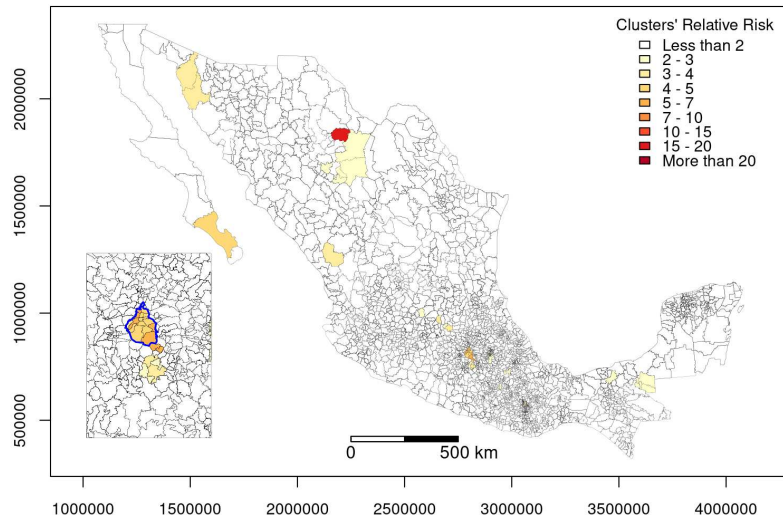
**RR week 62 (2021-02-28 to 2021-03-06)**



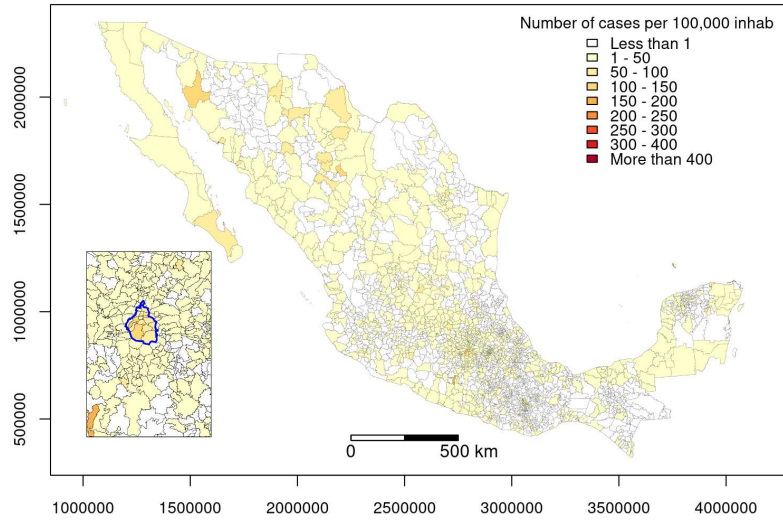
**Cases week 64 (2021-03-14 to 2021-03-20)**



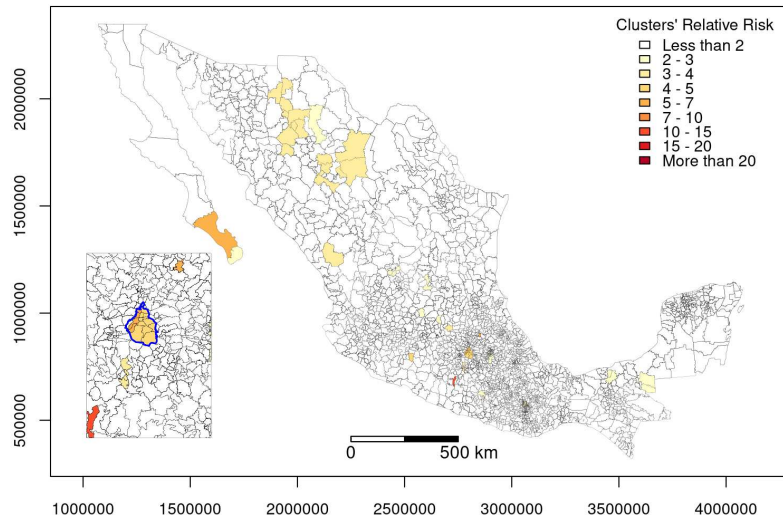
**RR week 64 (2021-03-14 to 2021-03-20)**



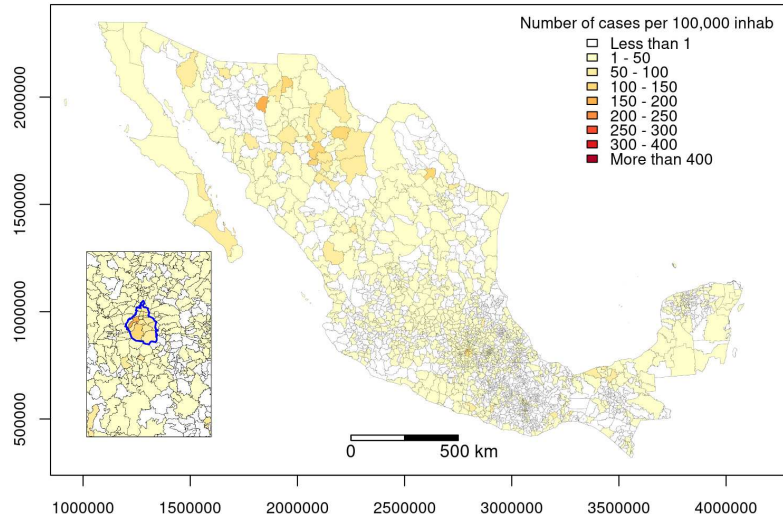
**Cases week 66 (2021-03-28 to 2021-04-03)**



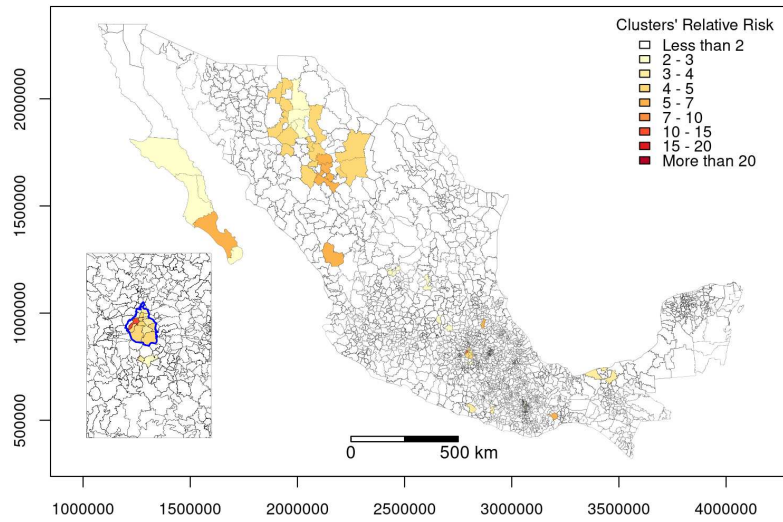
**RR week 66 (2021-03-28 to 2021-04-03)**



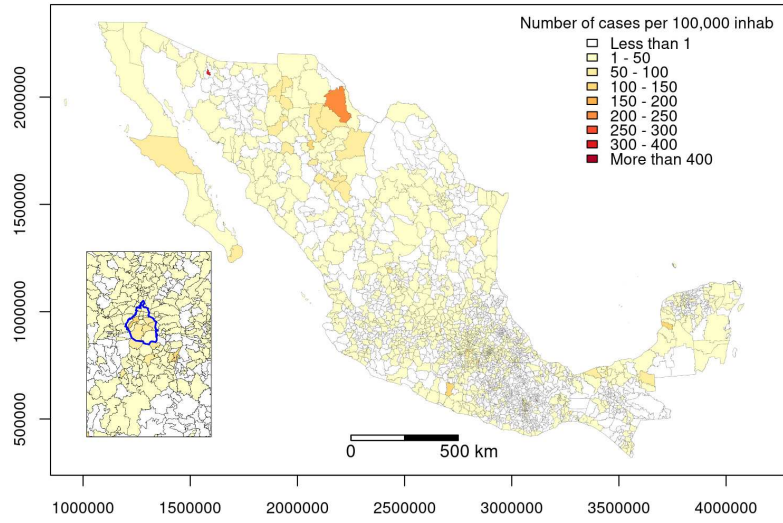
**Cases week 68 (2021-04-11 to 2021-04-17)**



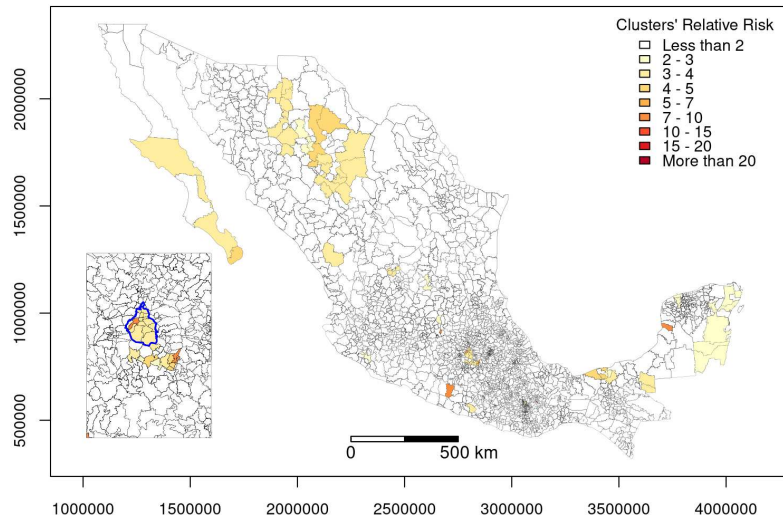
**RR week 68 (2021-04-11 to 2021-04-17)**



**Cases week 70 (2021-04-25 to 2021-05-01)**

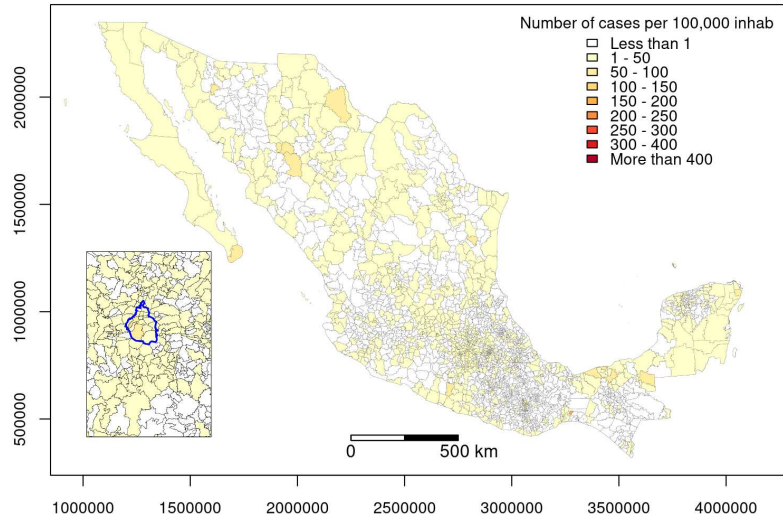


**RR week 70 (2021-04-25 to 2021-05-01)**

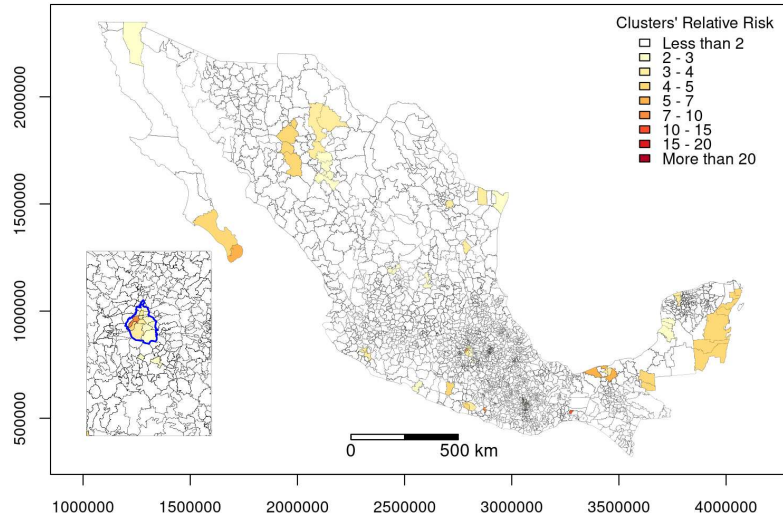




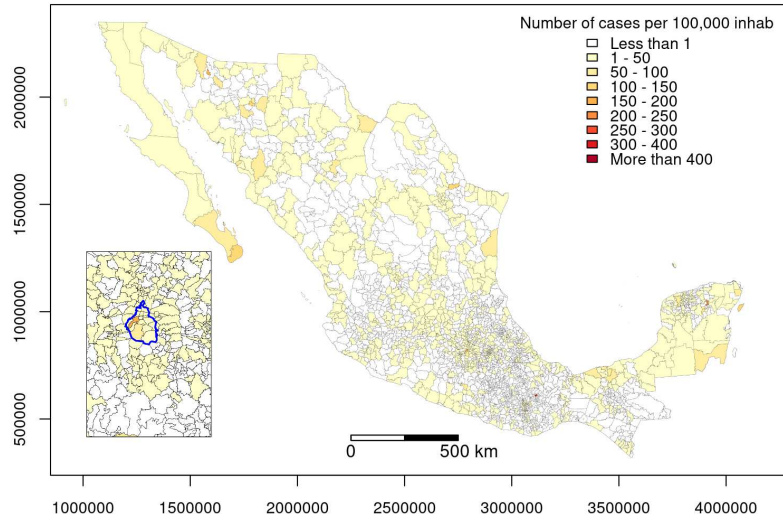
Cases week 72 (2021-05-09 to 2021-05-15)



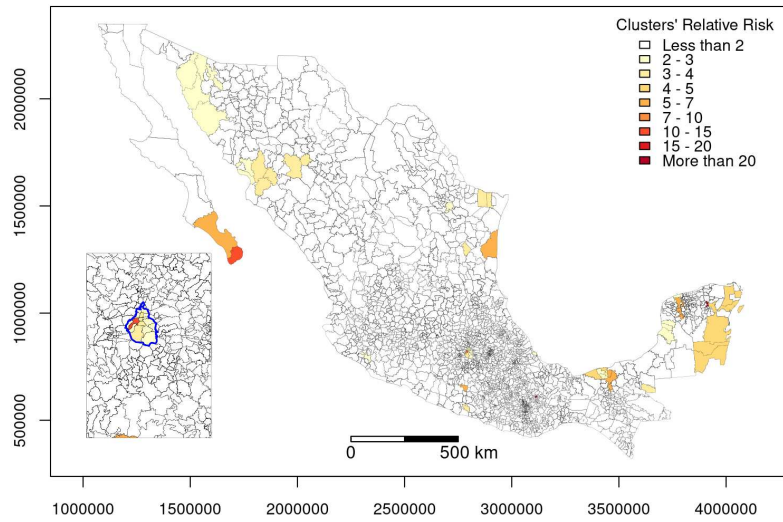
RR week 72 (2021-05-09 to 2021-05-15)



**Cases week 74 (2021-05-23 to 2021-05-29)**

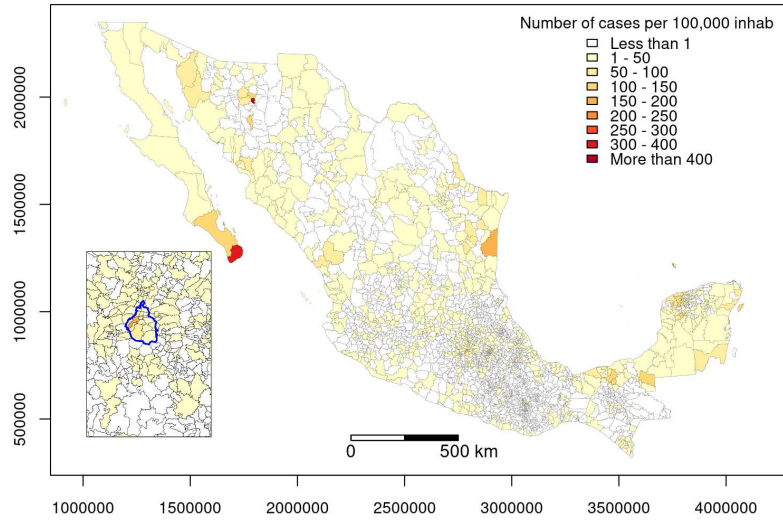


**RR week 74 (2021-05-23 to 2021-05-29)**

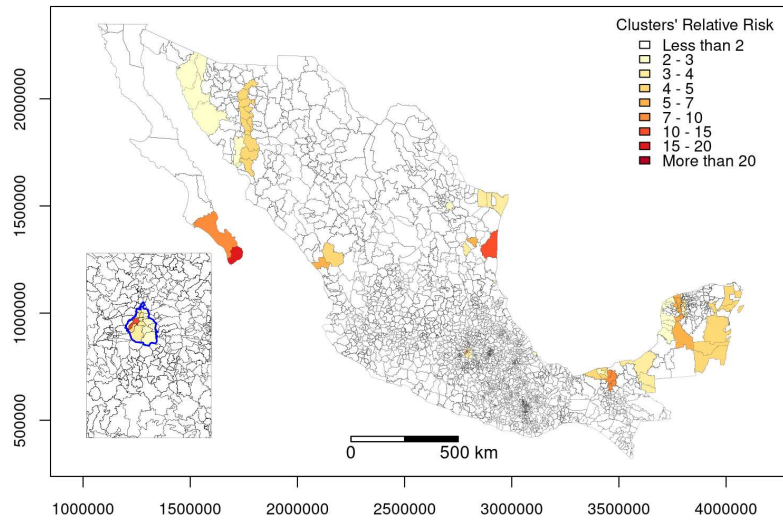




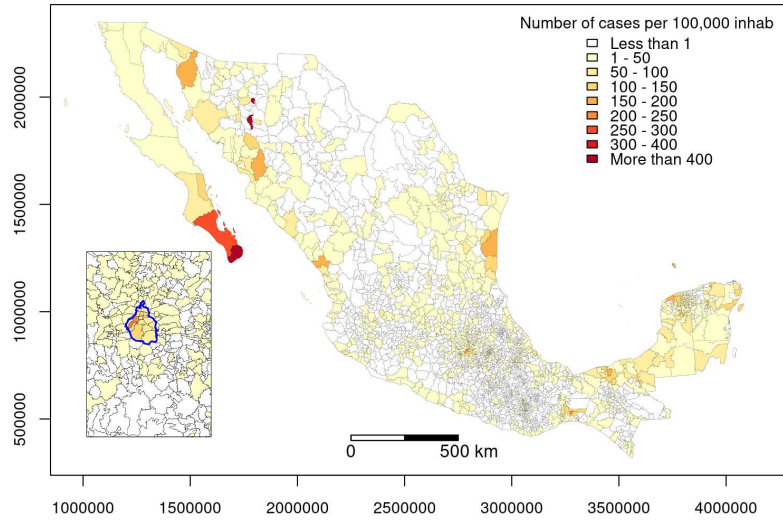
**Cases week 76 (2021-06-06 to 2021-06-12)**



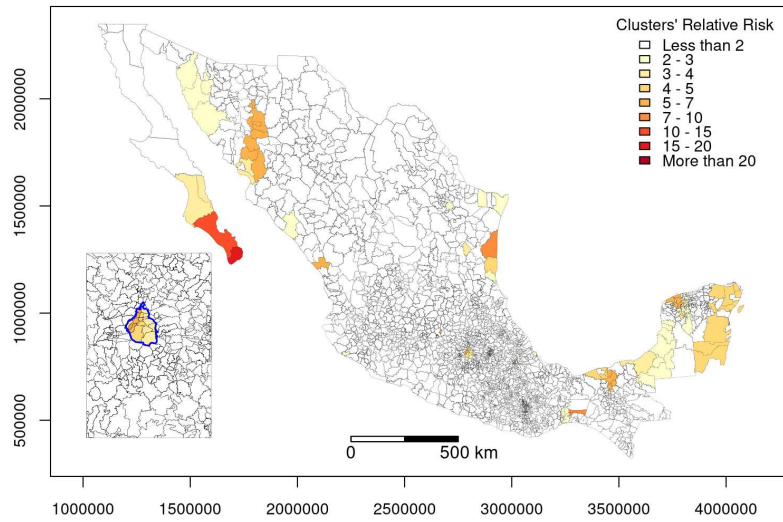
**RR week 76 (2021-06-06 to 2021-06-12)**



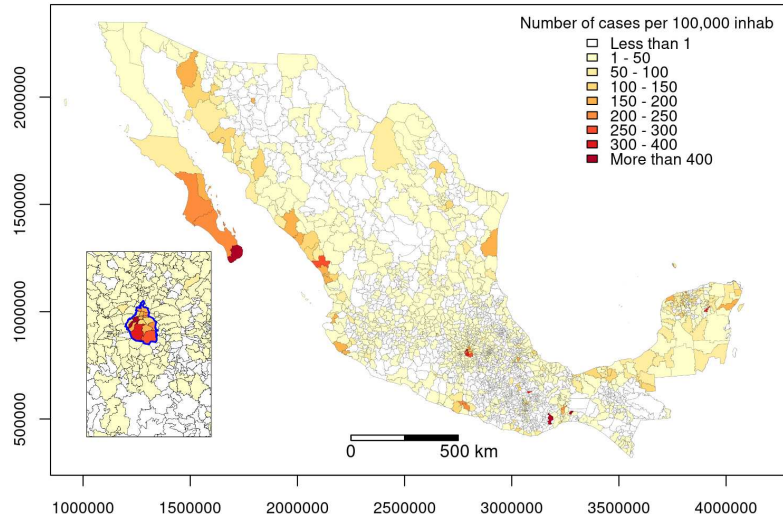
**Cases week 78 (2021-06-20 to 2021-06-26)**



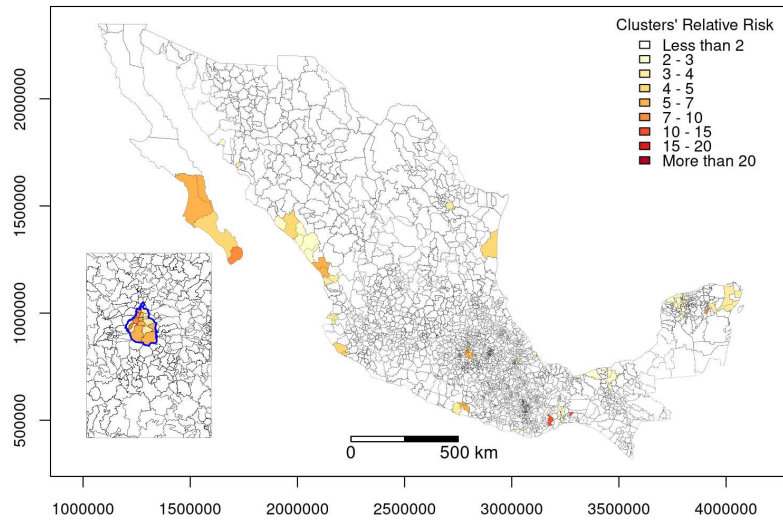
**RR week 78 (2021-06-20 to 2021-06-26)**



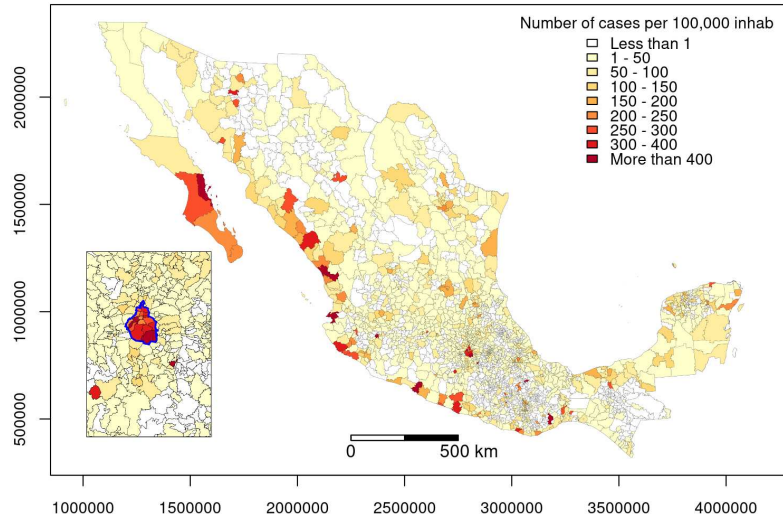
**Cases week 80 (2021-07-04 to 2021-07-10)**



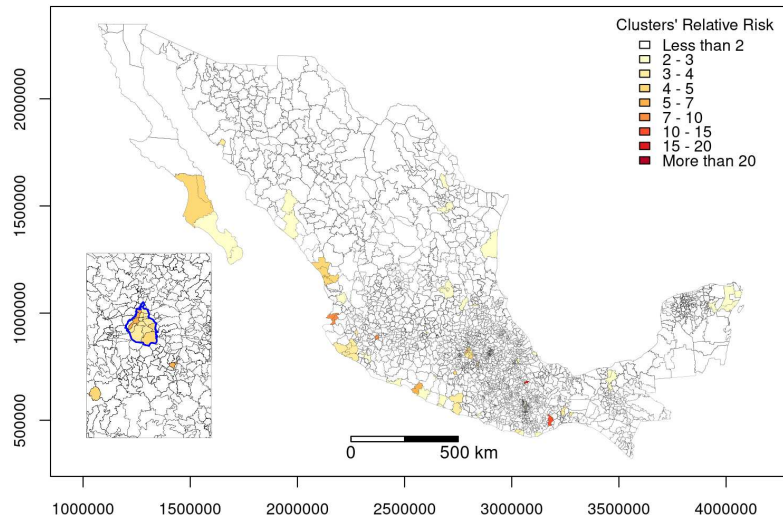
**RR week 80 (2021-07-04 to 2021-07-10)**



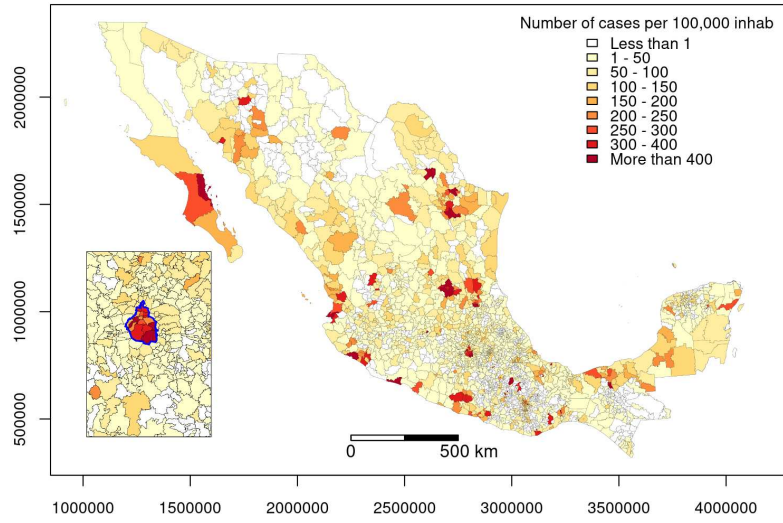
**Cases week 82 (2021-07-18 to 2021-07-24)**



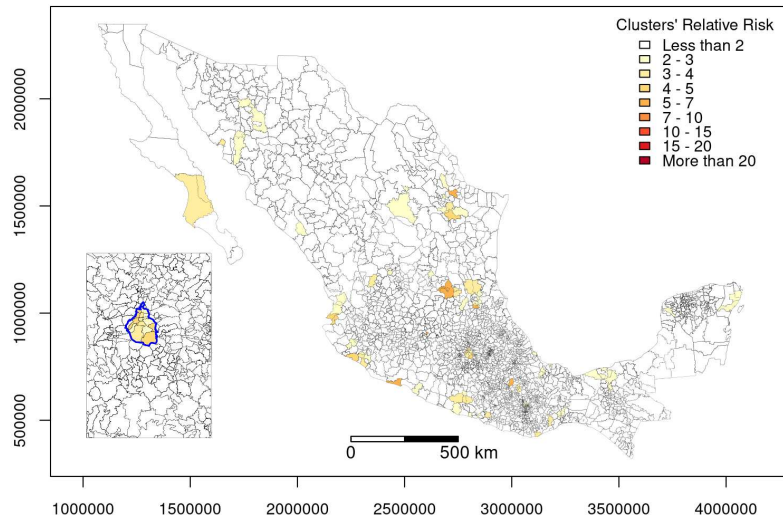
**RR week 82 (2021-07-18 to 2021-07-24)**



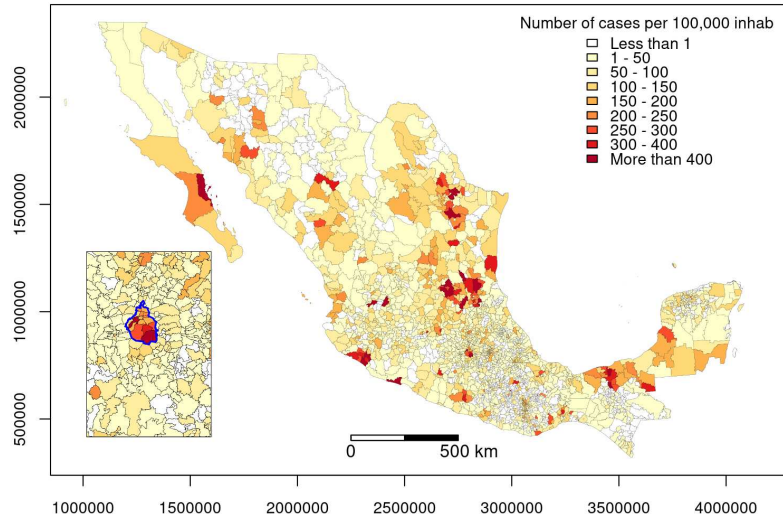
**Cases week 84 (2021-08-01 to 2021-08-07)**



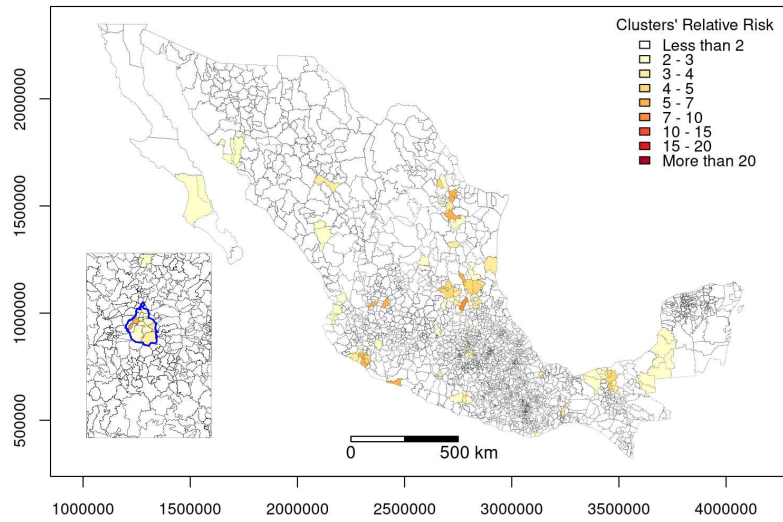
**RR week 84 (2021-08-01 to 2021-08-07)**



**Cases week 86 (2021-08-15 to 2021-08-21)**

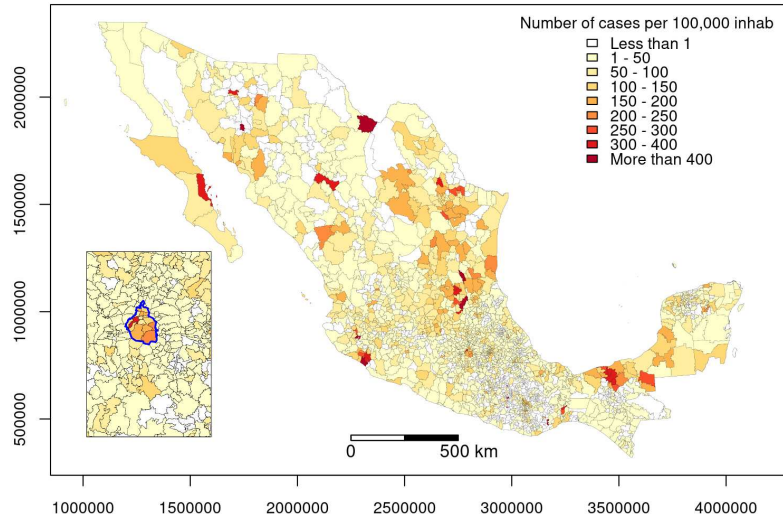


**RR week 86 (2021-08-15 to 2021-08-21)**

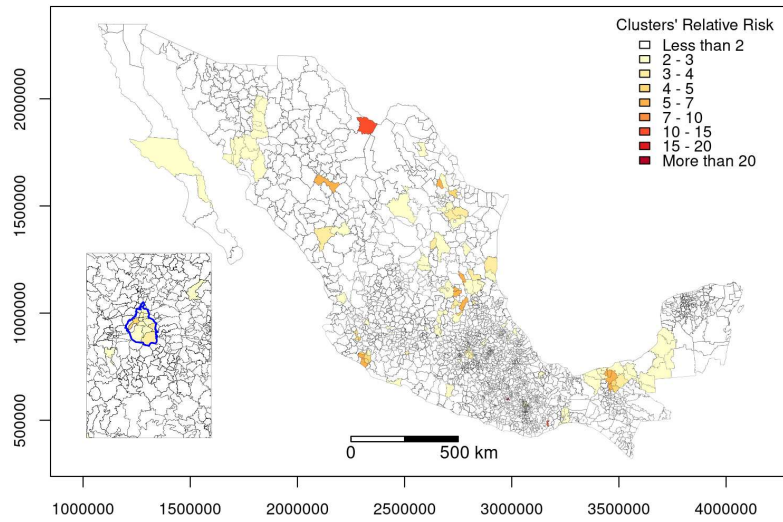




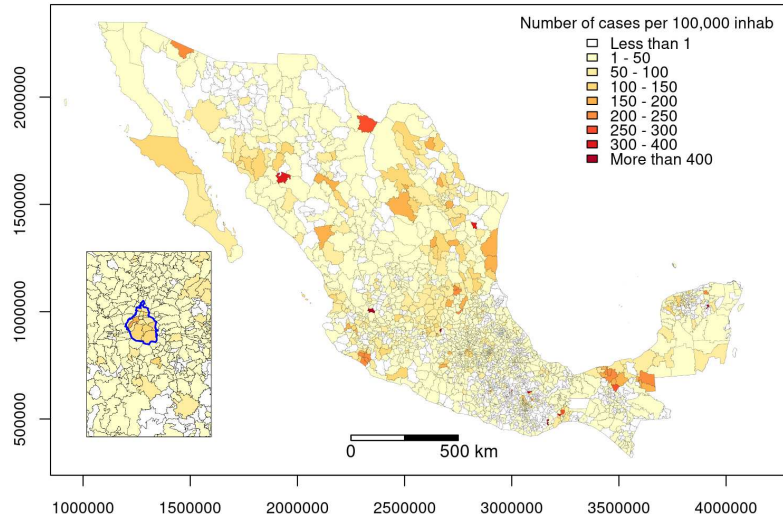
Cases week 88 (2021-08-29 to 2021-09-04)



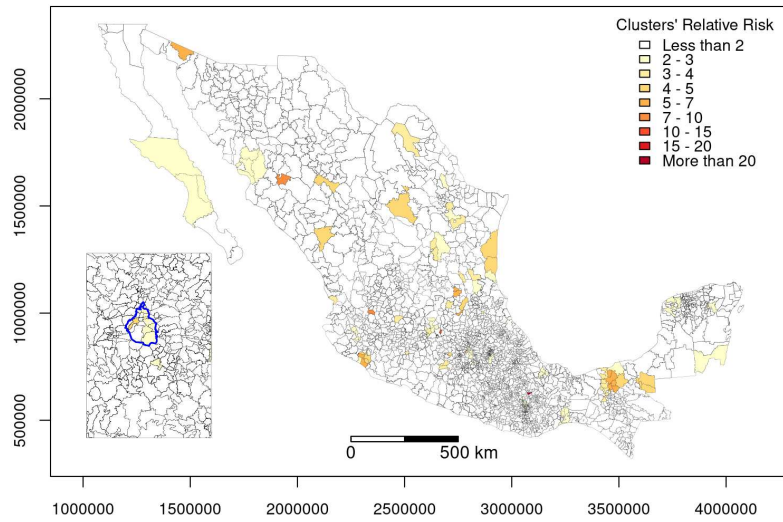
RR week 88 (2021-08-29 to 2021-09-04)



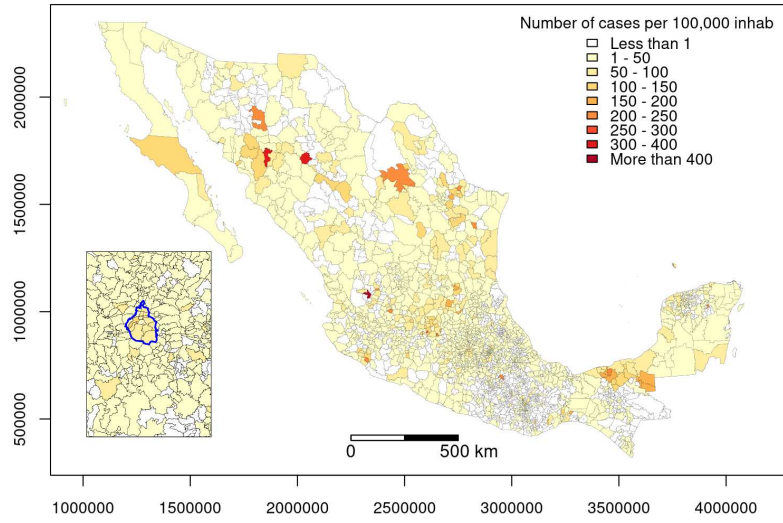
**Cases week 90 (2021-09-12 to 2021-09-18)**



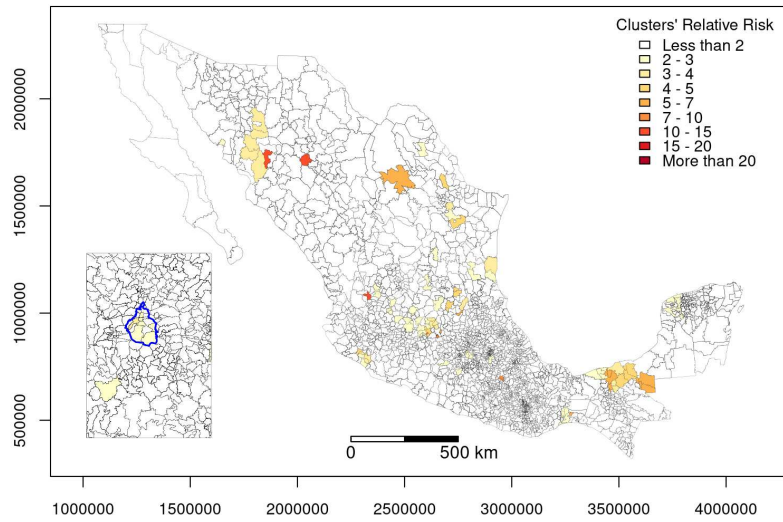
**RR week 90 (2021-09-12 to 2021-09-18)**



**Cases week 92 (2021-09-26 to 2021-10-02)**

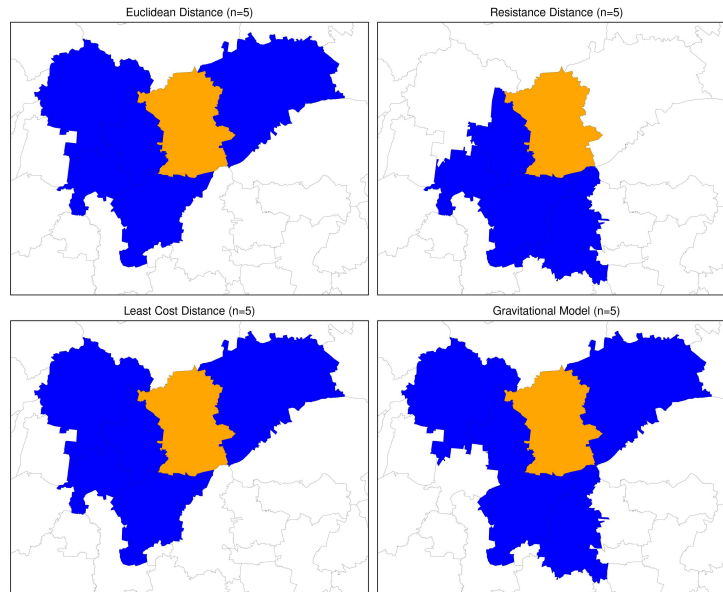


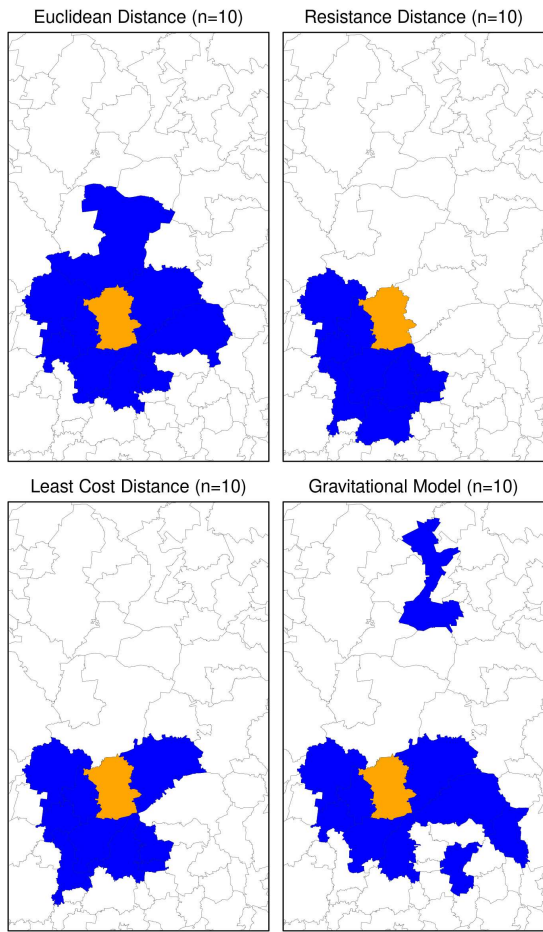
**RR week 92 (2021-09-26 to 2021-10-02)**

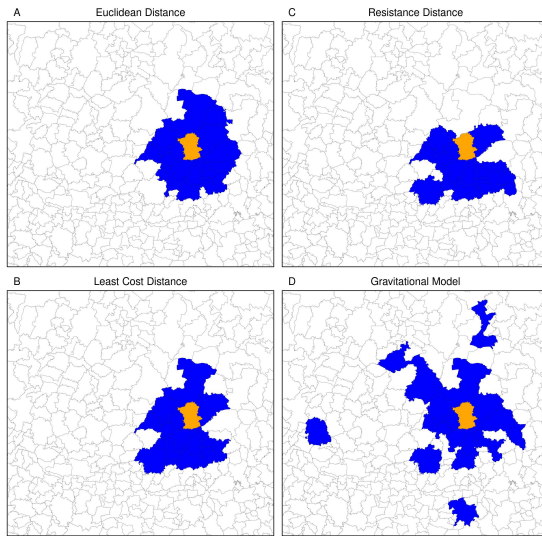


### 3 Effect of the different types of distance on neighbouring relationships

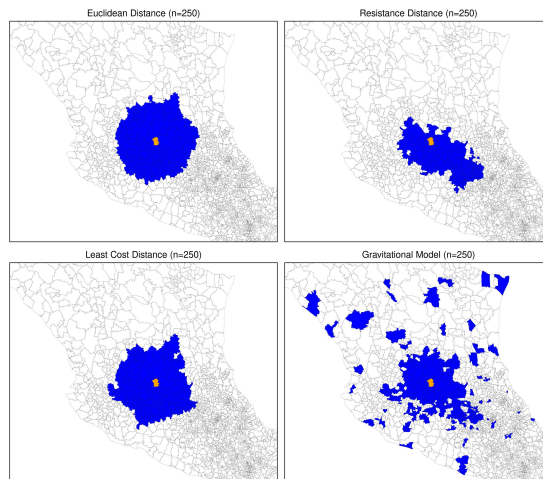
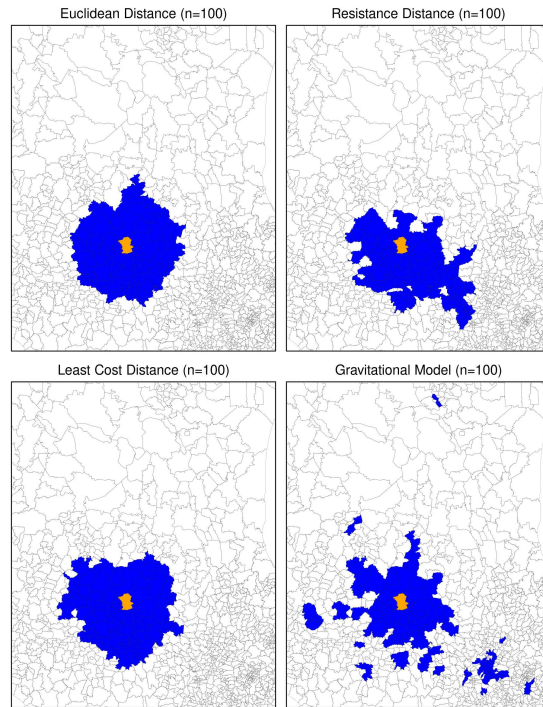
The following figures represent the n nearest neighbours (blue polygons) of Guanajuato's municipality (orange polygon) using Euclidean, least cost, resistance distances and the connectivity obtained by a gravitational model.

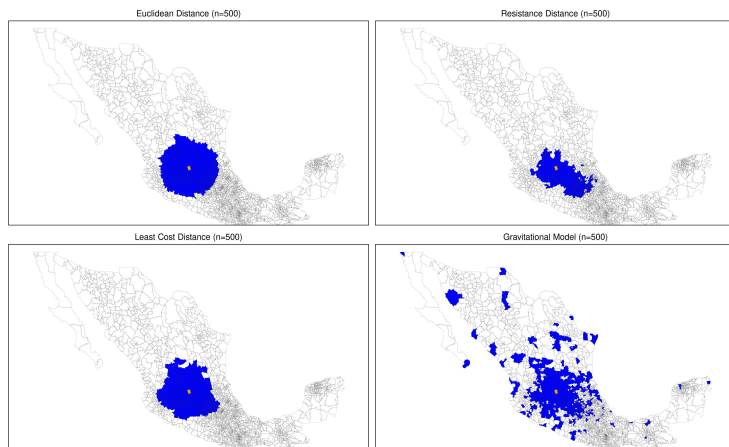






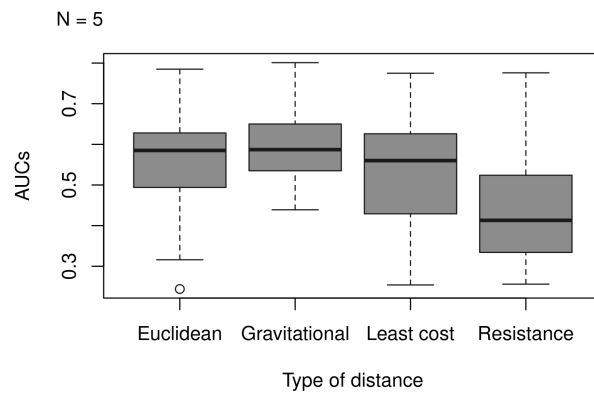


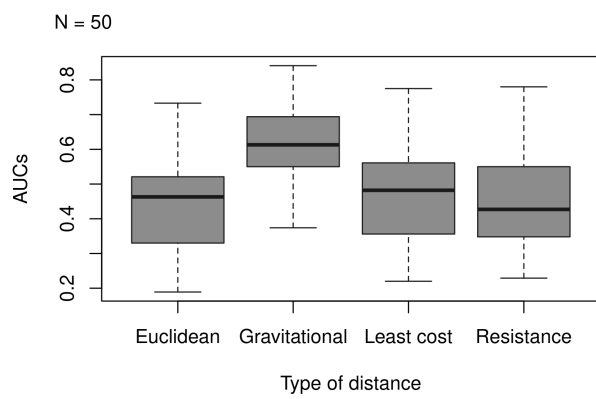
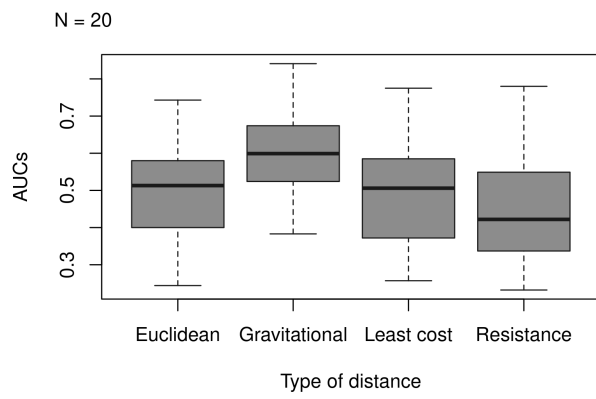
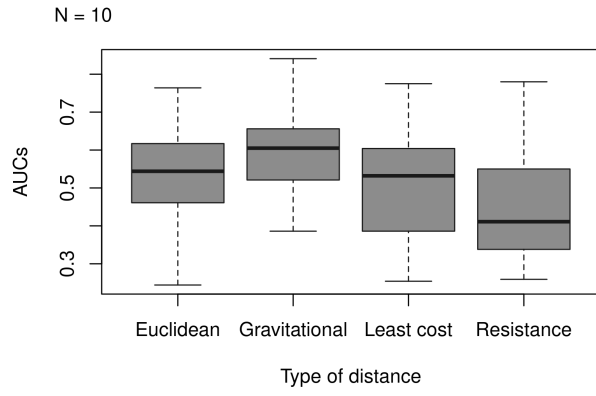


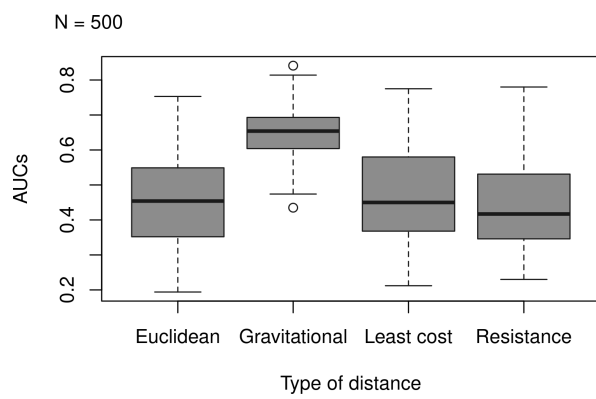
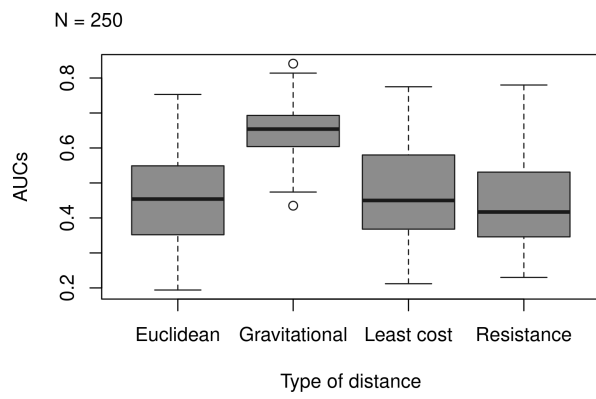
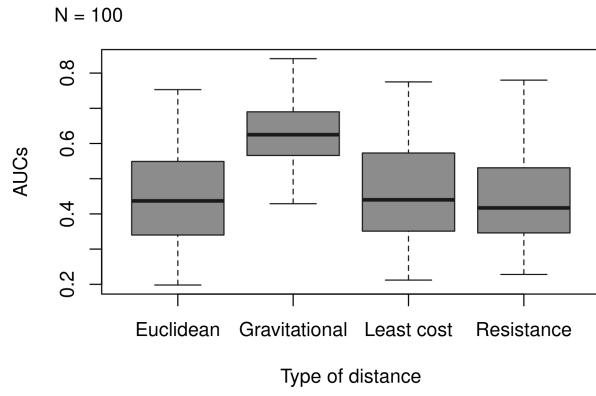


## 4 AUCs obtained by the different types of distance

The mean AUC was computed taking into account a different number of nearest neighbours  $N$  ( $N = 5, 10, 50, 100, 250$  and  $500$ ).

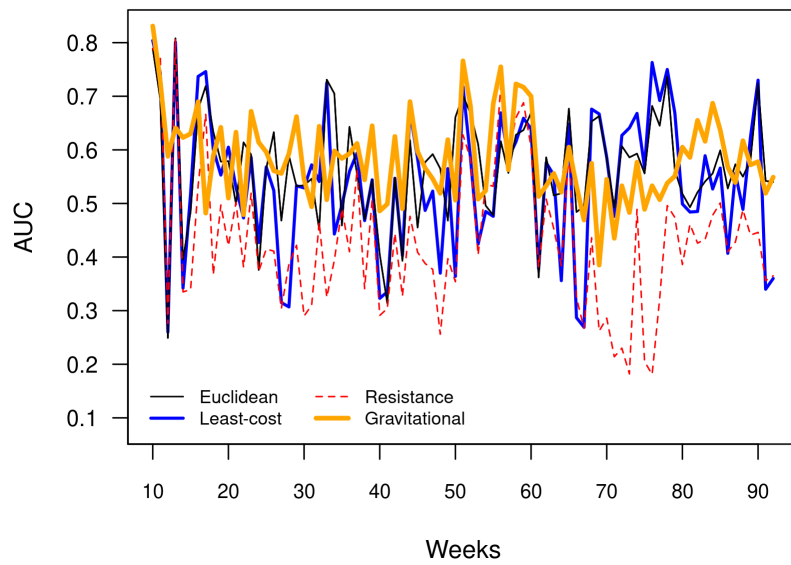




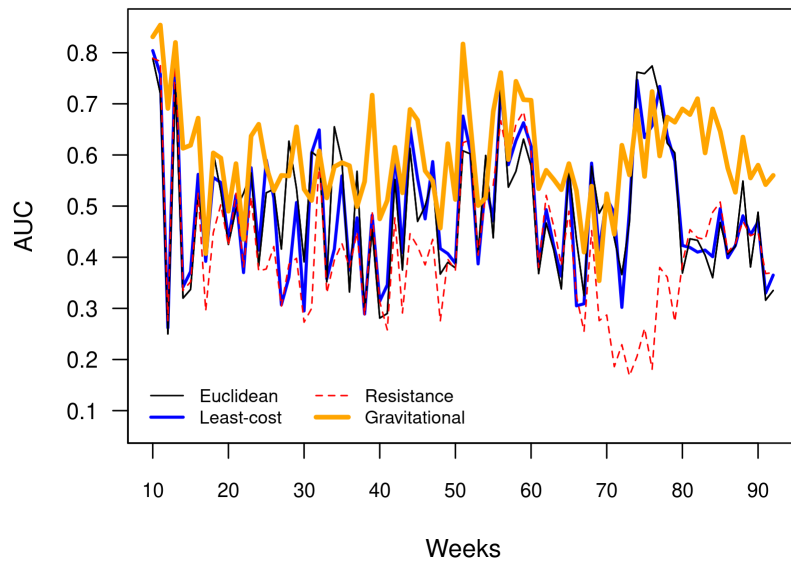
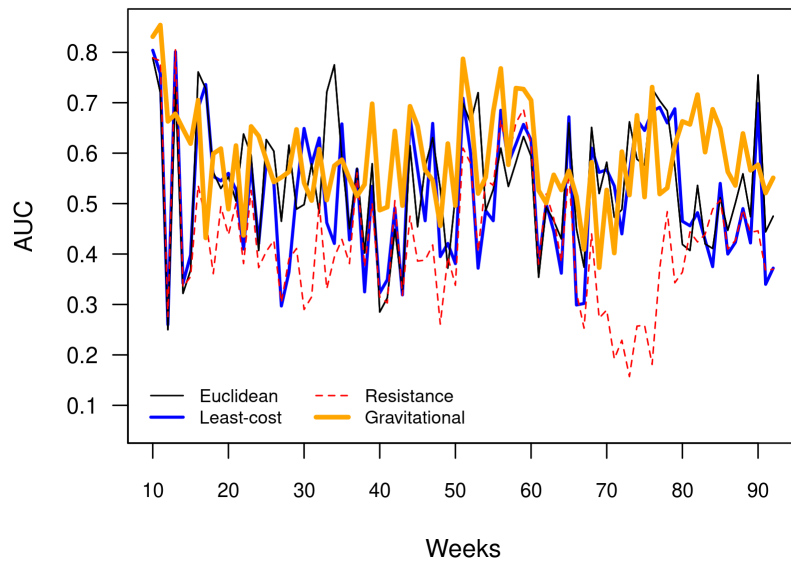


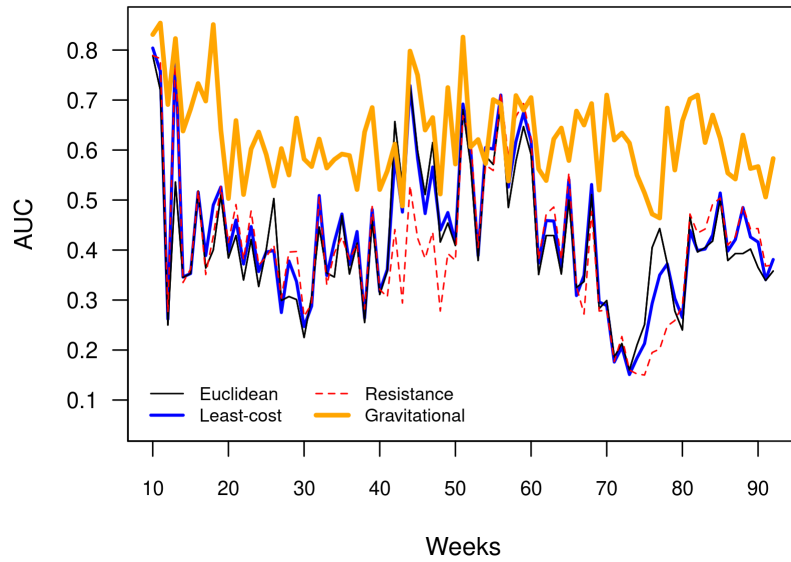
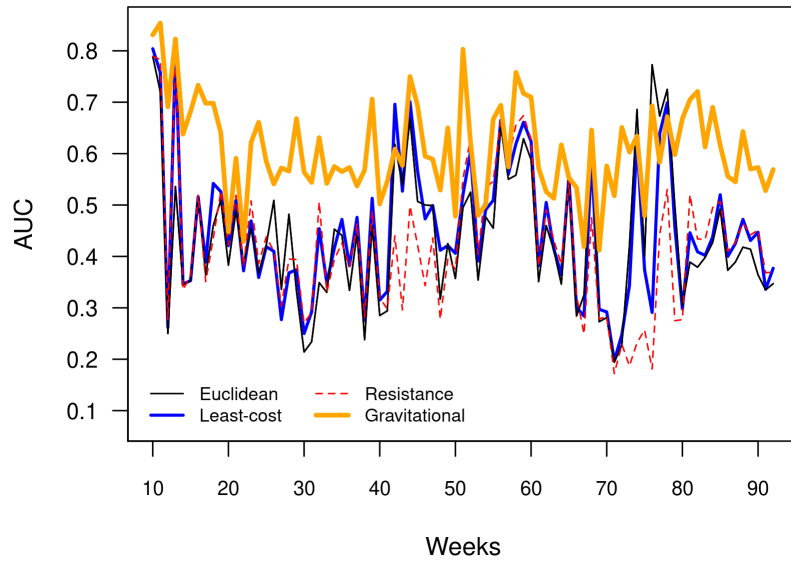
## 5 AUCs obtained by the different types of distance over time

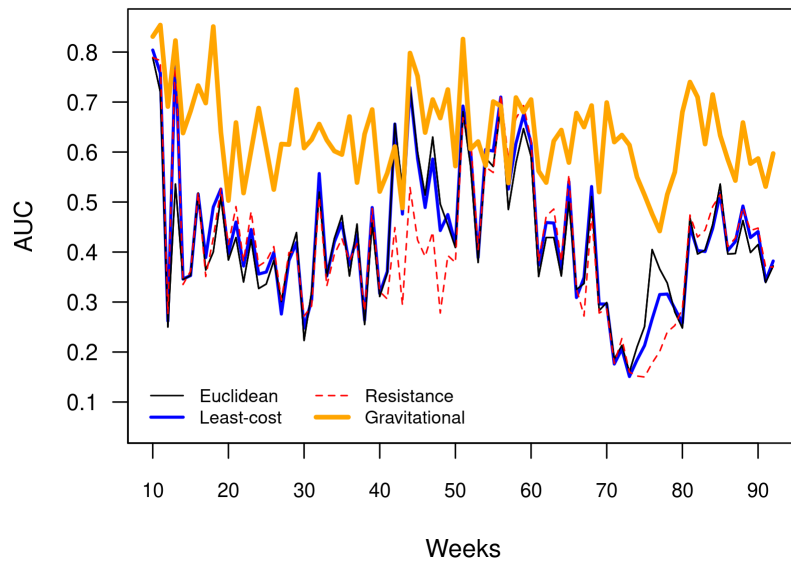
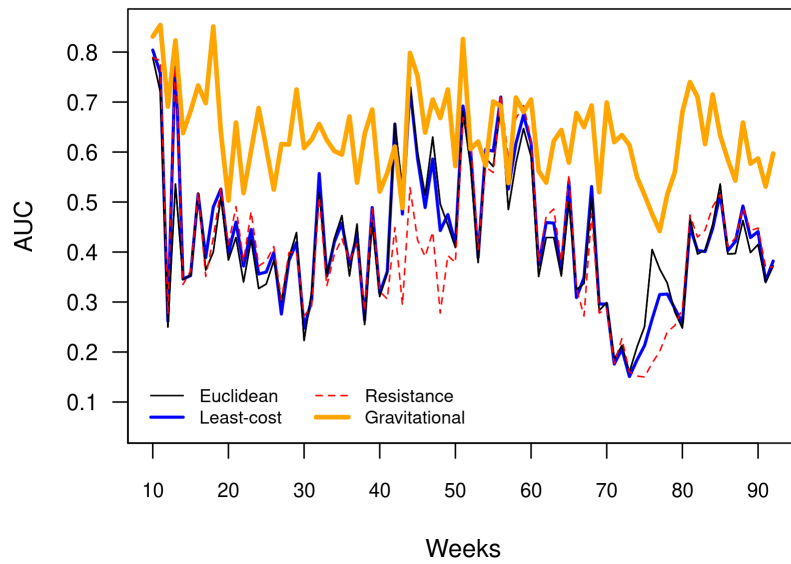
The mean weekly AUC was computed taking into account a different number of nearest neighbours  $N$  ( $N = 5, 10, 20, 50, 100, 250$  and  $500$ ).











## 6 Equivalence between week number and dates

	<b>Week number</b>	<b>From</b>	<b>To</b>
1	9	2020-02-23	2020-02-29
2	10	2020-03-01	2020-03-07
3	11	2020-03-08	2020-03-14
4	12	2020-03-15	2020-03-21
5	13	2020-03-22	2020-03-28
6	14	2020-03-29	2020-04-04
7	15	2020-04-05	2020-04-11
8	16	2020-04-12	2020-04-18
9	17	2020-04-19	2020-04-25
10	18	2020-04-26	2020-05-02
11	19	2020-05-03	2020-05-09
12	20	2020-05-10	2020-05-16
13	21	2020-05-17	2020-05-23
14	22	2020-05-24	2020-05-30
15	23	2020-05-31	2020-06-06
16	24	2020-06-07	2020-06-13
17	25	2020-06-14	2020-06-20
18	26	2020-06-21	2020-06-27
19	27	2020-06-28	2020-07-04
20	28	2020-07-05	2020-07-11
21	29	2020-07-12	2020-07-18
22	30	2020-07-19	2020-07-25
23	31	2020-07-26	2020-08-01
24	32	2020-08-02	2020-08-08
25	33	2020-08-09	2020-08-15
26	34	2020-08-16	2020-08-22

	<b>Week number</b>	<b>From</b>	<b>To</b>
27	35	2020-08-23	2020-08-29
28	36	2020-08-30	2020-09-05
29	37	2020-09-06	2020-09-12
30	38	2020-09-13	2020-09-19
31	39	2020-09-20	2020-09-26
32	40	2020-09-27	2020-10-03
33	41	2020-10-04	2020-10-10
34	42	2020-10-11	2020-10-17
35	43	2020-10-18	2020-10-24
36	44	2020-10-25	2020-10-31
37	45	2020-11-01	2020-11-07
38	46	2020-11-08	2020-11-14
39	47	2020-11-15	2020-11-21
40	48	2020-11-22	2020-11-28
41	49	2020-11-29	2020-12-05
42	50	2020-12-06	2020-12-12
43	51	2020-12-13	2020-12-19
44	52	2020-12-20	2020-12-26
45	53	2020-12-27	2021-01-02
46	54	2021-01-03	2021-01-09
47	55	2021-01-10	2021-01-16
48	56	2021-01-17	2021-01-23
49	57	2021-01-24	2021-01-30
50	58	2021-01-31	2021-02-06
51	59	2021-02-07	2021-02-13
52	60	2021-02-14	2021-02-20
53	61	2021-02-21	2021-02-27
54	62	2021-02-28	2021-03-06
55	63	2021-03-07	2021-03-13
56	64	2021-03-14	2021-03-20
57	65	2021-03-21	2021-03-27
58	66	2021-03-28	2021-04-03
59	67	2021-04-04	2021-04-10
60	68	2021-04-11	2021-04-17
61	69	2021-04-18	2021-04-24
62	70	2021-04-25	2021-05-01

	<b>Week number</b>	<b>From</b>	<b>To</b>
63	71	2021-05-02	2021-05-08
64	72	2021-05-09	2021-05-15
65	73	2021-05-16	2021-05-22
66	74	2021-05-23	2021-05-29
67	75	2021-05-30	2021-06-05
68	76	2021-06-06	2021-06-12
69	77	2021-06-13	2021-06-19
70	78	2021-06-20	2021-06-26
71	79	2021-06-27	2021-07-03
72	80	2021-07-04	2021-07-10
73	81	2021-07-11	2021-07-17
74	82	2021-07-18	2021-07-24
75	83	2021-07-25	2021-07-31
76	84	2021-08-01	2021-08-07
77	85	2021-08-08	2021-08-14
78	86	2021-08-15	2021-08-21
79	87	2021-08-22	2021-08-28
80	88	2021-08-29	2021-09-04
81	89	2021-09-05	2021-09-11
82	90	2021-09-12	2021-09-18
83	91	2021-09-19	2021-09-25
84	92	2021-09-26	2021-10-02