

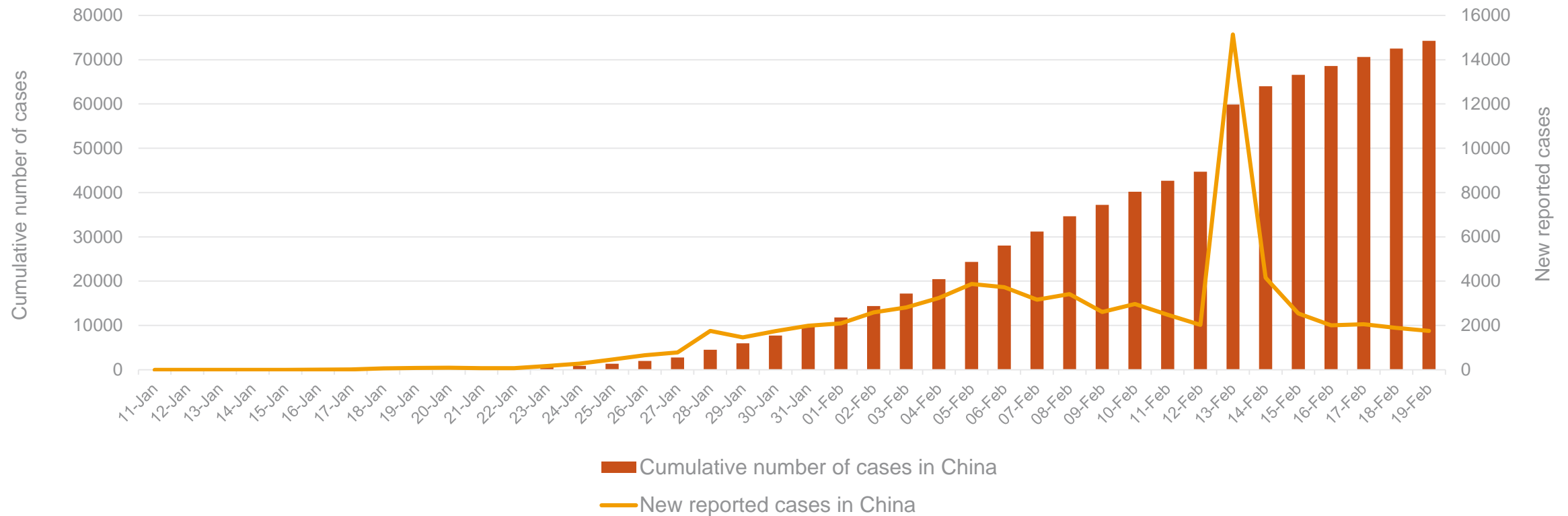
EPIDEMIOLOGICAL UPDATE COVID-19 AND ASSESSMENT OF THE NEEDS

For presentation to RMG 19/02/2020

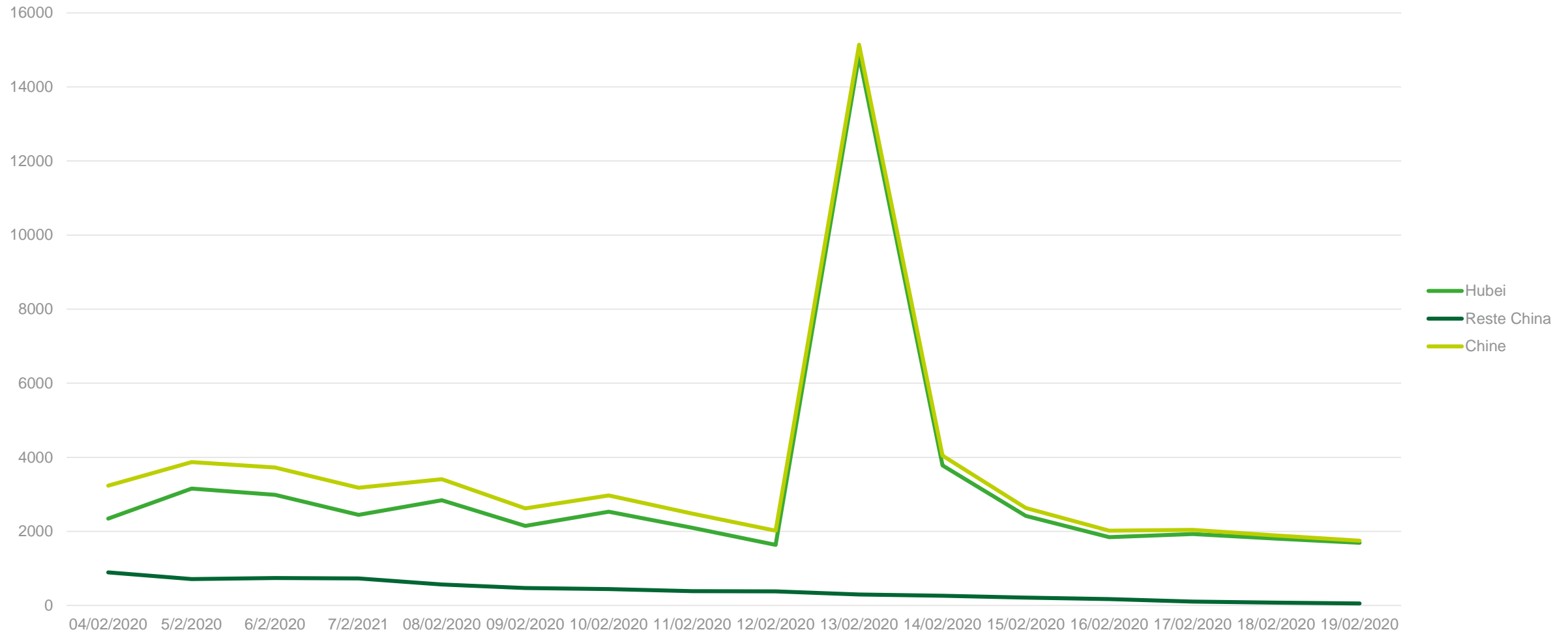
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Risk description and proposed measures. Not a decision !!!

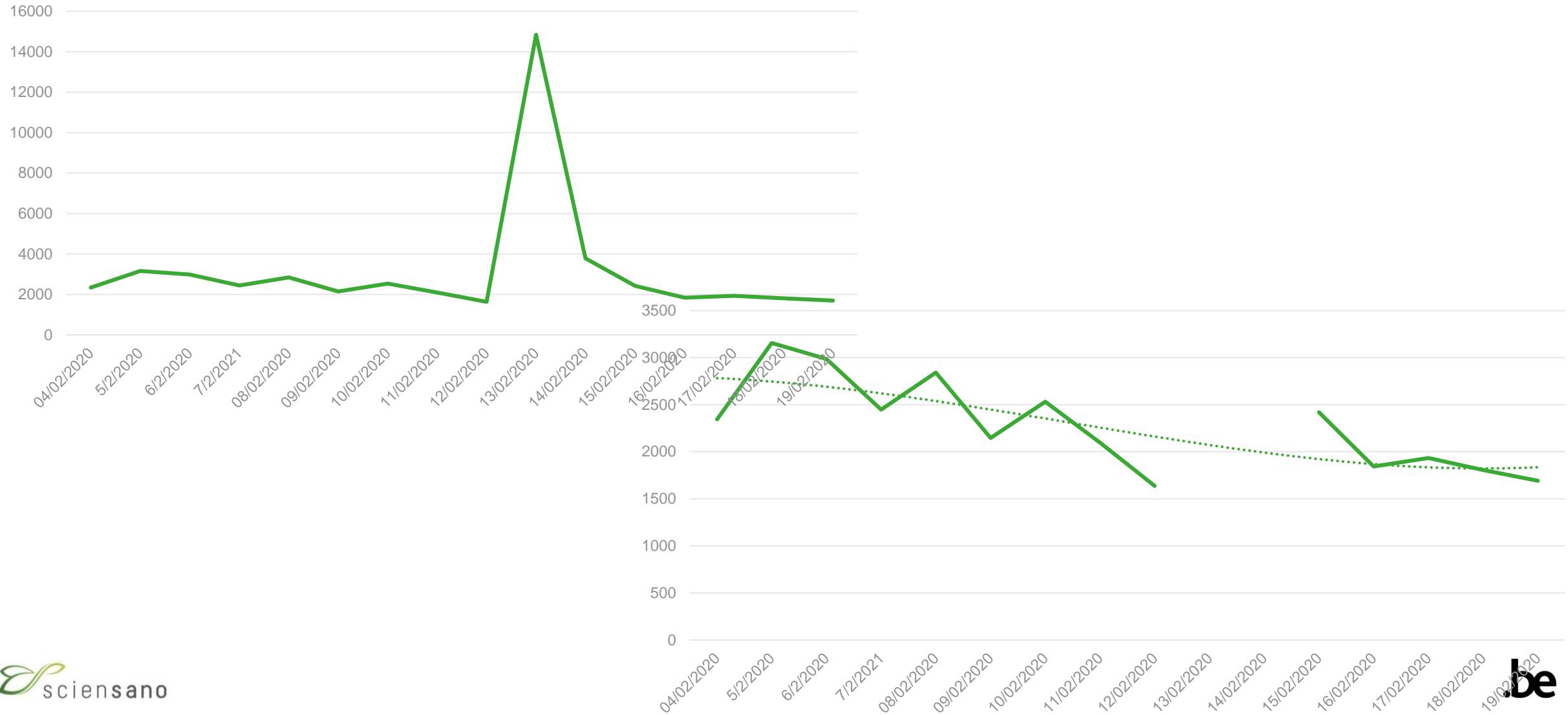
Cumulative number of cases and newly reported cases, 2019-nCoV, China, 11/01 - 19/02/2020



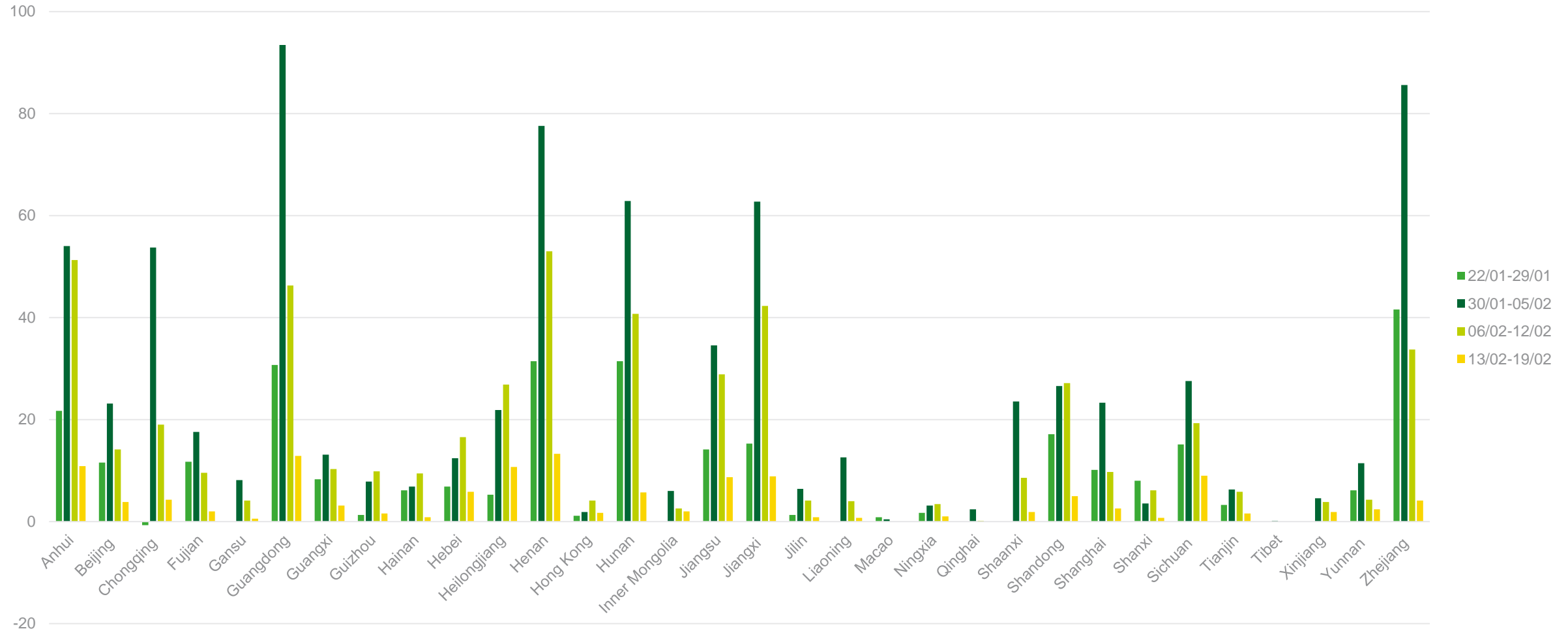
Number of new cases, by day, in Hubei, China and rest of China



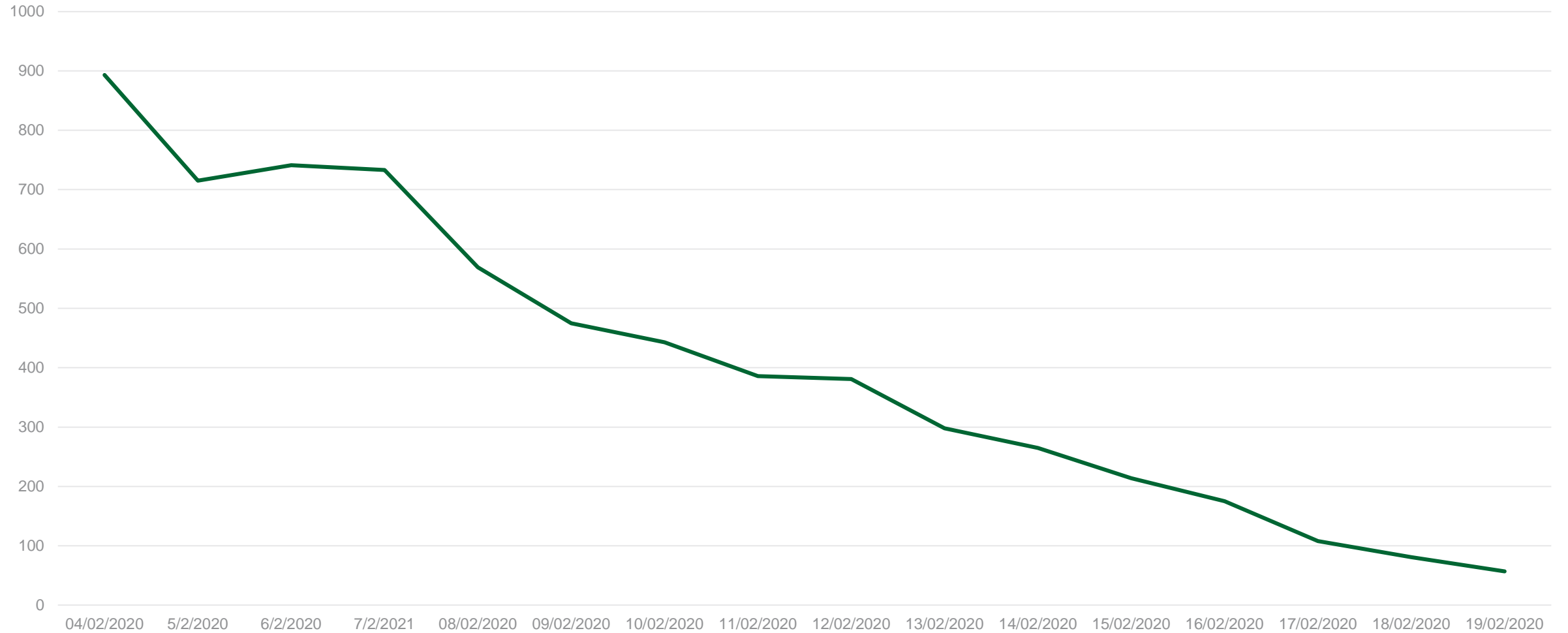
Evolution number of cases in Hubei



Mean number of new cases by day, during four weeks, Chinese provinces, except Hubei

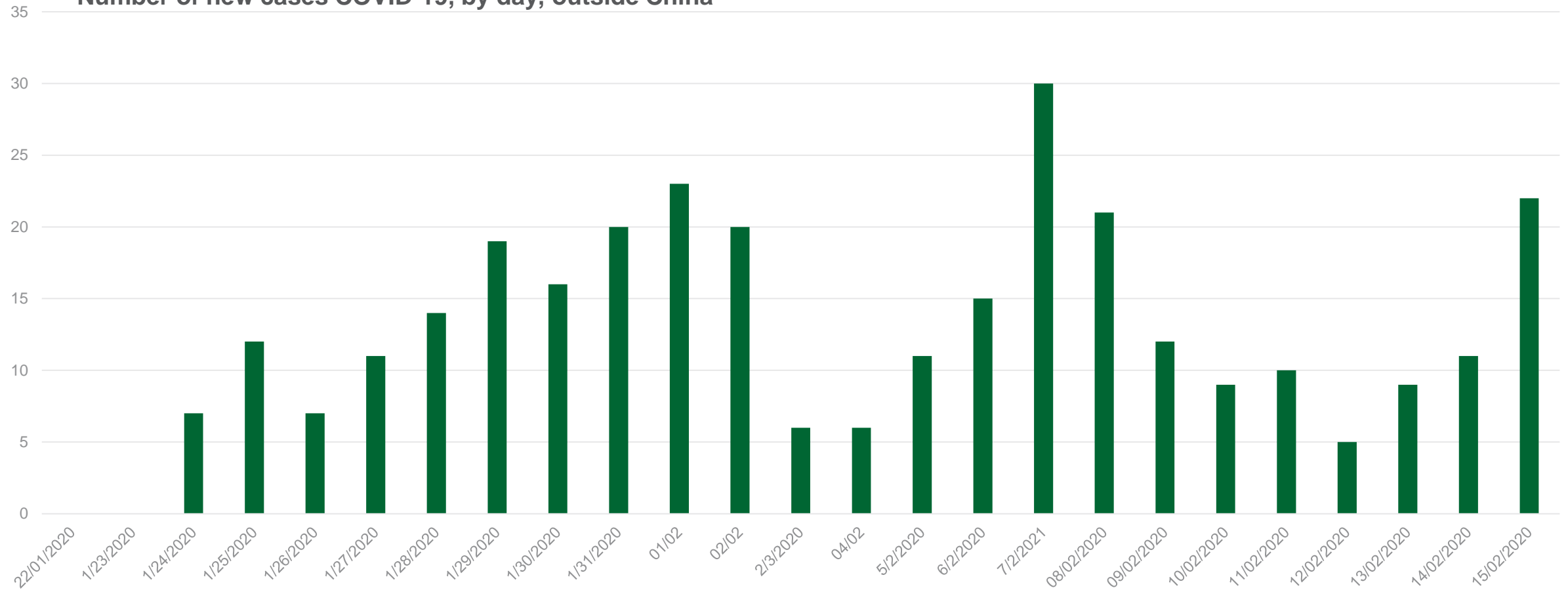


Number of new cases, by day in China, except Hubei province

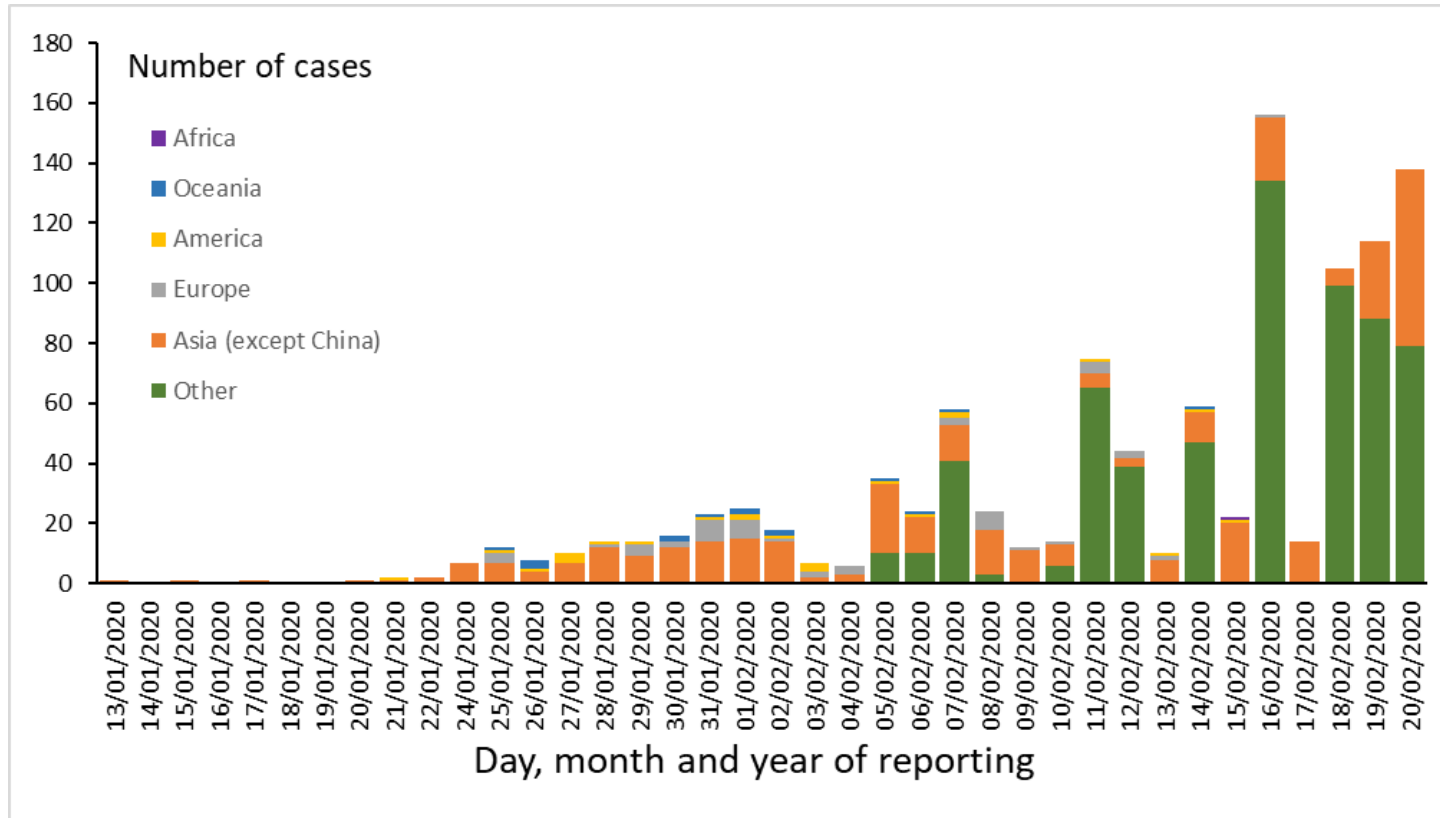


Situation in the world

Number of new cases COVID-19, by day, outside China



Distribution of COVID-19 cases according to the applied case definition in the related countries by continent, outside China Mainland, as of 20 February 2020



621 cases on Diamond princess and 322 are still asymptomatic (52%)

Situation in EU

First case diagnose : 25/01/2020 in France

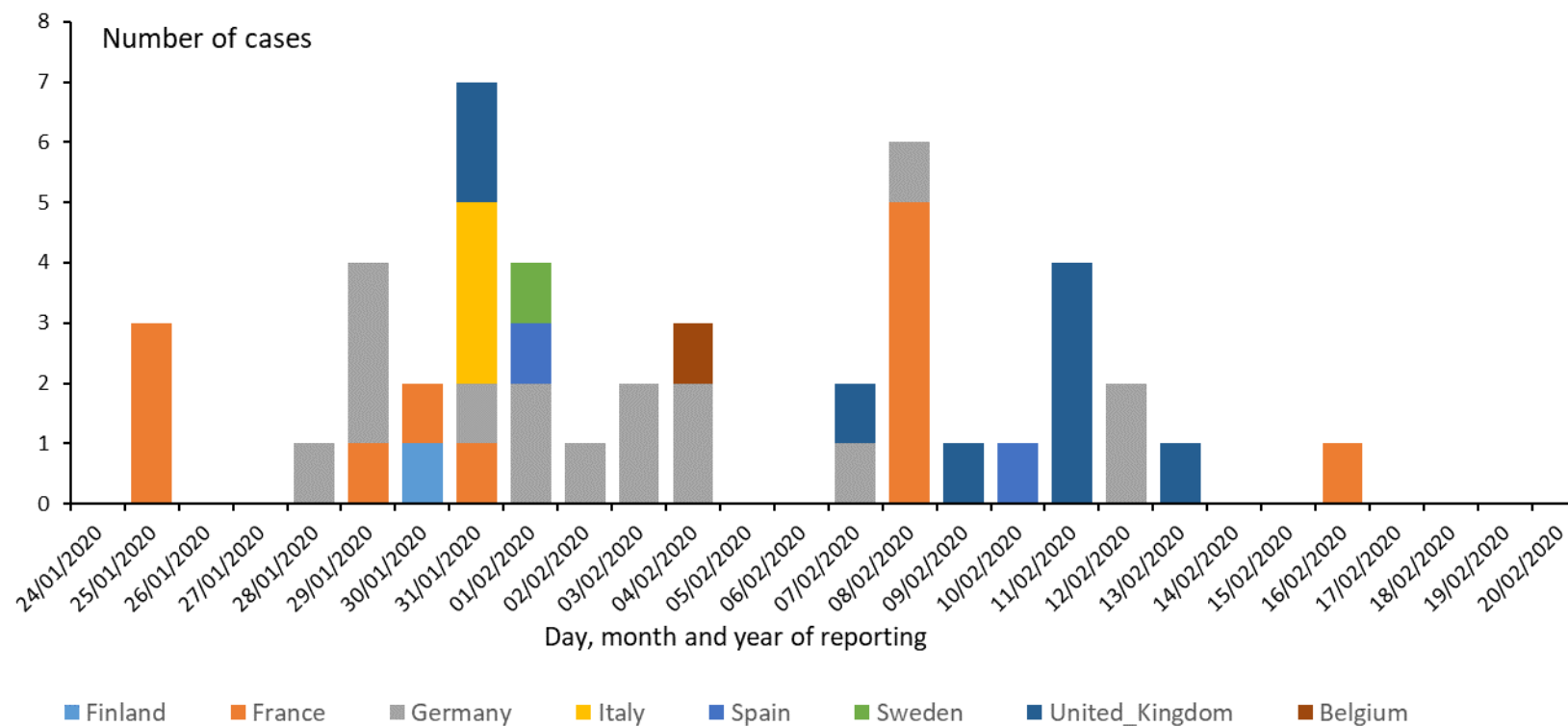
Last case diagnose in EU: 16/02/2020

Number of cases in EU: 47 cases in 9 countries

Main affected countries:

- France: 5 imported cases, 7 locally acquired (cluster linked to 2 cases)
- Germany: 2 imported cases, 14 locally acquired (cluster related to 1 case)

Distribution of laboratory-confirmed cases of COVID-19 in EU/EEA and the UK, as of 20 February 2020



Situation 19/02

Provinces China	Number of cases	Population	Incidence/million
Anhui	986	60300000	16,4
Beijing	393	21710000	18,1
Chongqing	555	15384000	36,1
Fujian	293	37700000	7,8
Gansu	91	25575254	3,6
Guangdong	1331	108490000	12,3
Guangxi	244	48890000	5,0
Guizhou	146	34750000	4,2
Hainan	163	8670000	18,8
Hebei	306	72000000	4,3
Heilongjiang	470	38300000	12,3
Henan	1262	94023567	13,4
Hong Kong	63	7470000	8,4
Hubei province	61682	58250000	1058,9
Hunan	1008	67830000	14,9
Inner Mongolia	75	24706321	3,0
Jiangsu	631	80000000	7,9
Jiangxi	934	45660000	20,5
Jilin	90	27520000	3,3
Liaoning	121	43900000	2,8
Macao	10	647700	15,4
Ningxia	71	6000000	11,8
Qinghai	18	5627000	3,2
Shaanxi	242	37330000	6,5
Shandong	544	98470000	5,5
Shanghai	333	26317104	12,7
Shanxi	131	36500000	3,6
Sichuan	514	80418200	6,4
Tianjin	128	15621200	8,2
Tibet	1	3002166	0,3
Xinjiang	76	21820000	3,5
Yunnan	173	45966239	3,8
Zhejiang	1174	55390000	21,2
Total China	74259	1433783686	51,8
Total China-Hubei	12577	1375533686	9,1

Exported cases			
Africa			
Egypt	1	99000000	0,01
Asia			
Cambodia	1	16500000	0,06
India	3	1374000000	0,00
Iran	2	82100000	0,02
Japan	67	126500000	0,53
Malaysia	22	32600000	0,67
Nepal	1	29700000	0,03
Singapore	81	5700000	14,21
South Korea	46	51160000	0,90
Sri Lanka	1	21300000	0,05
Taiwan	22	23600000	0,93
Thailand	35	68300000	0,51
The Philippines	3	109000000	0,03
United Arab Emirates	9	9900000	0,91
Vietnam	16	96500000	0,17
America			
Canada	8	37600000	0,21
USA	15	328000000	0,05
Europa			
Belgium	1	11570000	0,09
Finland	1	5540000	0,18
France	12	67000000	0,18
Germany	16	83700000	0,19
Italy	3	60500000	0,05
Russia	2	146000000	0,01
Spain	2	46800000	0,04
Sweden	1	10075000	0,10
UK	9	67750000	0,13
Oceania			
Australia	15	25380000	0,59
International			
Diamond princess	621	3700	16,78
Westerdam	1	2884	0,03
Total outside China			
			1064
TOTAL			75323

Calculation of the threshold to decide from which incidence we can expect an epidemic in a province?

Hypothesis in the model developed on a worst case scenario base:

No cross immunity, whole population is susceptible
Each person has the same probability to meet any other person.

$R_0 = 2.5$

Incubation time: 7 days
Disease duration : 7 days
No containment measures taken

An incidence of 20 cases / 1.000.000 inhabitants will be enough to launch a sustained transmission.

Severity

Cohort 72,314 patients (ccdc weekly, vol 2):

- 62% confirmed
 - 80% mild cases (non pneumonia and mild pneumonia)
- > 14% severe
-> 5% critical (49% case fatality rate)

Estimation for Belgium:

If 10/1,000,000 as cumulative incidence in rest of China= 110 cases, 15 severe, 5,5 critical

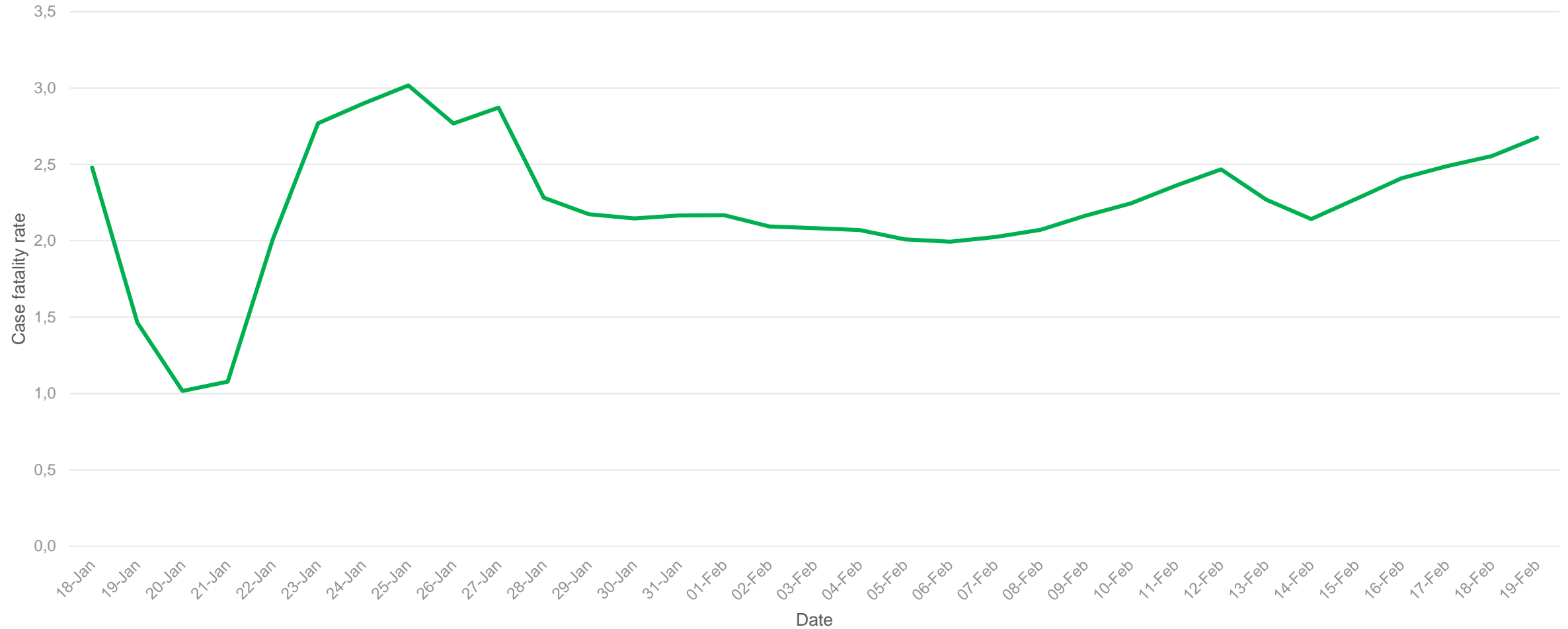
If 50/1,000,000 as cumulative incidence in China= 550 cases, 77 severe, 27 critical

If 1000/1,000,000 as cumulative incidence in Hubei= 11000 cases, 1540 severe, 550 critical

-> on a 5 weeks period

	Number of cases	Deaths	CFR
Health care workers in China	1716	5 deaths	0.3%

Case fatality rate among laboratory confirmed cases in China



Situation 19/02: Case fatality rate, China and rest of the world

Population in China	1.433.783.686		
Annual mortality	10.222.878		
	Deaths	N° cases	CFR (%)
Case fatality rate Covid-19 in China	2008	74259	2.5%
Case fatality rate Covid-19 in Hubei	1921	61682	3,3%
Case fatality rate Covid-19 in others provinces	87	1257	0.7%
Case fatality rate Covid-19 outside China	8	1017	0.8%
Case fatality rate in Europa	1*	46	2,2%
Case fatality rate in Diamond Princess	2	322	0,6%
Case fatality rate outside China – Diamond Princess	6	396	1,5%

From the cohort (ccdc weekly):

CFR is age related : 14,8% among the >80 y old

CFR is higher among men

Without comorbidity: 0,9%

Preparedness and response: organisation

Main risk: lack of preparedness

Generic preparedness plan

-> Need enough and permanent resources

Is there a risk of situation as Diamond princess in Belgium? Situation in which we could have a large number of exposed persons? To have a plan of isolation and rapid repatriation.

Preparedness and response: Care

Main risk: overloaded hospital capacity if epidemic SARS-CoV-19 should start in Belgium

First line support in case of crises (GP): not possible to send suspected cases be tested (lack of ppe) but ... In any time able to avoid unnecessary consultation in emergency wards ?

Hospital capacity:

Medications: Which protocol should be recommended in Belgium? How to get these treatments?

Shortage in some essential medical material, even for routine medical care: **maskers** and swabs

Contingency and centre for patient triage ?

Preparedness and response: Reinforcement surveillance in Belgium

Rationale

R0: probably high in a susceptible population, cfr clustering effect in EU, Singapore, ...

Respiratory transmission

Mild symptomatic

Globalization

Risk

-> the virus is circulating or will circulate

-> we need to be able to diagnose it in routine

Response

- Notification to regional health authorities until it will stay an unusual event
- Need of surveillance
 - > to define when usual circulation (cfr 2009-H1N1)
 - > to describe burden, epidemiological characteristics and detect change

Actions

-> Start with reinforcement of existing systems: from now until

- ✓ Sentinel GP/SARI
- ✓ Sentinel labs

Endemic virus
in China?

Study to describe circulation of the SARS-CoV-2 in Belgian population through the sentinel GP network

Model to calculate the number of weeks until first case of SARS-CoV-2 will be detected within the samples collected by the sentinel network of general practitioners.

Simulation with two hypothesis:

- Number of cases / 100,000
- Number of cases /1,000,000

Initial infectious /100,000	Number of weeks		
	Lower (95%)	Median	Upper (95%)
1	5	10	26
5	2	7	26
10	2	5	26
30	1	4	26
40	1	3	26
50	1	3	26

Scenario number of cases by 1,000,000

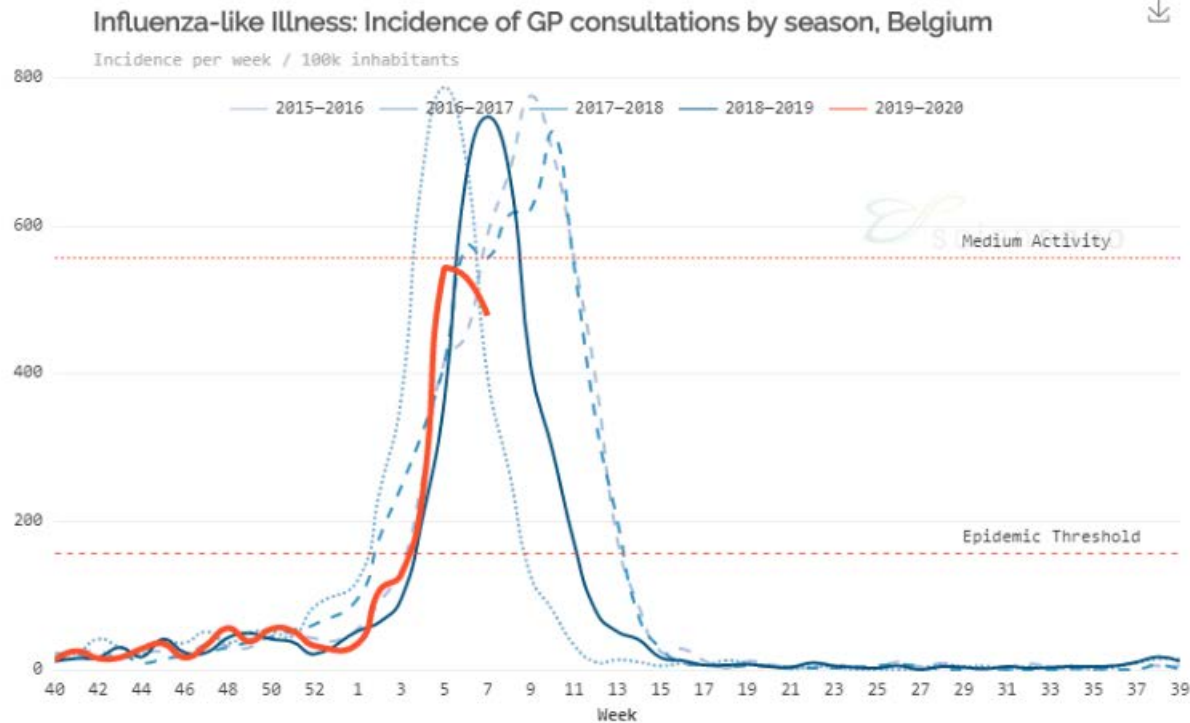
Initial infectious /1,000,000	Number of weeks (95% CI)		
	Lower (95%)	Median	Upper (95%)
1	8	15	26
5	6	12	26
10	4	10	26
30	3	8	26
40	2	7	26
50	2	7	26

If 10 cases/1,000,000
 If 80 GP centres collecting 3 samples a week:
 240 tests by week x 10 weeks x 25 € = 60,000€
If test on seasonal SARI samples:
 Up to 2500 testsx25 € : 62,500€

Incidence in China: 52/1,000,000
 Incidence in Hubei: 1060/1,000,000
 Incidence China – Hubei: 9/1,000,000

Influenza seasonal epidemic

Influenza Monitoring



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Proposition surveillance strategy:

- 1/ to continue sampling each ILI by sentinel GP until end of the epidemic in China
 - 2/ to continue sampling in SARI patients
 - 3/ to introduce SARS-CoV-2 in routine virological surveillance (multiplex) of SARI and ILI from next season
- Budget required

Diagnostic capacity and sentinel labs

Short request to laboratories in Belgium by Unit Quality of Laboratories

	Number	Answers	N° ready now	N° ready if outbreak in B
FR labs	73	18 (25%)	0	6
NL labs	83	40 (48%)	3	12

Proposed strategy :

Start with routine lab activity

- 1/ To maintain diagnostic capacity in NRC respi
- 2/ To develop diagnostic capacity in Belgium: Support from the NRC respi to peripheral labs in order to develop multiplex
- 3/ To introduce coronavirus in sentinel laboratory surveillance

Specific surveillance until endemic as other coronavirus in Belgium

Syndromic surveillance

Be-MOMO

UREG:

- 1/ retrospective data to develop the model**
- 2/ maintain the data collection from the emergency wards**
- 3/ quasi real time syndromic surveillance**

Contact

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