2e Kamer briefing

4 febr 2020

nCov Wuhan

Jaap Van Dissel

Cib-RIVM

2019-nCoV Wuhan

Rijksinstituut voor Volksgezondheid en Milieu
Ministerie van Volksgezondheid, Welzijn en Sport

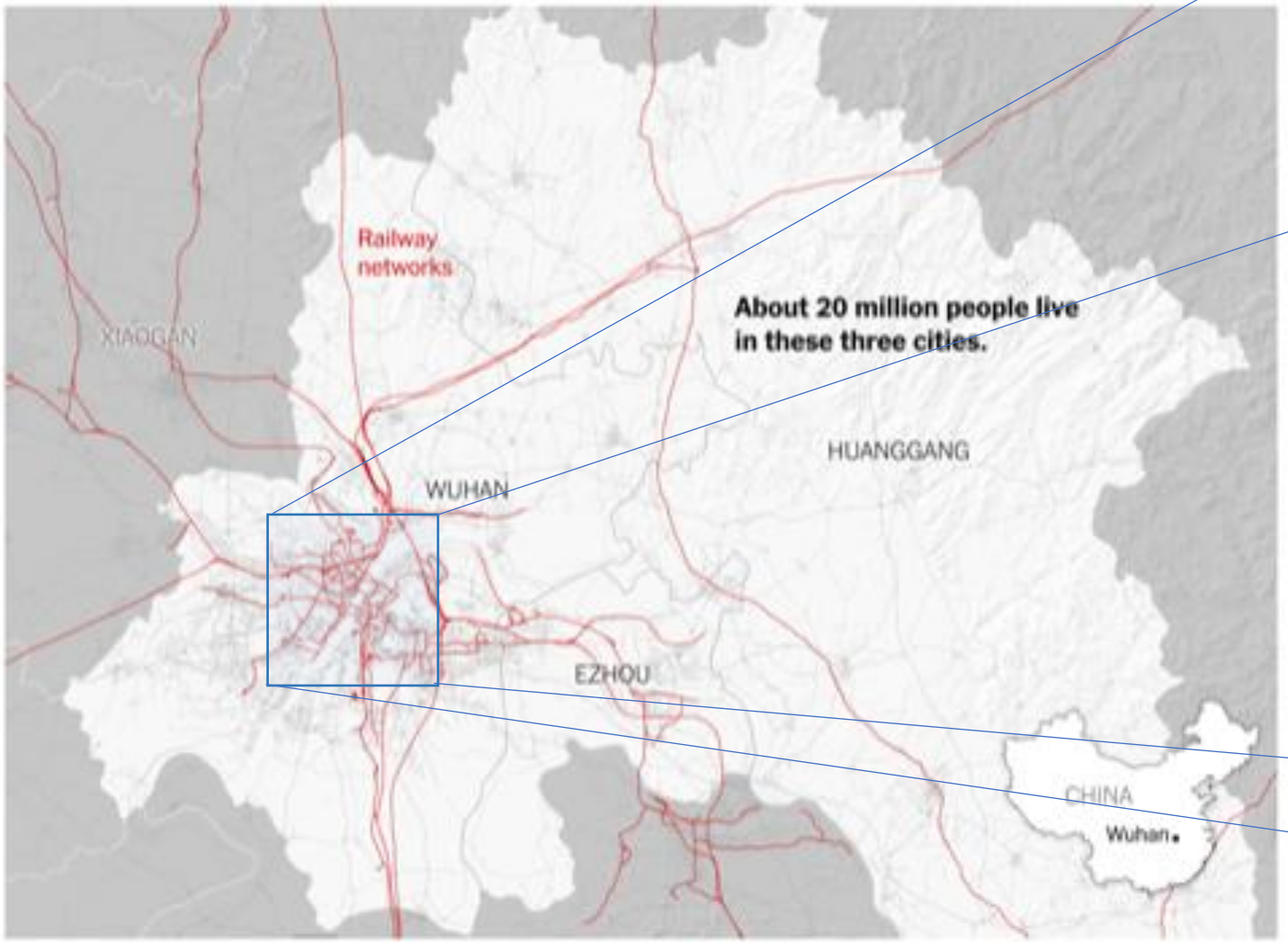
- cluster van longontsteking in Wuhan
- isolatie nieuw coronavirus
- verloop uitbraak in China en daarbuiten
- essentiele parameters uitbraak

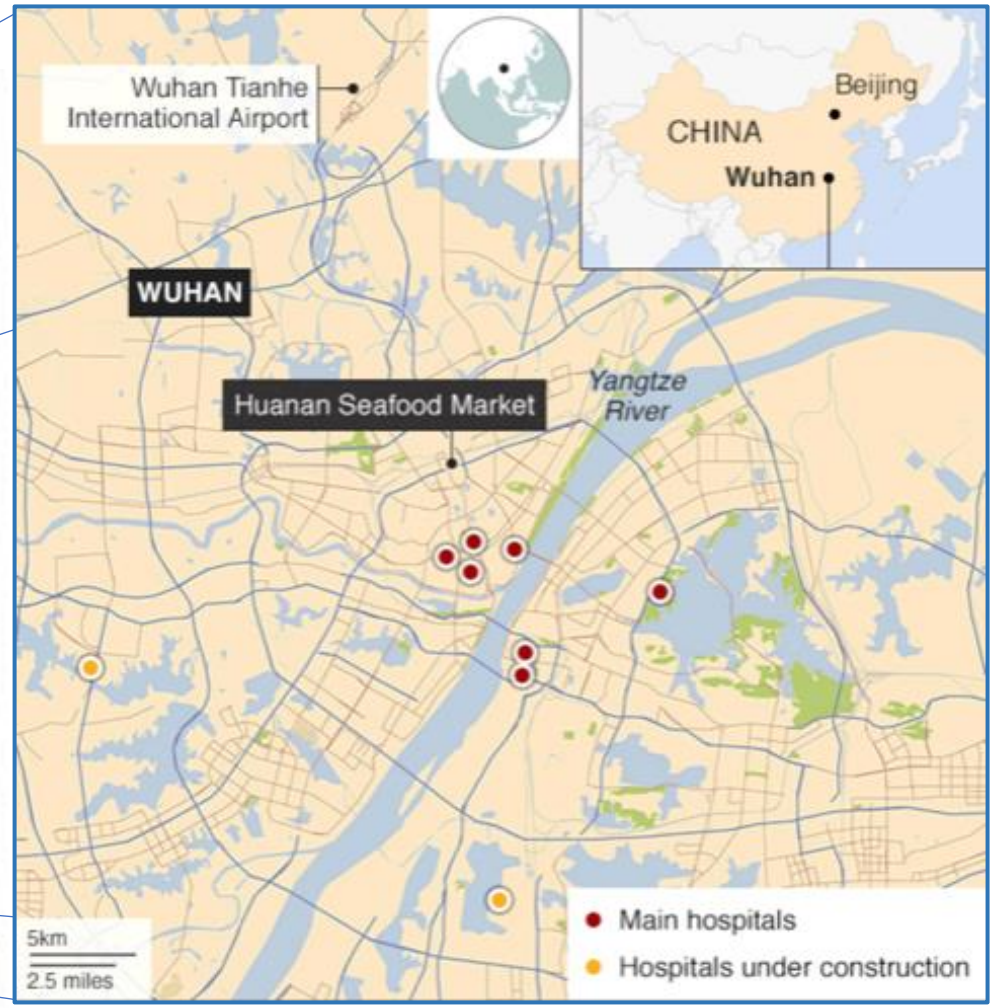
- vergelijking met SARS en MERS

- belang van casus definitie
- besmettelijkheid en overdracht

- organisatie publieke gezondheid
- organisatie crisis structuur
  - responseteam
  - outbreak management team
  - bestuurlijk afstemmingsoverleg
- meldingsplicht

nCoV – Wuhan december 2019/januari 2020
cluster van koorts, hoesten én longinfiltraat





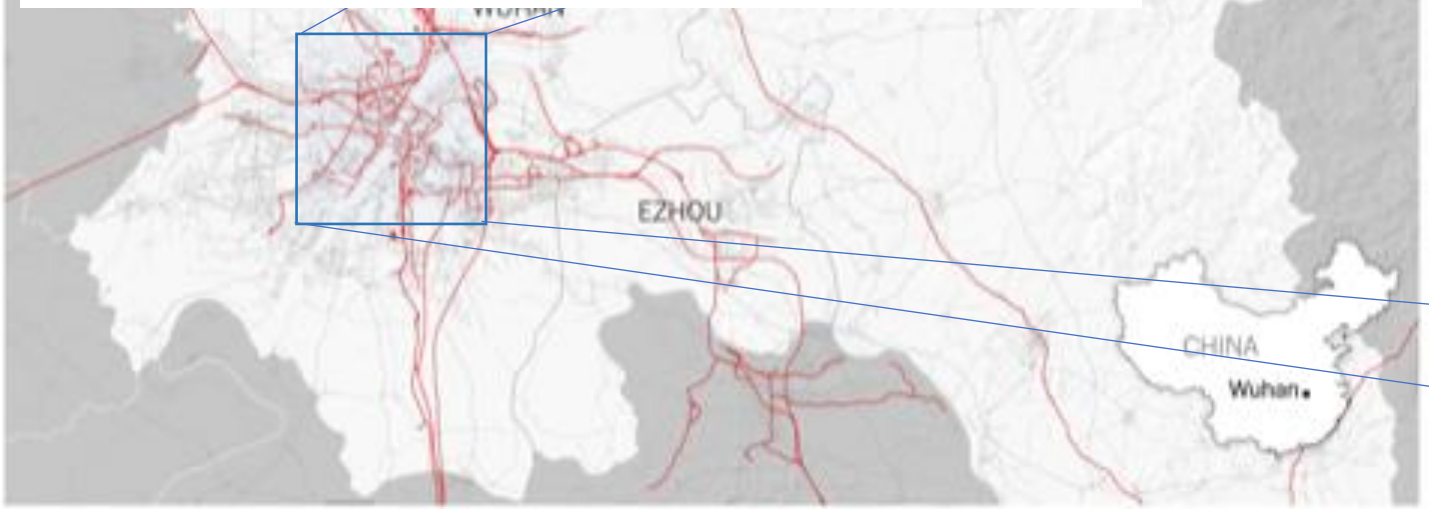
nCoV – Wuhan december 2019
cluster van koorts, hoesten én longinfiltraat

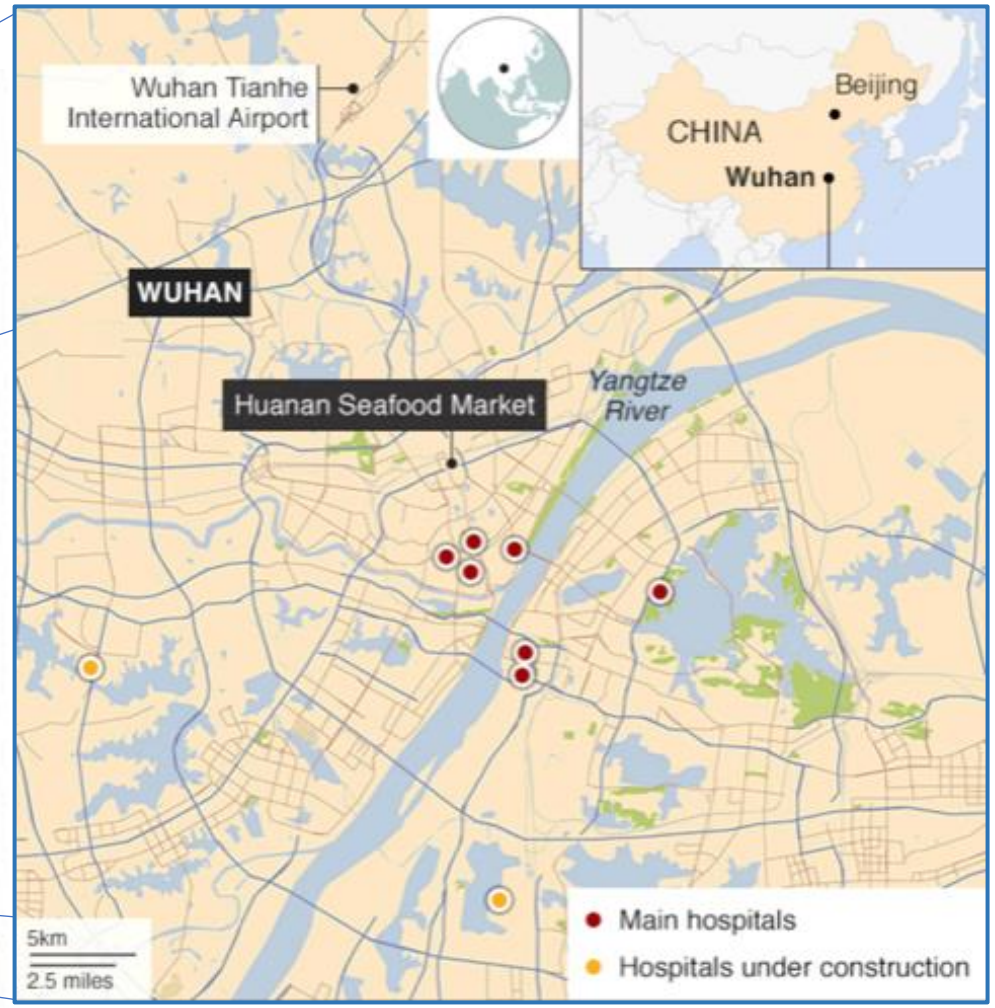
1

Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China

Chaolin Huang*, Yeming Wang*, Xingwang Li*, Lili Ren*, Jianping Zhao*, Yi Hu*, Li Zhang, Guohui Fan, Jiuyang Xu, Xiaoying Gu, Zhenshun Cheng, Ting Yu, Jiaan Xia, Yuan Wei, Wenjuan Wu, Xuelei Xie, Wen Yin, Hui Li, Min Liu, Yan Xiao, Hong Gao, Li Guo, Jungang Xie, Guangfa Wang, Rongmeng Jiang, Zhancheng Gao, Qi Jin, Jianwei Wang†, Bin Cao†

	All patients (n=41)	ICU care (n=13)	No ICU care (n=28)	p value
Duration from illness onset to first admission	7·0 (4·0–8·0)	7·0 (4·0–8·0)	7·0 (4·0–8·5)	0·87
Prognosis	..	..	..	0·014
Hospitalisation	7 (17%)	1 (8%)	6 (21%)	..
Discharge	28 (68%)	7 (54%)	21 (75%)	..
Death	6 (15%)	5 (38%)	1 (4%)	..





66% op Huanan seafood market geweest

www.thelancet.com Published online January 24, 2020 https://doi.org/10.1016/S0140-6736(20)30183-5

nCoV – Wuhan coronavirus
cluster van koorts, hoesten én longinfiltraat

ARDS – acute respiratory distress syndrome

eerste patient = index casus

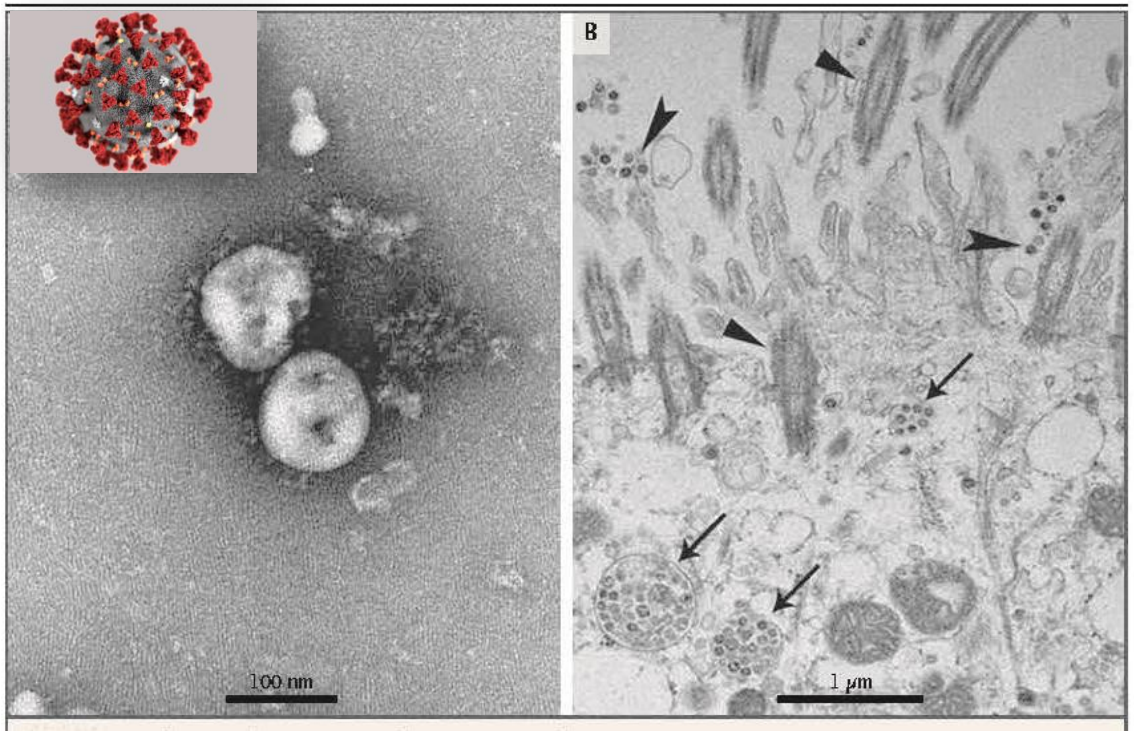
tweede patient

nCoV – Wuhan coronavirus
cluster van koorts, hoesten én longinfiltraat

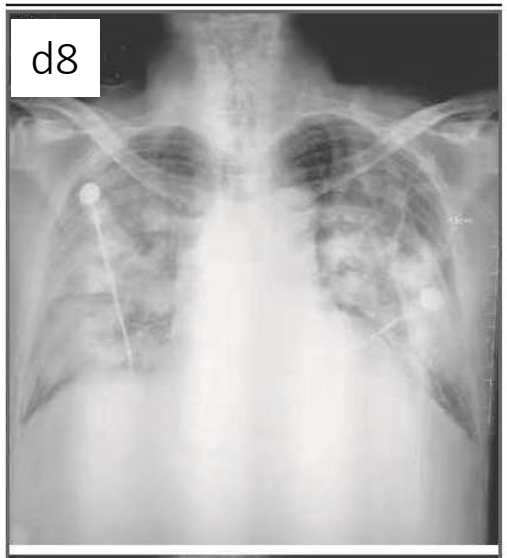
2

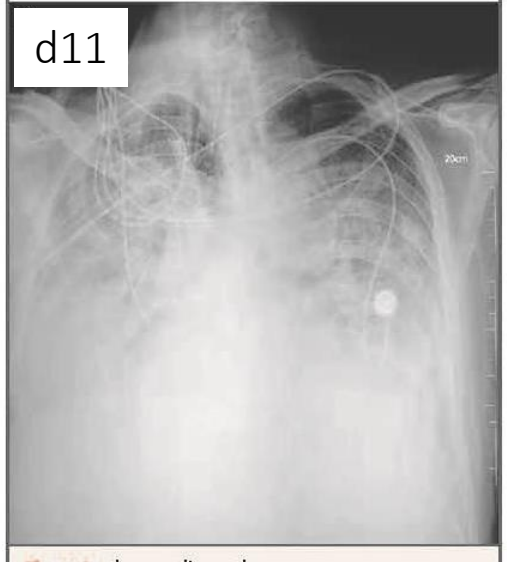
A Novel Coronavirus from Patients with Pneumonia in China, 2019

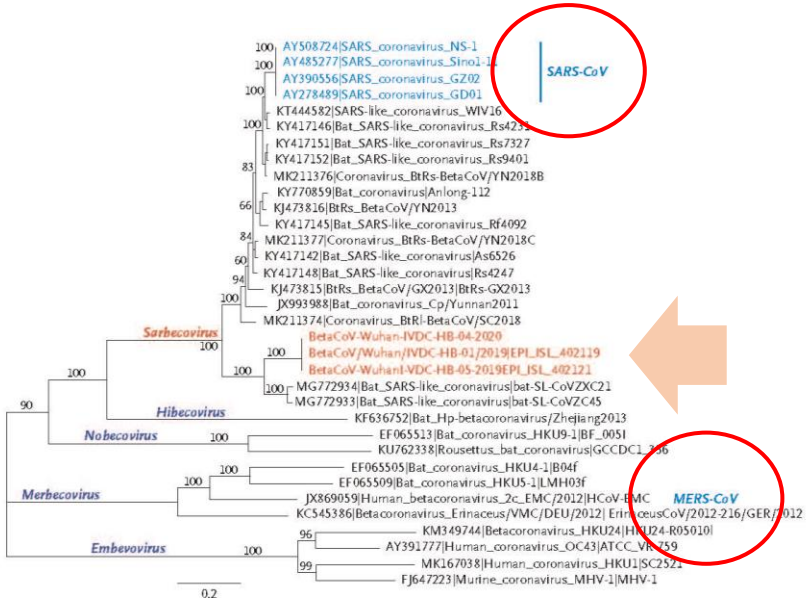
Na Zhu, Ph.D., Dingyu Zhang, M.D., Wenling Wang, Ph.D., Xingwang Li, M.D., Bo Yang, M.S., Jingdong Song, Ph.D., Xiang Zhao, Ph.D., Baoying Huang, Ph.D., Weifeng Shi, Ph.D., Roujian Lu, M.D., Peihua Niu, Ph.D., Faxian Zhan, Ph.D., Xuejun Ma, Ph.D., Dayan Wang, Ph.D., Wenbo Xu, M.D., Guizhen Wu, M.D., George F. Gao, D.Phil., and Wenjie Tan, M.D., Ph.D., for the China Novel Coronavirus Investigating and Research Team



nCoV in electronenmicroscopie







humane coronavirussen

verkoudheid: 229E, OC43,NL63, HKU1

SARS

MERS

nCoV Wuhan

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nCoV – Wuhan coronavirus
cluster van koorts, hoesten én longinfiltraat

3

Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study

Nanshan Chen*, Min Zhou*, Xuan Dong*, Jieming Qu*, Fengyun Gong, Yang Han, Yang Qiu, Jingli Wang, Ying Liu, Yuan Wei, Jia'an Xia, Ting Yu, Xinxin Zhang, Li Zhang

sequentie gebeurtenissen

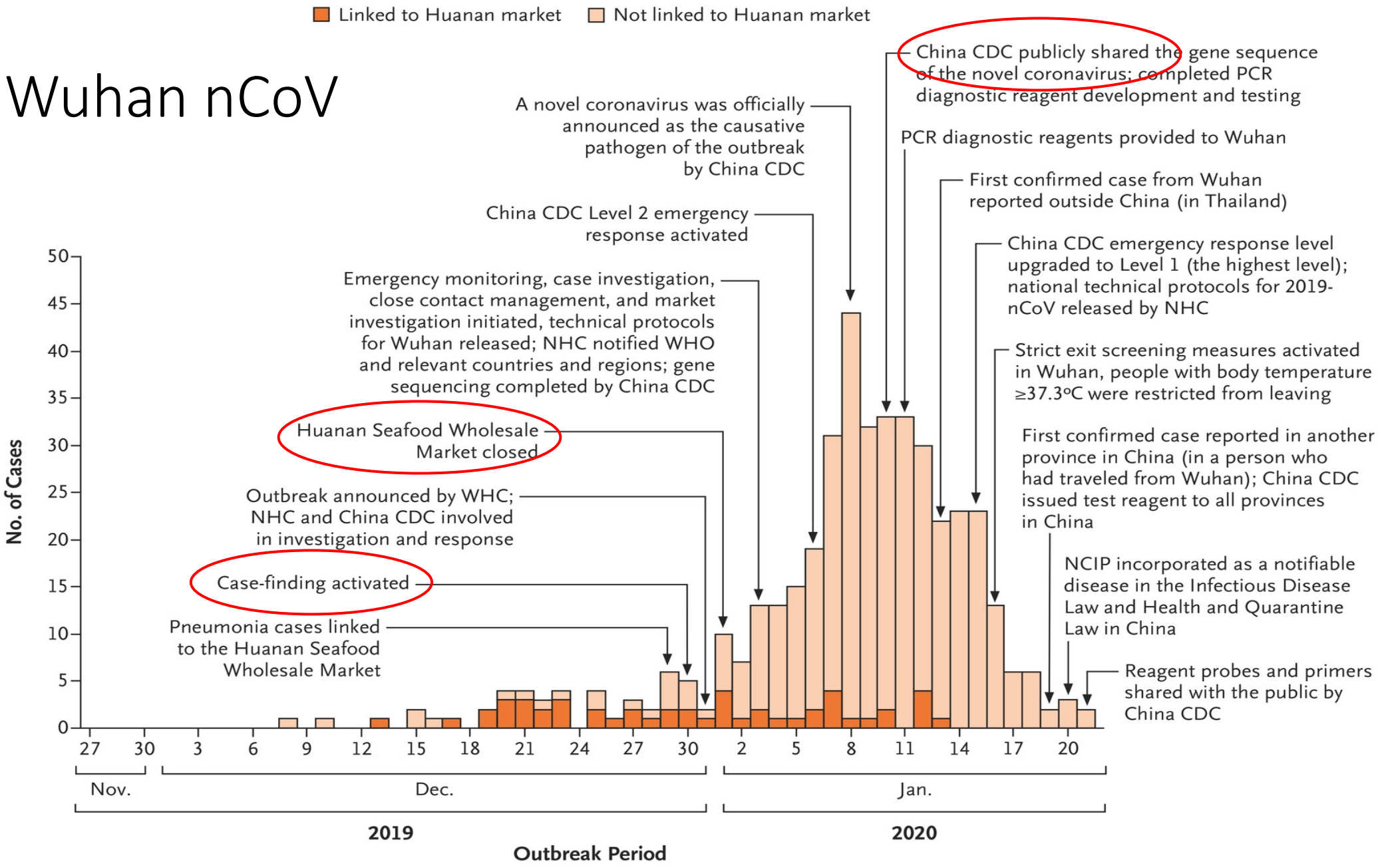
start uitbraak 8 december 2019
cluster opgemerkt 21 december 2019
nCoV geidentificeerd in bronchoalveolaire lavage
op 3 januari, en uit keel swab op 7 jan : **2019-nCoV**
nCoV-infected pneumonie – **NCIP**
rRT-PCR test
99 patienten – 11 overleden, 31 uit ziekenhuis

'most patients have mild symptoms … few developed severe pneumonia, ARDS and have died'

	Patients (n=99)
Signs and symptoms at admission	
Fever	82 (83%)
Cough	81 (82%)
Shortness of breath	31 (31%)
Muscle ache	11 (11%)
Confusion	9 (9%)
Headache	8 (8%)
Sore throat	5 (5%)
Rhinorrhoea	4 (4%)
Chest pain	2 (2%)
Diarrhoea	2 (2%)
Nausea and vomiting	1 (1%)
More than one sign or symptom	89 (90%)
Fever, cough, and shortness of breath	15 (15%)

www.thelancet.com Published online January 29, 2020 https://doi.org/10.1016/S0140-6736(20)30211-7

Wuhan nCoV

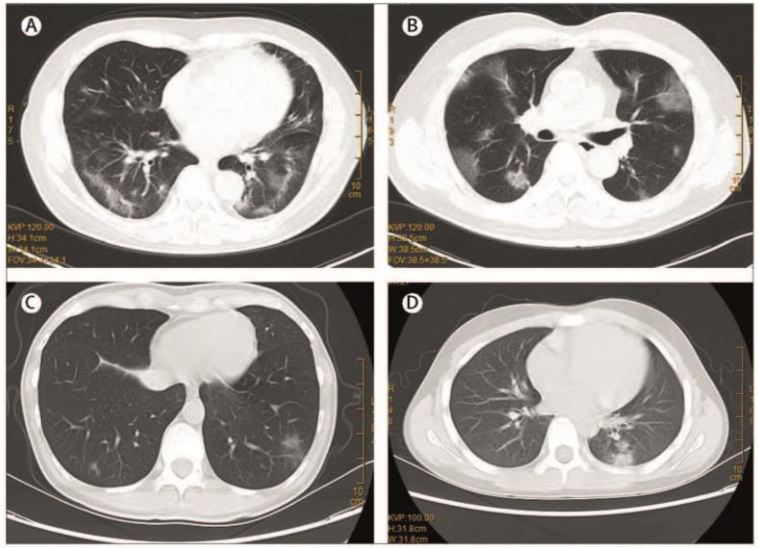

Linked to Huanan market
Not linked to Huanan market
China CDC publicly shared the gene sequence of the novel coronavirus; completed PCR diagnostic reagent development and testing
A novel coronavirus was officially announced as the causative pathogen of the outbreak by China CDC
PCR diagnostic reagents provided to Wuhan
First confirmed case from Wuhan reported outside China (in Thailand)
China CDC Level 2 emergency response activated
China CDC emergency response level upgraded to Level 1 (the highest level); national technical protocols for 2019-nCoV released by NHC
Emergency monitoring, case investigation, close contact management, and market investigation initiated, technical protocols for Wuhan released; NHC notified WHO and relevant countries and regions; gene sequencing completed by China CDC
Strict exit screening measures activated in Wuhan, people with body temperature ≥37.3°C were restricted from leaving
Huanan Seafood Wholesale Market closed
First confirmed case reported in another province in China (in a person who had traveled from Wuhan); China CDC issued test reagent to all provinces in China
Outbreak announced by WHC; NHC and China CDC involved in investigation and response
NCIP incorporated as a notifiable disease in the Infectious Disease Law and Health and Quarantine Law in China
Case-finding activated
Pneumonia cases linked to the Huanan Seafood Wholesale Market
Reagent probes and primers shared with the public by China CDC
No. of Cases
0
5
10
15
20
25
30
35
40
45
50
27
30
3
6
9
12
15
18
21
24
27
30
2
5
8
11
14
17
20
Nov.
Dec.
Jan.
2019
2020
Outbreak Period

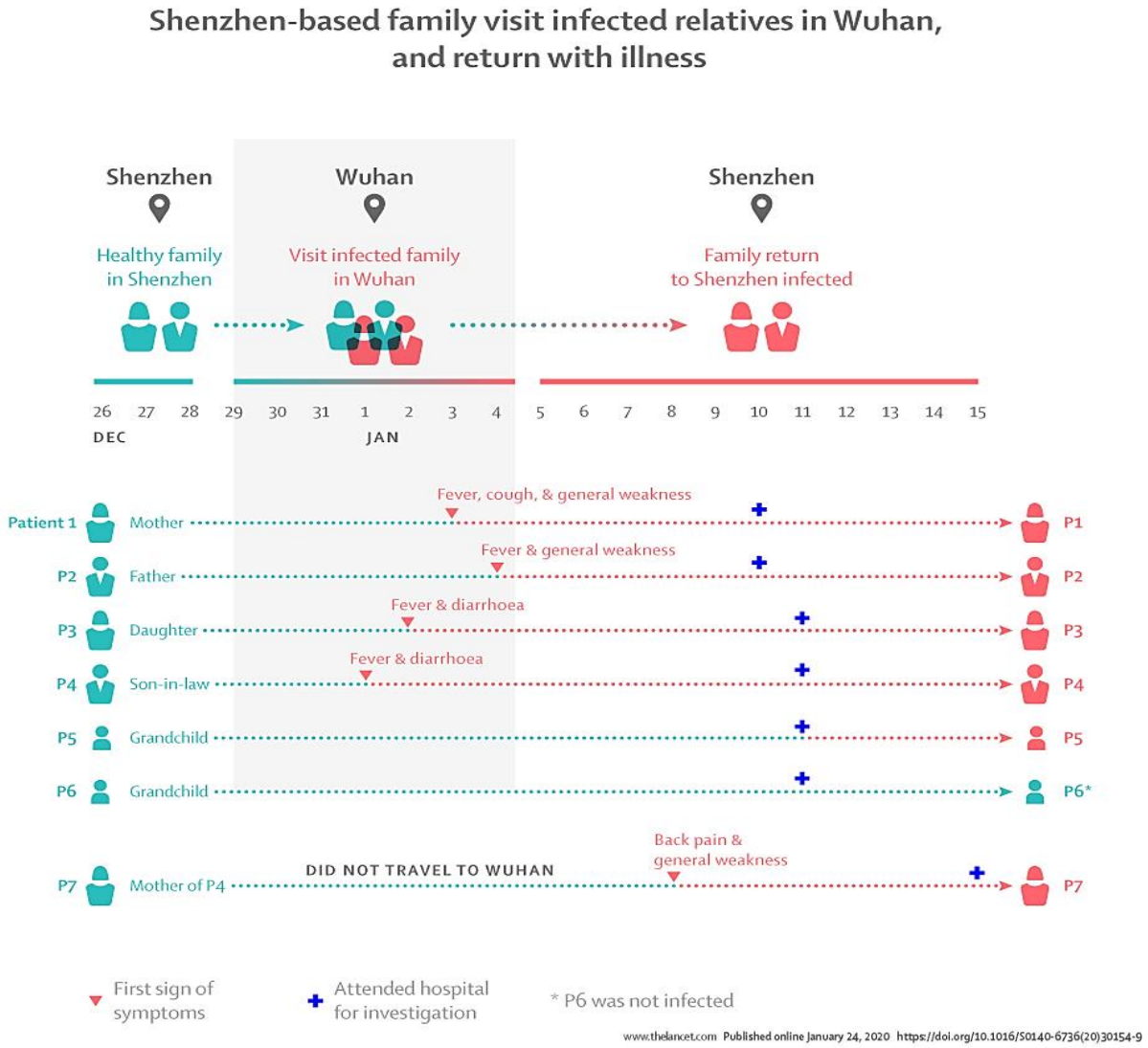
nCoV – Wuhan coronavirus
cluster van koorts, hoesten én longinfiltraat

4

A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster

Jasper Fuk-Woo Chan, Shuofeng Yuan*, Kin-Hang Kok*, Kelvin Kai-Wang To*, Hin Chu*, Jin Yang, Fanfan Xing, Jieling Liu, Cyril Chik-Yan Yip, Rosana Wing-Shan Poon, Hoi-Wah Tsoi, Simon Kam-Fai Lo, Kwok-Hung Chan, Vincent Kwok-Man Poon, Wan-Mui Chan, Jonathan Daniel Ip, Jian-Piao Cai, Vincent Chi-Chung Cheng, Honglin Chen, Christopher Kim-Ming Hui, Kwok-Yung Yuen*





www.thelancet.com Published online January 24, 2020 https://doi.org/10.1016/S0140-6736(20)30154-9

persoon-op-persoon overdracht bewezen
één persoon longinfiltraat maar geen klachten (P5)
soms diarree
virale load longen hoger dan in keel (ACE-2 receptor)

nCoV – Wuhan coronavirus
cluster van koorts, hoesten én longinfiltraat

5

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CORRESPONDENCE

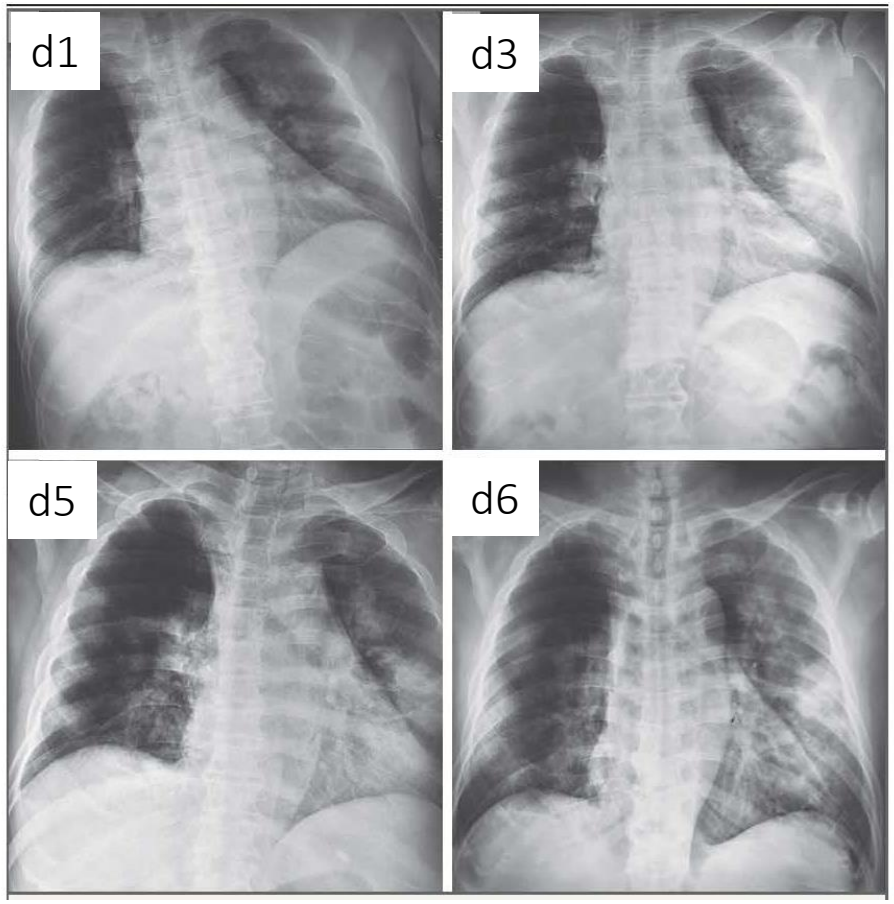
Importation and Human-to-Human Transmission of a Novel Coronavirus in Vietnam

familiecluster nCoV infecties

man en vrouw uit Ho Chi Minh City naar Wuhan en terug

man wordt ziek (longinfiltraat, nCoV bevestigd)
vrouw blijft gezond
zoon 3 dagen op bezoek, zelfde slaapkamer, ook ziek

28 hoog risico contacten worden niet ziek



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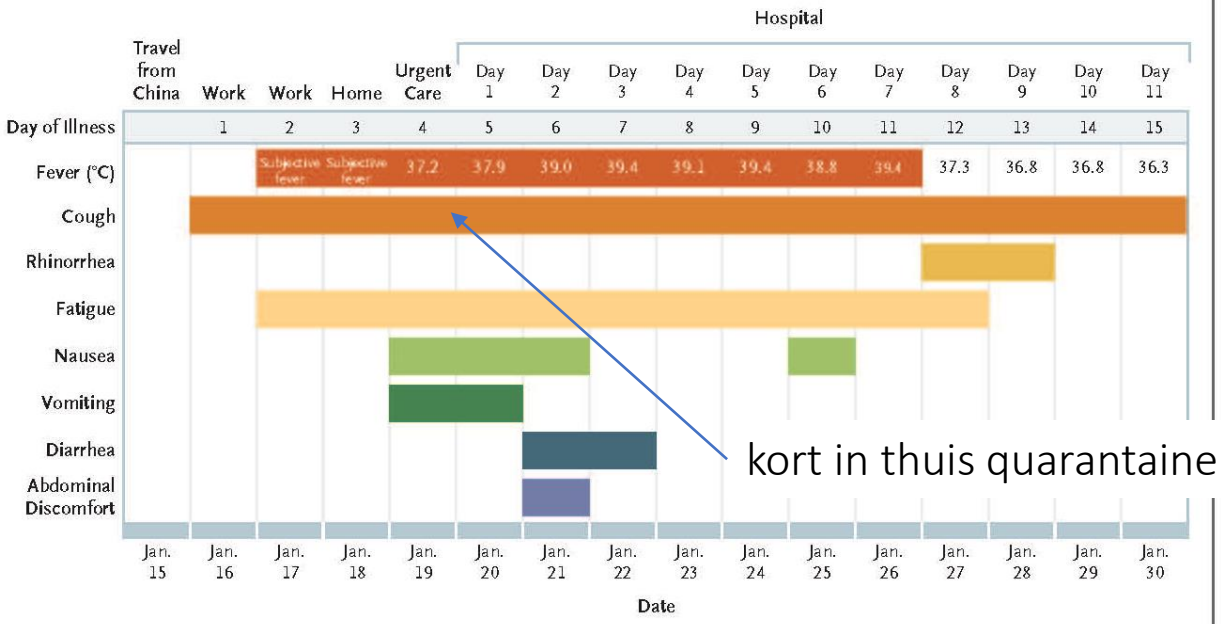
nCoV – Wuhan coronavirus
cluster van koorts, hoesten én longinfiltraat

6

First Case of 2019 Novel Coronavirus in the United States

Michelle L. Holshue, M.P.H., Chas DeBolt, M.P.H., Scott Lindquist, M.D., Kathy H. Lofy, M.D., John Wiesman, Dr.P.H., Hollianne Bruce, M.P.H., Christopher Spitters, M.D., Keith Ericson, P.A.-C., Sara Wilkerson, M.N., Ahmet Tural, M.D., George Diaz, M.D., Amanda Cohn, M.D., LeAnne Fox, M.D., Anita Patel, Pharm.D., Susan I. Gerber, M.D., Lindsay Kim, M.D., Suxiang Tong, Ph.D., Xiaoyan Lu, M.S., Steve Lindstrom, Ph.D., Mark A. Pallansch, Ph.D., William C. Weldon, Ph.D., Holly M. Biggs, M.D., Timothy M. Uyeki, M.D., and Satish K. Pillai, M.D., for the Washington State 2019-nCoV Case Investigation Team*



kort in thuis quarantaine

Symptoms and Maximum Body Temperatures According to Day of Illness and Day of Hospitalization, January 16 to January 30, 2020.

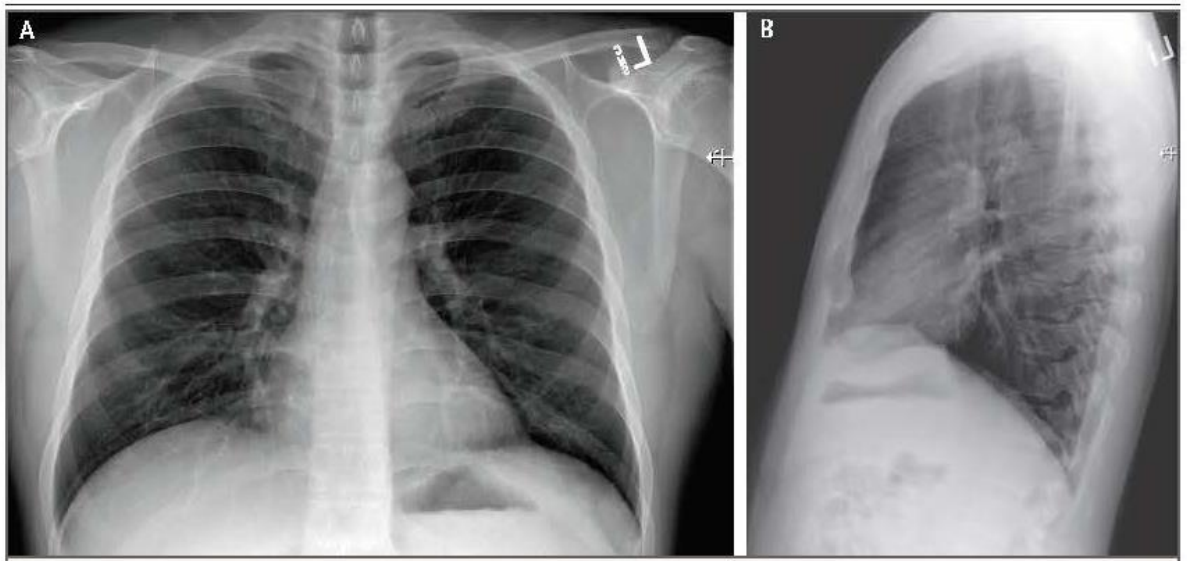


Table 2. Results of Real-Time Reverse-Transcriptase–Polymerase-Chain-Reaction Testing for the 2019 Novel Coronavirus (2019-nCoV).*

Specimen	Illness Day 4	Illness Day 7	Illness Day 11	Illness Day 12
Nasopharyngeal swab	Positive (Ct, 18–20)	Positive (Ct, 23–24)	Positive (Ct, 33–34)	Positive (Ct, 37–40)
Oropharyngeal swab	Positive (Ct, 21–22)	Positive (Ct, 32–33)	Positive (Ct, 36–40)	Negative
Serum	Negative	Negative	Pending	Pending
Urine	NT	Negative	NT	NT
Stool	NT	Positive (Ct, 36–38)	NT	NT

* Lower cycle threshold (Ct) values indicate higher viral loads. NT denotes not tested.

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nCoV – Wuhan coronavirus
cluster van koorts, hoesten én ….?

7

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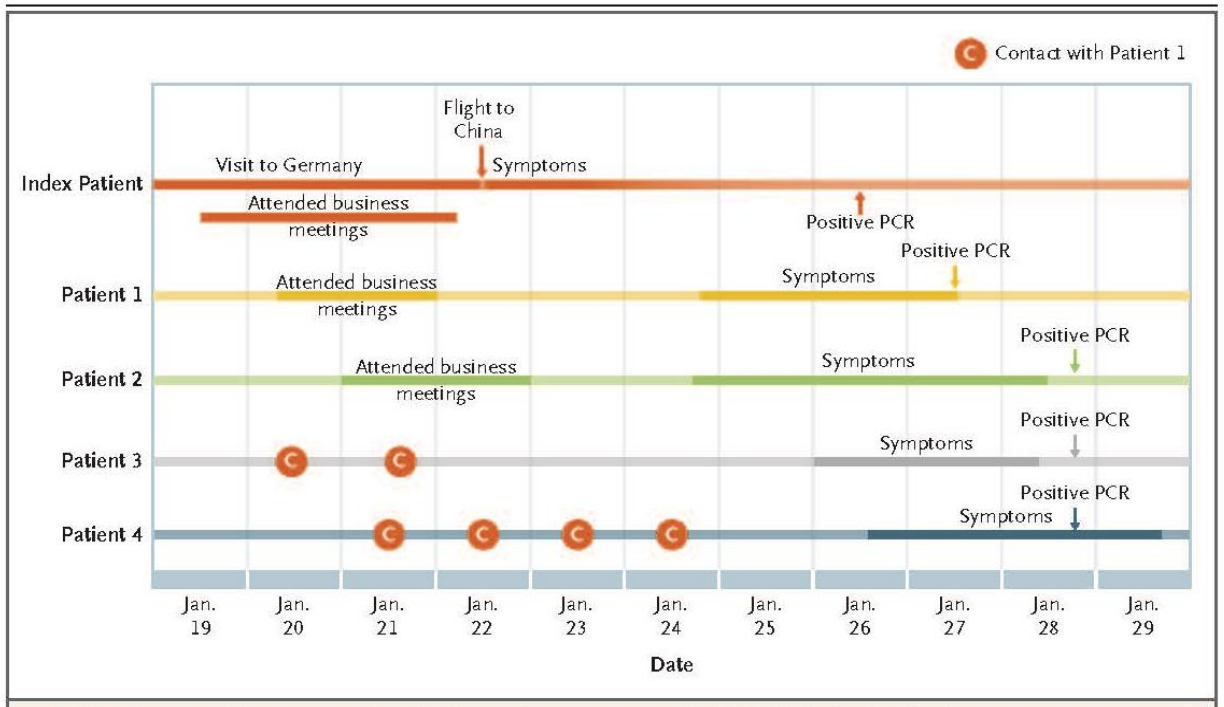
CORRESPONDENCE

Transmission of 2019-nCoV Infection from an Asymptomatic Contact in Germany



Timeline of Exposure to Index Patient with Asymptomatic 2019-CoV Infection in Germany.

werkelijk transmissie van asymptomatisch contact?
hoe betrouwbaar is een anamnese?

patienten zijn weinig ziek
geen longinfiltraat

A Chinese embassy in Paris tracked down a woman who gloated on social media about cheating airport detection with a medicine that lowered her fever – the BBC reported

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nCoV – Wuhan coronavirus
cluster van koorts, hoesten én ….?

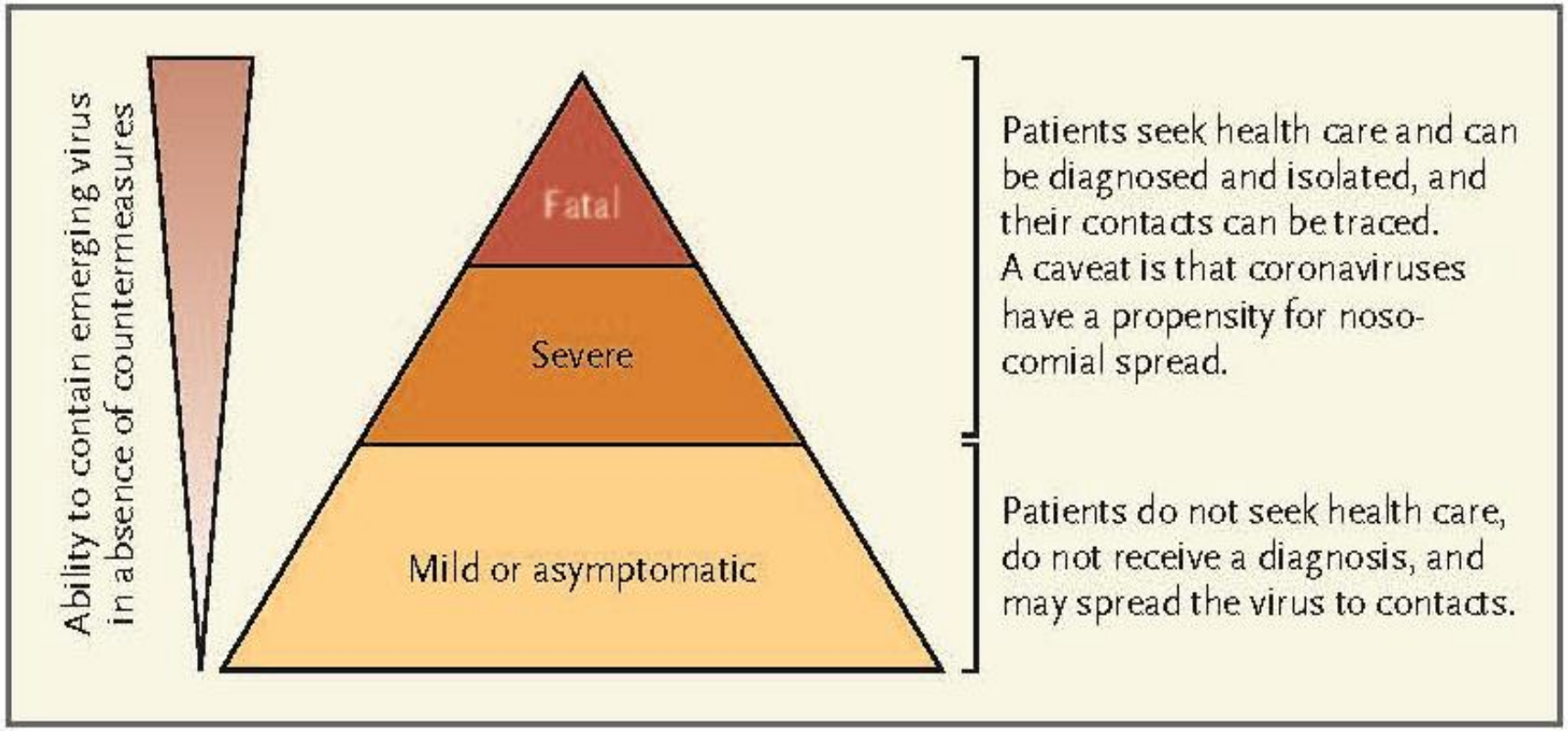

Figure Surveillance Pyramid and Its Relation to Outbreak Containment.

The proportion of mild and asymptomatic cases versus severe and fatal cases is currently unknown for 2019-nCoV — a knowledge gap that hampers realistic assessment of the virus's epidemic potential and complicates the outbreak response.

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Besmettelijkheid en overdracht

Het basis reproductief nummer R_0, het gemiddeld aantal individuen dat direct geïnfecteerd wordt door een ander individu gedurende zijn infectieuze periode

waarschijnlijkheid van overdracht per contact

$$R_0 = p \bullet c \bullet d$$

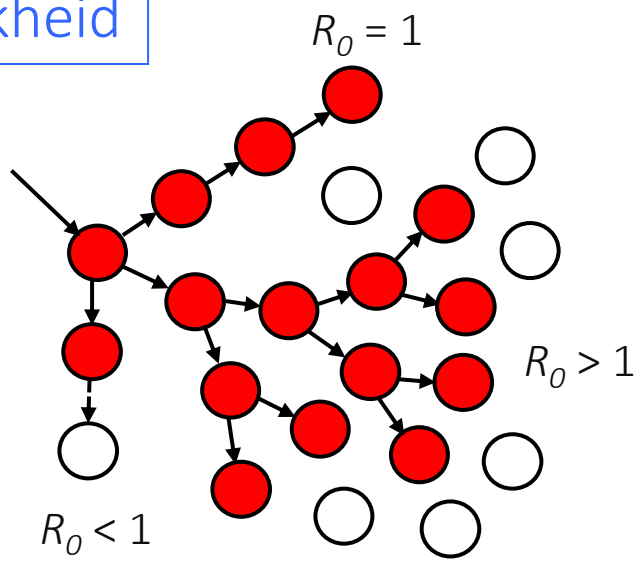
duur van besmettelijkheid

contacten per eenheid tijd

De infectie zal verdwijnen, als $R_0 < 1$

endemisch (stabiel), als $R_0 = 1$

epidemisch (uitbraak), als $R_0 > 1$



Besmettelijkheid en overdracht

Het basis reproductief nummer R_0, het gemiddeld aantal individuen dat direct geïnfecteerd wordt door een ander individu gedurende zijn infectieuze periode

bron wegnemen
opsporing
hygiene
handschoenen
sociale afstand
profylaxe
vaccinatie

waarschijnlijkheid van overdracht per contact

$$R_0 = p \bullet c \bullet d$$

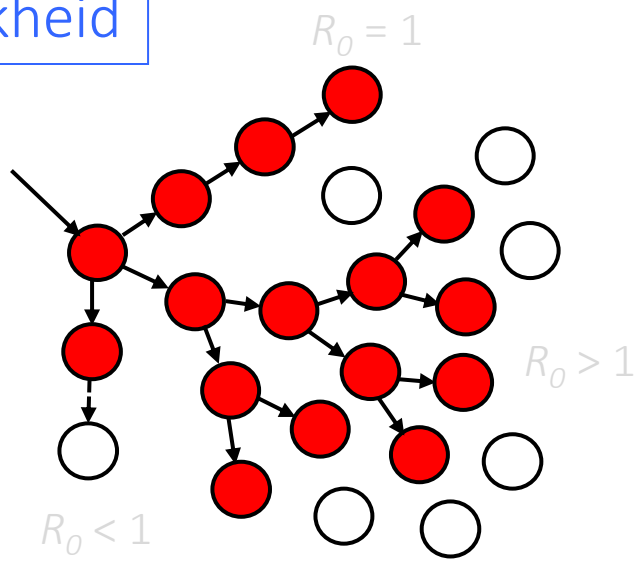
duur van besmettelijkheid

contacten per eenheid tijd

herkenning!!
toegang tot zorg
isolatie
behandeling
compliance

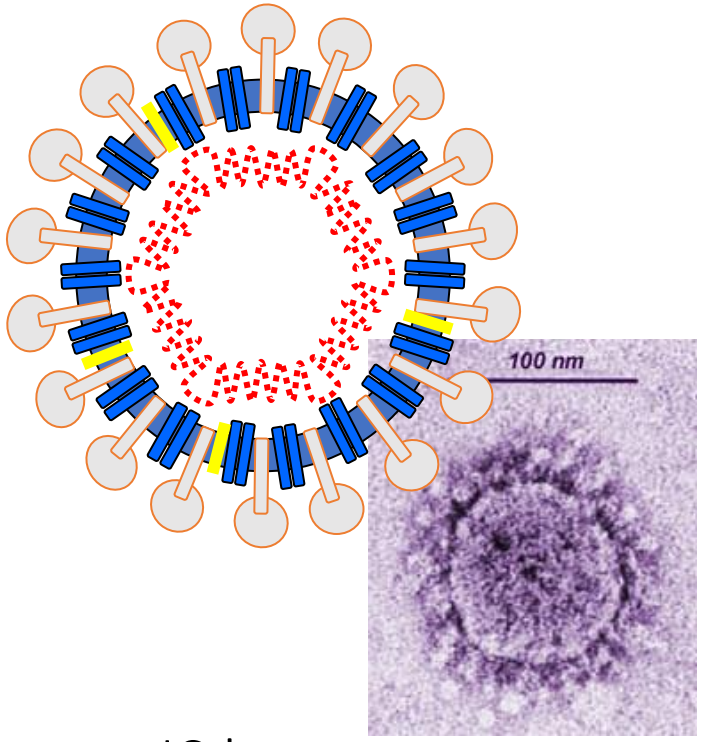
De infectie zal verdwijnen, als $R_0 < 1$
endemisch (stabiel), als $R_0 = 1$
epidemisch (uitbraak), als $R_0 > 1$

sociale afstand
isolatie cq. quarantaine
voorlichting
beroepsverbod



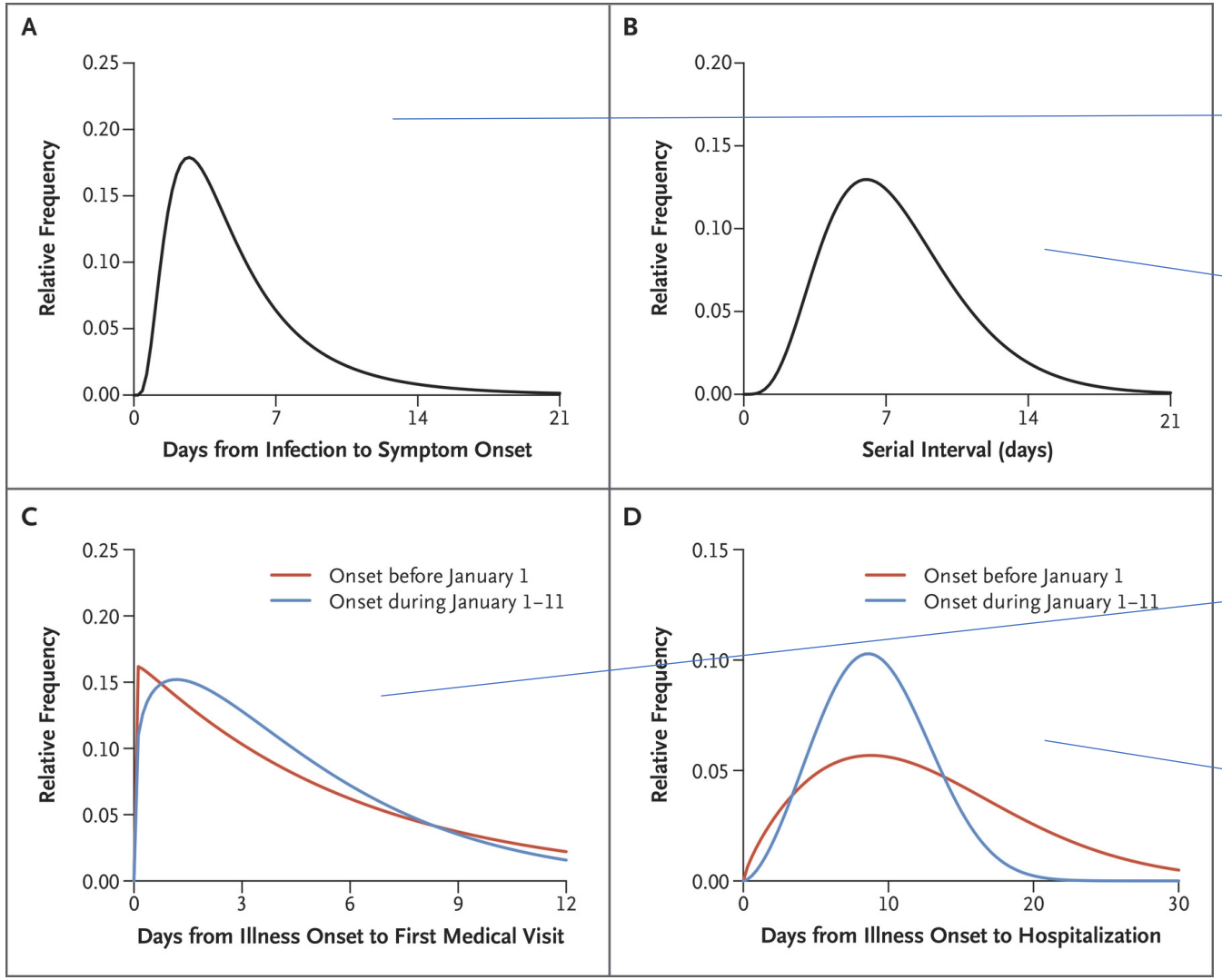
nCoV Wuhan en NCVP | overzicht

- Wat is het:
  - Novel Coronavirus-Infected Pneumonia (NCIP)
- De symptomen:
  - incubatietijd: 5.8 dagen (range 2-12 dagen)
  - hoesten en griepachtig ziektebeeld | lagere luchtwegen
  - shocklong ('ARDS') in 5-20% opgenomen patienten
- De oorzaak:
  - nieuw Coronavirus (2019-nCoV)
- Hoe verspreidt het virus:
  - druppel en contact (?fecaliën); aërosol-genererende procedures op IC !
  - onzekerheid over verspreiding vanuit asymptomatische contacten
  - R_0 ~2.68; verdubbelingstijd ~6.4 dagen
- Preventie en behandeling:
  - hygiënische maatregelen gericht tegen druppel- en contactinfectie
  - handalcohol | ziekenhuis: onderdruk isolatie kamer, oogbescherming



Backer et al, Eurosurveillance 2020

nCoV – Wuhan coronavirus
cluster van koorts, hoesten én longinfiltraat



blootstelling tot klacht: 4-6 dg

verdubbelingstijd: 6-7 dg

klacht tot ziekenhuis: 3-6 dg

klacht tot opname: 9-11 dg

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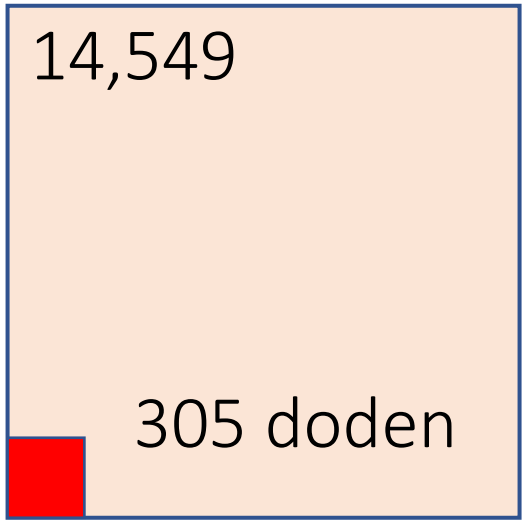
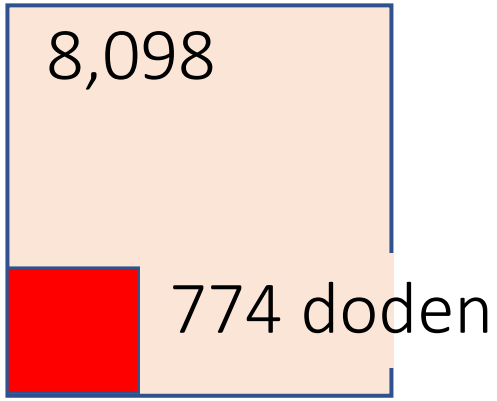
nCoV – Wuhan coronavirus versus SARS
zieken en sterftepercentage

Wuhan coronavirus
2019-2020



sterfte 2.1%
opname ziekenhuis ?

SARS
2002-2003



sterfte 9.6%
opname ziekenhuis 100%

nCoV – Wuhan coronavirus

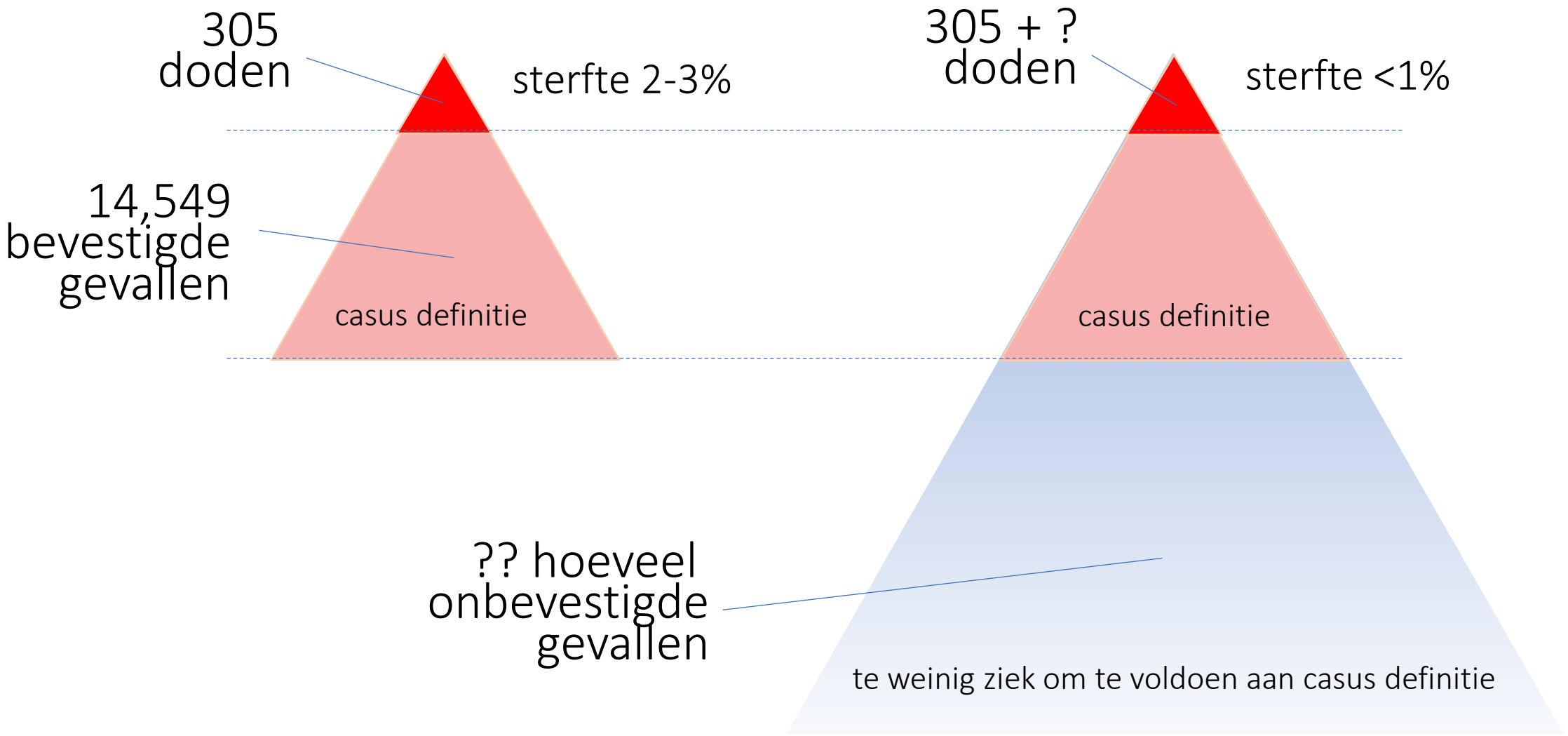
eerste patient: koorts, hoesten én longinfiltraat

casus definitie opsporing *nieuwe* gevallen

eerste patient = index casus

tweede patient

nCoV – casus definitie en ziektepyramide
effect op sterftepercentage



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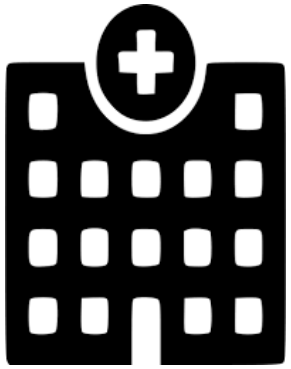
Welzijn en Sport



longontsteking in Nederland	seizoensgriep in Nederland 2017/2018	Corona-uitbraak in China 2020	Ebola-uitbraak in West-Afrika 2013-16
meerdere oorzaken	influenzavirus	nieuw coronavirus	ebolavirus
	900.000 zieken in 18 weken	?? zieken in ~8 weken	28.646 zieken in
opnames ~35.000 per jaar	16.000 ziekenhuisopnames	? 12.000 ziekenhuisopnames	? ziekenhuisopnames
sterfte ~3225 per jaar 8-9% †	sterfte 9.500 1% †	sterfte 259 2-3% †	sterfte 11.323 2-3% †

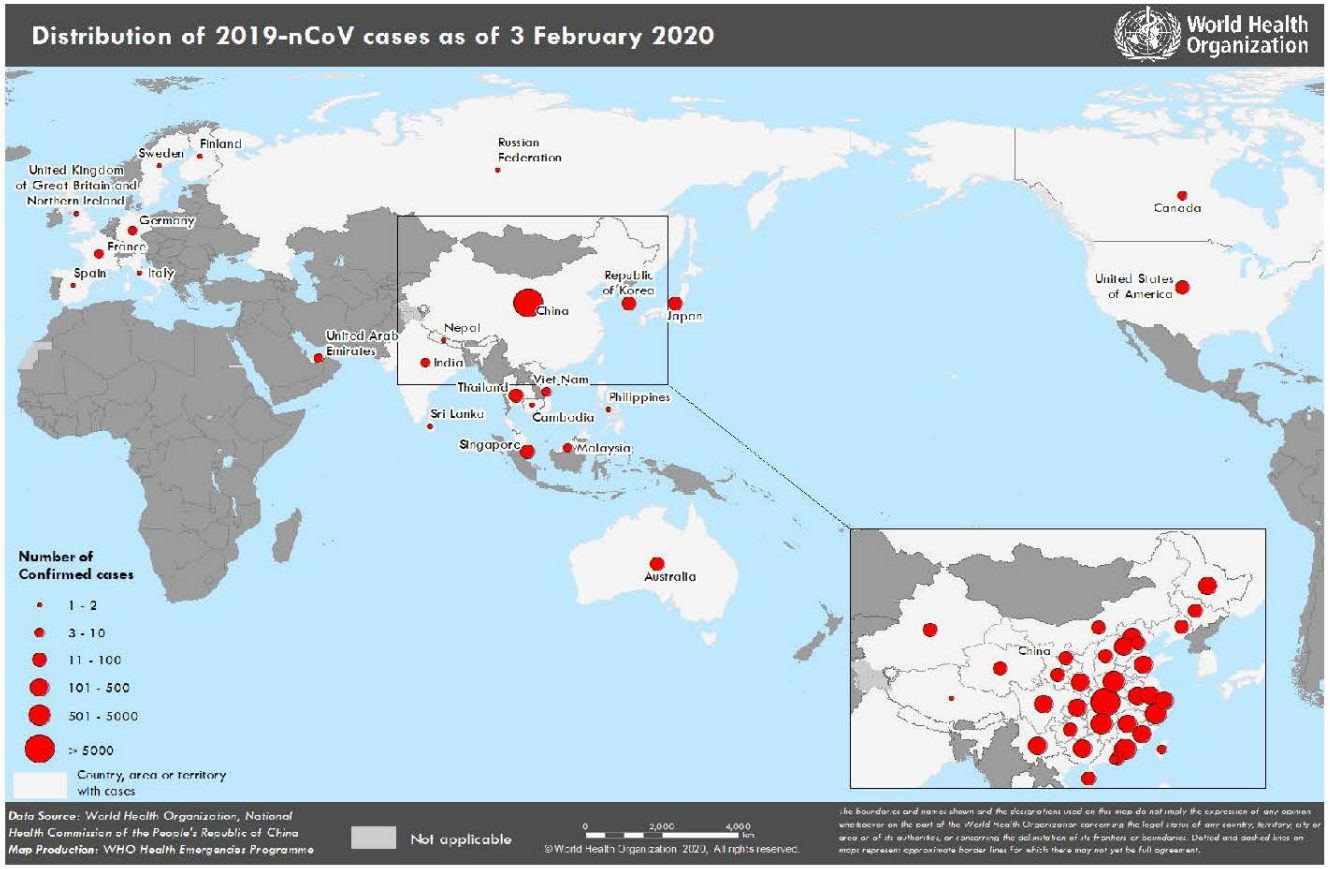
nCoV – Wuhan coronavirus internationaal

Novel Coronavirus(2019-nCoV)
Situation Report - 14

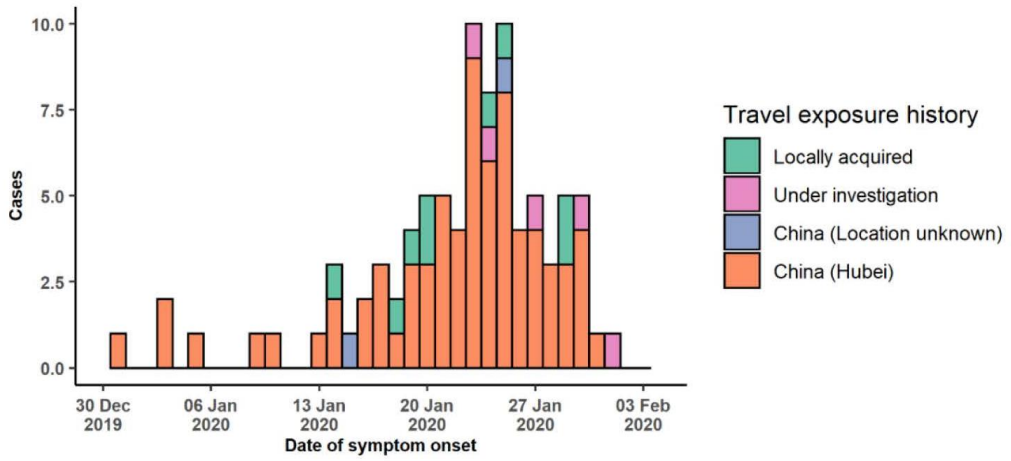
World Health Organization

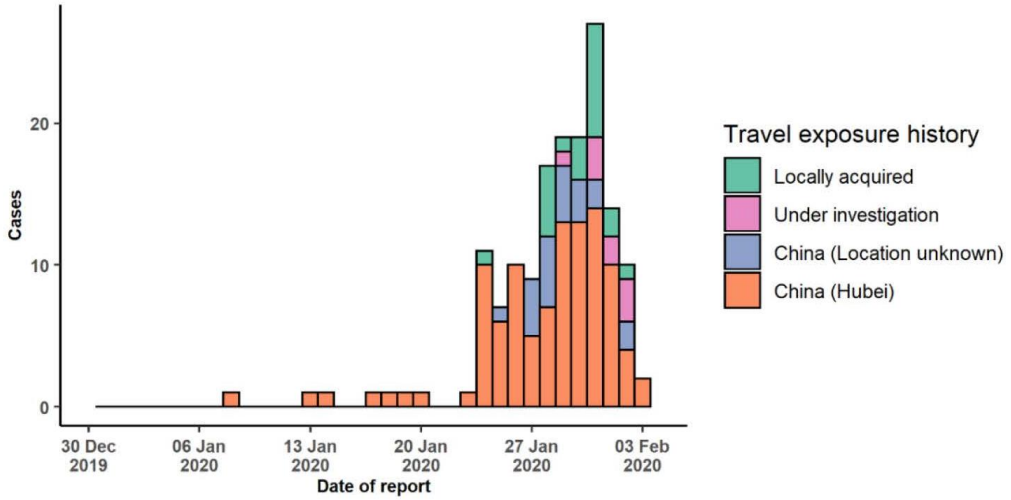
Data as reported by 3 February 2020*

Countries, territories or areas with reported confirmed cases of 2019-nCoV, 3 February 2020



Epidemic curve of 2019-nCoV cases (n=88) identified outside of China, by date of onset of symptoms and travel history, 3 February 2020



geen aanwijzing van gemakkelijke verspreiding?

Epidemic curve of 2019-nCoV cases (n=153) identified outside of China, by date of reporting and travel history, 3 February 2020