



How China makes the decision and changes during the different stages of epidemics

Weibing Wang, Ph.D.

Professor, Department of Epidemiology School of Public Health Fudan University, Shanghai Medical School



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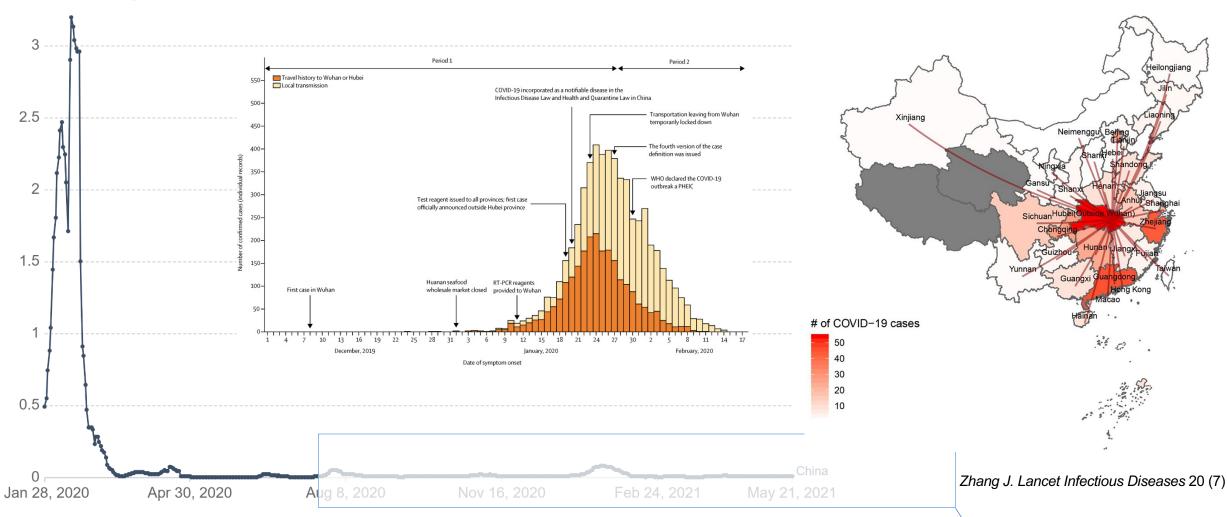
Spread of COVID-19 in the first wave

Wuhan- the epi-center of the 1st wave

Daily new confirmed COVID-19 cases per million people



Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.



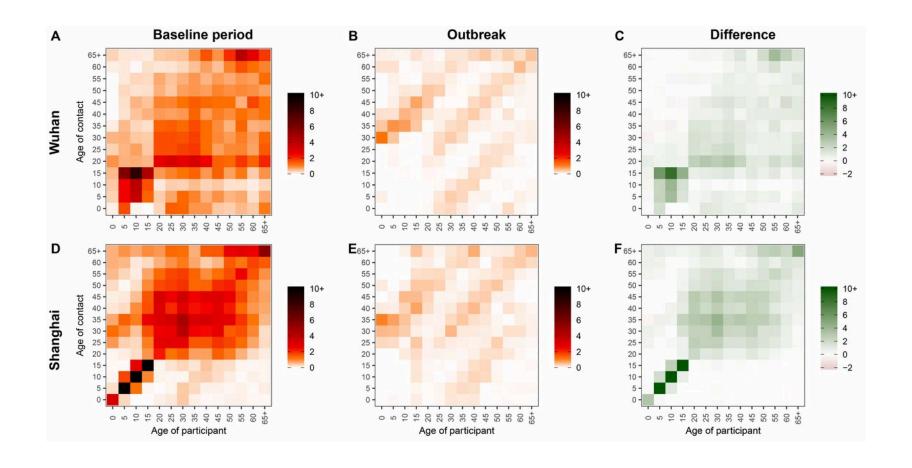
Defense to control the Wuhan and Hubei epidemic

- Preventing local transmission and export of cases.
- Wuhan in lock-down.
- Take in and treat every confirmed patient, test every suspected case, and isolate every close contact
- 19 provinces to support the cites in Hubei.





Contact matrices by age



Juanjuan Zhang et al. Science 2020; science. abb8001

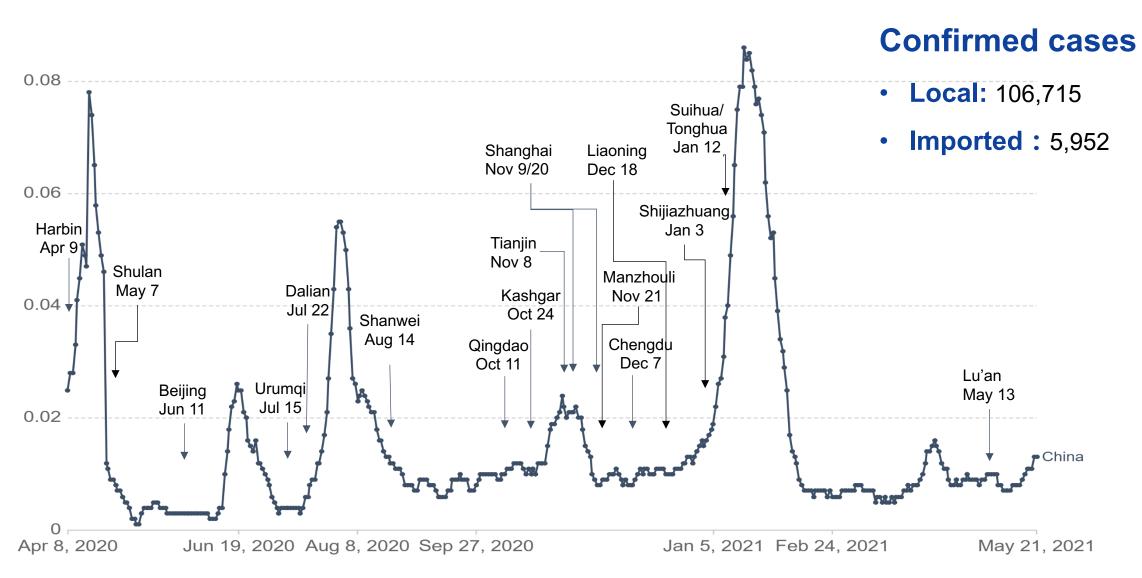




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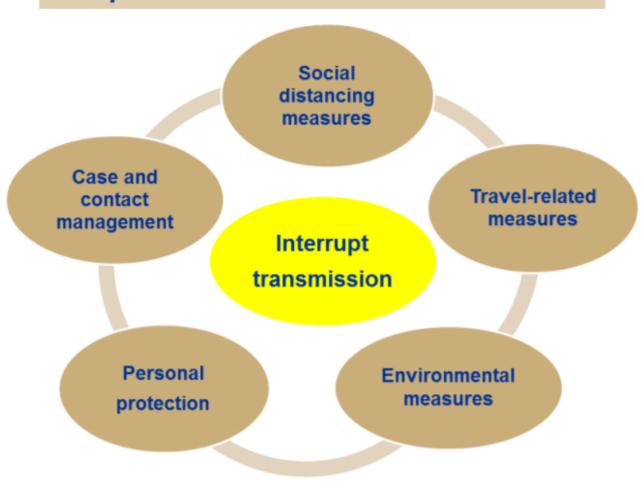
Under control, small scale outbreak

Small-scale outbreak location and time



Routine measure: NPIs + 4 Es system

Non-pharmaceutical intervention measures



4-Earlys Measure



- 6 revisions of the prevention and control protocols
- 15 technical documents released
- Hospitals report cases online within 2 hours
- · Labs report the results within 12 hours
- CDCs complete epidemiological investigations and follow up close contacts within 24 hours

Diagnosis and Treatment Protocol for Novel Coronavirus Pneumonia (Tital Vussion 7)	新型冠状病毒肺炎诊疗方案 (以疗事七点)	Plan de diagnostic et de truitement de l'épôdémie de nouveau Coronavirus (COVID-19) (VII' version d'essai)	Protocolo de diagnóstico e tratamento para pneumonia por novo coronaviras (7º edição de Implementação de Estudo)
(Released by National Health Commission & State Administration of Traditional Chinese Medicine on Murch 3, 2020)	2019年12月以来,湖北省武汉市出现了新型冠状病毒肺		
	疫情,閒者疫情的蔓延,我国其他地区及境外多个国家也相继		Desde Dezembro de 2019, vêm se descobrindo vários pacientes com puemennia por
	发现了此类病例。该病作为急性呼吸进传染病已纳入《中华人		novo cerenzviros na cidade de Wuhan, provincia de Hubei, China, na medida em que
rother parts of China and other countries. As an acute respiratory infectious disea	民共和国传染病防治法》规定的乙类传染病。按甲类传染病官	été découverts en Chine et dans de nombreux autres pays. En tant que	se espilhe a epidemia, outros casos deste tipo foram encontrados nas outras regiões e
	理。通过采取一系列预防控制和医疗救治措施。我国境内疫情	manate insentane respiratore ague, se Coronivara (COVID-19) a	no exterior do nosso país. Como uma doença infecciosa respiratéria aguda, a deença foi classificada como uma das doenças infeciosas de Classe B, estipuladas na Lei da
us discuse of Class A. By taking a series of perventive control and medi-	上升的势头得到一定程度的遏制,大多数省份疫情缓解,但多	étéplacé dans la liste des maladies infectieuses de classe B stipuléespar la	r la República Popular da China sobre Prevenção e Controle de Doenças Infeccios
at measures, the rise of the epidemic situation in Chini has been contained a extent, and the oxidemic situation has cosed in most recyclecy, but the inciden-	外的发病人数型上升态势。随着对疾病临床表现、病理认识创	Loi de la République populaire de Chine sur la prévention et le traitement	sendo aberdada censo doesça infecciosa de Classe A.

Case finding and contact tracing

Case finding:

- Sentinel hospitals: fever clinic as a monitoring sentinel
- Regular PCR testing for key population (e.g. medical workers)
- City-wide/community-wide PCR testing when there are community transmitted cases

Case management strategy:

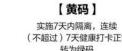
- Confirmed cases classified to 4 categories mild, moderate, severe, extremely severe
- Confirmed patients admitted to isolation wards in designated hospitals
- Establish cabin hospitals in the outbreak area to treat mild patients

Contact tracing:

- QR code & Big data & epidemiological investigation
- CCTV and credit card info.









【 **红码** 】 施14天隔离,连续14天 建康打卡正常转为绿码

North China outbreak: massive nucleic acid testing

Harbin, Heilongjiang - Apr 9 – 83 confirmed cases

Cluster epidemic caused by hospitals and gatherings. An 87-year-old super spreader infected his relatives, friends, doctors, nurses and attendants.

Nucleic acid testing - Relevant personnel Strengthen hospital process management, and nucleic acid testing is required before hospitalization.

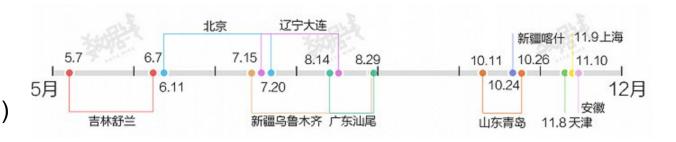
Shulan, Jilin – May 7 – 43 confirmed cases

Community containment

- City lockdown
- Prohibit random entry and exit
- Close cultural and entertainment venues
- Travel restriction (Except for freight vehicles)
- School closed

Nucleic acid testing – Relevant personnel

- Accumulatively tested **88,303**, daily testing capacity **2000+**



North China outbreak: massive nucleic acid testing

Xinfadi, Beijing – Jun 11 – 335 confirmed cases

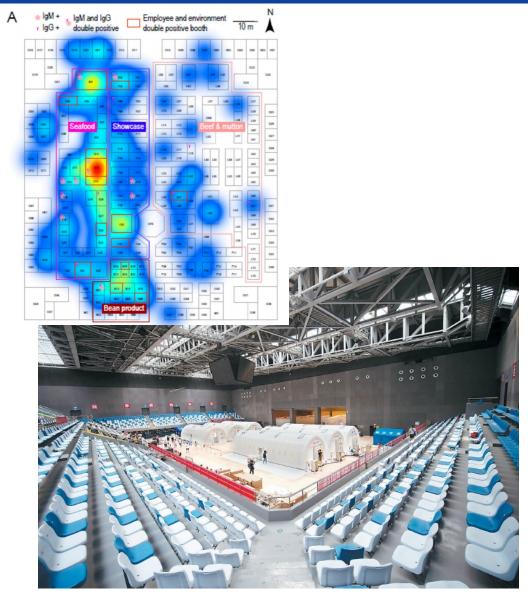
Cluster epidemic related with Xinfadi Wholesale Market

Emergency response level increased Case management – 8 emergency wards, 1,070 beds, 105 medical staff from other hospital for support Community containment

- Closed management of 40 communities around the market
- School closed

Nucleic acid testing – Citywide

- Totally tested 11 million
- 184 nucleic acid testing institutions, daily testing capacity 500,000+



The "Huoyan" nucleic acid testing laboratory in Beijing Daxing Sports Center

Precise prevention by division and classification

- Each provinces have conducted scientific assessments of the epidemic, determined risk levels in different districts or counties. There are different management strategies in different regions.
 - ➤ High-risk areas strictly implement "internal non-proliferation, external release, and strengthened treatment" strategies
 - Medium-risk areas strictly implement "reduction of input, interruption of transmission, and precision treatment" strategy
 - Low-risk areas strictly implement the "Enter prevent, combat readiness" strategy

疫情中高风险地区汇总

截至2021年2月11日15时

高风险地区(6个)						
吉林省(1个)	通化市	东昌区	全域			
黑龙江省(5个)	哈尔滨市	呼兰区	兰河街道			
			呼兰街道			
		利民开发区	裕田街道			
			利民街道			
	绥化市	望奎县	全域			
中风险地区(14个)						
河北省(1个)	石家庄市	藁城区	全域			
吉林省(1个)	长春市	公主岭市	范家屯镇全域			
	哈尔滨市	道里区	建国街道			
			抚顺街道			
			新阳路街道			
黑龙江省(11 个)			新华街道			
		道外区	永源镇			
		呼兰区	公园路街道			
			建设路街道			
			孟家乡			
		利民开发区	裕强街道			
			利业街道			
			乐业镇			
上海市(1个)	上海市	浦东新区	高东镇新高苑一期小区			

信息来源: 国务院微信客户端、中国疾控中心微信公众号

注:2月11日起,黑龙江省哈尔滨市南岗区和兴路街道(原清滨街道部分,含仪兴社区、电表社区、建文社区、福尚社区、清滨社区)、利民开发区南京路街道调整为低风险地区。



Figure 2: The "Close Contact Detector" helps citizens protect themselves.



一、首页



二、用户注册 在首页点击 (2.120000000) 进行 用户登录。未注册用户,先点击

用户登录。未注册用户,先点击 "注册",输入手机号码,点击发 送验证码,设置登录密码进行 注册。





三、用户登录

输入已注册成功的手机号、密码,点击"登录",显示登录成功 后,进入首页。



四、密接查询

在首页点击 (C.) EXPERSED ,输 入要被查询人员的姓名、身份证 号码。查询结果分为四类人员; 确诊、疑似、密切接触者、正常。

特别提示:每个手机号码只能查 询三个固定身份证号,每个身份 证号每日限查一次!



确诊人员;请保持积极心态,配 合医生积极治疗;

键似人员:请保持积极心态,配 合医生积极治疗;

密接人员:不要担心,暂不要外 出,居家封闭隔离观察如有身体 不适及时就医,并主动联系当地 主管部门;

正常人员:恭喜你,请做好个人 防护。









Effects of precise testing + intensive contact tracing

Pudong district, Shanghai

- Nov 9 – 1 confirmed cases

Quarantine – 26 close contacts, 186 c contacts

Nucleic acid testing – 8,717 people,

新放接
Terminal Building
Control Tower
Runway

登展用地
Development
Land tive
Tric
Working Area

Development
Land tive
Tric
Working Area

Development
Land tive
Aircraft Maintenance Area

Aircraft Maintenance Area

Aircraft Maintenance Area

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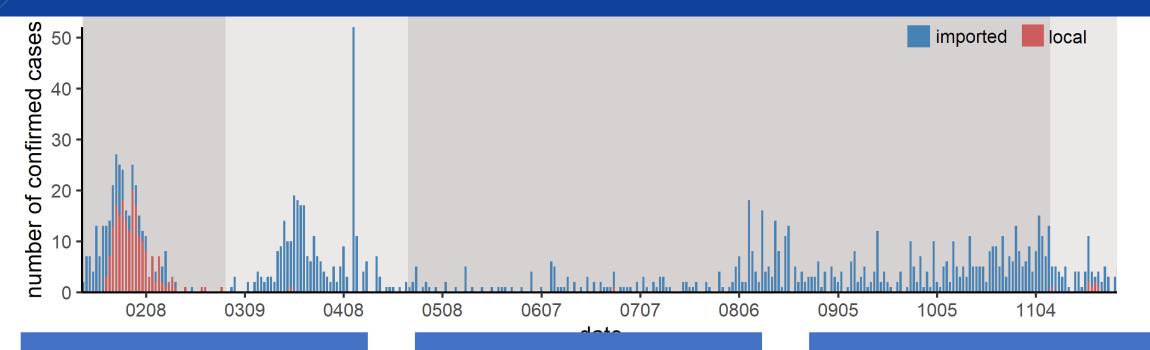


- Nov 20 – 7 confirmed cases

Nucleic acid testing – people related with Pudong Airport

- Perform nucleic acid testing on relevant personnel confirmed after epidemiological investigation of cases
- 15,416 + 17,719 +2286 people

Different stages in Shanghai



Phase I: The first wave (Jan20-Mar4)

- Community containment strictly
- Case management and contact tracing
- Social mobilization & participation

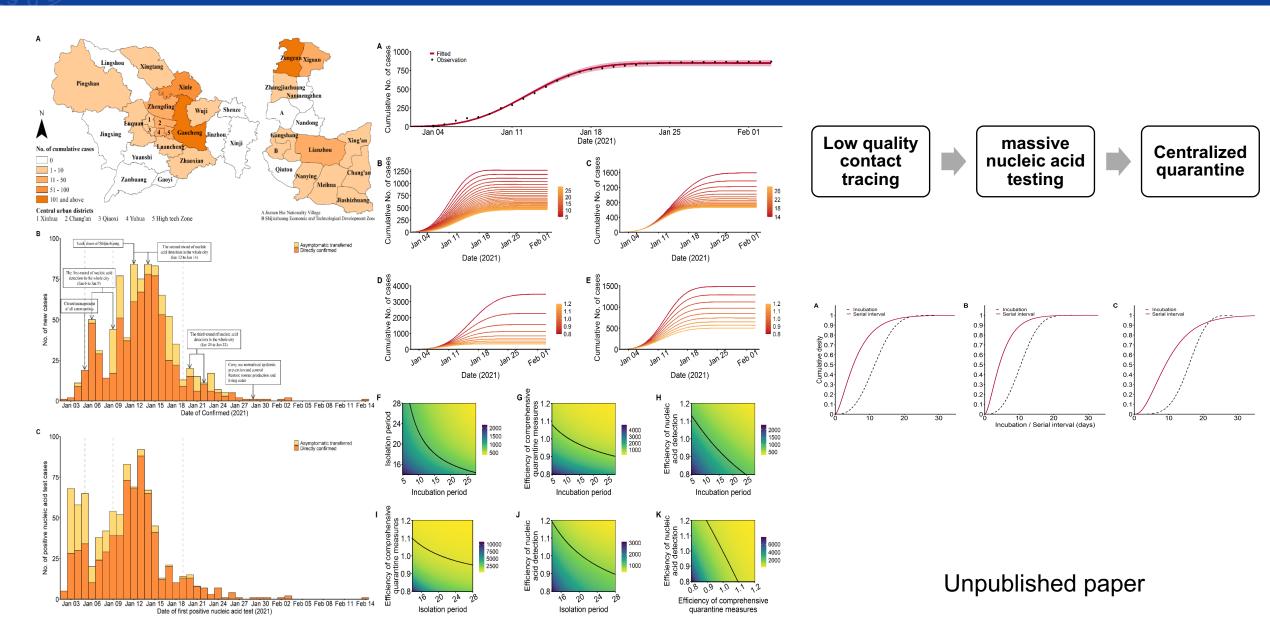
Phase II: The second wave (Mar5-Apr26) - Border control

- Closed loop transport
- 100% nucleic acid testing for imported people
- 100% 14-day centralized quarantine → 14+7

Phase Ⅲ: Relaxation period (Apr27-now)

- School reopening (Apr27)
- Tourism resuming (Jul16)
- Cinema reopening (Jul20)

Prolonged incubation period and centralized quarantine on the COVID-19 outbreak in Shijiazhuang





03

Relaxation related to vaccination coverage

Relaxation depends on vaccination

China vaccination rates skyrocket as millions

- As of May 24, a total of 500 million doses of covid-19 vaccines have been reported nationwide.
- More than 15 million doses delivered in a single day
- Daily rates could reach 20 million if needed, roughly half of California's population

Vaccine development worldwide

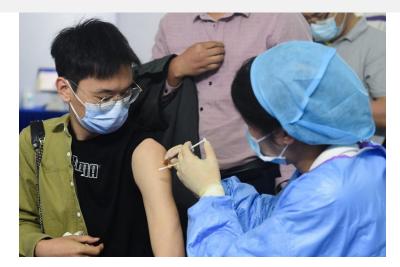
145 candidate vaccines in preclinical evaluation,

35candidates in clinical evaluation, among them 9 in phase III trials.

neveloper/manufacturer	◆ Platform	.¥. Type	@ Country
University of Oxford/AstraZeneca	Non-Replicating Viral Vector	ChAd0x1-S	
CanSino Biological Inc./ Beijing Institute of Biotechnology	Non-Replicating Viral Vector	Adenovirus Type 5 Vector	*3
Gamaleya Research Institute	Non-Replicating Viral Vector	Adeno-based (rAd26-S+rAd5-S)	
Janssen Pharmaceutical Companies	Non-Replicating Viral Vector	Ad26COVS1	
Sinovac	Inactivated	Inactivated	*1
Wuhan Institute of Biological Products/ Sinopharm	Inactivated	Inactivated	*3
Beijing Institute of Biological Products/ Sinopharm	Inactivated	Inactivated	*3
Moderna/NIAID	RNA	LNP-encapsulated mRNA	
BioNTech/Fosun Pharma/Pfizer	RNA	3 LNP-mRNAs	*)

Source: Draft landscape of COVID-19 candidate vaccines (September 9, 2020) by WHO





Vaccination + PCR + contact tracing/quarantine



- As of May 15, Shanghai had vaccinated 21.18 million doses, covering 12.79 million people, basically covering half of Shanghai's permanent population. The health system vaccination rate reached 90%.
- 71 large temporary vaccination sites, 218 communities, 58 mobile vaccination teams, the daily vaccination capacity has now reached more than 740,000 doses
- Volunteers provide services such









Key lessons we learned

Broad social mobilization

- Disclose information officially
- Community staff work at the community level

Quarantine both people and items

- quarantine of imported people
- quarantine of frozen food or airport cargo
- quarantine of frozen food or airport cargo workers regularly

Resource reservation

- Nucleic acid detection capability (no. of lab testing technicians)
- Number of epidemiological investigation professionals

Precise prevention and control

- Detect cases as early as possible to avoid community transmission
- Using the reported cases as the source, with epidemiological investigations to detect the Epi chain
- Nucleic acid testing to screen suspect persons (close contacts, close contacts of the close contacts)

Thanks for attention!

