

# THE LANCET

## Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Singh S, McNab C, McKeon Olson R, et al. How an outbreak became a pandemic: a chronological analysis of crucial junctures and international obligations in the early months of the COVID-19 pandemic. *Lancet* 2021; published online Nov 8. [http://dx.doi.org/10.1016/S0140-6736\(21\)01897-3](http://dx.doi.org/10.1016/S0140-6736(21)01897-3).

## **Appendix 1 – Methodology used for literature reviews**

Two systematic searches were performed: one on the earliest scientific findings and one on the early spread of SARS-CoV-2 respectively. The search strategy on the scientific origins, Search Strategy 1, was designed to retrieve all eligible articles on the origins of SARS-CoV-2 conducted in China that met inclusion criteria. The electronic databases MEDLINE, EMBASE, Global Health, LILACS, WPRIM, and Africa Wide Information were searched using the search terms coronavirus, novel virus, 2019-nCoV, COVID-19, SARS-CoV-2, and Wuhan virus, as per the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) reporting guideline.

The search strategy on early spread, Search Strategy 2, was designed to retrieve all eligible articles published between December 2019 and March 2021 that reported on the epidemiology of COVID-19 spread, found in the electronic databases MEDLINE, EMBASE, Global Health, LILACS, WPRIM, and Africa Wide Information. Search terms included spread, transmission, or seroprevalence and COVID-19, SARS-CoV-2, coronavirus, novel virus, or Wuhan virus. The results were narrowed to articles which examined, either in real-time or retrospectively, spread both within China and outside of China within the early months of the pandemic (December – end of March 2020).

Researchers in relevant fields were contacted to identify additional published and preprint studies. Select supplementary information from non-primary sources such as news articles or interviews is provided in footnotes when authors deemed they provided important contextual information not available in scientific literature. Two independent researchers for each search strategy screened abstracts of retrieved articles using pre-specified criterion for eligibility. The investigators then independently reviewed full-text articles to assess eligibility for inclusion. Any discrepancies were resolved through discussion and consensus, and if needed, consultation with a third reviewer.

### **Inclusion and exclusion criteria for Search Strategy 1**

#### **Inclusion criteria**

- Population: Animal or human populations in China
- Timeframe: Any study published on or before 31 March 2020
- Study design: Published, peer-reviewed primary data from descriptive, observational, and experimental studies, including cross-sectional studies, prospective and retrospective cohort studies, case control studies, case studies and case series, as well as environmental and ecological studies
- Outcome: Description of zoonotic, genomic, human, and environmental sources of infection

#### **Exclusion criteria**

- Not primary research - such as guideline documents, news articles, reviews, commentaries, or editorials
- Not focused primarily on early months of pandemic (December 2019 – end of March 2020)
- Completely theoretical studies

- Preprint articles
- Exceedingly small sample size
- Full text not available

## **Inclusion and exclusion criteria for Search Strategy 2**

### Inclusion criteria

- Population: Global human population
- Timeframe: December 2019 – March 2021
- Study design: Published primary data from descriptive and observational studies, including cross-sectional studies, prospective and retrospective cohort studies, case control studies, mathematical modelling studies
- Outcome: Measures and trajectory of Covid-19 spread, including transmission dynamics, modelling studies, phylogenetic analyses, seroprevalence, case reports of index cases, effect of public health interventions

### Exclusion criteria

- Not primary research - such as guideline documents, news articles, reviews, commentaries, or editorials
- Not focused primarily on early months of pandemic (December 2019 – end of March 2020)
- Completely theoretical studies
- Preprint articles
- Exceedingly small sample size
- Full text not available

Four independent reviewers extracted data from each eligible study using a standardized form. Information extracted included study design, population, location, date of study period and key findings. For the scientific origins component, key findings were assessed within the four outcome domains: 1) zoonotic sources, 2) genomic origins, 3) earliest human cases, and 4) earliest environmental evidence of SARS-CoV-2 infection. For the early spread component, key findings assessed included case reports of index cases, phylogenetic analysis, epidemiological parameters, serological estimates of spread, and surveillance measures of spread, such as waste-water surveillance and symptom surveys.

Researchers in relevant fields were contacted to identify additional published and preprint studies. Select supplementary information from non-primary sources such as news articles or interviews is cited in footnotes when authors deemed they provided important contextual information not available in the peer-reviewed scientific literature.

## **Search Results**

The Search Strategy 1 identified 6,133 articles. Eight additional articles were identified through grey literature. After removing duplicates, 5,440 articles were reviewed based on title and abstract, of which

4,434 were excluded. 88 full texts were assessed for eligibility, with 49 full-text articles excluded based on eligibility criteria. 39 articles met inclusion criteria. Additionally, 14 articles were identified by searching references of eligible studies. A total of 53 records in Search Strategy 1 were included in the final review.

The Search Strategy 2 identified 6,494 articles. Four additional articles were identified through grey literature. After removing duplicates, 4,844 articles were reviewed based on title and abstract, of which 4,713 were excluded. 131 full texts were assessed for eligibility, with 74 full-text articles excluded based on eligibility criteria. 57 articles met inclusion criteria, which were included in the final review.

## **Appendix 2 – Background to the Independent Panel for Pandemic Preparedness and Response**

The Independent Panel for Pandemic Preparedness and Response (The Independent Panel) was Co-Chaired by the Right Honourable Helen Clark and Her Excellency Ellen Johnson Sirleaf.

The Panel was charged with reviewing the spread, actions and responses to the COVID-19 pandemic, distilling lessons, and making evidence-based recommendations to ensure countries and global institutions, including the WHO, can more effectively address health threats.

The Independent Panel was initiated by the World Health Organization Director-General in response to a World Health Assembly Resolution ([73.1](#)) in May 2020, which called for an independent, impartial and comprehensive review into the international health response to the COVID-19 pandemic. The WHO Director-General appointed the Co-Chairs, who in turn selected 11 Panel members in early September 2020. [Panel members](#) represent a wide mix of skills and expertise in infectious diseases, global and national health policy and financing, outbreaks and emergencies, economics, public administration, youth advocacy, and in the wellbeing of women and girls.

The Independent Panel began its work at its first meeting on 17-18 September 2020. It met approximately every six weeks and, due to the pandemic, the meetings were virtual. The Panel delivered its main report “COVID19: Make it the Last Pandemic” to the 74<sup>th</sup> World Health Assembly in May 2021.

How an outbreak became a pandemic: a chronological analysis of crucial junctures and international obligations in the early months of the COVID-19 pandemic

Appendix 3

# COVID-19: The Authoritative Chronology, December 2019–March 2020

Background paper 2a  
The Independent Panel for Pandemic Preparedness and Response

The  
Independent  
Panel  
FOR PANDEMIC  
PREPAREDNESS  
& RESPONSE



## Glossary and abbreviations

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**AFCOR**—Africa Task Force for Novel Coronavirus

**AFR**—WHO African Region

**AMR**—WHO Region of the Americas

**AP**—Associated Press

**Article 6**—International Health Regulations section regarding Member State notifications to the World Health Organization about a potential public health emergency of international concern

**Article 10**—International Health Regulations section regarding WHO power to request verification from Member States of reports from other sources of a potential public health emergency of international concern

**AU**—African Union

**CCDC**—Chinese Center for Disease Control

**COVID-19**—the disease caused by SARS-CoV-2

**DG**—WHO Director-General

**Dispersion factor k**—describes how a disease clusters

**EB**—WHO Executive Board

**ECDC**—European Centre for Disease Prevention and Control

**ED**—Executive Director

**EEA**—European Economic Area

**EMR**—WHO Eastern Mediterranean Region

**EU**—European Union

**EUR**—WHO European Region

**G7**—Group of Seven

**G20**—Group of Twenty

**GOARN**—WHO Global Outbreak Alert and Response Network

**HCWs**—health care workers

**h-to-h**—human-to-human

**HQ**—headquarters

**IASC**—Inter-agency Standing Committee

**IDVI**—Infectious Disease Vulnerability Index

**IFRC**—International Federation of Red Cross and Red Crescent Societies

**IHR**—International Health Regulations

**ILO**—International Labour Organization

**Mean serial interval**—indicates the length of time between symptom onset of an initial case and any subsequent cases

**nCoV**—novel coronavirus

**PCR**—polymerase chain reaction

**R&D**—research and development

**PHEIC**—Public Health Emergency of International Concern

**PPE**—personal protective equipment

**ProMED**—Program for Monitoring Emerging Diseases

**PUO**—pneumonia of unknown origin

**R0**—R naught, basic reproduction number, estimates how many other cases one infected individual is likely

to cause prior to institution of public health measures or development of immunity

**Rt and Re**—R at time t, effective reproduction number, estimates how many other cases one infected individual is likely to cause at a specific time, considering immunity and public health measures

**RaTG13**—a type of bat coronavirus

**RCCE**—Risk Communication and Community Engagement

**SARS**—severe acute respiratory syndrome

**SARS-CoV-2**—severe acute respiratory syndrome-coronavirus-2, the virus that causes COVID-19 disease

**SCMP**—South China Morning Post

**SEAR**—WHO South-East Asian Region

**STAG-IH**—WHO Strategic and Technical Advisory Group for Infectious Hazards

**UN**—United Nations

**UNHCR**—UN High Commissioner for Refugees

**UK**—United Kingdom

**US**—United States

**US CDC**—United States Centers for Disease Control and Prevention

**WASH**—Water, Sanitation, and Hygiene

**WHO**—World Health Organization

**WPRO**—WHO Western Pacific Regional Office






**2019-nCoV**—novel coronavirus 2019




## CHRONOLOGY LEGEND

SUB-CATEGORY
<b>Headline</b>
Author/Actor Published: <<Date>>
Caption
Source <i>Links to other sources e.g. news release</i>

Time zones  
 CST – China Standard Time  
 CET – Central European Time

-  International actions
-  Country actions
-  Real-time evidence
-  Retrospective evidence

-  Annotations
-  Key events
-  Private document
-  Public document
-  WHO action

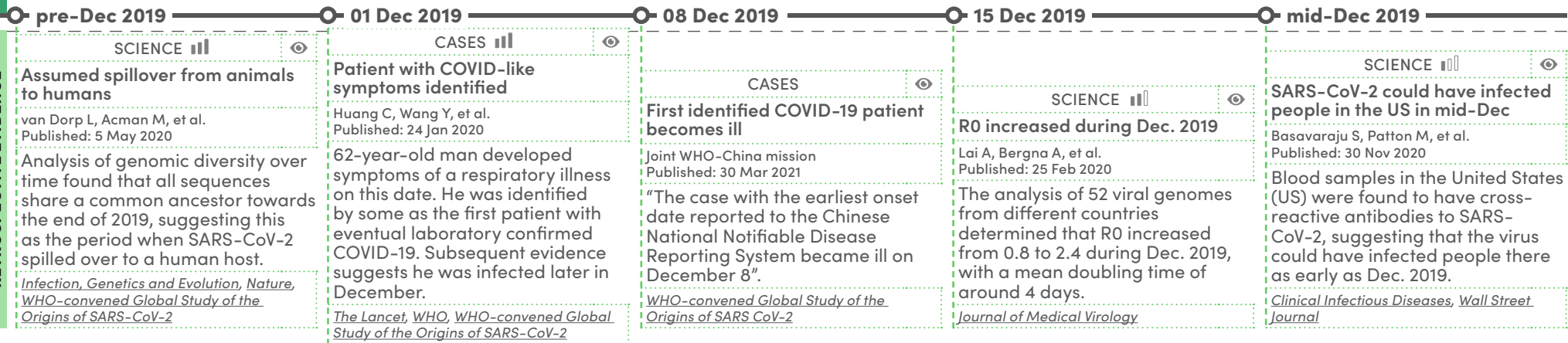
- Strength of research
-  1 - low quality pre-print
  -  2 - medium peer reviewed
  -  3 - high quality top tier journal

INTERNATIONAL

COUNTRY

REAL-TIME EVIDENCE

RETROSPECTIVE EVIDENCE










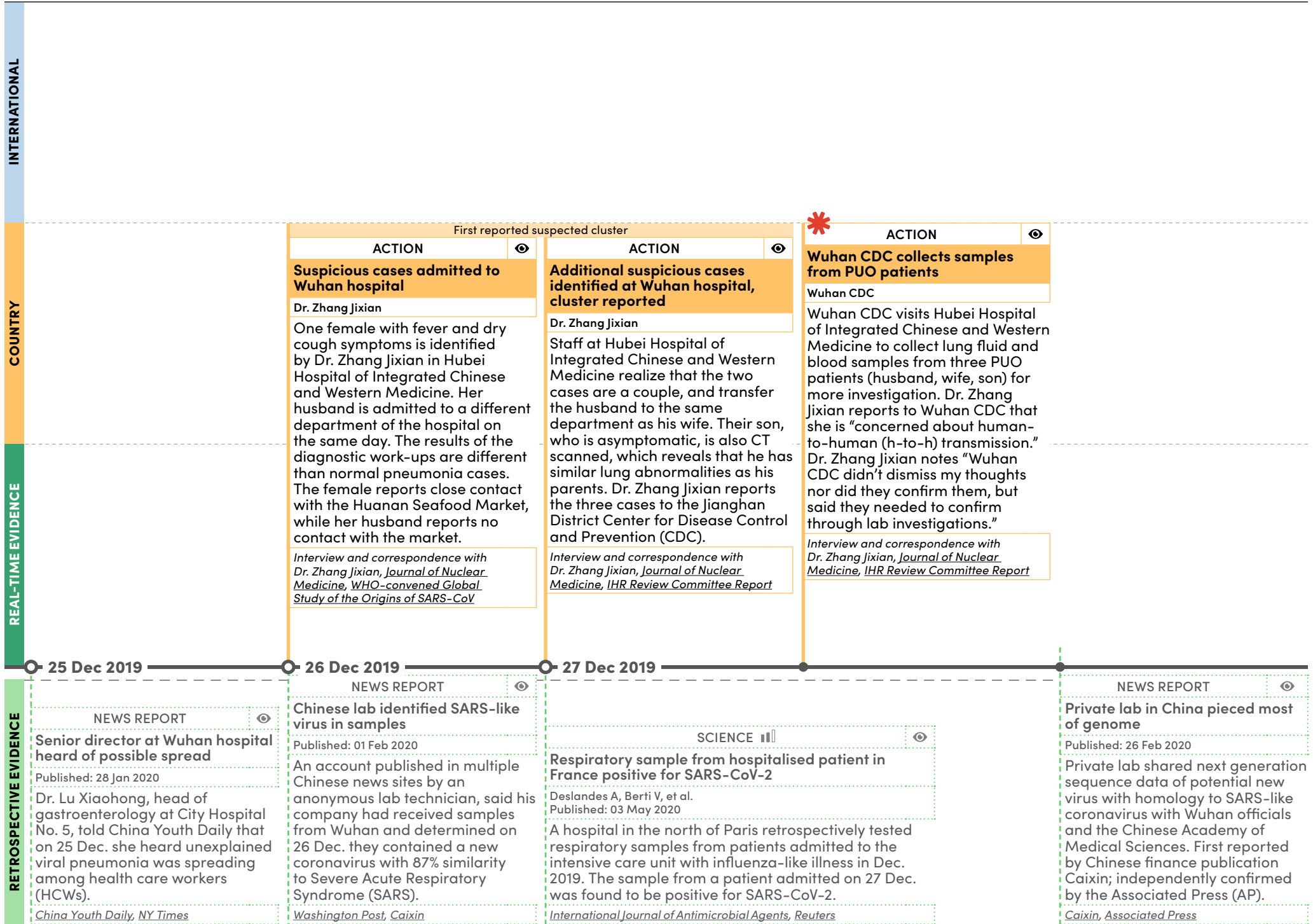


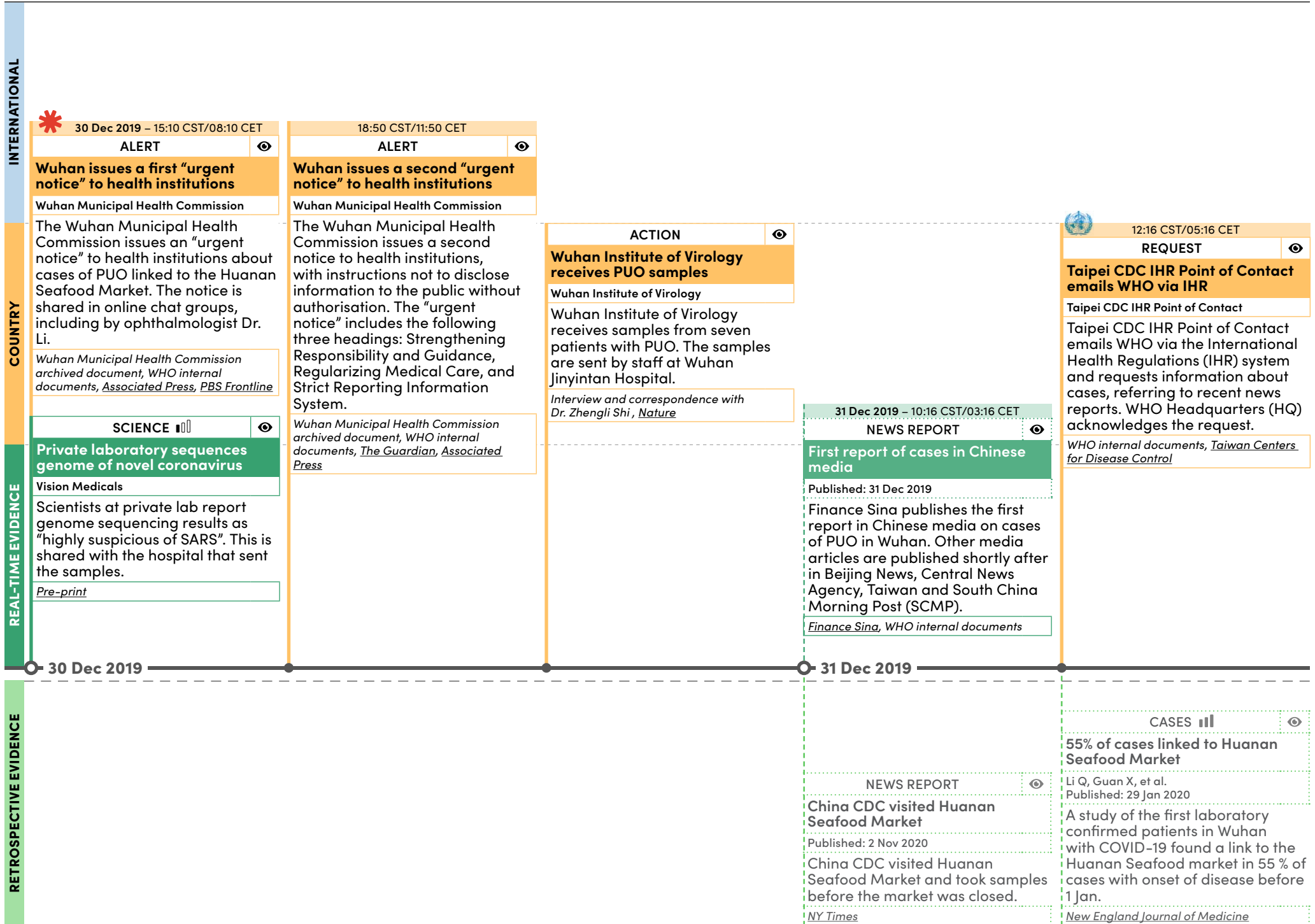
INTERNATIONAL

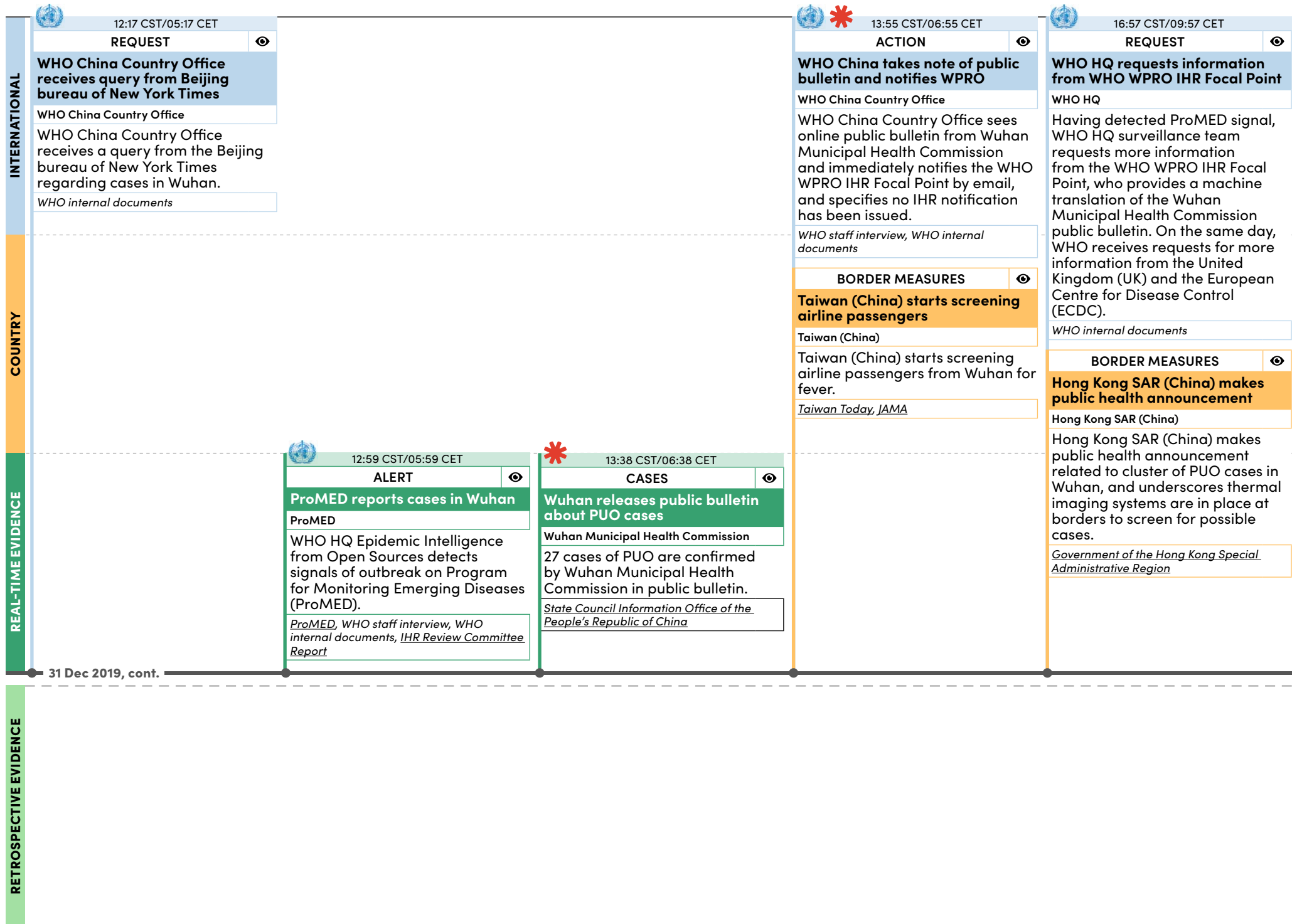
COUNTRY

REAL-TIME EVIDENCE

	16 Dec 2019	18 Dec 2019	21 Dec 2019	24 Dec 2019
RETROSPECTIVE EVIDENCE	<p>16 Dec 2019–02 Jan 2020</p> <p>CASES  </p> <p>Patients with PUO admitted to Wuhan hospital (later confirmed as SARS-CoV-2)</p> <p>Huang C, Wang Y, et al. Published: 24 Jan 2020</p> <p>41 patients with pneumonia of unknown origin (PUO) were admitted to a Wuhan hospital between 16 Dec.–2 Jan. Confirmed as SARS-CoV-2 in Jan. 2020.</p> <p><i>The Lancet</i></p>	<p>SCIENCE  </p> <p>Sewage samples in Italy possibly positive for SARS-CoV-2</p> <p>La Rosa G, Mancini P, et al. Published: 15 Aug 2020</p> <p>Sewage samples from 18 Dec. in Milan and Turin were found to be positive for SARS-CoV-2, but may be false positives.</p> <p><i>Science of the Total Environment</i></p>	<p>21 Dec–30 Dec 2019</p> <p>CASES  </p> <p>Three patients with PUO identified in Wuhan (later confirmed as SARS-CoV-2)</p> <p>Zhu N, Zhang D, et al. Published: 24 Jan 2020</p> <p>Three patients with PUO were identified in Wuhan from 21 Dec. onwards. Lung fluid samples collected 30 Dec. during hospital admission later confirmed SARS-CoV-2. One patient was a retailer at the Huanan Seafood Market, another a frequent market visitor. One died 9 Jan. 2020, the others were discharged.</p> <p><i>New England Journal of Medicine</i></p>	<p>NEWS REPORT </p> <p>Wuhan doctors sent lung fluid sample to commercial lab for testing</p> <p>Published: 05 May 2020</p> <p>Wuhan doctors noticed pneumonia patients were not responding to usual treatments and sent a test sample to Vision Medicals (commercial lab) for next generation sequencing/testing.</p> <p><i>Chinese Medical Journal, PBS Frontline, Caixin</i></p>







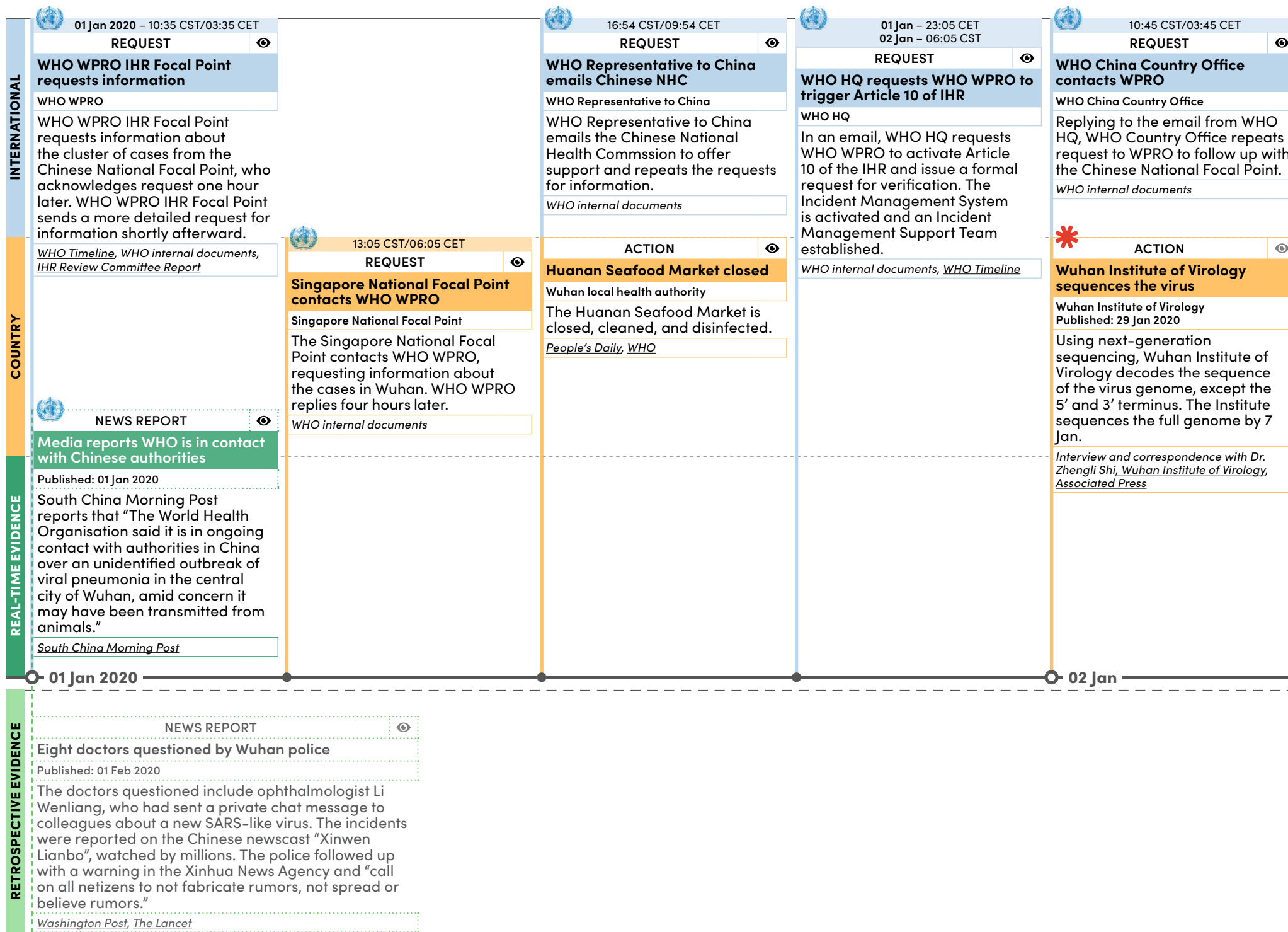
31 Dec 2019, cont.

RETROSPECTIVE EVIDENCE

REAL-TIME EVIDENCE

COUNTRY

INTERNATIONAL



INTERNATIONAL

COUNTRY

REAL-TIME EVIDENCE

RETROSPECTIVE EVIDENCE

**REQUEST**

**WHO WPRO IHR Focal Point requests information**

WHO WPRO

WHO WPRO IHR Focal Point requests information about the cluster of cases from the Chinese National Focal Point, who acknowledges request one hour later. WHO WPRO IHR Focal Point sends a more detailed request for information shortly afterward.

*WHO Timeline, WHO internal documents, IHR Review Committee Report*

**REQUEST**

**Singapore National Focal Point contacts WHO WPRO**

Singapore National Focal Point

The Singapore National Focal Point contacts WHO WPRO, requesting information about the cases in Wuhan. WHO WPRO replies four hours later.

*WHO internal documents*

**REQUEST**

**WHO Representative to China emails Chinese NHC**

WHO Representative to China

WHO Representative to China emails the Chinese National Health Commission to offer support and repeats the requests for information.

*WHO internal documents*

**ACTION**

**Huanan Seafood Market closed**

Wuhan local health authority

The Huanan Seafood Market is closed, cleaned, and disinfected.

*People's Daily, WHO*

**REQUEST**

**WHO HQ requests WHO WPRO to trigger Article 10 of IHR**

WHO HQ

In an email, WHO HQ requests WHO WPRO to activate Article 10 of the IHR and issue a formal request for verification. The Incident Management System is activated and an Incident Management Support Team established.

*WHO internal documents, WHO Timeline*

**REQUEST**

**WHO China Country Office contacts WPRO**

WHO China Country Office

Replying to the email from WHO HQ, WHO Country Office repeats request to WPRO to follow up with the Chinese National Focal Point.

*WHO internal documents*

**ACTION**

**Wuhan Institute of Virology sequences the virus**

Wuhan Institute of Virology  
Published: 29 Jan 2020

Using next-generation sequencing, Wuhan Institute of Virology decodes the sequence of the virus genome, except the 5' and 3' terminus. The Institute sequences the full genome by 7 Jan.

*Interview and correspondence with Dr. Zhengli Shi, Wuhan Institute of Virology, Associated Press*

**NEWS REPORT**

**Media reports WHO is in contact with Chinese authorities**

Published: 01 Jan 2020

South China Morning Post reports that "The World Health Organisation said it is in ongoing contact with authorities in China over an unidentified outbreak of viral pneumonia in the central city of Wuhan, amid concern it may have been transmitted from animals."

*South China Morning Post*

**NEWS REPORT**

**Eight doctors questioned by Wuhan police**

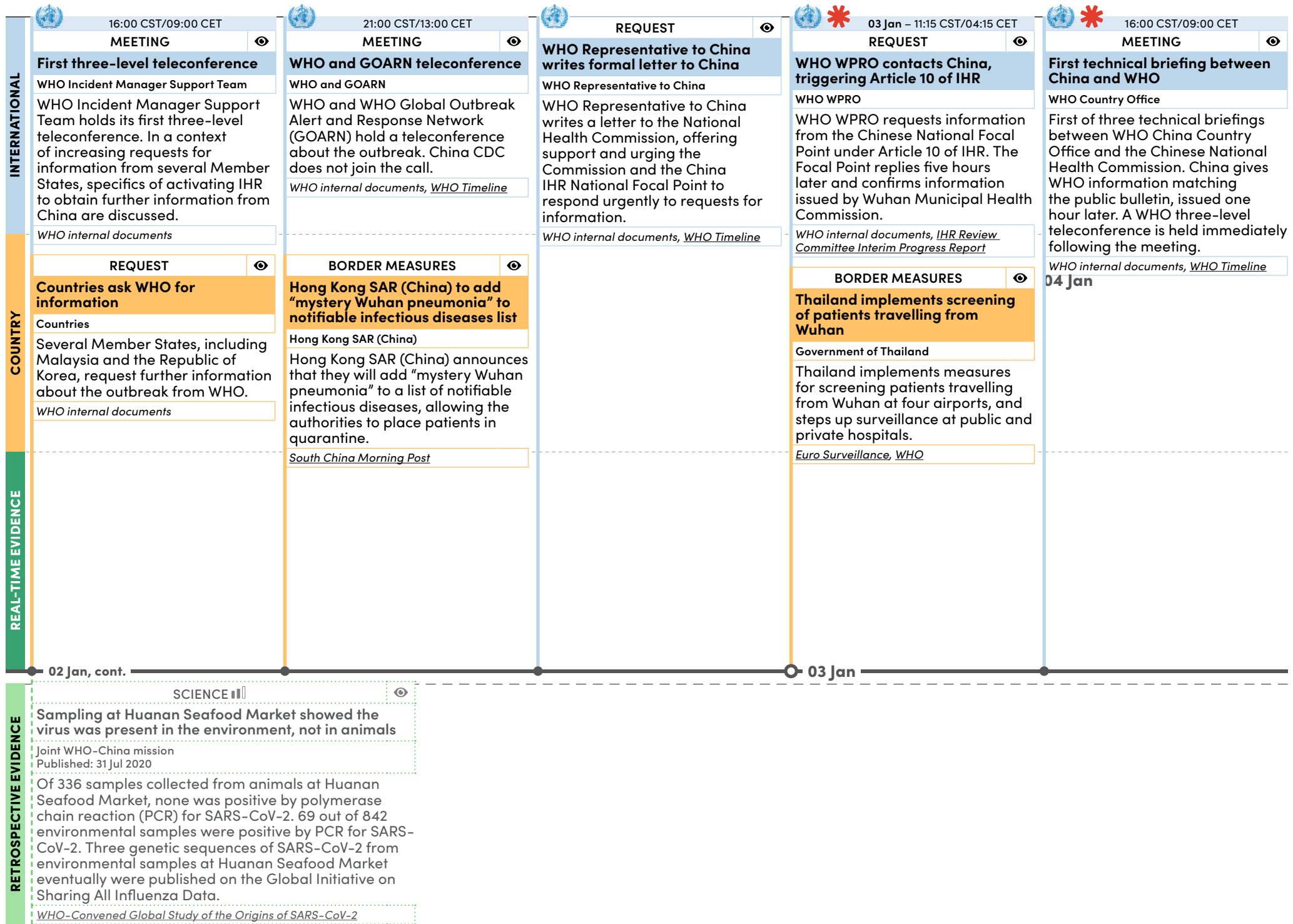
Published: 01 Feb 2020

The doctors questioned include ophthalmologist Li Wenliang, who had sent a private chat message to colleagues about a new SARS-like virus. The incidents were reported on the Chinese newscast "Xinwen Lianbo", watched by millions. The police followed up with a warning in the Xinhua News Agency and "call on all netizens to not fabricate rumors, not spread or believe rumors."

*Washington Post, The Lancet*

01 Jan 2020














02 Jan



INTERNATIONAL	<p>04 Jan – 11:22 CST/04:22 CET</p> <p><b>REQUEST</b></p> <p><b>WHO WPRO requests more information; advises IHR state parties will be notified</b></p> <p>WHO WPRO</p> <p>WHO WPRO IHR Focal Point acknowledges the information received under Article 10 of IHR and requests more information from the Chinese National Focal Point. WHO WPRO advises that IHR state parties will be notified. The Focal Point replies one hour later.</p> <p><i>WHO internal documents</i></p>	<p>13:27 CST/06:27 CET</p> <p><b>ANNOUNCEMENT</b></p> <p><b>WHO WPRO tweets China has reported a cluster of PUO cases</b></p> <p>WHO WPRO</p> <p>"#China has reported to WHO regarding a cluster of pneumonia cases in Wuhan, Hubei Province. The Govt has also met with our country office, and updated @WHO on the situation. Govt actions to control the incident have been instituted and investigations into the cause are ongoing."</p> <p><i>WHO WPRO Twitter</i></p>	<p>04 Jan – 19:13 CET 05 Jan – 02:13 CST</p> <p><b>ANNOUNCEMENT</b></p> <p><b>WHO HQ tweets China has reported a cluster of pneumonia cases</b></p> <p>WHO HQ</p> <p>"#China has reported to WHO a cluster of #pneumonia cases –with no deaths– in Wuhan, Hubei Province. Investigations are underway to identify the cause of this illness."</p> <p><i>WHO Twitter</i></p>	<p><b>PUBLICATION</b></p> <p><b>WHO reports 44 cases in Disease Outbreak News</b></p> <p>WHO</p> <p>Based on Chinese data, WHO reports the 44 cases identified by 3 Jan. in Disease Outbreak News, and states that there is "no evidence of significant human-to-human transmission".</p> <p><i>WHO Disease Outbreak News</i></p>
	COUNTRY			
REAL-TIME EVIDENCE	<p>17:00 CST/10:00 CET</p> <p><b>CASES</b></p> <p><b>Wuhan issues second public bulletin confirming 44 PUO cases</b></p> <p>Wuhan Municipal Health Commission</p> <p>Wuhan Municipal Health Commission issues second public bulletin, confirming 44 PUO cases, of which 11 are severely ill and 33 are in stable condition.</p> <p><i>WHO</i></p>			<p><b>ANNOUNCEMENT</b></p> <p><b>Wuhan issues third public bulletin confirming 59 PUO cases</b></p> <p>Wuhan Municipal Health Commission Published: 5 Jan 2020</p> <p>Wuhan Municipal Health Commission issues a third bulletin, reporting 59 cases, seven in serious condition, no deaths. The bulletin reports that preliminary studies have not shown any sign of h-to-h transmission, and that no health care workers have been infected.</p> <p><i>Wuhan Municipal Health Commission, Center for Infectious Disease Research and Policy</i></p>
RETROSPECTIVE EVIDENCE	<p>03 Jan, cont.</p>			<p>05 Jan</p> <p>01 Jan–09 Jan 2020</p> <p><b>SCIENCE</b></p> <p><b>Re estimated at 3.54 in China</b></p> <p>Hao X, Chen S, et al. Published: 16 Jul 2020</p> <p>Re estimated at 3.54 (3.4–3.67) in China for the period 1 Jan.–9 Jan., suggesting rapid spread.</p> <p><i>Nature</i></p>

	INTERNATIONAL	NEWS BRIEFING
RETROSPECTIVE EVIDENCE	<p><b>ALERT</b></p> <p><b>WHO alerts Member States via IHR</b></p> <p>WHO</p> <p>WHO shares information about the cluster of cases through the IHR Event Information System accessible to all WHO Members States and advises countries to take precautions to reduce the risk of acute respiratory infections.</p> <p><i>WHO Timeline, IHR Review Committee Report</i></p>	<p><b>NEWS BRIEFING</b></p> <p><b>WHO briefs UN journalists</b></p> <p>WHO</p> <p>WHO participates in a regular UN Geneva press briefing to give an update on the cluster of cases.</p> <p><i>WHO internal documents</i></p>
REAL-TIME EVIDENCE		<p><b>SCIENCE</b></p> <p><b>China CDC isolates the virus</b></p> <p>China CDC</p> <p>The National Institute for Viral Disease Control and Prevention of the China CDC succeeds in isolating the first novel coronavirus strain.</p> <p><i>Interview: Dr. George Gao 25 Nov. 20, State Council Information Office of the People's Republic of China</i></p>
COUNTRY		
INTERNATIONAL		
	<p>05 Jan, cont.</p> <p><b>SCIENCE</b></p> <p><b>Wuhan Institute of Virology isolates virus</b></p> <p>Wuhan Institute of Virology Published: 29 Jan 2020</p> <p>The Wuhan Institute of Virology confirmed the isolation of the novel coronavirus with immunofluorescence and quantitative PCR assays.</p> <p><i>Interview and correspondence with Dr. Zhengli Shi, Wuhan Institute of Virology</i></p>	<p>06 Jan</p> <p><b>SCIENCE</b></p> <p><b>Shanghai group submit genome to GenBank</b></p> <p>Zhang YZ, Wu F et al. Published: 11 Jan 2020</p> <p>A consortium of researchers from the Shanghai Public Health Center sequenced the novel coronavirus and uploaded the sequence to GenBank on 5 Jan. The submitted sequence was subsequently published on 11 Jan. and updated on 14 Jan. and 17 Jan.</p> <p><i>GenBank submission, Nature</i></p>
	<p>07 Jan</p> <p><b>NEWS REPORT</b></p> <p><b>China CDC raised emergency level</b></p> <p>Published: 02 Jun 2020</p> <p>China CDC raised emergency level to second highest. Staff isolated the virus, drafted lab testing guidelines, and designed test kits. The agency has no authority to issue public warnings.</p> <p><i>Associated Press</i></p>	<p><b>NEWS REPORT</b></p> <p><b>WHO was concerned that not enough data was shared</b></p> <p>Published: 02 Jun 2020</p> <p>"We're currently at the stage where they're giving it to us 15 minutes before it appears on CCTV (China Central Television)," said WHO Representative to China.</p> <p><i>Associated Press</i></p>
		<p><b>NEWS REPORT</b></p> <p><b>Chinese top leaders discussed the outbreak</b></p> <p>Published: 09 Jun 2020</p> <p>Chinese top leaders, including the President, discussed the outbreak at a meeting of the Politburo Standing Committee.</p> <p><i>BBC</i></p>



INTERNATIONAL	 <b>REQUEST</b> 	 <b>09–12 Jan 2020</b> <b>INTERIM GUIDANCE</b> 	  <b>ANNOUNCEMENT</b> 	<b>PUBLICATION</b> 
COUNTRY	<p><b>WHO requests detailed case information from China</b></p> <p>WHO</p> <p>WHO writes to the China IHR National Focal Point and requests urgent confirmation of the discovery of the novel coronavirus, and detailed information on its etiology, clinical presentation, additional laboratory findings, including sequencing, and the containment measures put in place.</p> <p><i>WHO internal documents</i></p>	<p><b>WHO issues a series of guidance tools</b></p> <p>WHO HQ Published: 9 Jan 2020</p> <p>WHO issues a series of guidance tools related to national capacities (9 Jan.), disease commodities (9 Jan.), infection prevention and control (10 Jan.), laboratory testing (10 Jan.), risk communication and community engagement (10 Jan.), surveillance case definitions (11 Jan.), and clinical management (12 Jan.).</p> <p><i>WHO guidance</i></p>	<p><b>WHO announces China has identified new coronavirus</b></p> <p>WHO China</p> <p>"Chinese authorities have made a preliminary determination of a novel (or new) coronavirus, identified in a hospitalized person with pneumonia in Wuhan."</p> <p><i>WHO Statement, IHR Review Committee Report</i></p>	<p><b>Risk for introduction to the EU considered low</b></p> <p>ECDC Published: 9 Jan 2020</p> <p>Three EU airports have direct flights to Wuhan. As there is no indication of h-to-h transmission and no cases detected outside Wuhan, the European Centre for Disease Prevention and Control (ECDC) considers the likelihood of introduction to the European Union (EU) to be low, but it can't be excluded.</p> <p><i>ECDC</i></p>
REAL-TIME EVIDENCE	<p><b>NEWS REPORT</b> </p> <p><b>Chinese scientists identify new coronavirus</b></p> <p>Published: 08 Jan 2020</p> <p>Ahead of anyone, the Wall Street Journal reports that Chinese scientists investigating a mystery illness that has sickened dozens in central China have discovered a new strain of coronavirus.</p> <p><i>Wall Street Journal</i></p>			
RETROSPECTIVE EVIDENCE	<p><b>NEWS REPORT</b> </p> <p><b>Mayor of Wuhan reported to the People's Congress of Wuhan</b></p> <p>Published: 01 Feb 2020, updated 7 Feb 2020</p> <p>In his address to the People's Congress of Wuhan, the Mayor of Wuhan focused on new infrastructure, didn't mention the outbreak.</p> <p><i>NY Times</i></p>	<p><b>CASES</b>  </p> <p><b>Unobserved cases due to h-to-h transmission in China estimated to be 52,381</b></p> <p>Mizumoto K, Kagaya K, and Chowell G. Published: 2 Jun 2020</p> <p>Unobserved cases due to human-to-human transmission were estimated to be 52,381 from 8 Dec. 2019 to 9 Jan. 2020. R0 estimated to 2.37.</p> <p><i>International Journal of Infectious Disease</i></p>	<p><b>CASES</b> </p> <p><b>First death occurs</b></p> <p>Wuhan Municipal Health Commission Published: 11 Jan 2020</p> <p>The first pandemic-related death occurred on 9 Jan. — a 61-year-old male with liver disease who frequented the Huanan Seafood Market. The immediate cause of death was respiratory and circulatory failure.</p> <p><i>Wuhan Municipal Health Commission, Bloomberg</i></p>	

07 Jan, cont.

08 Jan

09 Jan

	MEETING	REQUEST	MEETING	ADVICE	MEETING
INTERNATIONAL	<b>WHO convenes global experts</b> WHO WHO begins convening expert panels including clinicians and experts on diagnostics and laboratory guidance. <i>WHO internal documents, WHO Timeline</i>	<b>WHO requests PCR primer and genome sequence</b> The Executive Director of the WHO Health Emergencies Programme writes to China's National IHR Focal Point requesting China share the diagnostic PCR primer and full genome sequence. <i>IHR Review Committee Report</i>	<b>First meeting of the STAG-IH</b> WHO STAG-IH WHO Strategic and Technical Advisory Group for Infectious Hazards (STAG-IH) discusses the situation in Wuhan and provides a risk analysis. WHO convenes R&D experts as well. <i>WHO STAG-IH</i>	<b>WHO recommends no specific health measures for travellers</b> WHO HQ Published: 10 Jan 2020 WHO publishes advice for international travel and trade, recommends caution while traveling in or from Wuhan. Advises against travel or trade restrictions on China based on currently available information. <i>WHO HQ</i>	<b>GCM for R&amp;D Preparedness and Scientific Advisory Group of the R&amp;D Blueprint hold first teleconference</b> WHO The Global Coordination Mechanism for R&D Preparedness and the Scientific Advisory Group of the R&D Blueprint hold their first teleconferences on the novel coronavirus. <i>GCM teleconference meeting minutes, WHO timeline</i>
	COUNTRY		<b>BORDER MEASURES</b> <b>Areas impose international travel screening and/or controls</b> Various countries By 10 Jan., Hong Kong SAR (China), Japan, Macao SAR (China), Taiwan (China), Singapore, Turkmenistan, Viet Nam, Malaysia, and the Philippines all implement some border measures. <i>Our World in Data, Viet Nam, Malaysia, Philippines</i>		
REAL-TIME EVIDENCE					
RETROSPECTIVE EVIDENCE			<b>R0 initially estimated at 2.2 in China</b> Li Q, Guan X, et al. Published: 29 Jan 2020 Initial estimates of transmission dynamics in Wuhan indicated R0 to be 2.2 (1.4–3.9) and a doubling time of 7.4 days. <i>New England Journal of Medicine</i>	<b>PCR diagnostic reagent developed and tested</b> China CDC Published: 29 Jan 2020 PCR diagnostic reagent was developed and tested in China, allowing for accurate identification and diagnosis of SARS-CoV-2 infection. Reagent was distributed to Wuhan the next day. <i>New England Journal of Medicine, State Council Information Office of the People's Republic of China</i>	

09 Jan, cont.

10 Jan

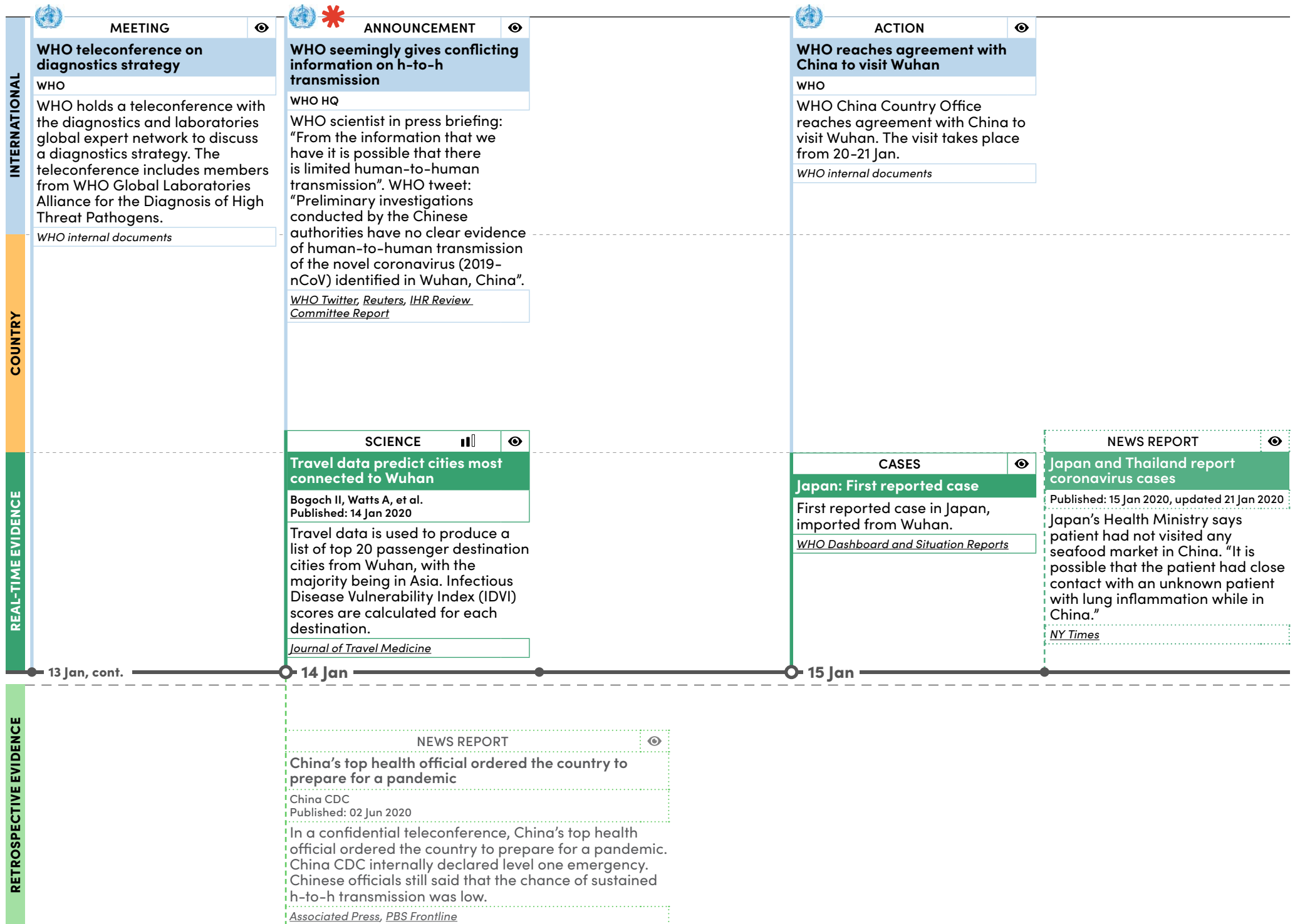
SCIENCE 

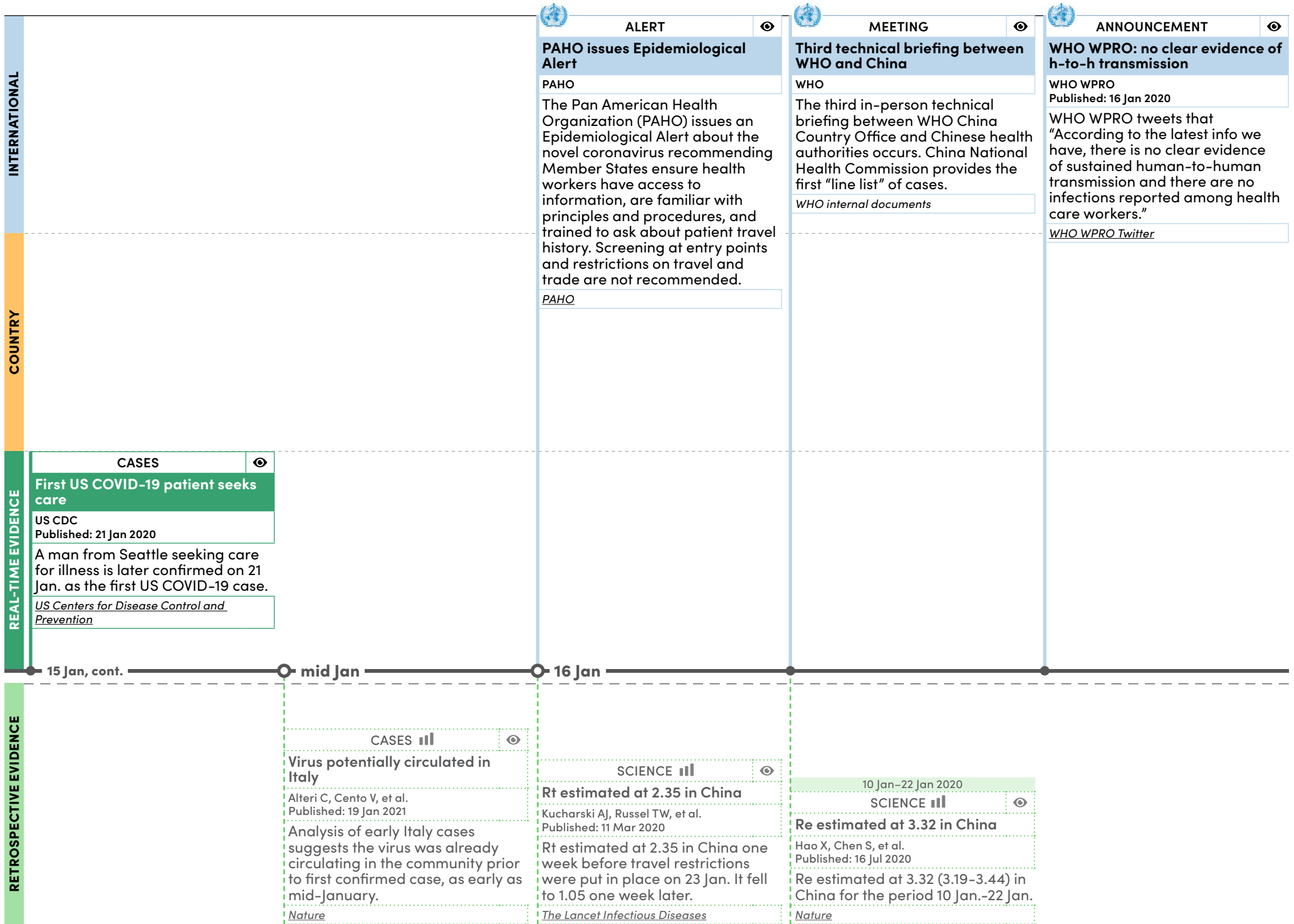
SCIENCE 

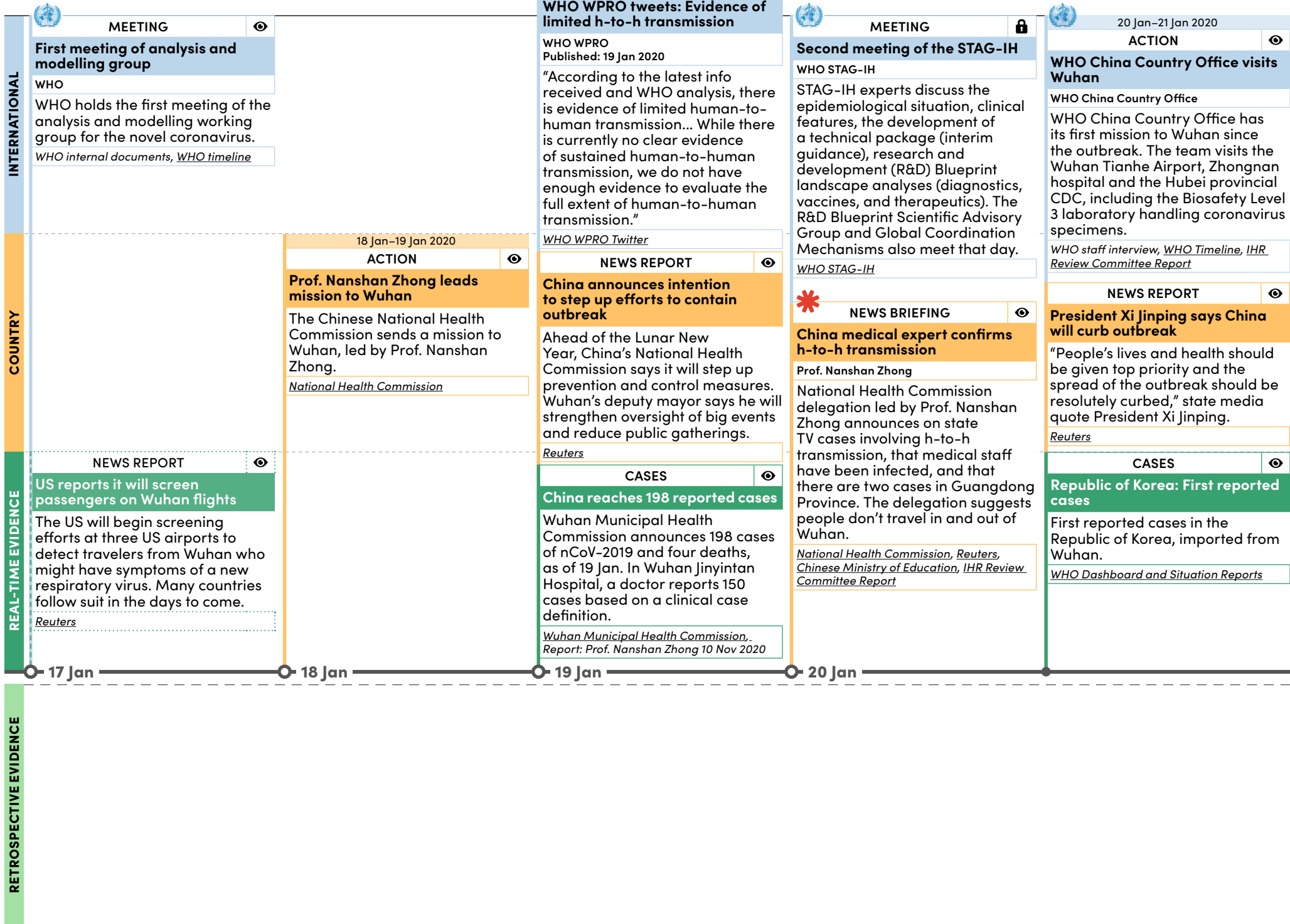
SCIENCE 

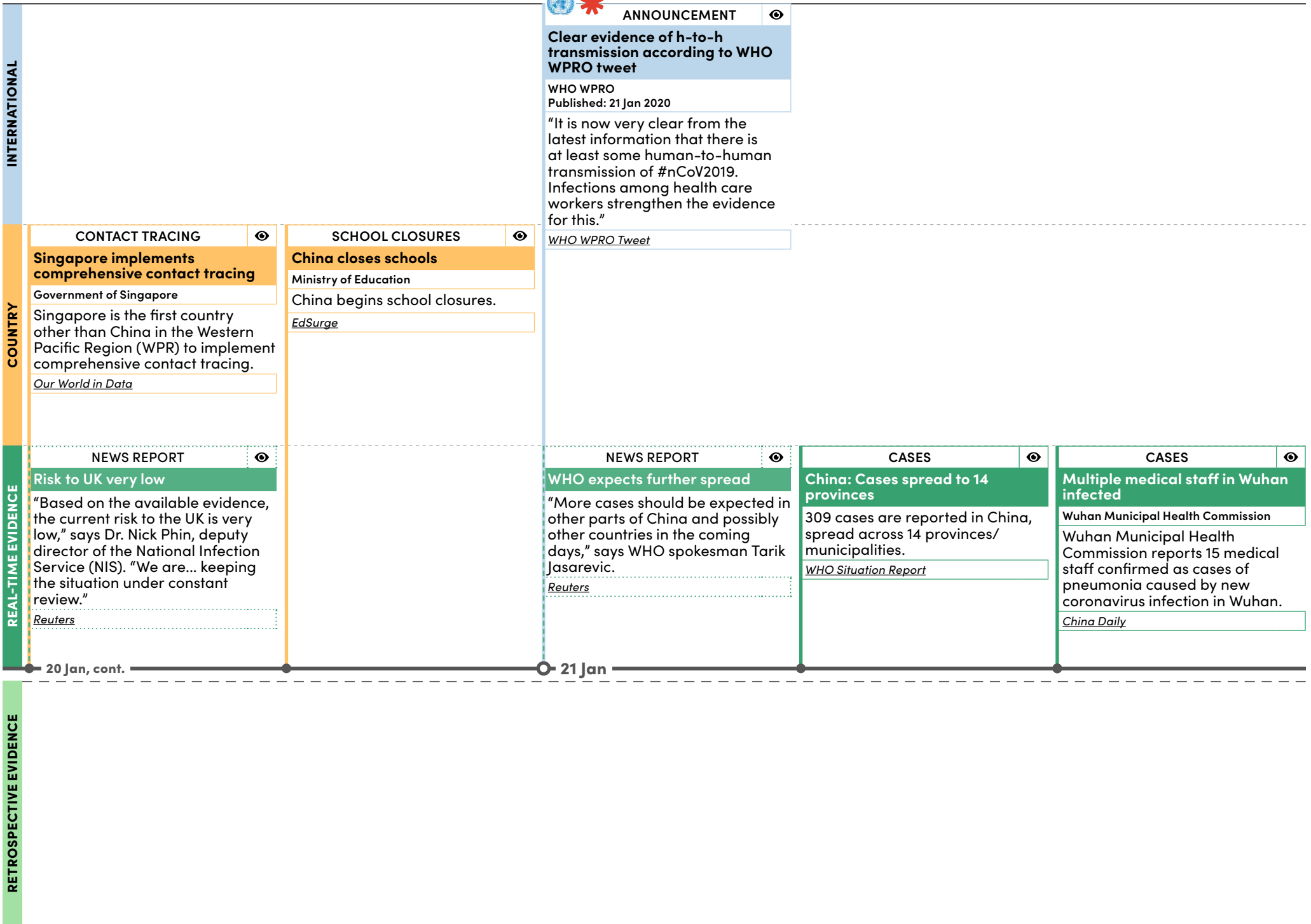
	MEETING	PUBLICATION	ACTION
<b>INTERNATIONAL</b>	<p><b>Second technical briefing between China and WHO</b></p> <p>WHO</p> <p>Second of three technical briefings between WHO China Country Office and the Chinese National Health Commission. The list of cases shared confirm there are cases not linked to the Huanan Seafood Market.</p> <p><i>WHO internal documents</i></p>	<p><b>WHO reports 41 cases and one death</b></p> <p>WHO</p> <p>Published: 12 Jan 2020</p> <p>WHO issues a Disease Outbreak News update, based on information from China's National Health Commission. It reads "WHO is reassured of the quality of the ongoing investigations and the response measures implemented in Wuhan.."</p> <p><i>WHO Disease Outbreak News</i></p>	<p><b>Scientists publish first protocol for RT-PCR test</b></p> <p>WHO</p> <p>Published: 13 Jan 2020</p> <p>WHO publishes the first protocol for a reverse transcription polymerase chain reaction (RT-PCR) assay for detection of the novel coronavirus, developed by partner laboratories.</p> <p><i>Charité Virology</i></p>
<b>COUNTRY</b>	<p><b>Wuhan reports 41 cases using updated case definition and the first death</b></p> <p>Wuhan Municipal Health Commission</p> <p>The Wuhan Municipal Health Commission publishes its fourth bulletin coinciding with the second technical briefing between China and WHO. The total number of cases is revised down to 41, based on a new case definition. The first death is reported. The bulletin also states that no new cases have been reported since 3 Jan., and "no clear evidence of human-to-human transmission" has been found.</p> <p><i>Wuhan Municipal Health Commission, WHO internal documents</i></p>	<p><b>Research consortium publishes draft genome</b></p> <p>Chinese researchers</p> <p>A consortium of researchers led by Professor Yong-Zhen Zhang from the Shanghai Public Health Clinical Center publishes a draft genome of the newly discovered coronavirus suspected of causing the outbreak on GenBank. The genome was submitted to GenBank on 5 Jan. (see retrospective entry on 5 Jan.).</p> <p><i>Science Magazine, Post by Edward Holmes, Caixin, Twitter</i></p>	<p><b>Thailand: First reported case</b></p> <p>First reported case in Thailand, imported from Wuhan (see retrospective entry on 12 Jan.).</p> <p><i>WHO Dashboard and Situation Reports</i></p>
<b>REAL-TIME EVIDENCE</b>			
<b>RETROSPECTIVE EVIDENCE</b>	<p><b>Crowds gather at Wuhan events</b></p> <p>Published: 01 Feb 2020</p> <p>Holiday shopping fairs and other events continued. Without clear government warnings, people kept travelling within and beyond China.</p> <p><i>Washington Post</i></p>	<p><b>First case outside China detected in Thailand</b></p> <p>Okada P, Buathong R, et al. Published: 27 Feb 2020</p> <p>Air traveler who arrived from Wuhan on 8 Jan. was identified through airport thermosurveillance and was diagnosed in hospital on 12 Jan. Virus was genetically identical to 30 Dec. strains in Wuhan.</p> <p><i>Euro Surveillance, IHR Review Committee Report</i></p>	<p><b>China: 1,723 estimated cases</b></p> <p>Estimated cases of COVID-19 were 1,723 based on data looking at probability of exportation.</p> <p><i>Imperial College</i></p>
















11 Jan ————— 12 Jan ————— 13 Jan



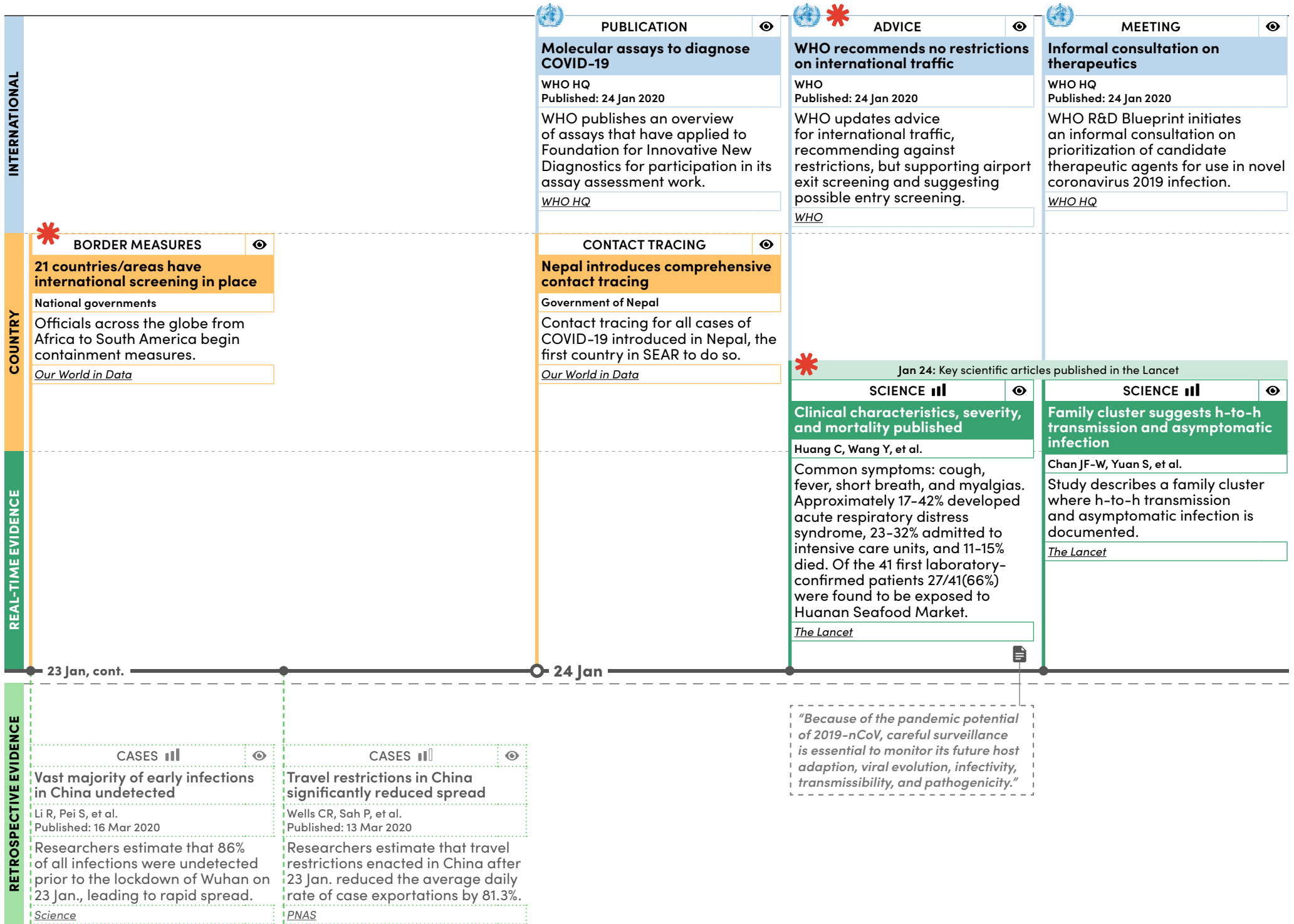


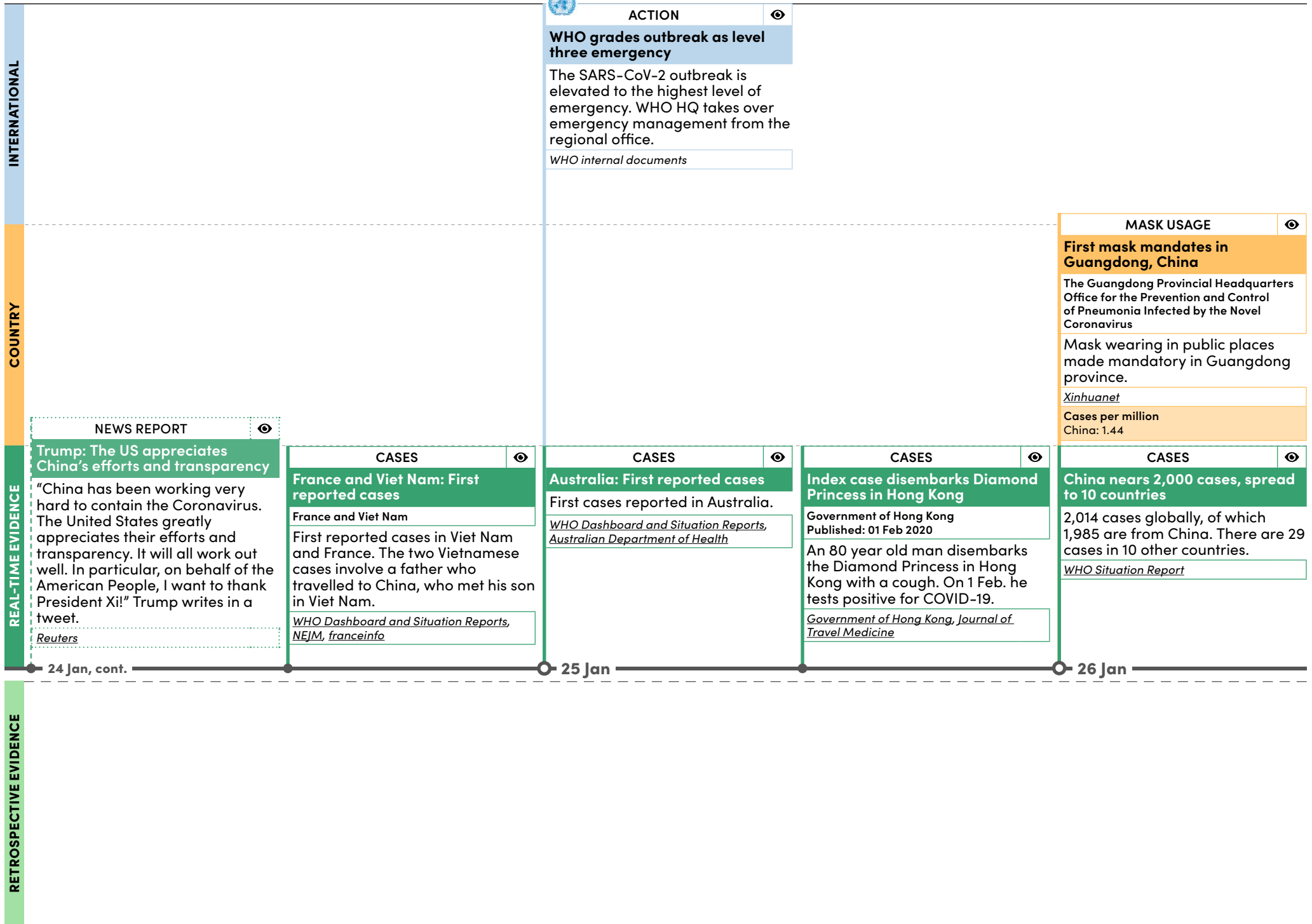


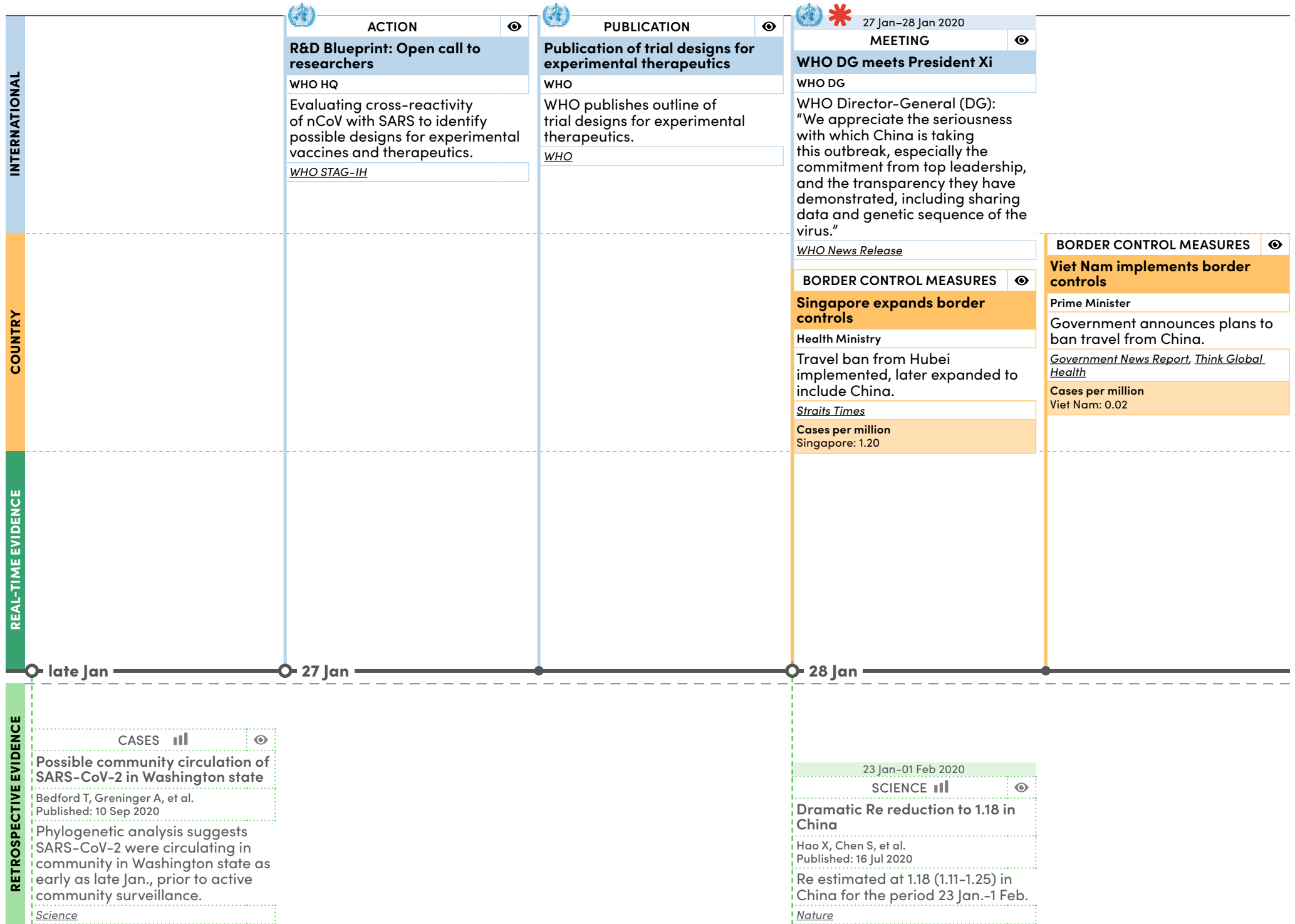


INTERNATIONAL				  22 Jan–23 Jan 2020 <b>MEETING</b>	  22 Jan–23 Jan 2020 <b>MEETING</b>
					
				<b>WHO's IHR Emergency Committee starts first meeting</b>	<b>WHO's IHR Emergency Committee ends meeting. No PHEIC declared</b>
				WHO	WHO
				WHO's IHR Emergency Committee starts its first COVID-19-related meeting. On this day, WHO reports 314 cases, with 310 cases in 14 provinces and municipalities within China, and four confirmed cases in three countries outside China, all with direct connections to Wuhan.	The IHR Emergency Committee advises the DG that the outbreak does not yet meet the conditions for a Public Health Emergency of International Concern (PHEIC), but urges countries to be prepared for additional spread. The Committee agrees to meet again within 10 days. By this day, cases have increased to 581, with 571 cases in 24 provinces and municipalities within China, and 10 cases in four countries outside China, all connected to Wuhan.
				<a href="#">IHR Committee Statement</a> , <a href="#">WHO Situation Report</a>	<a href="#">IHR Committee Statement</a> , <a href="#">WHO Situation Report</a>
COUNTRY	<b>CONTACT TRACING</b> 	<b>CONTACT TRACING</b> 	<b>MASK USAGE</b> 		
	<b>Germany implements comprehensive contact tracing</b>	<b>Costa Rica introduces comprehensive contact tracing</b>	<b>France recommends mask wearing</b>		
	Government of Germany	Government of Costa Rica	Government of France		
	Germany is the first country in the WHO European Region (EUR) to implement comprehensive contact tracing.	Contact tracing for all COVID-19 cases is introduced in Costa Rica, the first country in the WHO Region of the Americas (AMR) to do so.	France recommends mask wearing, the first country in EUR to do so.		
	<a href="#">Our World in Data</a>	<a href="#">Our World in Data</a>	<a href="#">Our World in Data</a>		
	<b>NEWS REPORT</b> 				
REAL-TIME EVIDENCE	<b>China reports 15 samples from Huanan Seafood Market contain virus</b>				
	Published: 22 Jan 2020				
	It is unclear whether the virus is shed by humans or animals. Chinese scientists publish the genetic sequence from some samples, but the information provides no clues to the virus' origins.				
	<a href="#">China CDC</a> , <a href="#">NY Times</a>				
RETROSPECTIVE EVIDENCE	22 Jan				
				23 Jan	23 Jan
					
				<b>LOCKDOWN/ STAY-AT-HOME MEASURES</b>	<b>First lockdown in Wuhan</b>
				Chinese Centre for Disease Control and Prevention	Lockdown initiated in Wuhan.
				<a href="#">China CDC</a>	Cases per million China: 0.45
				<b>CASES</b> 	<b>Singapore: First reported case</b>
				First reported case in Singapore.	<a href="#">WHO Statement</a>
				<a href="#">WHO Statement</a>	<b>CASES</b>  
				China: 18,700 estimated cases, R0 at 5.7	Sanche S, Lin Y, et al. Published: July 2020
				18,700 estimated cases in China. Transmission dynamics of early Wuhan spread were possibly as high as R0 5.7, with a doubling time of 2.3–3.3 days.	<a href="#">Emerging Infectious Diseases</a>





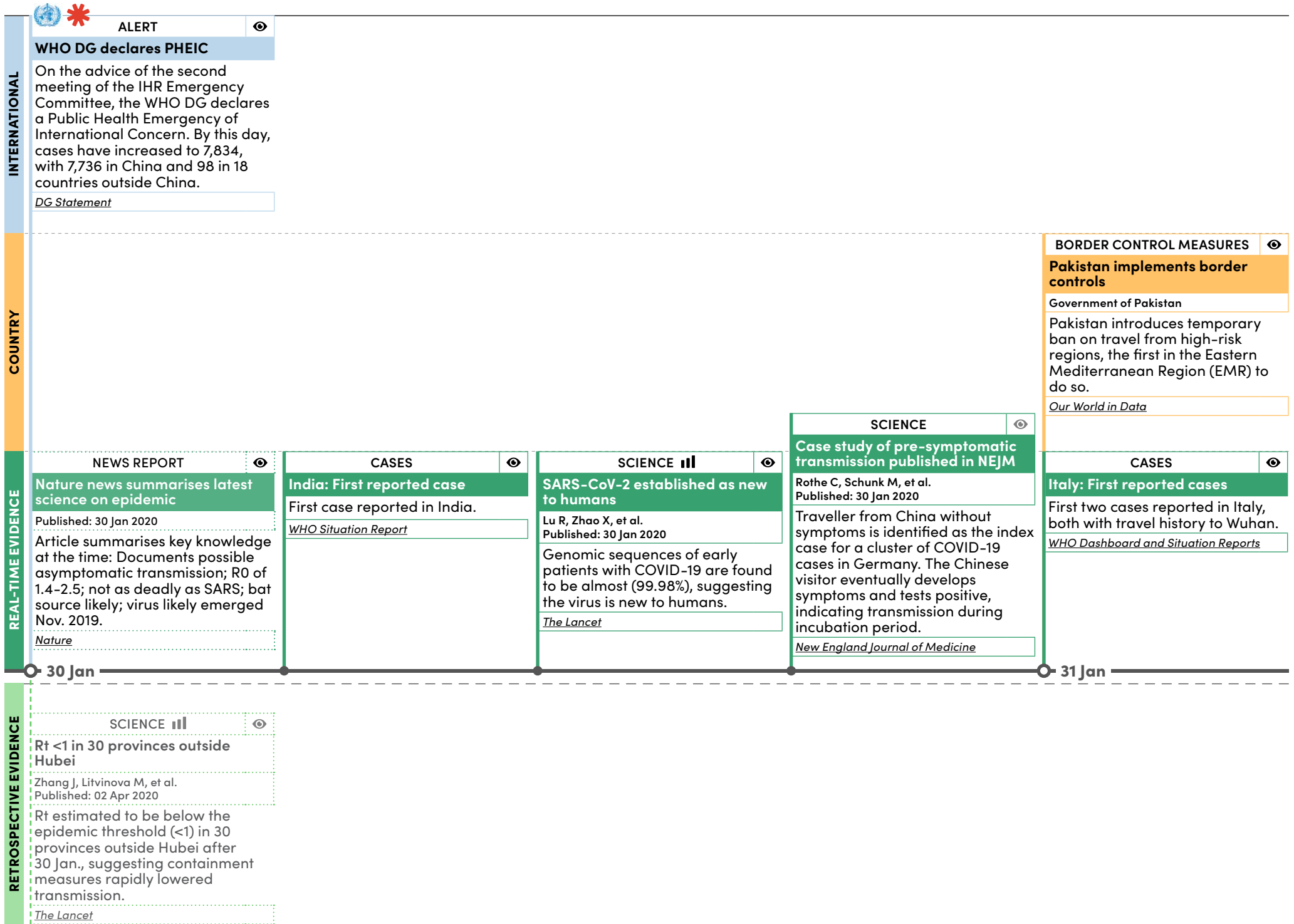


















INTERNATIONAL	<p><b>MEETING</b> </p> <p><b>Third meeting of the STAG-IH</b></p> <p>WHO STAG-IH</p> <p>STAG-IH discusses briefings on Strategic Response Plan, and R&amp;D Update-Global Research and Innovation meeting.</p> <p><a href="#">WHO</a></p>	<p><b>NEWS BRIEFING</b> </p> <p><b>WHO DG updates on his visit to China</b></p> <p>WHO DG</p> <p>“China’s efforts to contain the outbreak at the epicentre have been essential for preventing the further spread of the virus.”</p> <p><a href="#">DG Press Briefing</a></p>	<p><b>INTERIM GUIDANCE</b> </p> <p><b>Interim guidance on the use of masks</b></p> <p>WHO HQ</p> <p>Published: 29 Jan 2020</p> <p>Wearing a medical mask is one of the prevention measures to limit spread of certain respiratory diseases, including 2019-nCoV, during home care and in health care settings.</p> <p><a href="#">WHO HQ</a></p>	<p><b>MEETING</b> </p> <p><b>First meeting of PSCN</b></p> <p>Pandemic Supply Chain Network</p> <p>The Pandemic Supply Chain Network (PSCN), created by WHO in collaboration with the World Economic Forum, holds its first meeting to develop a market capacity and risk assessment for personal protective equipment (PPE).</p> <p><a href="#">WHO Situation Report</a></p>
	<p><b>BORDER CONTROL MEASURES</b> </p> <p><b>Georgia implements border controls</b></p> <p>Government of Georgia</p> <p>Georgia implements travel ban from high-risk regions, the first in EUR to do so.</p> <p><a href="#">Our World in Data</a></p> <p>Cases per million</p> <p>Georgia: 0.251</p>			
COUNTRY				
REAL-TIME EVIDENCE	<p><b>CASES</b> </p> <p><b>China reaches 6,000 cases, spread to 15 countries</b></p> <p>6,065 cases globally, of which 5,997 are from China. 68 cases reported outside China, in 15 countries.</p> <p><a href="#">WHO Situation Report</a></p>	<p><b>CASES</b> </p> <p><b>United Arab Emirates: First reported cases</b></p> <p>WHO</p> <p>Published: 29 Jan 2020</p> <p>Four cases reported in the United Arab Emirates in air travelers arriving from Wuhan.</p> <p><a href="#">WHO Situation Report</a></p>	<p><b>SCIENCE</b> </p> <p><b>Bat coronavirus likely ancestor of SARS-CoV-2</b></p> <p>Paraskevis D, Kostaki EG, et al.</p> <p>Published: 29 Jan 2020</p> <p>A bat coronavirus is found to share 96.3% of its genome with SARS-CoV-2.</p> <p><a href="#">Infection, Genetics and Evolution, Nature</a></p>	<p><b>CASES</b> </p> <p><b>Study of first 425 Wuhan cases published in NEJM</b></p> <p>Li Q, Guan X, et al.</p> <p>Published: 29 Jan 2020</p> <p>Study of first 425 lab-confirmed cases in Wuhan demonstrates epidemiological characteristics of the disease. Confirms h-to-h transmission since mid-Dec. Supports 14 day quarantine period for those exposed.</p> <p><a href="#">New England Journal of Medicine</a></p>
RETROSPECTIVE EVIDENCE	<p><b>SCIENCE</b> </p> <p><b>Diagnostic reagent provided across China</b></p> <p>Chinese CDC</p> <p>Published: 26 Mar 2020</p> <p>Diagnostic tests made widely available in all China’s provinces.</p> <p><a href="#">New England Journal of Medicine</a></p>			









28 Jan, cont.

29 Jan



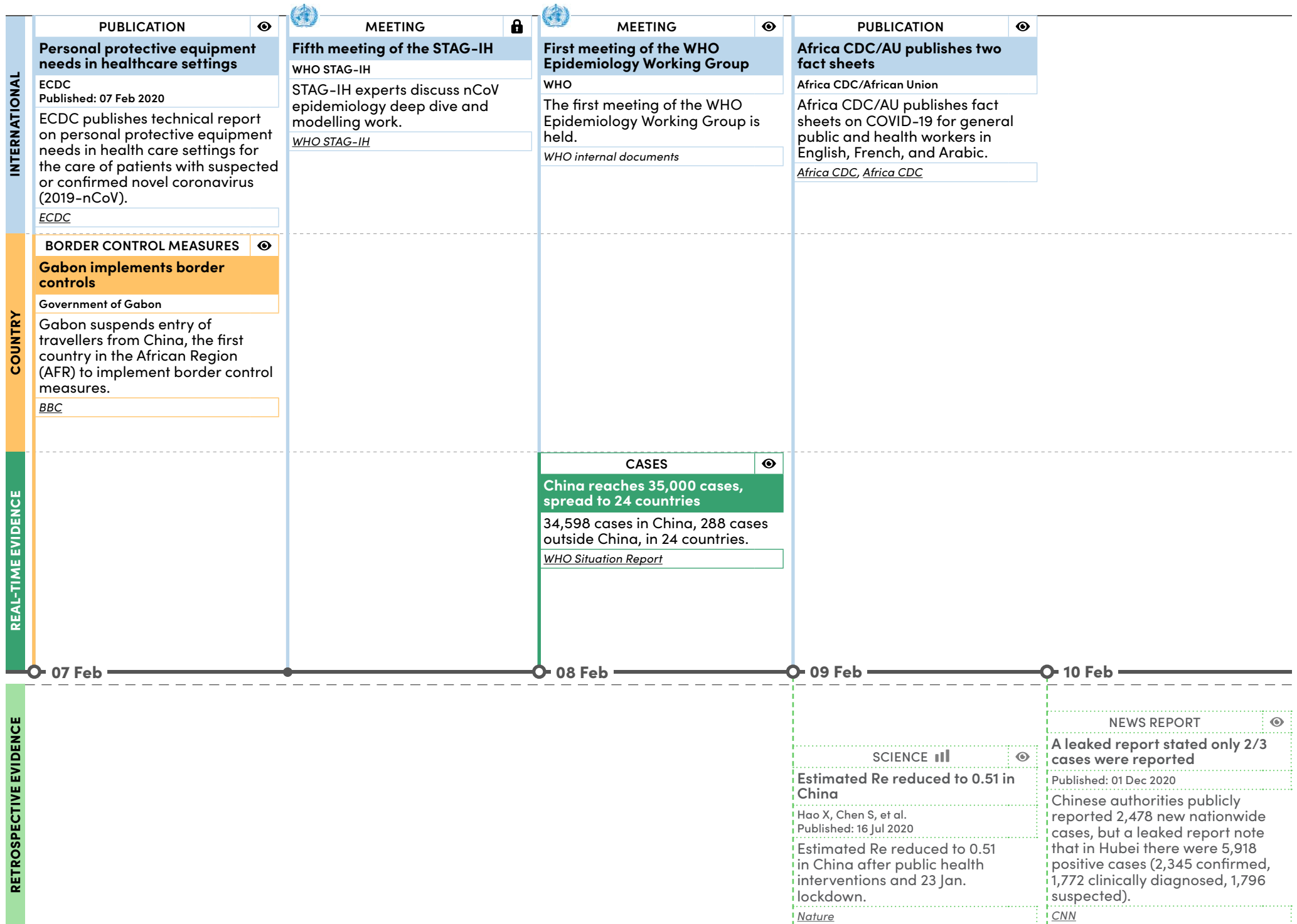
INTERNATIONAL							 <b>ACTION</b>  <b>WHO ships first PCR-based diagnostic tests</b> WHO The first consignment of validated PCR-based diagnostic tests is shipped by WHO from Germany to countries and WHO Regional Offices. <i>WHO internal documents</i>
	COUNTRY	<b>BORDER CONTROL MEASURES</b>  <b>Two countries implement border controls</b> Governments of El Salvador and Jamaica Jamaica bans travel from China. El Salvador implements travel restrictions for high-risk countries, the first country in AMR to do so. <i>Jamaica, El Salvador</i>	<b>SCHOOL CLOSURES</b>  <b>Viet Nam closes schools</b> Government of Viet Nam Government of Viet Nam mandates that all schools should remain closed after Lunar New Year holiday. <i>Our World in Data</i>	<b>DECLARATION OF EMERGENCY</b>  <b>Viet Nam declares national epidemic</b> Prime Minister Viet Nam declares a national epidemic. <i>Hanoi Times</i> Cases per million Viet Nam: 0.06	<b>CONTACT TRACING</b>  <b>Saudi Arabia implements comprehensive contact tracing</b> Government of Saudi Arabia Contact tracing for all cases of COVID-19 introduced in Saudi Arabia, the first in EMR to do so. <i>Our World in Data</i>	<b>BORDER CONTROL MEASURES</b>  <b>Fiji implements border controls</b> Government of Fiji Travel from China banned for all foreigners. <i>Fiji Sun</i> Cases per million Fiji: 0.00	
		 <b>SCIENCE</b>   <b>Scientists forecast global pandemic</b> Wu JT, Leung K, Leung G Published: 31 Jan 2020 Researchers estimate 75,815 cases in Wuhan, forecast exponential growth in major Chinese cities and global spread, calling for preparedness plans. <i>The Lancet</i>	<b>CASES</b>  <b>China surpasses 10,000 cases, spread to 23 countries</b> 11,821 cases in China, 132 cases outside China, in 23 countries. <i>WHO Situation Report</i>		<b>NEWS REPORT</b>  <b>NY Times publishes account of events before Wuhan lockdown</b> Published: 01 Feb 2020 The NY Times publishes an account of events leading up to the lockdown in Wuhan. This includes early suspicions of the possibility of h-to-h transmission. The article also outlines ways in which people felt Wuhan authorities underplayed the severity of the outbreak, and would have liked to see more transparency. <i>NY Times</i>	<b>CASES</b>  <b>First reported death outside China</b> Published: 02 Feb 2020 The first death outside China is reported in the Philippines. <i>WHO Situation Report</i>	












RETROSPECTIVE EVIDENCE						
	 <b>NEWS REPORT</b>  <b>WHO Representative to China holds video briefing with diplomats</b> Published: 02 Apr 20 On the video briefing, WHO's representative to China "praised the Chinese...response. Then he went a step further, calling on other countries not to step out of line with the WHO recommendations..." <i>Globe and Mail</i>					

INTERNATIONAL			 <b>MEETING</b> 	<b>ACTION</b> 	
			<b>WHO DG gives speech at WHO EB meeting</b> WHO DG WHO DG begins reporting on the COVID-19 PHEIC from paragraph 53 of his remarks. The DG also quotes President Xi Jinping, who during the DG’s visit to Beijing said: “We will take serious measures at the epicentre, at the source, in order to protect our people, and also to prevent the spread of the virus to other countries.” <a href="#">WHO</a>	<b>Africa CDC establishes continent-wide task force</b> Africa CDC Published: 05 Feb 2020 Africa CDC inaugurates Africa Task Force for Novel Coronavirus (AFCOR); as of yet no cases confirmed in Africa. <a href="#">Africa CDC</a>	
COUNTRY	<b>BORDER CONTROL MEASURES</b> 	<b>BORDER CONTROL MEASURES</b> 			
	<b>The US implements border controls</b> US President Presidential proclamation issued suspending entry into the US of “aliens” who had been in China in the preceding 14 days. <a href="#">Presidential Proclamation</a> Cases per million United States: 0.03	<b>New Zealand bans Chinese travellers and boosts border screening</b> Government of New Zealand Restrictions put in place preventing “foreign nationals from or transiting through mainland China from entering New Zealand.” <a href="#">The Guardian</a>			
REAL-TIME EVIDENCE			<b>ACTION</b> 	<b>SCIENCE</b>  	
			<b>Diamond Princess anchors at Yokohama</b> Diamond Princess The Diamond Princess cruise ship, with 2,666 passengers and 1,045 crew members, quarantines off Yokohama port after a 14 day journey to Hong Kong, Viet Nam, and Taiwan. <a href="#">Disaster Medicine and Public Health Preparedness</a>	<b>Bat coronavirus is possible early progenitor</b> Zhou P, Yang X-L, et al. Published: 03 Feb 2020 At the whole genome level, the RaTG13 bat coronavirus from Yunnan province is 96% concordant with the SARS-CoV-2 genome. <a href="#">Nature</a>	
RETROSPECTIVE EVIDENCE	02 Feb, cont.		03 Feb		

	MEETING	PUBLICATION	MEETING	ACTION	
INTERNATIONAL	<b>WHO holds technical briefing on COVID-19 at WHO EB meeting</b> WHO DG The WHO DG underlines that “99% of the cases are in China and 97% of the deaths are in Hubei Province.” Nonetheless, he says, “Now is the moment for all countries to be preparing themselves” and notes that WHO has begun distributing supplies to 24 countries. He also urges countries to share data, saying WHO has received complete case report forms for only 38% of 176 cases outside China, including from high-income countries. He asks countries not to impose restrictions that are “inconsistent with the International Health Regulations,” noting that 22 countries already have done so. WHO	<b>Strategic preparedness and response plan</b> WHO HQ Published: 04 Feb 2020 WHO publishes COVID-19 strategic preparedness and response plan outlining public health measures for the international community. The 2019_nCoV Simulation Exercise to enhance national preparedness efforts is also made available online. WHO HQ	<b>Fourth meeting of the STAG-IH</b> WHO STAG-IH STAG-IH experts review WHO response strategy and discuss ‘strategy switch.’ WHO STAG-IH	<b>WHO DG begins daily media briefings</b> WHO Published: 05 Feb 2020 WHO DG begins daily media briefings to provide updates on the COVID-19 pandemic, clarify public health measures, and encourage action. WHO	
	COUNTRY		<b>BORDER CONTROL MEASURES</b> <b>The Republic of Korea issues border measures</b> Ministry of Health and Welfare Special entry procedures applied for all travelers from China. Ministry of Health News Release Cases per million Republic of Korea: 0.31		
REAL-TIME EVIDENCE		<b>NEWS REPORT</b> <b>WHO calls for improved data sharing</b> Published: 04 Feb 2020 WHO DG urges all health ministers to improve data sharing on coronavirus immediately and says he will send a team of international experts to work with Chinese counterparts. Reuters			<b>NEWS REPORT</b> <b>Chinese ambassador: UK overreacted to coronavirus</b> Published: 06 Feb 2020 Britain’s advice to its nationals to leave China because of outbreak in Hubei was an overreaction, the Chinese ambassador to London says. “We asked them to take the advice of the WHO to make a reasonable response. Do not overreact.” Reuters
RETROSPECTIVE EVIDENCE	04 Feb		05 Feb		06 Feb

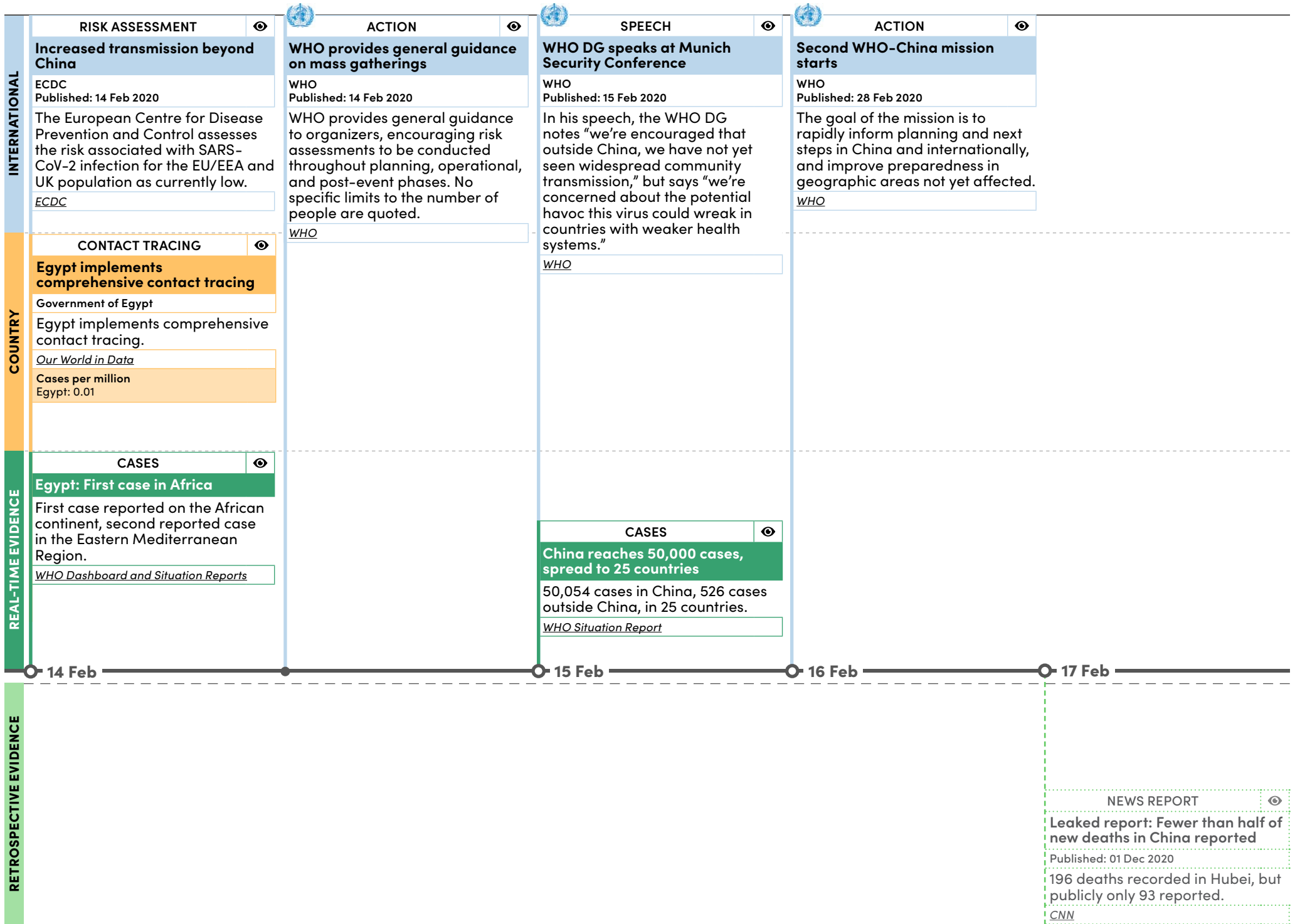


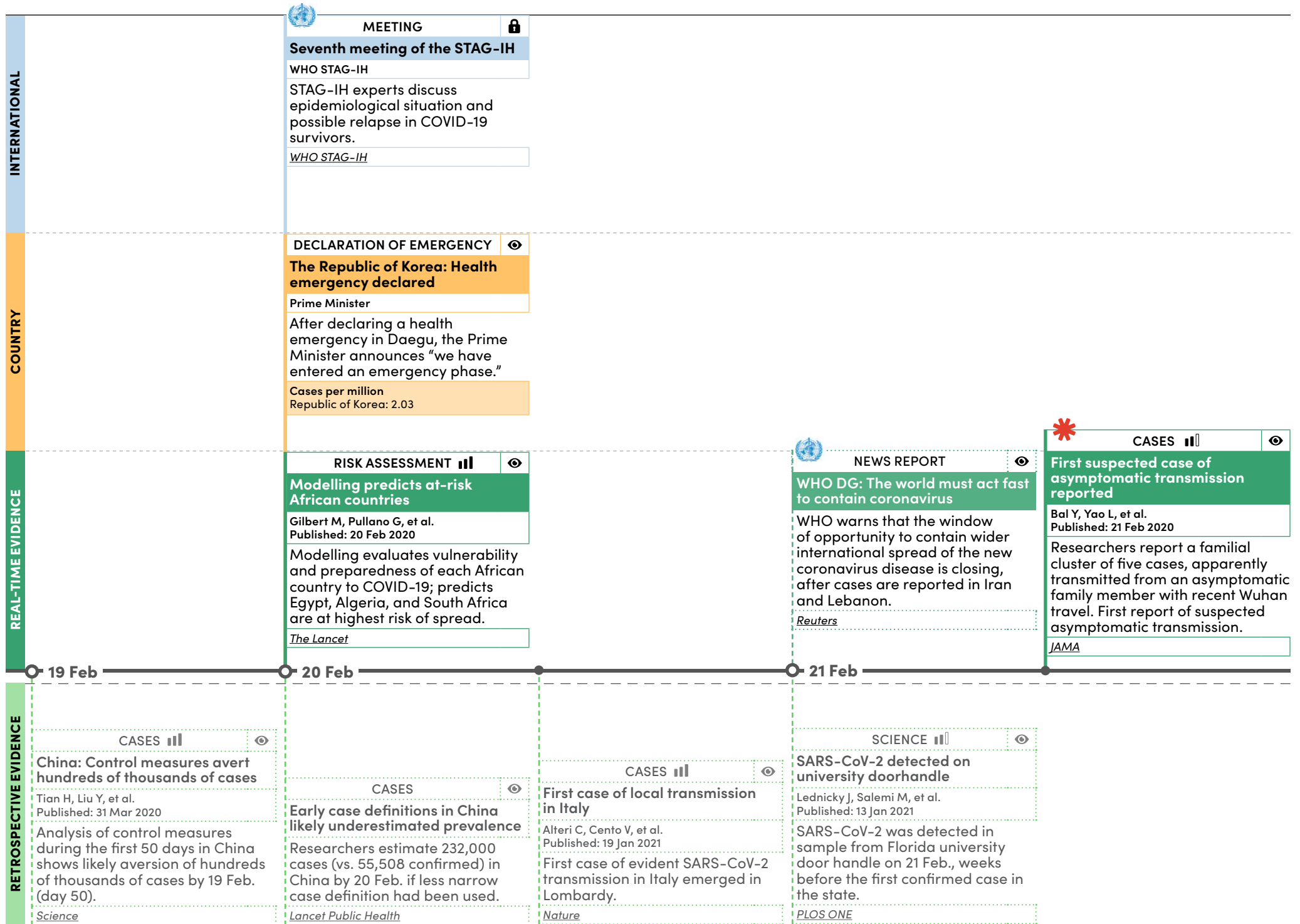


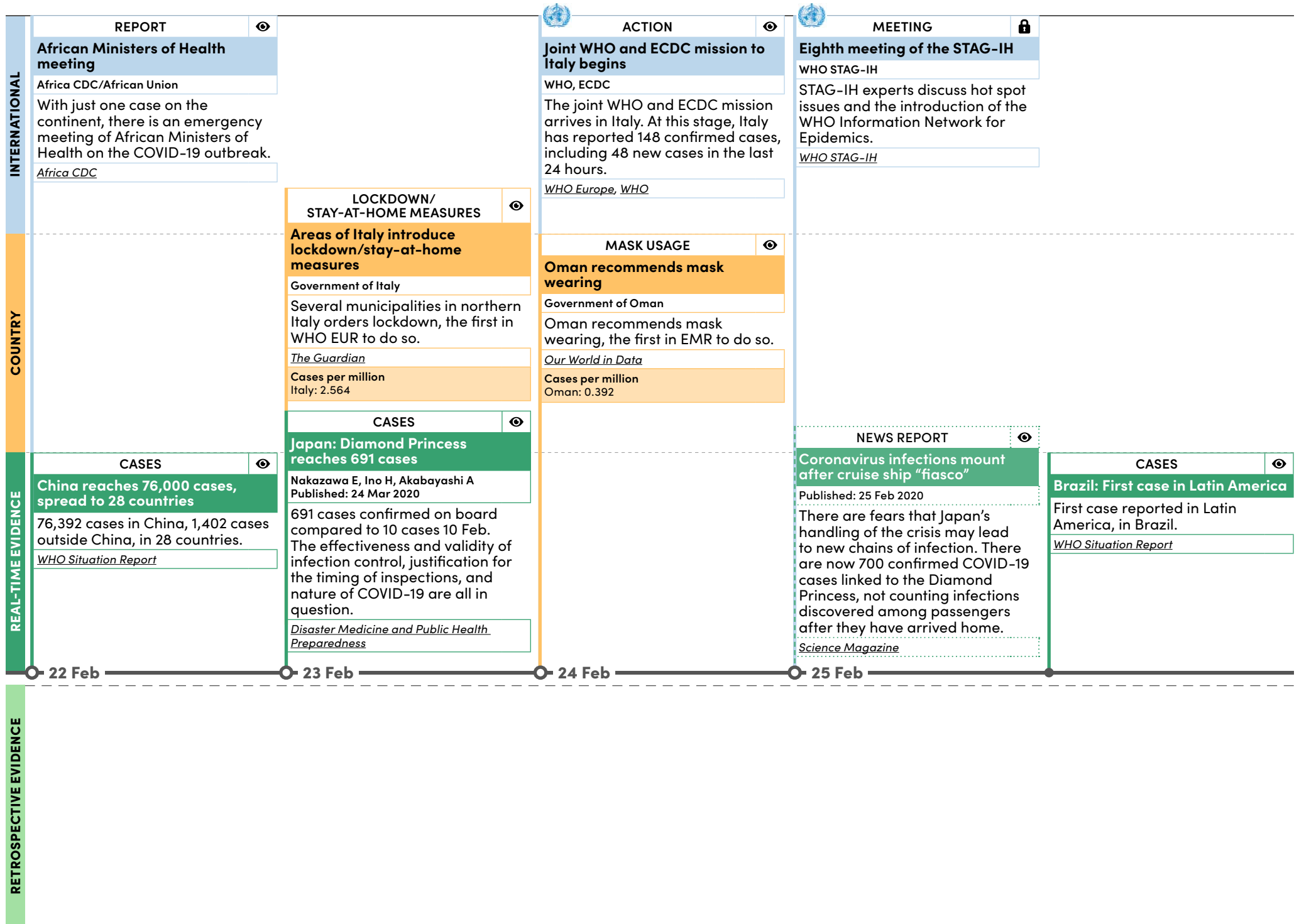
INTERNATIONAL	 <b>MEETING</b> 	 <b>MEETING</b> 	 <b>ANNOUNCEMENT</b> 	 11 Feb–12 Feb 2020 <b>MEETING</b> 	 <b>PUBLICATION</b>  
	<b>Sixth meeting of the STAG-IH</b> WHO STAG-IH STAG-IH expert meeting discusses clinical aspects of nCoV. <i>WHO STAG-IH</i>	<b>First meeting of the UN Crisis Management Team</b> UN Crisis Management Team WHO activates the United Nation (UN) Crisis Management Team, chaired by the Executive Director (ED) of the WHO Health Emergencies Program, to coordinate UN efforts to respond collectively to the 2019–nCoV outbreak. <i>DG Statement</i>	<b>WHO names disease as COVID-19</b> WHO The name of the disease, short for Coronavirus Disease, was chosen to avoid inaccuracy and stigma and therefore does not refer to a geographical location, an animal, an individual, or group of people. <i>DG Statement</i>	<b>WHO convenes global research and innovation forum</b> WHO 300 experts meet in person in Geneva, with a further 150 joining online, to prioritise research needs and discuss funding. <i>WHO</i>	<b>COVID-19: What is next for public health?</b> WHO STAG-IH A STAG-IH review shows strategy of containment for elimination is crucial and should continue until the end of February. <i>The Lancet</i>
COUNTRY					
REAL-TIME EVIDENCE					
RETROSPECTIVE EVIDENCE					

11 Feb

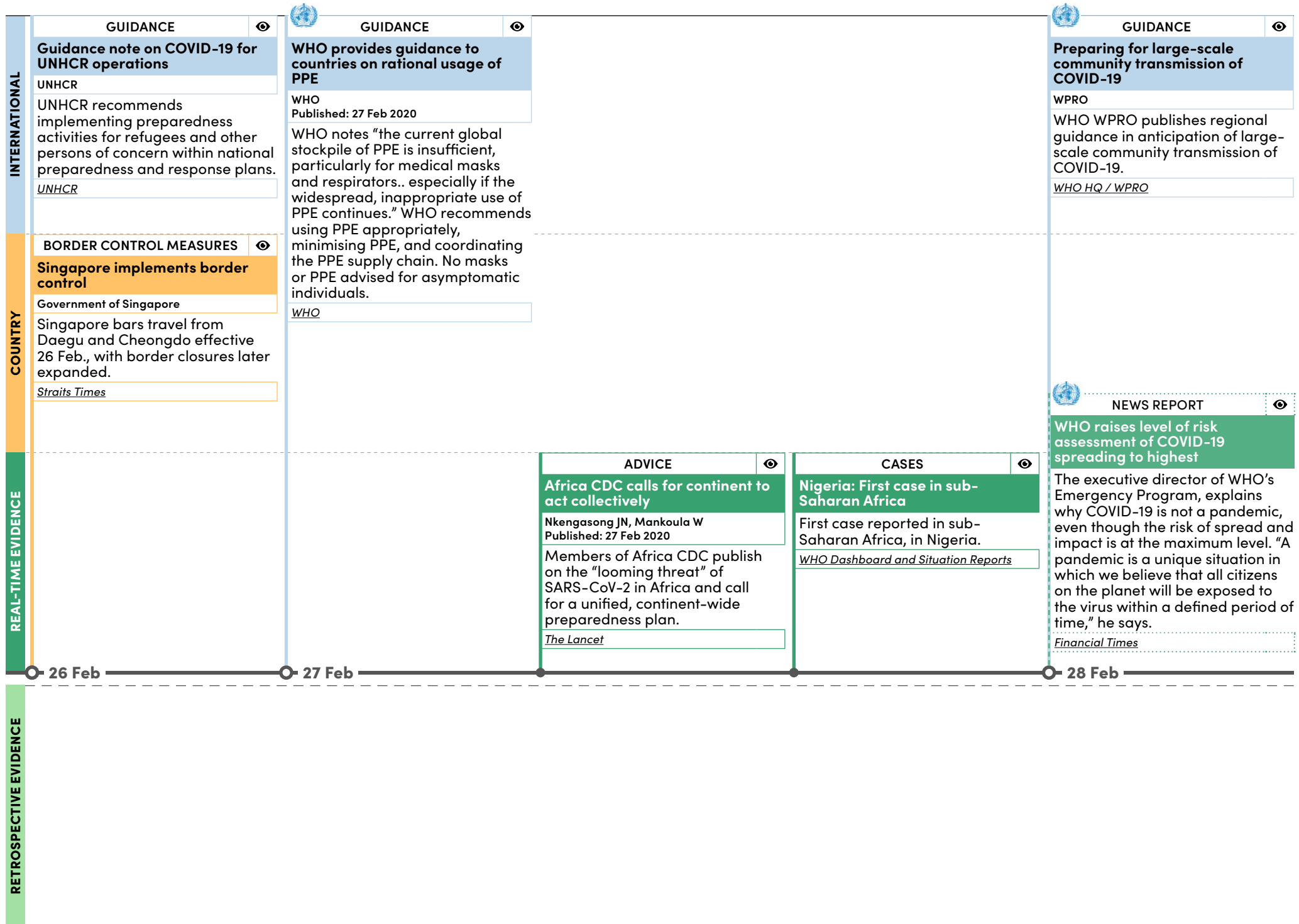
12 Feb







RETROSPECTIVE EVIDENCE



**INTERNATIONAL**

**GUIDANCE**

**Guidance note on COVID-19 for UNHCR operations**

UNHCR

UNHCR recommends implementing preparedness activities for refugees and other persons of concern within national preparedness and response plans.

*UNHCR*

**GUIDANCE**

**WHO provides guidance to countries on rational usage of PPE**

WHO

Published: 27 Feb 2020

WHO notes “the current global stockpile of PPE is insufficient, particularly for medical masks and respirators.. especially if the widespread, inappropriate use of PPE continues.” WHO recommends using PPE appropriately, minimising PPE, and coordinating the PPE supply chain. No masks or PPE advised for asymptomatic individuals.

*WHO*

**COUNTRY**

**BORDER CONTROL MEASURES**

**Singapore implements border control**

Government of Singapore

Singapore bars travel from Daegu and Cheongdo effective 26 Feb., with border closures later expanded.

*Straits Times*

**ADVICE**

**Africa CDC calls for continent to act collectively**

Nkengasong JN, Mankoula W

Published: 27 Feb 2020

Members of Africa CDC publish on the “looming threat” of SARS-CoV-2 in Africa and call for a unified, continent-wide preparedness plan.

*The Lancet*

**CASES**

**Nigeria: First case in sub-Saharan Africa**

First case reported in sub-Saharan Africa, in Nigeria.

*WHO Dashboard and Situation Reports*

**GUIDANCE**

**Preparing for large-scale community transmission of COVID-19**

WPRO

WHO WPRO publishes regional guidance in anticipation of large-scale community transmission of COVID-19.

*WHO HQ / WPRO*

**NEWS REPORT**

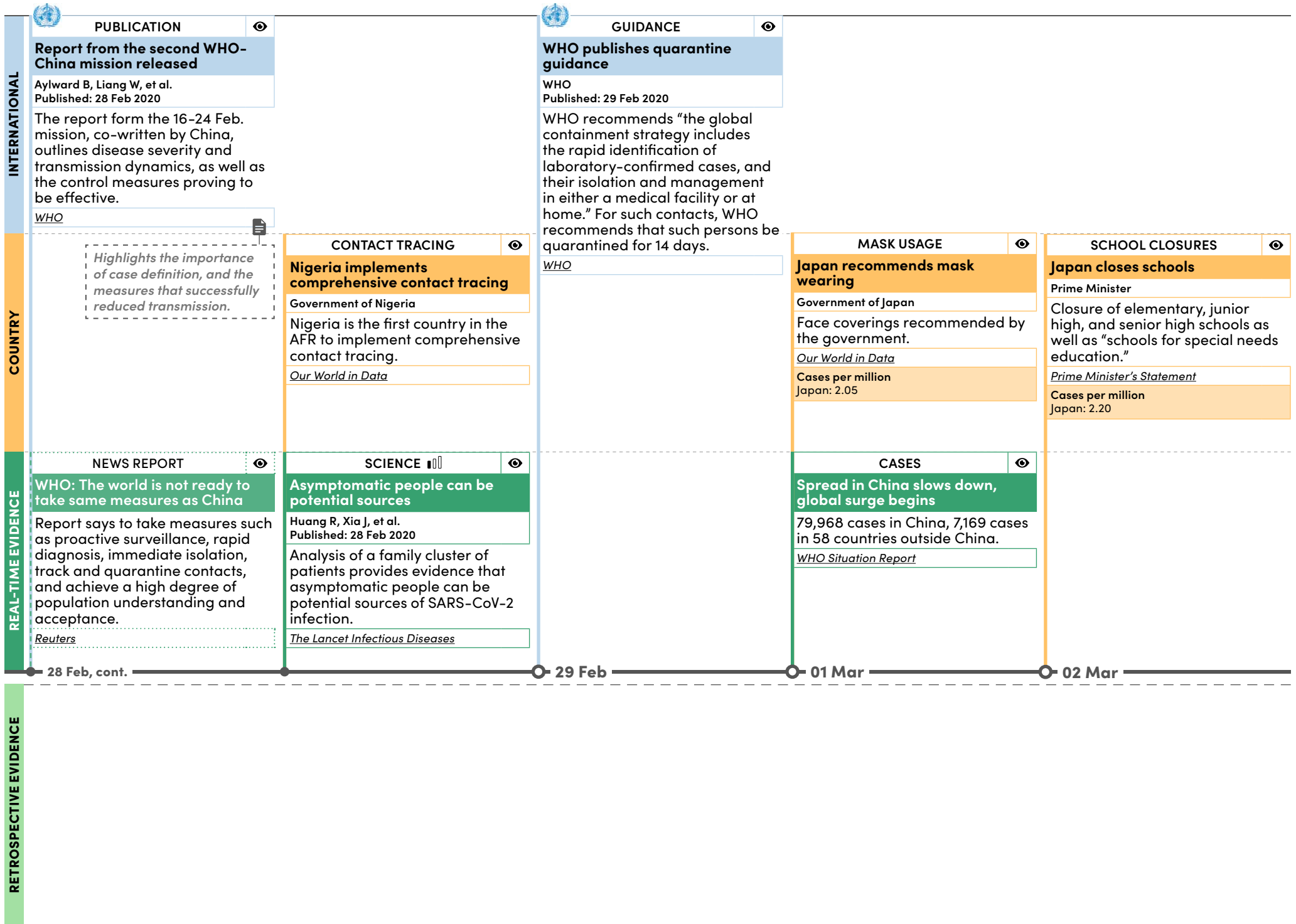
**WHO raises level of risk assessment of COVID-19 spreading to highest**








The executive director of WHO’s Emergency Program, explains why COVID-19 is not a pandemic, even though the risk of spread and impact is at the maximum level. “A pandemic is a unique situation in which we believe that all citizens on the planet will be exposed to the virus within a defined period of time,” he says.

*Financial Times*



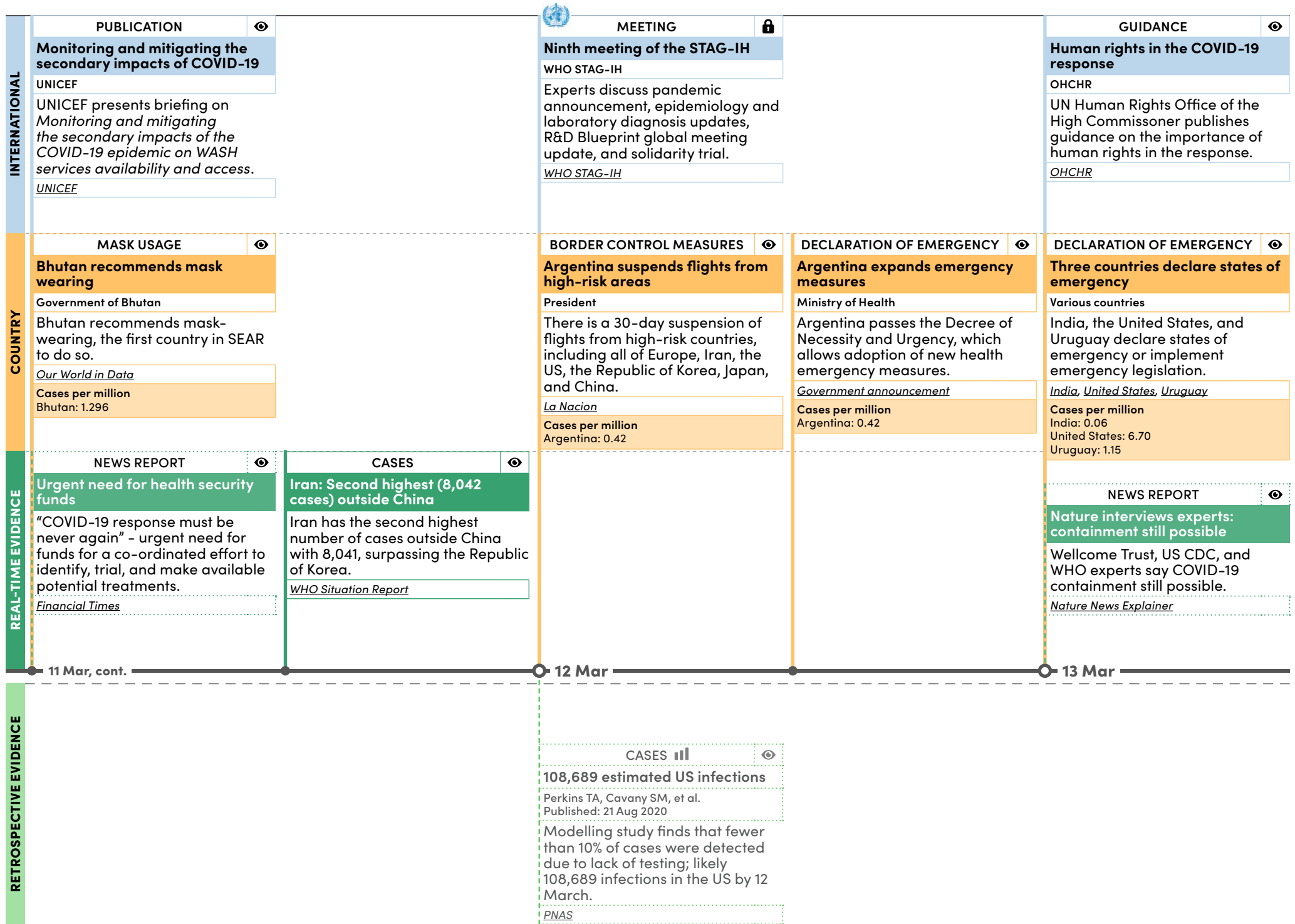
**RETROSPECTIVE EVIDENCE**









INTERNATIONAL	GUIDANCE 		PUBLICATION 		INTERIM GUIDANCE 	
COUNTRY	<b>MASK USAGE</b> 	<b>CONTACT TRACING</b> 	<b>Guidance for assessment, monitoring and movement restrictions in Africa</b>	<b>Africa Joint Continental Strategy for COVID-19 Outbreak</b>	<b>Responding to community spread of COVID-19</b>	<b>LOCKDOWN/ STAY-AT-HOME MEASURES</b> 
	<p>Government of Brazil</p> <p>Brazil recommends mask-wearing, the first in the Americas to do so.</p> <p><i>Our World in Data</i></p> <p>Cases per million Brazil: 0.009</p>	<p>Government of Argentina</p> <p>Argentina is the first country in AMR to implement comprehensive contact tracing.</p> <p><i>Our World in Data</i></p> <p>Cases per million Argentina: 0.02</p>	<p>Africa CDC/African Union</p> <p>Africa CDC/African Union publishes <i>Africa CDC Guidance for Assessment, Monitoring and Movement Restrictions of People at Risk for COVID-19 in Africa</i>.</p> <p><i>Africa CDC</i></p>	<p>Africa CDC/African Union present <i>Africa Joint Continental Strategy for COVID-19 Outbreak</i>, focusing on limiting transmission and minimizing harm from COVID-19, requiring an all-of-government approach.</p> <p><i>Africa CDC</i></p>	<p>WHO HQ</p> <p>Guidance issued in ten areas, including: National coordination, risk communication, public health measures, case management, infection prevention, control, surveillance, laboratory systems, and R&amp;D.</p> <p><i>WHO HQ</i></p>	<p>Ministry of Health</p> <p>"Circuit-breaker" partial-lockdown introduced with closures of schools, workplaces, non-essential services, venues, and attractions.</p> <p><i>Ministry of Health News Highlight</i></p> <p>Cases per million Singapore: 23.59</p>
REAL-TIME EVIDENCE			<b>CASES</b> 			
			<p><b>South Africa: First reported case</b></p> <p>First case reported in South Africa.</p> <p><i>WHO Situation Report</i></p>			
RETROSPECTIVE EVIDENCE	02 Mar, cont.	04 Mar	05 Mar		07 Mar	



INTERNATIONAL	<p><b>ANNOUNCEMENT</b></p> <p><b>GPMB calls for \$8 billion and for G7 and G20 leadership</b></p> <p>GPMB Published: 09 Mar 2020</p> <p>The Global Preparedness and Monitoring Board (GPMB) calls for an immediate injection of USD 8 billion for the COVID-19 response, and for G7 and G20 leaders to meet.</p> <p><i>GPMB</i></p>	<p><b>GUIDANCE</b></p> <p><b>COVID-19 prevention and control in schools</b></p> <p>UNICEF, WHO, IFRC</p> <p>UNICEF, WHO, and the International Federation of Red Cross and Red Crescent Societies (IFRC) publish joint paper on key messages and actions for COVID-19 prevention and control in schools.</p> <p><i>UNICEF, WHO, IFRC</i></p>	<p><b>ANNOUNCEMENT</b></p> <p><b>WHO DG announces pandemic</b></p> <p>WHO DG</p> <p>WHO DG announces pandemic: “WHO has been assessing this outbreak around the clock and we are deeply concerned both by the alarming levels of spread and severity, and by the alarming levels of inaction. We have therefore made the assessment that COVID-19 can be characterized as a pandemic”.</p> <p><i>WHO DG Speech</i></p>
	<p><b>COUNTRY</b></p> <p><b>MASK USAGE</b></p> <p><b>India issues mask guidance</b></p> <p>Ministry of Health and Family Welfare</p> <p>India issues guidance outlining where masks should be worn.</p> <p><i>Government Guidelines</i></p> <p><b>Cases per million</b> India: 0.03</p>	<p><b>LOCKDOWN/ STAY-AT-HOME MEASURES</b></p> <p><b>Italy imposes first national lockdown</b></p> <p>Italy Published: 10 Mar 2020</p> <p>Expanding on previous local restrictions, Italy announces first nationwide lockdown in an effort to contain spread of COVID-19.</p> <p><i>Washington Post</i></p>	<p><b>SCHOOL CLOSURES</b></p> <p><b>Four countries implement school closures</b></p> <p>Various countries</p> <p>Pakistan, Peru, Sri Lanka, and the US implement various levels and types of school closures this week.</p> <p><i>Pakistan, Peru, Sri Lanka, United States</i></p> <p><b>Cases per million</b> Pakistan: 0.14 Peru: 0.33 Sri Lanka: 0.28 United States: 4.79</p>
REAL-TIME EVIDENCE	<p><b>CASES</b></p> <p><b>Spread to 101 countries, cases outside China approach 25,000</b></p> <p>80,859 cases in China, 24,727 cases outside China, in 101 countries.</p> <p><i>WHO Situation Report</i></p>	<p><b>CASES</b></p> <p><b>Italy: Highest case number outside China (9,172)</b></p> <p>Italy’s lockdown is extended nationwide as it reaches 9,172 cases (the highest outside China), expanding exponentially.</p> <p><i>WHO Situation Report</i></p>	<p><b>NEWS REPORT</b></p> <p><b>NY Times: “A Fumbled Global Response to the Virus in a Leadership Void”</b></p> <p>“While world leaders are at last speaking out about the gravity of the pandemic, their voices are less a choir than a cacophony.”</p> <p><i>NY Times</i></p>
	<p><b>RETROSPECTIVE EVIDENCE</b></p> <p><b>CASES</b></p> <p><b>258,728 estimated infections in China</b></p> <p>Hao X, Chen S, et al. Published: 16 Jul 2020</p> <p>Reconstruction of transmission dynamics of COVID-19 in Wuhan estimated that there were 258,728 infections by 8 March.</p> <p><i>Nature</i></p>	<p><b>SCIENCE</b></p> <p><b>Severity increases with age</b></p> <p>Pan A, Liu L, et al. Published: 10 Apr 2020</p> <p>Data from 32,583 Wuhan cases identified between 8 Dec. 2019 and 8 March 2020 showed that severity increased with age and that public health measures were effective in dropping the reproduction rate</p> <p><i>JAMA</i></p>	<p><b>SCIENCE</b></p> <p><b>Estimates of severity of COVID-19</b></p> <p>Verity R, Okell L.C, et al. Published 30 Mar 2020</p> <p>Early dynamics of transmission and control of COVID-19: a mathematical modelling study.</p> <p><i>Lancet Infectious Diseases</i></p>
<p>08 Mar ————— 09 Mar ————— 10 Mar ————— 11 Mar</p>			



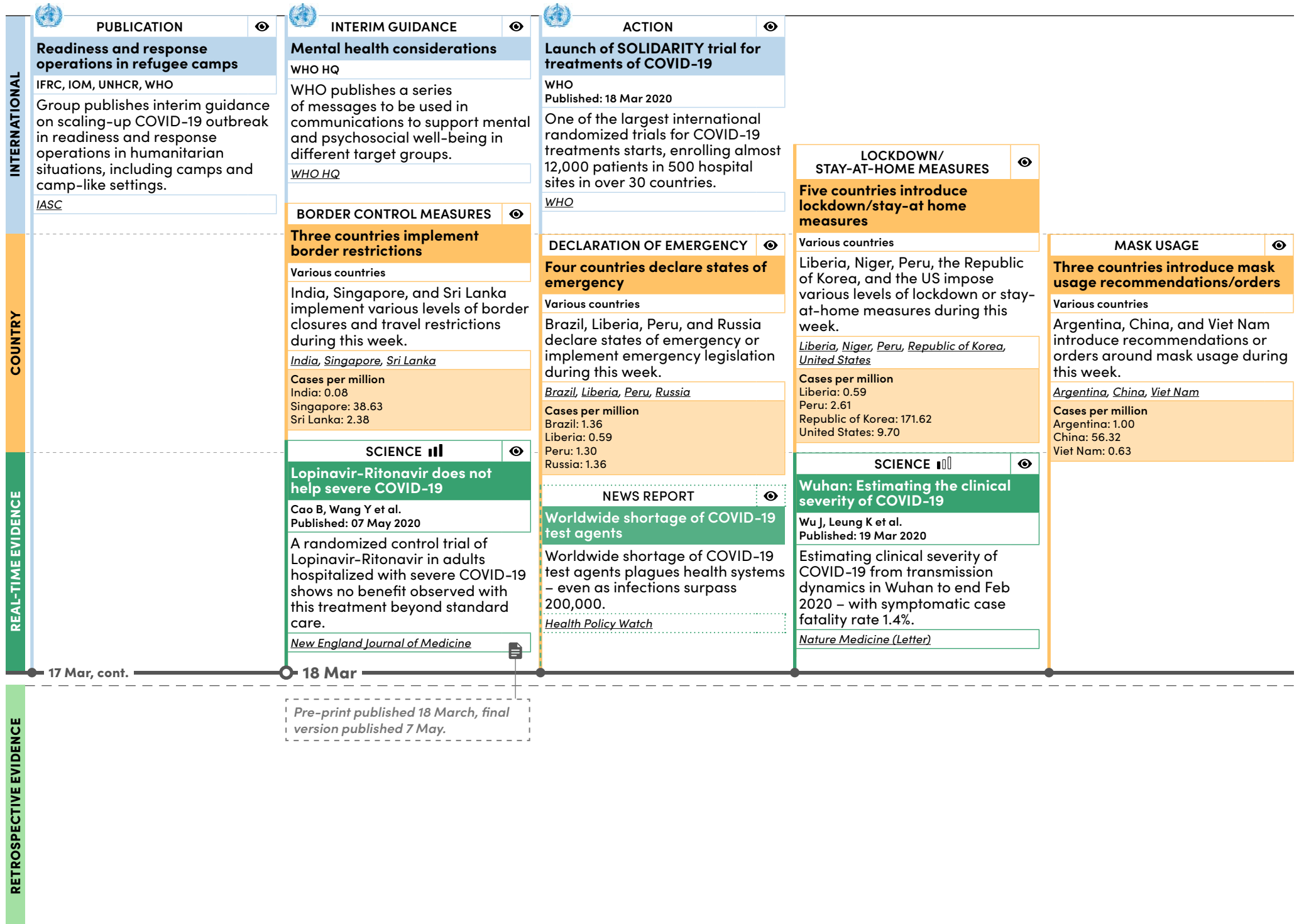
INTERNATIONAL	ANNOUNCEMENT 				
INTERNATIONAL	<b>WHO, UN Foundation, and partners launch COVID-19 Solidarity Response Fund</b>				
	WHO Published: 13 Mar 2020 The Solidarity Response Fund is a new mechanism for WHO to receive resources from a broader funding base, including private individuals, and corporations. <a href="#">WHO</a>				
COUNTRY	LOCKDOWN/ STAY-AT-HOME MEASURES 	LOCKDOWN/ STAY-AT-HOME MEASURES 	LOCKDOWN/ STAY-AT-HOME MEASURES 	DECLARATION OF EMERGENCY 	LOCKDOWN/ STAY-AT-HOME MEASURES 
COUNTRY	<b>Uruguay requests people to stay at home</b> President President asks people to stay in their homes to protect the population. <a href="#">BMJ</a> Cases per million Uruguay: 1.15	<b>Iraqi region introduces lockdown/stay-at-home measures</b> Iraq Kurdish Regional Government Kurdish region of Iraq placed under curfew, the first area in EMR to impose movement restrictions. <a href="#">Anadolu Agency</a> Cases per million Iraq: 2.511	<b>Two countries introduce lockdown/stay at home measures</b> Governments of Jamaica and Venezuela Jamaica introduces 2 week quarantine in select communities. Venezuela introduces mandatory stay-at-home measures except for essential reasons, the first countries in AMR to do so. <a href="#">Jamaica, Venezuela</a> Cases per million Jamaica: 2.702	<b>Spain: State of alarm declared</b> Ministry of the Presidency State of alarm declared for 15 days. <a href="#">Government announcement</a> Cases per million Spain: 136.69	<b>Spain begins lockdown</b> Prime Minister Two-week lockdown announced ordering people to stay at home with some exceptions for essential services. <a href="#">The Guardian</a> Cases per million Spain: 136.69
	REAL-TIME EVIDENCE	Timeline: 13 Mar, cont.   14 Mar			
RETROSPECTIVE EVIDENCE					

INTERNATIONAL	ACTION PLAN	COMMENT	MEETING	PUBLICATION
COUNTRY	<p><b>Risk Communication and Community Engagement Plan</b></p> <p>Tool for Risk Communication and Community Engagement (RCCE) staff and responders working with national health authorities and others, to develop, implement and monitor an action plan for communicating with the public and engaging communities and partners.</p> <p><i>WHO HQ</i></p>	<p><b>COVID-19: Towards controlling of a pandemic</b></p> <p>WHO STAG-IH</p> <p>In a comment to the Lancet, STAG-IH outlines understanding of control activities and emphasizes research gaps that need to be addressed.</p> <p><i>Lancet</i></p>	<p><b>G7 leaders meet and issue statement</b></p> <p>G7</p> <p>Published: 16 Mar 2020</p> <p>“By acting together, we will work to resolve the health and economic risks caused by the COVID-19 pandemic and set the stage for a strong recovery of strong, sustainable economic growth and prosperity.”</p> <p><i>GZ</i></p>	<p><b>Mental health briefing note</b></p> <p>IASC</p> <p>The Inter-Agency Standing Committee, the highest level humanitarian coordination forum of the UN system, publishes an interim briefing note addressing mental health and psychosocial aspects of the COVID-19 outbreak.</p> <p><i>IASC</i></p>
REAL-TIME EVIDENCE	<p><b>BORDER CONTROL MEASURES </b></p> <p><b>Four countries implement border restrictions</b></p> <p>Various countries</p> <p>Argentina, Liberia, Peru, and Spain implement various levels of border closures and travel restrictions.</p> <p><i>Argentina, Liberia, Peru, Spain</i></p> <p><b>Cases per million</b></p> <p>Argentina: 1.24 Liberia: 0.20 Peru: 2.61 Spain: 212.64</p>	<p><b>SCHOOL CLOSURES </b></p> <p><b>Four countries implement school closures</b></p> <p>Various countries</p> <p>Argentina, Germany, India, and Spain implement various levels and types of school closures.</p> <p><i>Argentina, Germany, India, Spain</i></p> <p><b>Cases per million</b></p> <p>Argentina: 1.24 Germany: 86.80 India: 0.09 Spain: 212.64</p>	<p><b>BORDER CONTROL MEASURES </b></p> <p><b>India implements border controls</b></p> <p>Government of India</p> <p>Land borders with Myanmar, Bhutan, Nepal, Bangladesh closed. Land border with Pakistan closed. First country in SEAR to take these measures.</p> <p><i>Indian Ministry of Home Affairs</i></p>	
RETROSPECTIVE EVIDENCE	<p><b>CASES </b></p> <p><b>143 countries, over 72,000 cases</b></p> <p>81,048 cases in China, 72,469 cases outside China, in 143 countries.</p> <p><i>WHO Situation Report</i></p>	<p><b>SCIENCE </b></p> <p><b>Imperial College publishes mitigation vs. suppression model</b></p> <p>Ferguson N, Laydon D, et al.</p> <p>Influential epidemiological model of the impact of different non-pharmaceutical interventions is published.</p> <p><i>Imperial College</i></p>		

15 Mar

16 Mar

17 Mar











INTERNATIONAL	<p><b>REPORT</b></p> <p><b>Responding to the socio-economic impacts of COVID-19</b></p> <p>UN</p> <p>The UN publishes a global solidarity document on responding to the socio-economic impacts of COVID-19.</p> <p><i>UN</i></p>				
COUNTRY	<p><b>SCHOOL CLOSURES</b></p> <p><b>Six countries implement school closures</b></p> <p>Various countries</p> <p>Egypt, Liberia, Nigeria, Sweden, Thailand, and Uruguay implement various levels and types of school closures during during this week.</p> <p><i>Egypt, Liberia, Nigeria, Sweden, Thailand, Uruguay</i></p> <p><b>Cases per million</b></p> <p>Egypt: 1.08 Liberia: 0.59 Nigeria: 0.04 Sweden: 125.26 Thailand: 3.04 Uruguay: 2.30</p>	<p><b>LOCKDOWN/ STAY-AT-HOME MEASURES</b></p> <p><b>Lesotho introduces lockdown/ stay-at home measures</b></p> <p>Government of Lesotho</p> <p>Lesotho introduces measures mandating people to stay at home except for "extreme circumstances," the first in AFR to do so.</p> <p><i>Our World in Data</i></p>	<p><b>BORDER CONTROL MEASURES</b></p> <p><b>Six countries implement border restrictions</b></p> <p>Various countries</p> <p>Egypt, Germany, New Zealand, Niger, the Republic of Korea, and Sweden implement various levels of border closures and travel restrictions.</p> <p><i>Egypt, Germany, New Zealand, Niger, Republic of Korea, Sweden</i></p> <p><b>Cases per million</b></p> <p>Egypt: 2.30 Germany: 182.85 New Zealand: 5.81 Republic of Korea: 167.06 Sweden: 153.77</p>	<p><b>LOCKDOWN/ STAY-AT-HOME MEASURES</b></p> <p><b>Two countries introduce lockdown/ stay-at home measures</b></p> <p>Various countries</p> <p>Argentina and Fiji introduce various levels of lockdown or stay-at-home measures.</p> <p><i>Argentina, Fiji</i></p> <p><b>Cases per million</b></p> <p>Argentina: 2.15 Fiji: 1.12</p>	<p><b>LOCKDOWN/ STAY-AT-HOME MEASURES</b></p> <p><b>Sri Lanka introduces lockdown/ stay-at-home measures</b></p> <p>Government of Sri Lanka</p> <p>Lockdown-style curfew imposed for whole country, with recommendations that people stay in their homes. First country in the region to do so.</p> <p><i>Economy Next</i></p> <p><b>Cases per million</b></p> <p>Sri Lanka: 2.8</p>
RETROSPECTIVE EVIDENCE	<p>18 Mar, cont. <span style="margin-left: 150px;">19 Mar</span></p>				

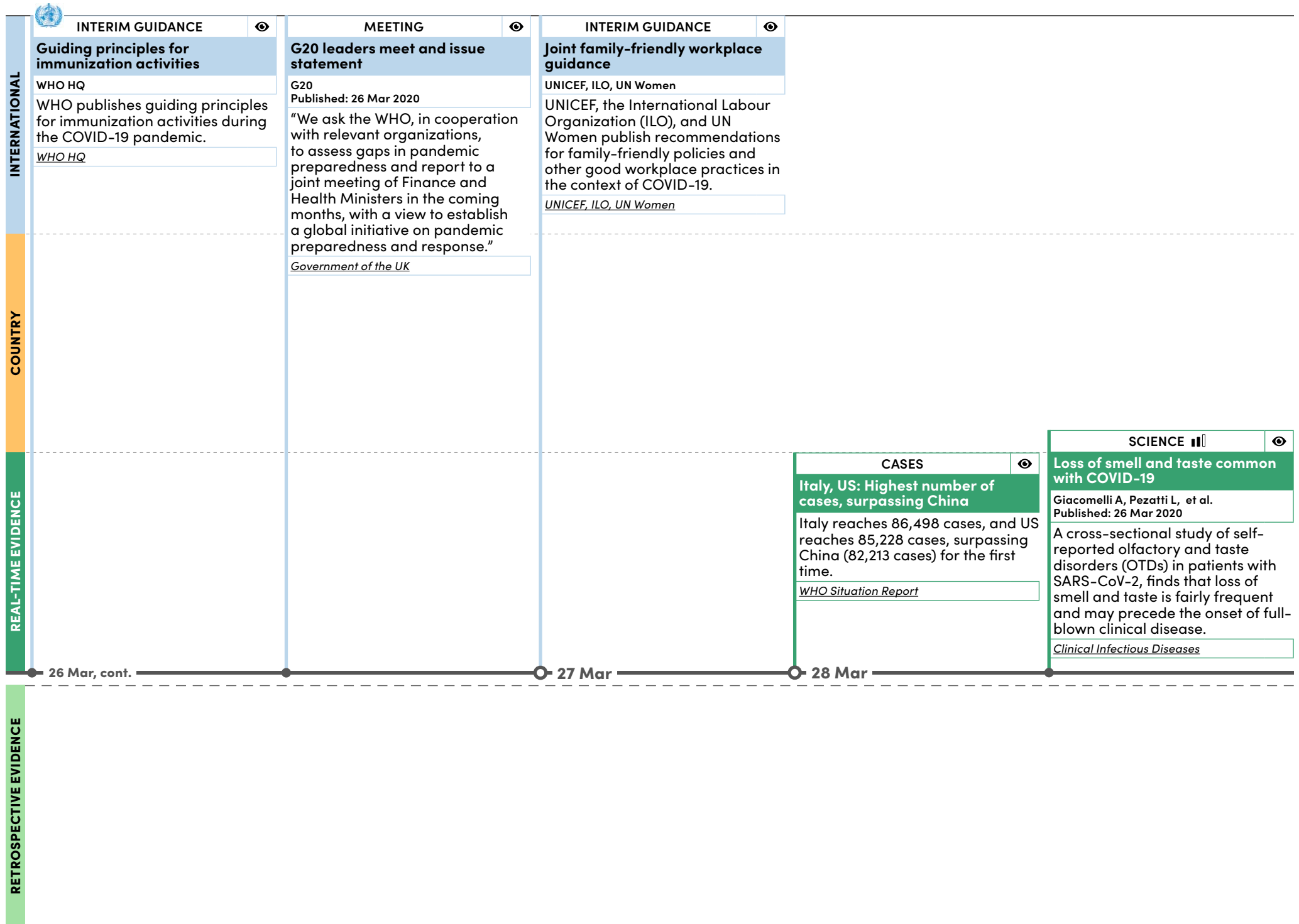
	PUBLICATION	ACTION	INTERIM GUIDANCE	INTERIM GUIDANCE	
INTERNATIONAL	<b>A gender lens on COVID-19</b> UNFPA United Nations Population Fund (UNFPA) publishes technical brief on protecting sexual and reproductive health and rights, and promoting gender equality. <i>UNFPA</i>	<b>WHO and social media companies launch Health Alert messaging service</b> WHO Published: 20 Mar 2020 WHO launches dedicated COVID-19 public health messaging services in Arabic, English, French, Hindi, Italian, Spanish, and Portuguese with WhatsApp and Facebook.	<b>Laboratory testing strategy recommendations</b> WHO HQ WHO publishes recommendations for laboratory testing strategy. It describes the strategic use of diagnostic tests in different scenarios and includes how to rationalize testing when testing capacity/reagents are lacking. <i>WHO HQ</i>	<b>Infection prevention in long-term care</b> WHO HQ WHO publishes interim guidance on infection prevention and control in long-term care facilities to prevent spread within and outside the facility. <i>WHO HQ</i>	
	<b>SCHOOL CLOSURES</b> <b>Four countries implement school closures</b> Various countries Fiji, Niger, Uganda, and the UK implement various levels and types of school closures. <i>Fiji, Niger, Uganda, United Kingdom</i> Cases per million Fiji: 1.12 Niger: 0.04 United Kingdom: 114.77	<i>WHO</i>	<b>BORDER CONTROL MEASURES</b> <b>Three countries implement border restrictions</b> Various countries Mexico, Pakistan, and Uganda implement various levels of border closures and travel restrictions. <i>Mexico, Pakistan, Uganda</i> Cases per million Mexico: 1.95 Pakistan: 3.51 Uganda: 0.02		<b>BORDER CONTROL MEASURES</b> <b>Four countries implement border restrictions</b> Various countries India, Spain, Uruguay, and Viet Nam implement various levels of border closures and travel restrictions. <i>India, Spain, Uruguay, Viet Nam</i> Cases per million India: 0.29 Spain: 615.30 Uruguay: 45.48 Viet Nam: 1.16
COUNTRY					
REAL-TIME EVIDENCE	 <b>CASES</b> <b>Europe becomes epicenter</b> Europe (104,591 cases) surpasses Western Pacific (93,349 cases) as epicenter. <i>WHO Situation Report</i>	<b>CASES</b> <b>Spain: Second highest outside China (19,980 cases)</b> Spain surpasses Iran to become the country with the second highest cases outside China, after Italy. <i>WHO Situation Report</i>			<b>CASES</b> <b>300,000 cases globally</b> 292,142 cases globally, driven by Europe (151,293 cases) and Western Pacific (94,787 cases). <i>WHO Situation Report</i>
RETROSPECTIVE EVIDENCE	<b>CASES</b> Iran: 916,000 cumulative cases estimated Ghaffarzadegan N, Rhamandad H Published: 06 Jul 2020 Simulation modelling estimates 916,000 cumulative cases in Iran by 20 March. 19,644 cases were reported by this date. <i>System Dynamics Review</i>				
	20 Mar	21 Mar	22 Mar		

	PUBLICATION		ANNOUNCEMENT	INTERIM GUIDANCE	ACTION
INTERNATIONAL	<b>Guidance on social distancing</b> ECDC The European Center for Disease Prevention and Control publishes a technical report on considerations relating to social distancing measures in response to COVID-19. ECDC		<b>Japan postpones Summer Olympics</b> International Olympic Committee The President of the International Olympic Committee and the Prime Minister of Japan hold a conference call where they decide to postpone the Summer Olympics until “no later than summer 2021”. International Olympic Committee	<b>Guidance for refugee and migrant health</b> EURO WHO Regional Office for Europe (EURO) publishes interim guidance for refugee and migrant health in relation to COVID-19. EURO	<b>UN begins fundraising drive</b> UN UN launches a USD 2 billion coordinated global humanitarian response plan to fight COVID-19 in vulnerable countries. UN OCHA
	<b>SCHOOL CLOSURES</b> <b>Five countries implement school closures</b> Various countries Mexico, Mozambique, New Zealand, Russia, and the Republic of Korea implement various levels and types of school closures. <i>Mexico, Mozambique, New Zealand, Russia, Republic of Korea</i> <b>Cases per million</b> Mexico: 2.85 Mozambique: 0.03 New Zealand: 21.15 Russia: 3.00 Republic of Korea: 174.78	<b>LOCKDOWN/ STAY-AT-HOME MEASURES</b> <b>Two countries introduce lockdown/stay-at home measures</b> Various countries Pakistan and the UK introduce various levels of lockdown or stay-at-home measures. <i>Pakistan, United Kingdom</i> <b>Cases per million</b> Pakistan: 4.40 United Kingdom: 187.73	<b>MASK USAGE</b> <b>Namibia recommends mask wearing</b> Government of Namibia Namibia recommends mask wearing, the first in AFR to do so. <i>Our World in Data</i> <b>Cases per million</b> Namibia: 2.755	<b>LOCKDOWN/ STAY-AT-HOME MEASURES</b> <b>Four countries introduce lockdown/stay-at-home measures</b> Various countries Egypt, India, New Zealand, and Sweden introduce various levels of lockdown or stay-at-home measures. <i>Egypt, India, New Zealand, Sweden</i> <b>Cases per million</b> Egypt: 4.46 India: 0.48 New Zealand: 42.51 Sweden: 268.53	<b>BORDER CONTROL MEASURES</b> <b>Four countries implement border restrictions</b> Various countries Brazil, China, Nigeria, and Russia implement various levels of border closures and travel restrictions during this week. <i>Brazil, China, Nigeria, Russia</i> <b>Cases per million</b> Brazil: 16.08 China: 56.97 Nigeria: 0.19 Russia: 7.10
COUNTRY					
REAL-TIME EVIDENCE				<b>SCIENCE</b> <b>Modelling shows measures can control spread of COVID-19</b> Prem K, Liu Y et al. Published: 25 Mar 2020 Using computational models of spread in Wuhan, control measures are found to halt the pandemic, but premature lifting will lead to an earlier second peak. <i>The Lancet Public Health</i>	
RETROSPECTIVE EVIDENCE			<b>SCIENCE</b> <b>Seroprevalence in Wuhan and outside approximately 3%</b> Xu X, Sun J, et al. Published: 05 Jun 2020 Seroprevalence in Wuhan ranged from 3.2% and 3.8% during 9 March-10 April, and anywhere from 1.3% and 3.6% in two cities outside Wuhan but within Hubei. <i>Nature Medicine</i>		

23 Mar ————— 24 Mar ————— 25 Mar



INTERNATIONAL				 <b>PUBLICATION</b> 	 <b>INTERIM GUIDANCE</b> 
				<b>Origins of SARS-CoV-2</b> WHO HQ All available evidence suggests SARS-CoV-2 has a natural animal origin and is not a manipulated or constructed virus. Most probable ecological reservoir is bats. <a href="#">WHO HQ</a>	<b>Surveillance guidance using GISRS</b> WHO HQ WHO publishes interim guidance on operational considerations for leveraging influenza surveillance systems such as the Global Influenza Surveillance and Response System to incorporate COVID-19 testing. <a href="#">WHO HQ</a>
COUNTRY	<b>DECLARATION OF EMERGENCY</b> 	<b>LOCKDOWN/ STAY-AT-HOME MEASURES</b> 	<b>SCHOOL CLOSURES</b> 	<b>BORDER CONTROL MEASURES</b> 	
	<b>Five countries declare states of emergency</b> Various countries New Zealand, Niger, Pakistan, Thailand, and the UK declare states of emergency, or implement emergency legislation during this week. <a href="#">New Zealand, Niger, Pakistan, Thailand, United Kingdom</a> <b>Cases per million</b> New Zealand: 106.59 Niger: 3.73 Pakistan: 8.49 Thailand: 14.97 United Kingdom: 262.84	<b>Six countries introduce lockdown/stay-at home measures</b> Various countries Brazil, Germany, Niger, Russia, Thailand, and Uganda introduce various levels of lockdown or stay-at-home measures during this week. <a href="#">Brazil, Germany, Niger, Russia, Thailand, Uganda</a> <b>Cases per million</b> Brazil: 10.57 Germany: 296.87 Niger: 0.41 Russia: 8.66 Thailand: 14.97 Uganda: 0.20	<b>US close all public schools</b> Subnational actors in the United States All public school buildings in the US are closed by this date. <a href="#">Education Week</a> <b>Cases per million</b> United States: 207.97	<b>Three countries implement border restrictions</b> Various countries Fiji, Thailand, and Uruguay implement various levels of border closures and travel restrictions. <a href="#">Fiji, Thailand, Uruguay</a> <b>Cases per million</b> Fiji: 5.58 Thailand: 14.97 Uruguay: 68.51	
REAL-TIME EVIDENCE	25 Mar, cont.			26 Mar	
RETROSPECTIVE EVIDENCE					



INTERNATIONAL

COUNTRY

REAL-TIME EVIDENCE

RETROSPECTIVE EVIDENCE

<p><b>CASES</b> </p> <p><b>US has world’s highest number of cases</b></p> <p>The US becomes the world’s epicenter, surpassing Italy, with 103,321 cases.</p> <p><i>WHO Situation Report</i></p>	<p><b>CASES</b> </p> <p><b>Americas become number two epicenter, 635,000 cases globally</b></p> <p>634,813 cases globally driven by Europe (361,031 cases) and Region of Americas (120,792 cases). The Americas surpasses Western Pacific.</p> <p><i>WHO Situation Report</i></p>	<p><b>NEWS REPORT</b> </p> <p><b>UN warns of impact on students</b></p> <p>As one of several announcements about the socio-economic impact of COVID-19, the UN warns that “now nearly 1.5 billion children - or 87% of Earth’s student population - whose schools have closed because of the novel coronavirus pandemic.”</p> <p><i>Washington Post</i></p>	<p><b>SCIENCE</b> </p> <p><b>Estimates of COVID-19 fatality ratio published</b></p> <p>Verity R, Okell L, et al. Published: 30 Mar 2020</p> <p>Estimated overall infection fatality ratio for China is 0.66%, with an increasing profile with age.</p> <p><i>The Lancet Infectious Diseases</i></p>	<p><b>SCIENCE</b> </p> <p><b>European analysis of public health interventions</b></p> <p>Flaxman S, Mishra S, et al. Published: 30 Mar 2020</p> <p>Non-pharmaceutical interventions are found to be effective to reduce transmission, but take two to three weeks to demonstrate impact.</p> <p><i>Imperial College</i></p>
<p>29 Mar</p>		<p>30 Mar</p>		

<p><b>CASES</b> </p> <p><b>11-fold under-detection in New York State</b></p> <p>Rosenberg ES, Tesoriero JM, et al. Published: 17 Jun 2020</p> <p>Detected cases compared to seroprevalence were 8.9%, suggesting an 11-fold under-detection of cases in New York State. The number of infection-experienced adults were estimated to be 2,139,300.</p> <p><i>Annals of Epidemiology</i></p>
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MEETING



13th meeting of the STAG-IH

WHO STAG-IH

Following meetings on 19, 24, and 27 March, STAG-IH experts continue to discuss country situations, research areas, and exit strategies.

*WHO STAG-IH*

INTERNATIONAL

COUNTRY

CASES



COVID-19 sweeps the globe

WHO

WHO reports 750,890 COVID-19 cases globally, including 57,610 in the previous 24 hours, along with 36,405 deaths. The US reports the highest number of cases with 140,640. Italy reports the highest number of deaths with 11,591.

*WHO Situation Report*

REAL-TIME EVIDENCE

31 Mar

CASES



Lockdown led to rapid reduction of transmission in New Zealand

Geoghegan JL, Ren X, et al.  
Published: 11 Dec 2020

Genomic epidemiology reveals rapid reduction of transmission within one week of lockdown in New Zealand. Re decreased from 7 to 0.2.

*Nature Communications*

RETROSPECTIVE EVIDENCE