A New Global Reality

The Need for Resilience to Global Epidemic Threats

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“Those who cannot remember the past are condemned to repeat it…”

– George Santayana (1905) –

2020


2016


2015


2014


2013

2009


SARS CLINIC PATIENTS
PLEASE USE ENTRANCE DOOR TO LEFT
except
All
Scheduled
Clinics
NCELLED
2003

Epidemics Spread Fast

The World Needs To Move Faster and Smarter


bluedot

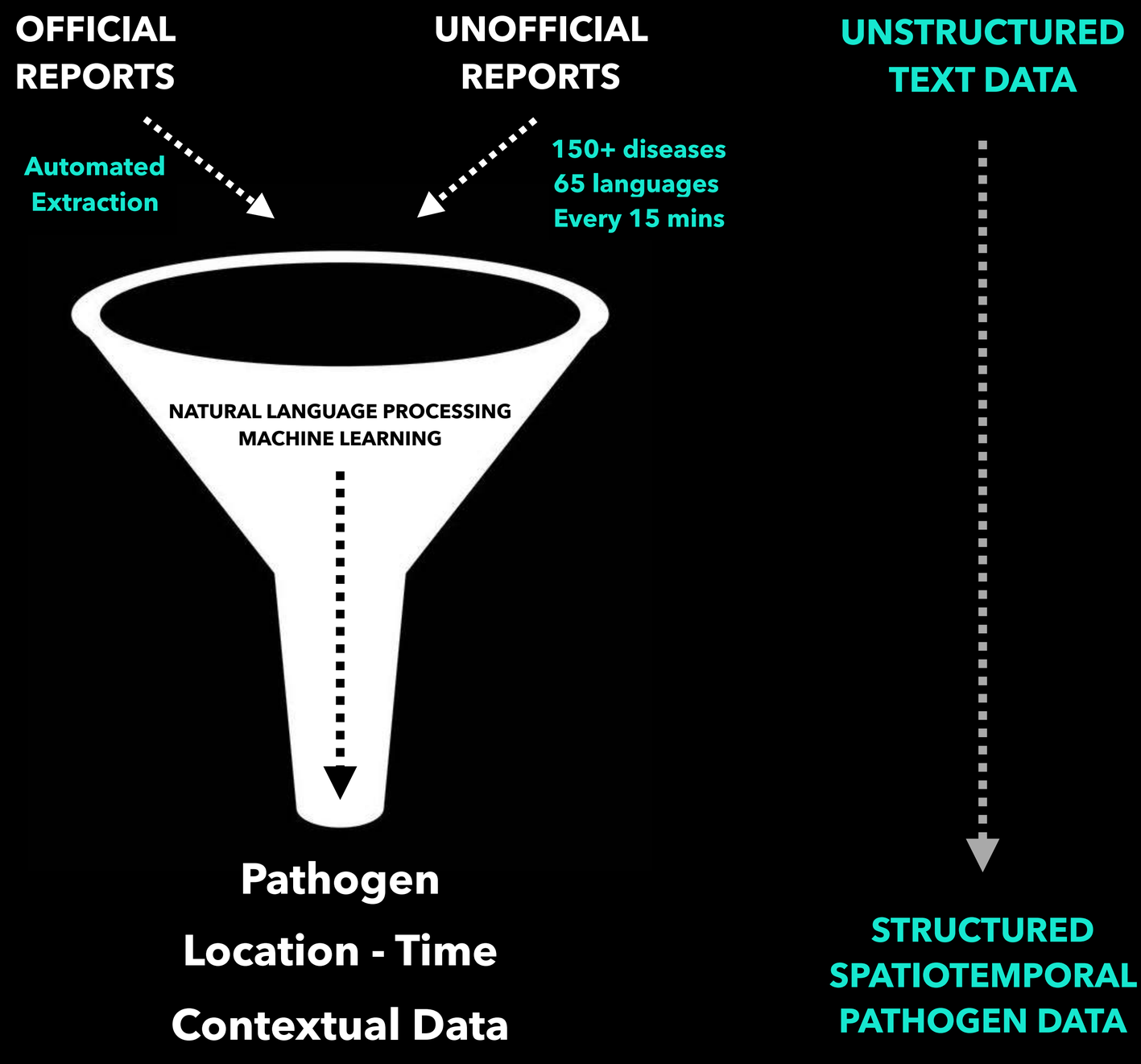
Global Epidemic Intelligence Platform

INTELLIGENCE GATHERING

DATA ANALYTICS

INSIGHT TO ACTION

Using A.I. to Gather Infectious Disease Intel Around the World in Near-Real-Time



该文件称，根据上级紧急通知，武汉市部分医疗机构陆续出现不明原因肺炎病人。各医疗机构要强化门急诊管理，严格执行首诊负责制，发现不明原因肺炎病人积极调动力量就地救治，不得出现拒诊推诿情况。

文件还强调，各医疗机构要有针对性地加强呼吸、感染科、重症医学等多学科专业力量，畅通绿色通道，做好门诊和急诊之间的有效衔接，完善医疗救治应急预案。

因相关文件中均写的是“不明原因肺炎”，网上迅速有“SARS冠状病毒”的传言。

不过，在12月31日下午，武汉市卫健委发布了最新的情况通报。

情况通报披露，近期部分医疗机构发现接诊的多例肺炎病例与华南海鲜城有关联，市卫健委接到报告后，立即在全市医疗卫生机构开展与华南海鲜城有关联的病例搜索和回顾性调查，目前已发现27例病例，其中7例病情严重，其余病例病情稳定可控，有2例病情好转拟于近期出院。

病例临床表现主要为发热，少数病人呼吸困难，胸片呈双肺浸润性病灶。目前，所有病例均已隔离治疗，密切接触者的追踪调查和医学观察正在进行中，对华南海鲜城的卫生学调查和环境卫生处置正在进行中。

It is reported that an "Urgent Notice on Doing a Good Job in the Management of Unknown Cause of Pneumonia" was posted on the Internet in the evening of yesterday.

According to the document, according to the emergency notice from a superior, some medical institutions in Wuhan have successively appeared patients with pneumonia of unknown cause. All medical institutions should strengthen the management of outpatient and emergency departments, strictly implement the system of first-in-patient responsibility, and find that patients with unknown cause of pneumonia actively adjust the power to treat them on the spot, and there should be no refusal and pushback.

The document also emphasizes that medical institutions must strengthen the multidisciplinary professional strength of respiratory, infectious diseases, and intensive medicine in a targeted manner, open green channels, effectively link between outpatient and emergency departments, and improve emergency plans for medical treatment.

As the relevant documents wrote "unknown cause of pneumonia", there were rumors of "SARS coronavirus" on the Internet.

However, in the afternoon of December 31, the Wuhan Municipal Health and Health Commission issued the latest briefing.

December 31st 2019

The New York Times

"All the News That's Fit to Print" THURSDAY, JUNE 20, 2013 Reprinted With Permission

Business Day

Bits The Business of Technology

In New Tools to Combat Epidemics, the Key Is Context

By AMY O'LEARY

Not long ago, Google Flu seemed like magic — a smart, cheap way to sift digital data for the public good.

But Google Flu, which tries to track flu outbreaks faster than the government, has shown its limitations. Not only did it grossly overestimate the flu this year, but its methods did little to track new, deadly diseases that could emerge anywhere, in places as random as a mass religious gathering on the banks of the Ganges or a poultry market in Shanghai.

Now a new project called BioMosaic is building a more comprehensive picture of foreign-borne disease threats in the United States, by merging three separate data tools into a single app for guiding decisions at the time of

a global event in Haiti becomes a local event in five counties in Florida and five counties in New York," Dr. Cetron said. "When you see it, you get these aha! moments of appreciation."

One of the doctors in the field who can benefit from these types of insights is Dr. Kamran Khan, an infectious disease specialist and researcher at St. Michael's Hospital in Toronto.

Dr. Khan, who said he had a "bad habit of being around emerging diseases," has worked on the front lines of the 1999 West Nile virus outbreak and the H1N1 pandemic of 2009. But the event that hit closest to home was when his own hospital was affected by a deadly outbreak of severe acute respiratory syndrome, or SARS, which hit Toronto in 2003.

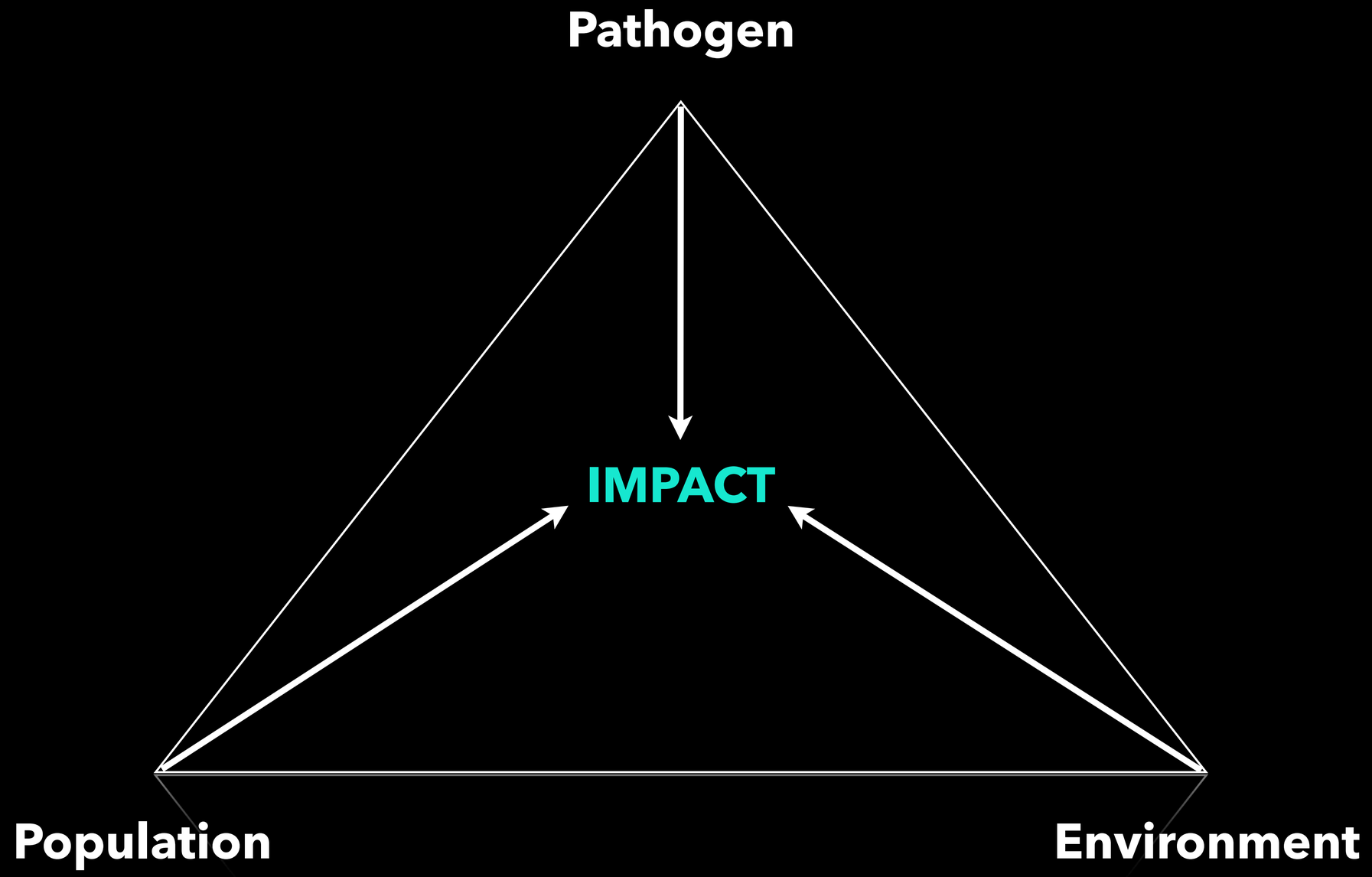
That spring, the city had received an infected passenger from Hong Kong

ments and airlines to amass a database of human movement around the globe, encompassing 4,000 airports and 30 million flights a year, carrying 2.5 billion passengers.

With that information, he can better predict the likelihood of where a single case of bird flu in Asia, for instance, might eventually surface on other continents.

It is powerful data, but made even more so when placed in BioMosaic alongside a mapping tool that tracks on-the-ground disease reports. That part of the puzzle is HealthMap, which was created by a team at Boston Children's Hospital under the direction of John Brownstein, a professor at Harvard Medical School.

His staff monitors everything from Arabic news reports on cholera to a local television story about a ra-


Pathogen
IMPACT
Population
Environment


H

Global Epidemic Intelligence Platform

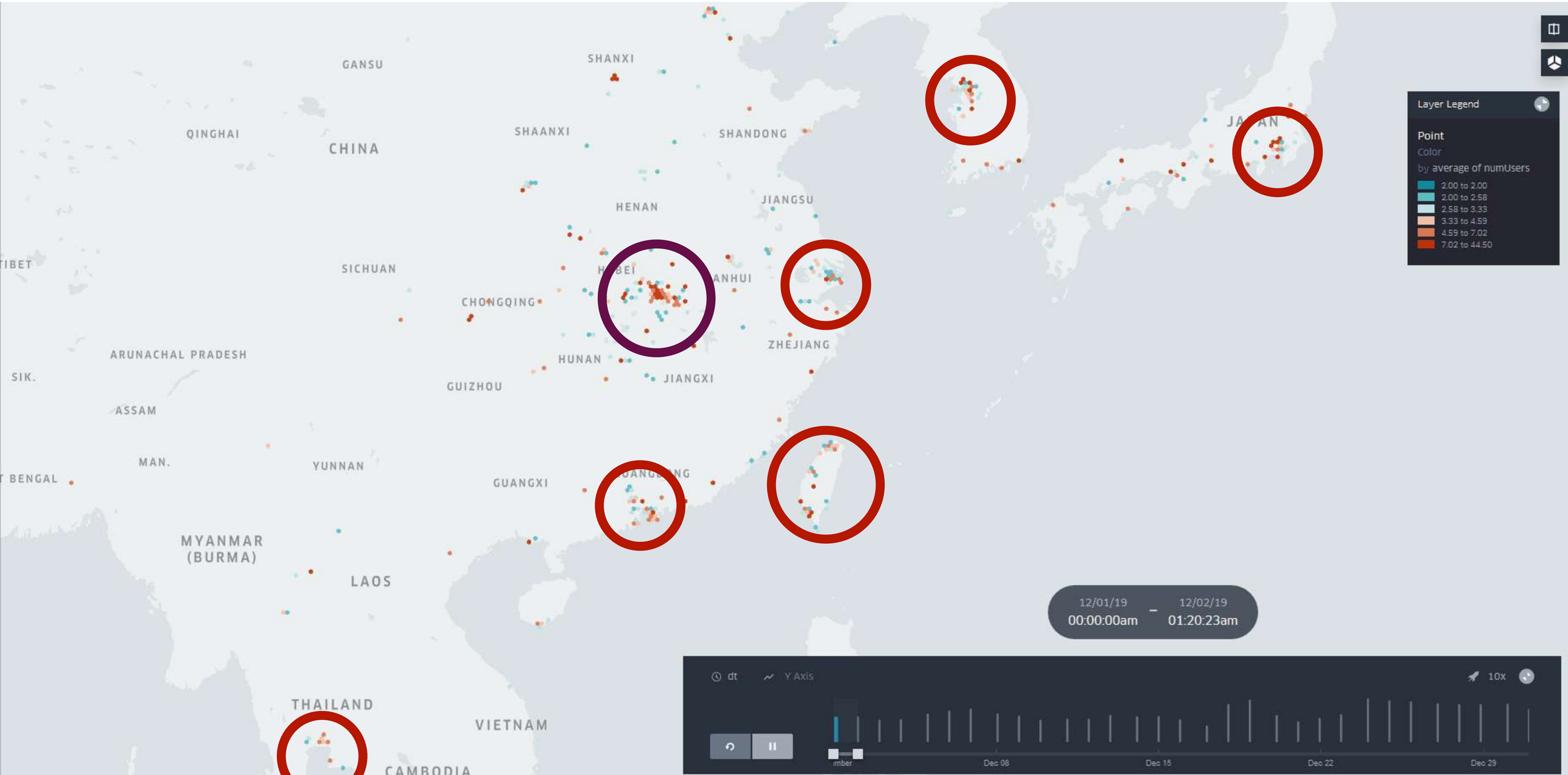
INTELLIGENCE GATHERING

DATA ANALYTICS

INSIGHT TO ACTION

Anonymously analyzing location data from nearly 400 million mobile devices worldwide in near-real-time

Mobile Devices Departing Wuhan, December 2019



December 31st, 2019

Final Destinations of Passengers and Flights Departing Wuhan, China

Journal of Travel Medicine
International Society of Travel Medicine
Promoting healthy travel worldwide
Established 1991

Journal of Travel Medicine, 2020, 1–3
doi: 10.1093/jtm/taaa008
Rapid Communication

Rapid Communication

Pneumonia of unknown aetiology in Wuhan, China: potential for international spread via commercial air travel

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Abstract

There is currently an outbreak of pneumonia of unknown aetiology in Wuhan, China. Although there are still several unanswered questions about this infection, we evaluate the potential for international dissemination of this disease via commercial air travel should the outbreak continue.

Key words: SARS, air travel, coronavirus, pneumonia, outbreak, zoonosis

On 30 December 2019, a report of a cluster of pneumonia of unknown aetiology was published on ProMED-mail, possibly related to contact with a seafood market in Wuhan, China.[1] Hospitals in the region held an emergency symposium, and support from federal agencies is reportedly helping to determine the source of infection and causative organism. The seafood market has since been closed, but purportedly sold a variety of live animal species. On 5 January 2019, the World Health Organization (WHO) published a document outlining their request for more information from Chinese public health authorities, and detailed 44 patients had 'pneumonia of unknown aetiology', with 121 close contacts under surveillance (www.who.int/csr/don/05-january-2020-pneumonia-of-unkown-cause-china/en/). The WHO reported that 11 patients were severely ill, and many affected individuals had contact with the Huanan Seafood market. Some patients were reported to have fever, dyspnea and pulmonary infiltrates on chest radiography. At the time of publication, limited information has been produced directly by Chinese public health authorities; however, media reports documenting interviews with such authorities have stated that the aetiology is not yet identified, that there are now 59 affected patients, and that severe acute respiratory syndrome (SARS), the Middle East respiratory syndrome (MERS), avian influenza and several other common respiratory pathogens have been ruled out (http://news.hebei.com.cn/system/2020/01/05/100154729.shtml). On 8 January 2019, news outlets and ProMED-mail reported that genetic sequencing demonstrated a novel coronavirus as the potential causative organism.[2] Given the recent history of zoonotic transmission of a coronavirus emerging from a live-animal market in China in 2002, and the potential for novel pathogens to rapidly spread globally via commercial air travel,[3,4] we sought to evaluate international travel patterns from Wuhan, China in order to anticipate patterns of disease dispersion should this outbreak evolve.

We evaluated 2018 travel data generated from the International Air Transport Association (IATA) to quantify passenger volumes originating from the international airport in Wuhan, China, between January and March, inclusive. IATA data accounts for ~90% of passenger travel itineraries on commercial flights, excluding transportation via unscheduled charter flights (the remainder is modelled using market intelligence). These data represent direct origin (Wuhan) to destination trips, and indirect

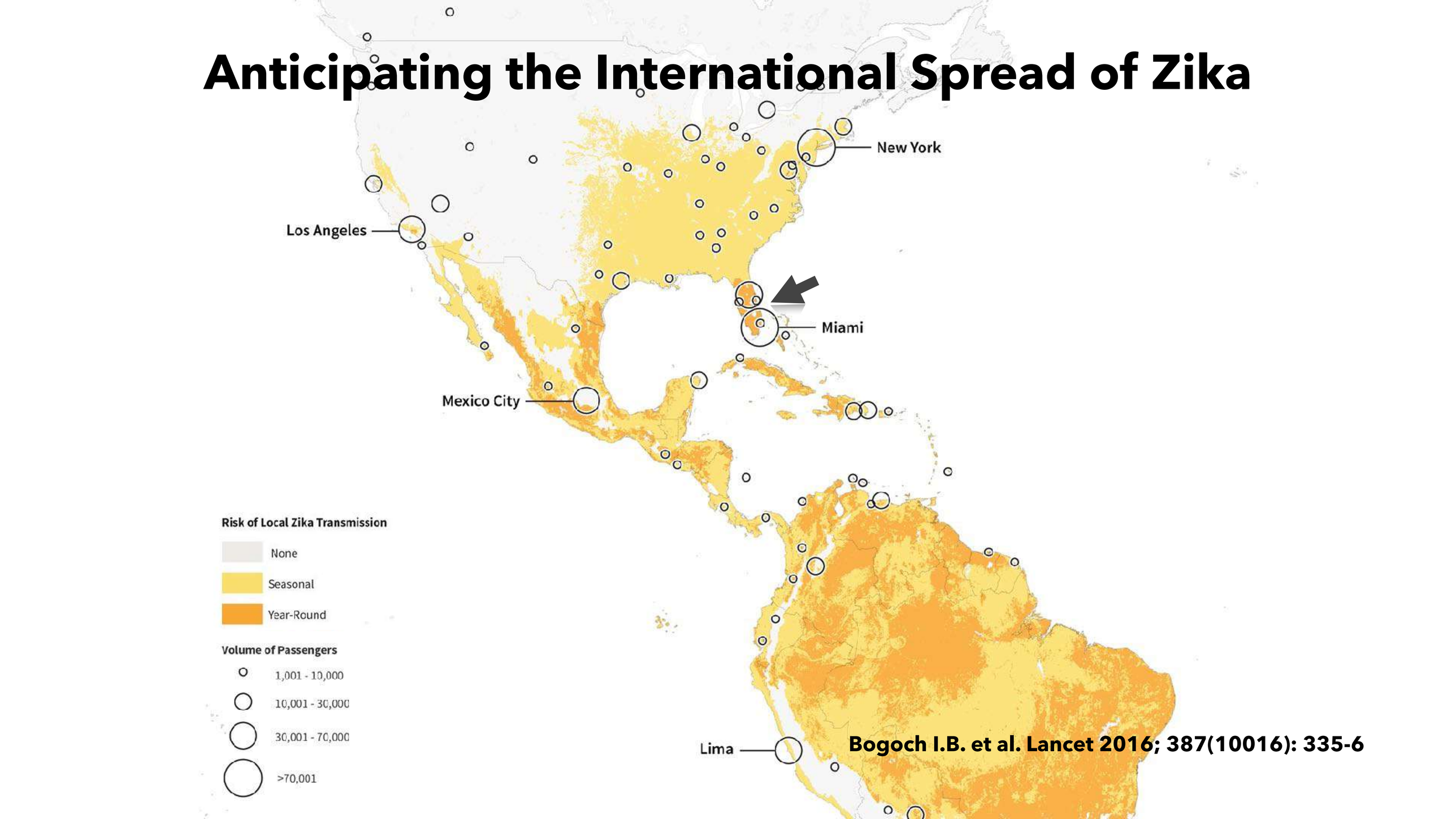
Table 1. Top 20 passenger destination cities from Wuhan, China, January–March 2018 and corresponding IDVI of destination countries

Destination city	Population* (in millions)	Destination province	Destination country	IDVI	Direct volume***	Total volume***
Bangkok	8.28	Bangkok Metropolis	Thailand	0.711	38 457	41 080
Hong Kong	7.39	Hong Kong SAR	Hong Kong SAR	0.664**	23 608	23 707
Tokyo	9.27	Tokyo	Japan	0.926	18 581	20 001
Taipei	2.62	Taipei	Taiwan	0.710	15 086	17 645
Phuket	0.39	Phuket	Thailand	0.711	14 097	16 656
Seoul	9.78	Seoul	Korea (South)	0.879	11 771	13 727
Singapore	5.61	Singapore	Singapore	0.878	8599	13 123
Kota Kinabalu	0.25	Sabah	Malaysia	0.761	12 340	12 661
Macau	0.62	Macau SAR	Macao SAR	0.664**	10 918	10 932
Denpasar Bali	0.79	Bali	Indonesia	0.563	7759	9065
Sydney	5.23	New South Wales	Australia	0.913	5093	8431
Dubai	3.14	Dubay	The UAE	0.765	6389	7389
Kuala Lumpur	1.81	WP Kuala Lumpur	Malaysia	0.761	2393	6822
Kaohsiung	2.77	Kaohsiung City	Taiwan	0.710	6373	6617
Osaka	2.69	Osaka	Japan	0.926	3062	5745
Krabi	0.46	Krabi	Thailand	0.711	5012	5718
Melbourne	4.94	Victoria	Australia	0.913	0	5648
Surat Thani	0.13	Surat Thani	Thailand	0.711	5044	5624
Chiang Mai	0.13	Chiang Mai	Thailand	0.711	4354	5293
Penang	1.77	Pulau Pinang	Malaysia	0.761	4436	5059

Submitted 8 January 2020;

Precision Public Health

Anticipating the International Spread of Zika



Bogoch I.B. et al. Lancet 2016; 387(10016): 335-6

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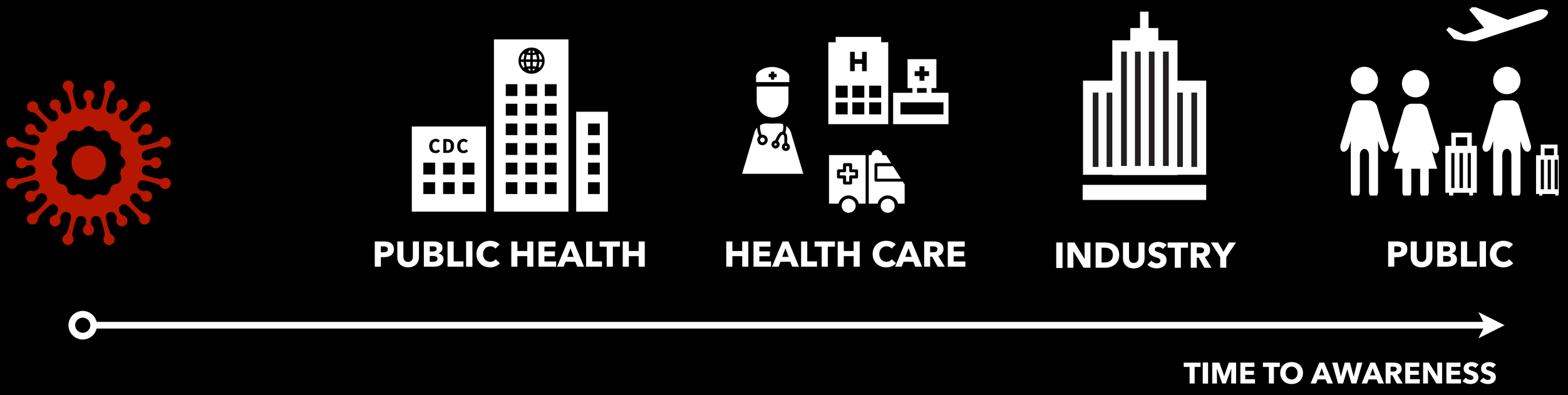
CDC
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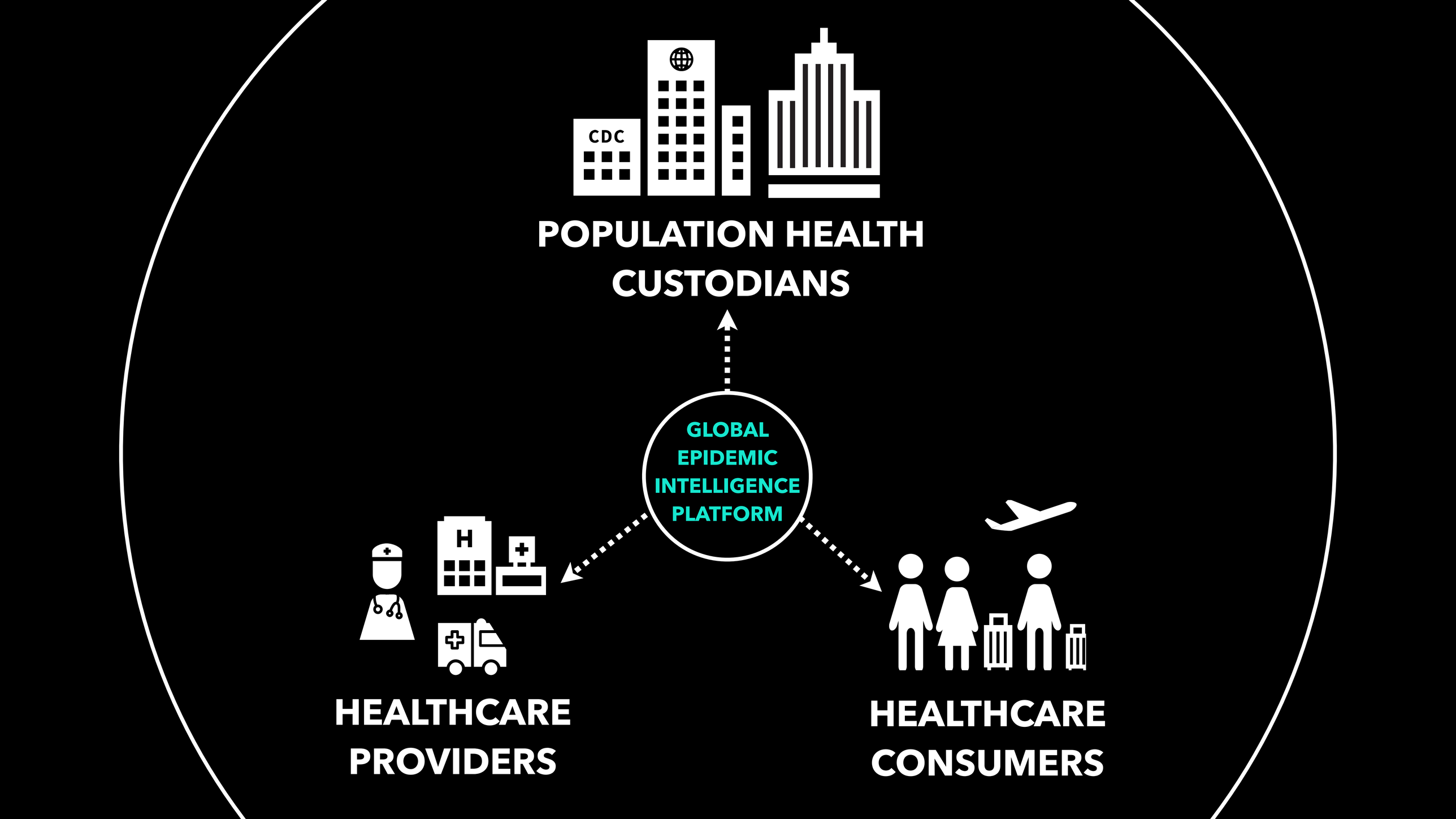
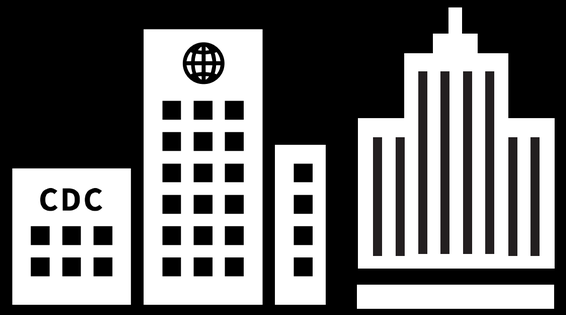
PUBLIC HEALTH
HEALTH CARE
INDUSTRY
PUBLIC
TIME TO AWARENESS


CDC
POPULATION HEALTH CUSTODIANS
GLOBAL EPIDEMIC INTELLIGENCE PLATFORM
H
HEALTHCARE PROVIDERS
HEALTHCARE CONSUMERS

PUBLIC SECTOR

- Protect lives and livelihoods
- Maintain armed forces readiness
- Prevent bioterrorism attacks
- Prevent outbreaks in livestock



POPULATION HEALTH CUSTODIANS

PRIVATE SECTOR

- Protect business continuity
- Preserve critical supply chains
- Protect employee health & safety
- Protect customer health & safety

INSIGHTS by bluedot

Disease Activity

COVID Data Suite

Last 60 days: Jul 6, 2020 – Today

My Locations

Sort by **Alphabetical**

Add a location

Location-agnostic view

Canada
Canada

Montreal
Canada

New Brunswick/Nouveau-Brunswick
Canada

Toronto
Canada

United States
United States

Vancouver
Canada

Winnipeg
Canada

From: BlueDot Insights <Insights@bluedot.global>
Date: December 31, 2019 at 9:59:53 AM EST
To:
Subject: Undiagnosed respiratory syndrome in China

Near real-time disease alerts based on what's relevant to you.

New Event —

Undiagnosed respiratory syndrome in China

With sources from: NEWS MEDIA

You are receiving this notification because you've set Unknown to "Always Notify".
To edit your disease preferences, visit your custom settings.

LOCAL TRANSMISSIBILITY UNKNOWN: Insufficient data about Unknown's potential for local transmission.

Brief

Cases of unidentified severe pneumonia have been reported in Wuhan, Hubei. On late, December 30, 2019, the Wuhan Health and Medical Commission issued an emergency alert highlighting that there have been more than 20 cases of a severe respiratory syndrome in individuals associated with the Wuhan South China Seafood Market. The cause is not yet identified. The National Health Commission sent a group of specialists on December 31, 2019, for further inspections to the Market. The Provincial Center for Disease Control and Prevention continues to analyze specimens from affected cases to identify the cause of the disease. While investigations are ongoing, all cases remain under isolation and contact tracing has started. Local health officials remind the public to remain vigilant and that official information will be provided as soon as it is available.

Mode of Transmission

-

Incubation Period

-

Localization and personalization of infectious disease risks worldwide

A Global Awakening

- Infectious disease threats are appearing with greater frequency, are increasing in scale, & causing greater health, economic, social disruption
- Advanced data analytics coupled with digital innovations can help the world move faster and smarter to mitigate emerging epidemic risks
- Cross sectoral nature of this challenge means government, industry, healthcare, and public sectors each need to do their respective part

“An ounce of prevention is worth a pound of cure…”

– Benjamin Franklin (1736) –


Thank You