A Promising Start for a Solid Future

12th International Conference on the MCH Handbook

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Digital solutions for MCH services
A global perspective

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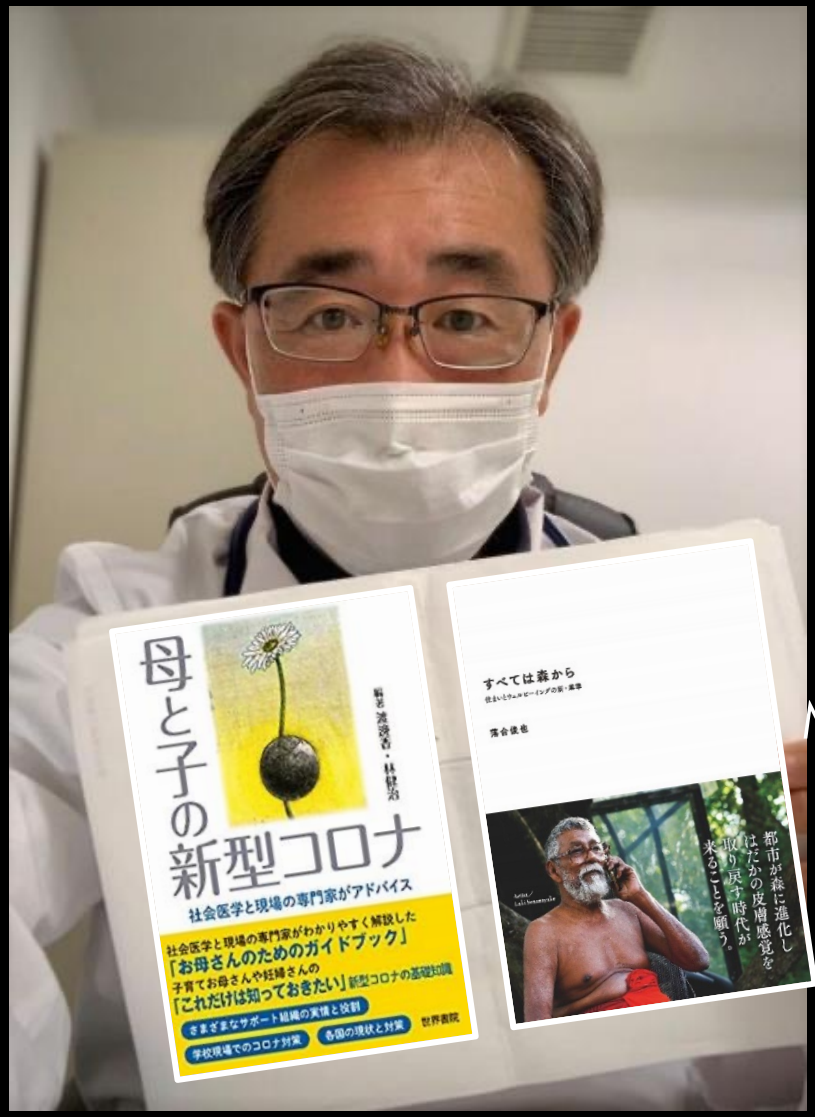

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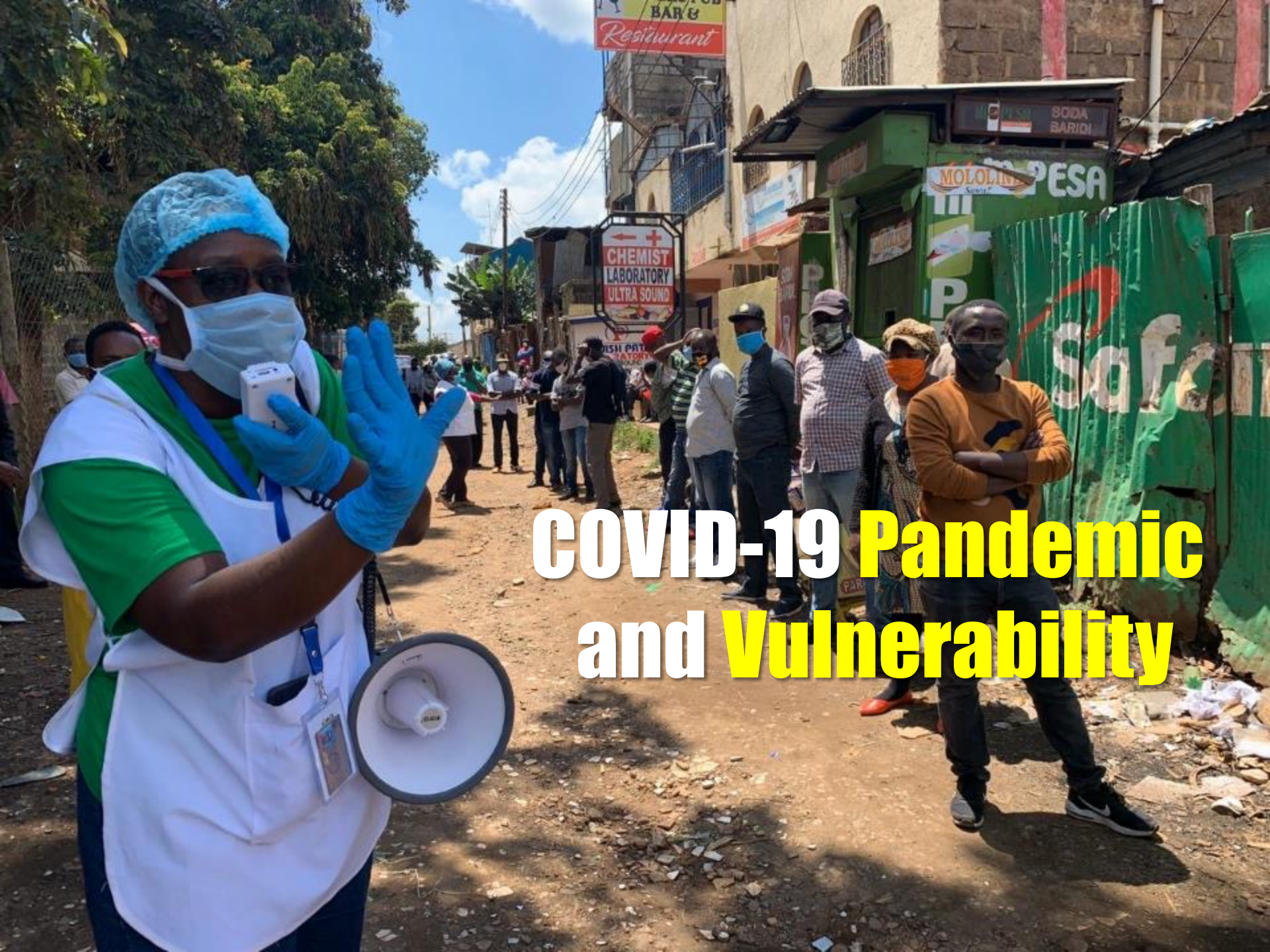
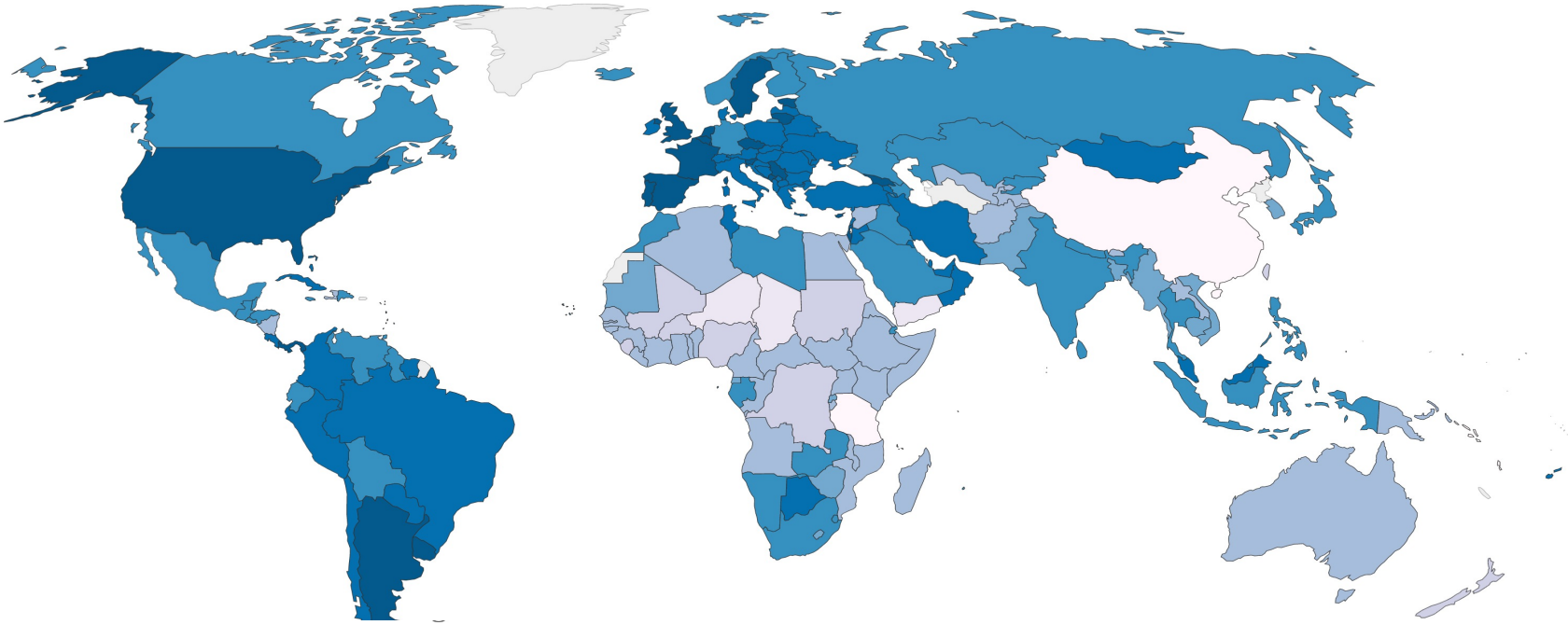
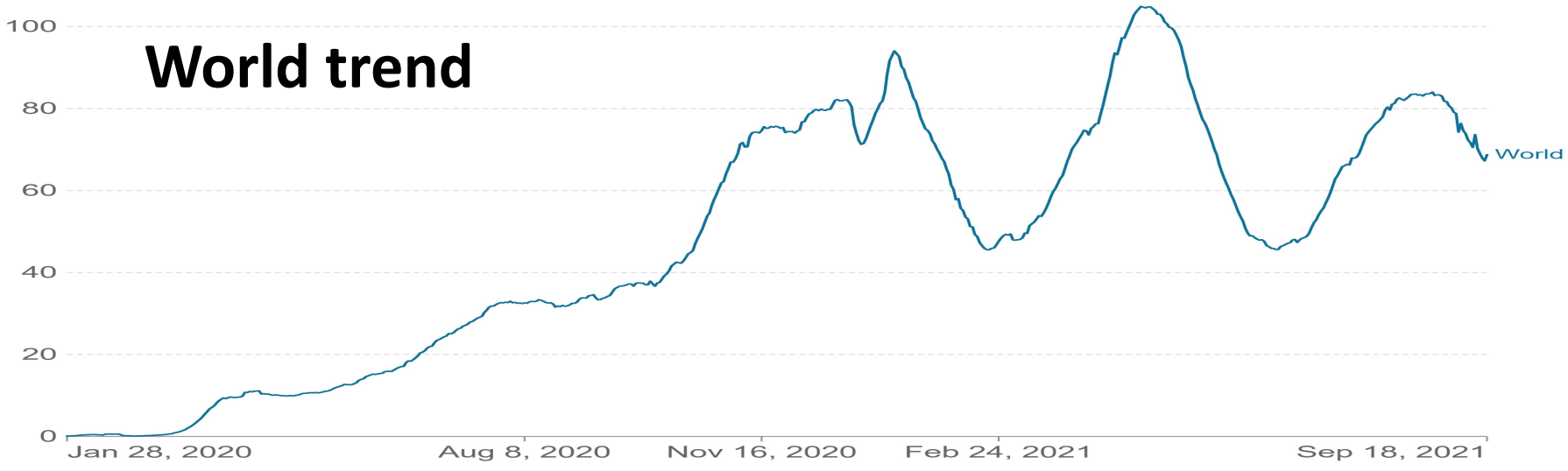

Restaurant
CHEMIST
LABORATORY
ULTRA SOUND
SODA
BARIDI
PESA
COVID-19 Pandemic
and Vulnerability

Cumulative confirmed COVID-19 cases per million people

The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.

Our World in Data

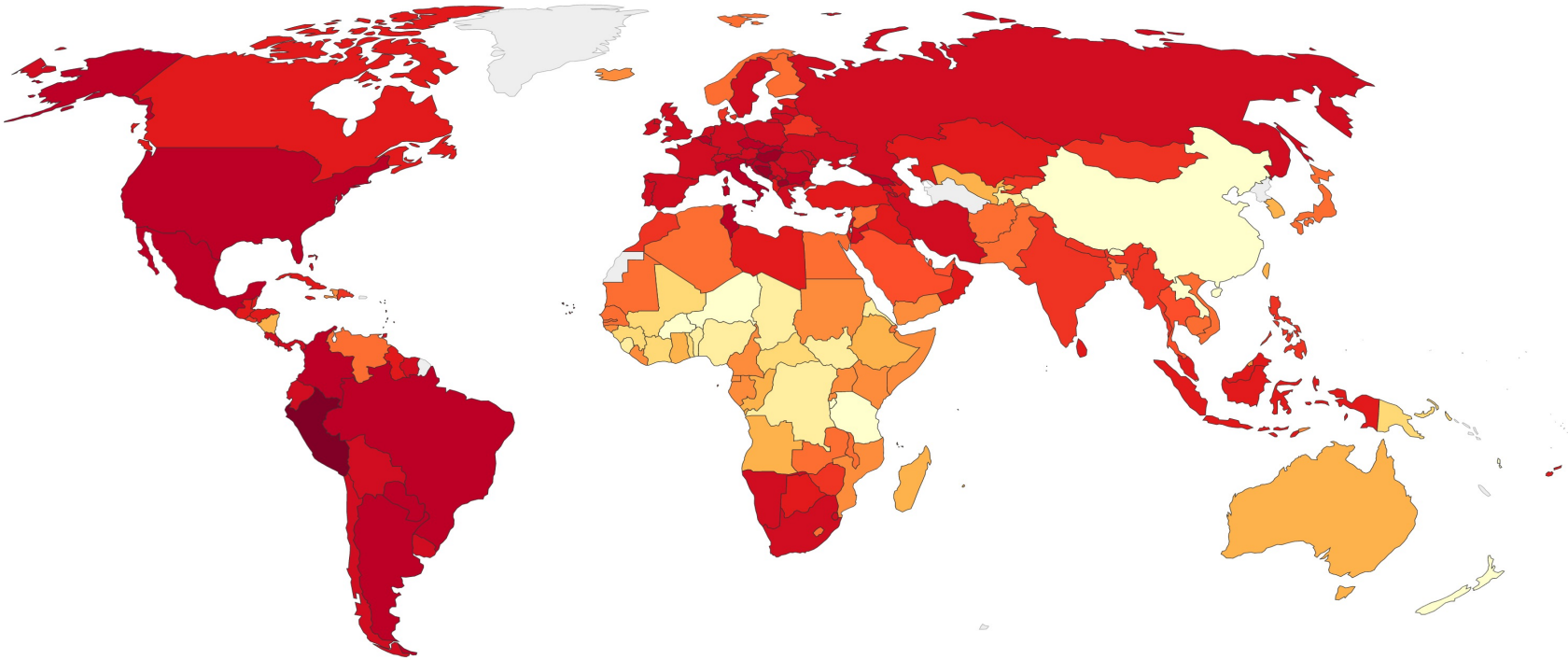




Cumulative confirmed COVID-19 deaths per million people

Our World in Data

Limited testing and challenges in the attribution of the cause of death means that the number of confirmed deaths may not be an accurate count of the true number of deaths from COVID-19.



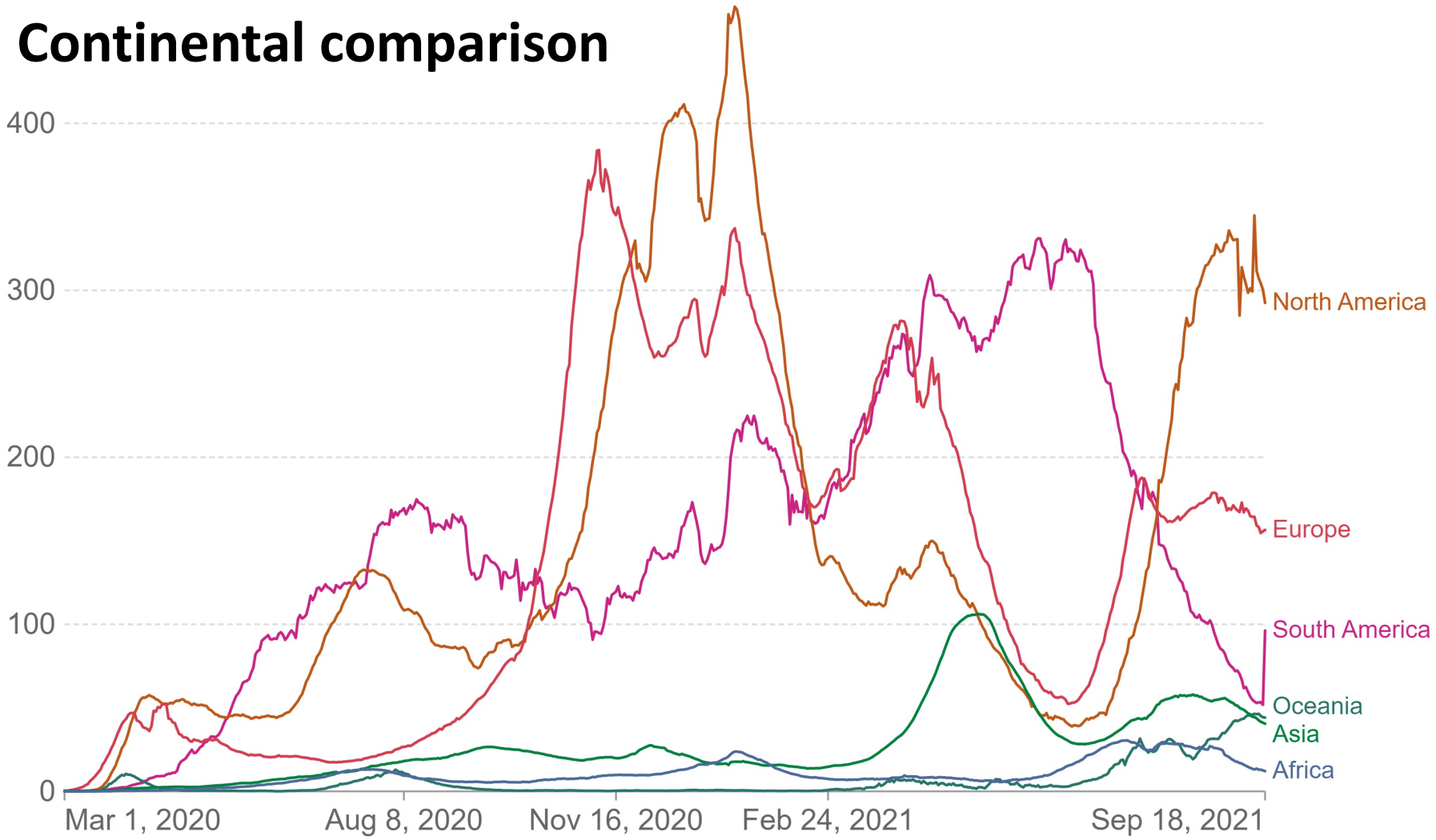


Daily new confirmed COVID-19 cases per million people

Our World in Data

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.

Continental comparison



Source: Johns Hopkins University CSSE COVID-19 Data

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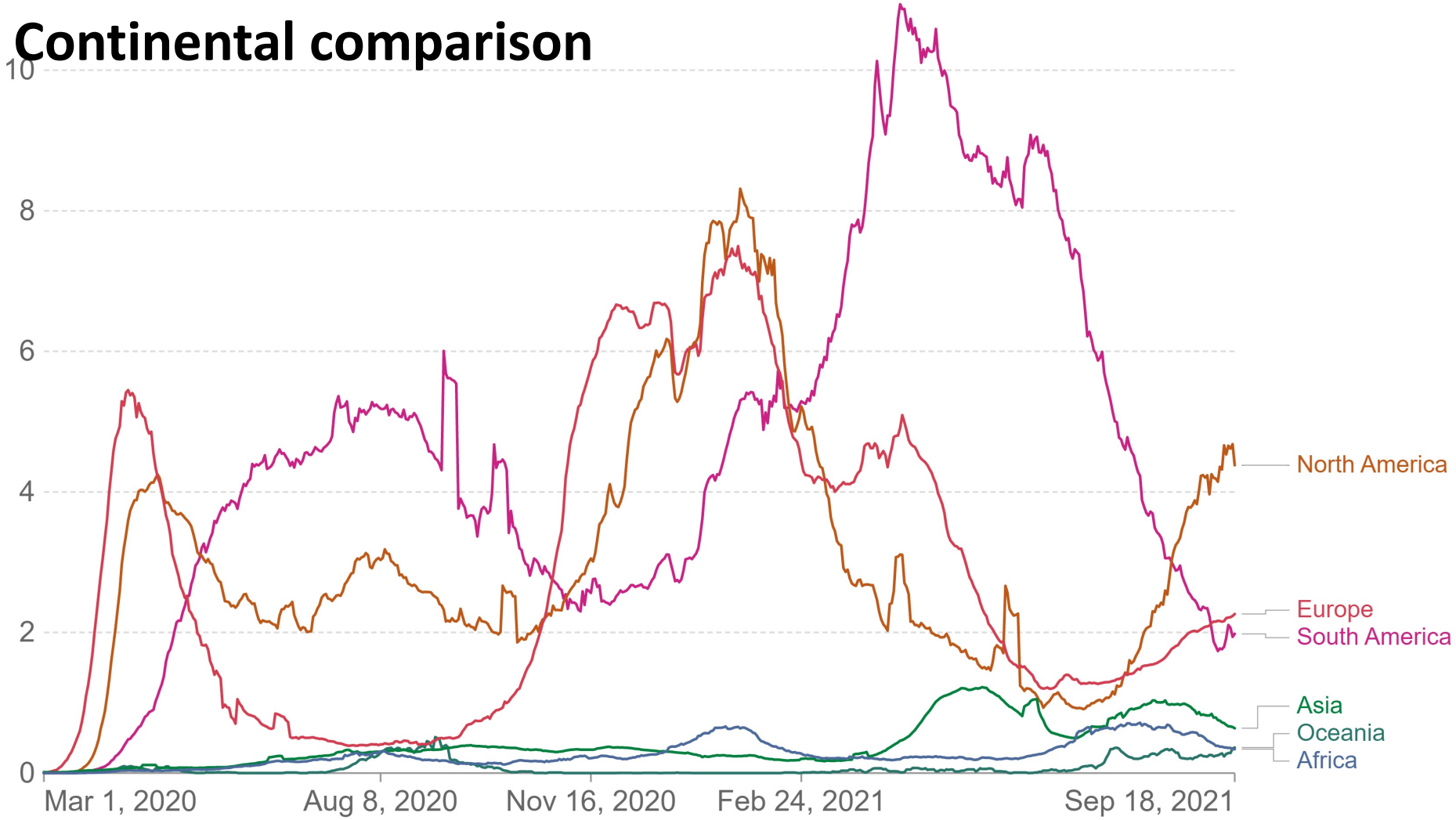

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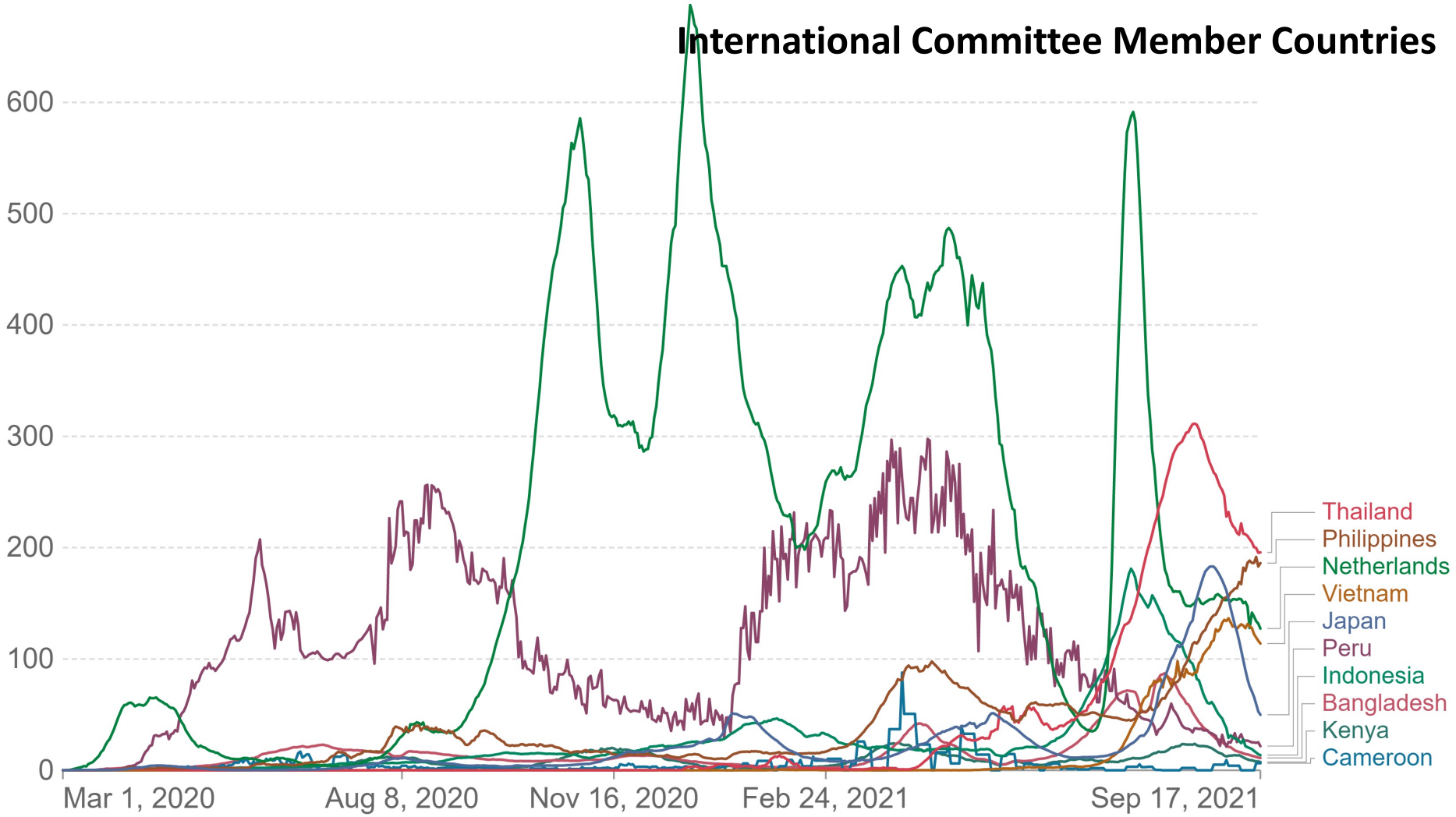

Source: Johns Hopkins University CSSE COVID-19 Data

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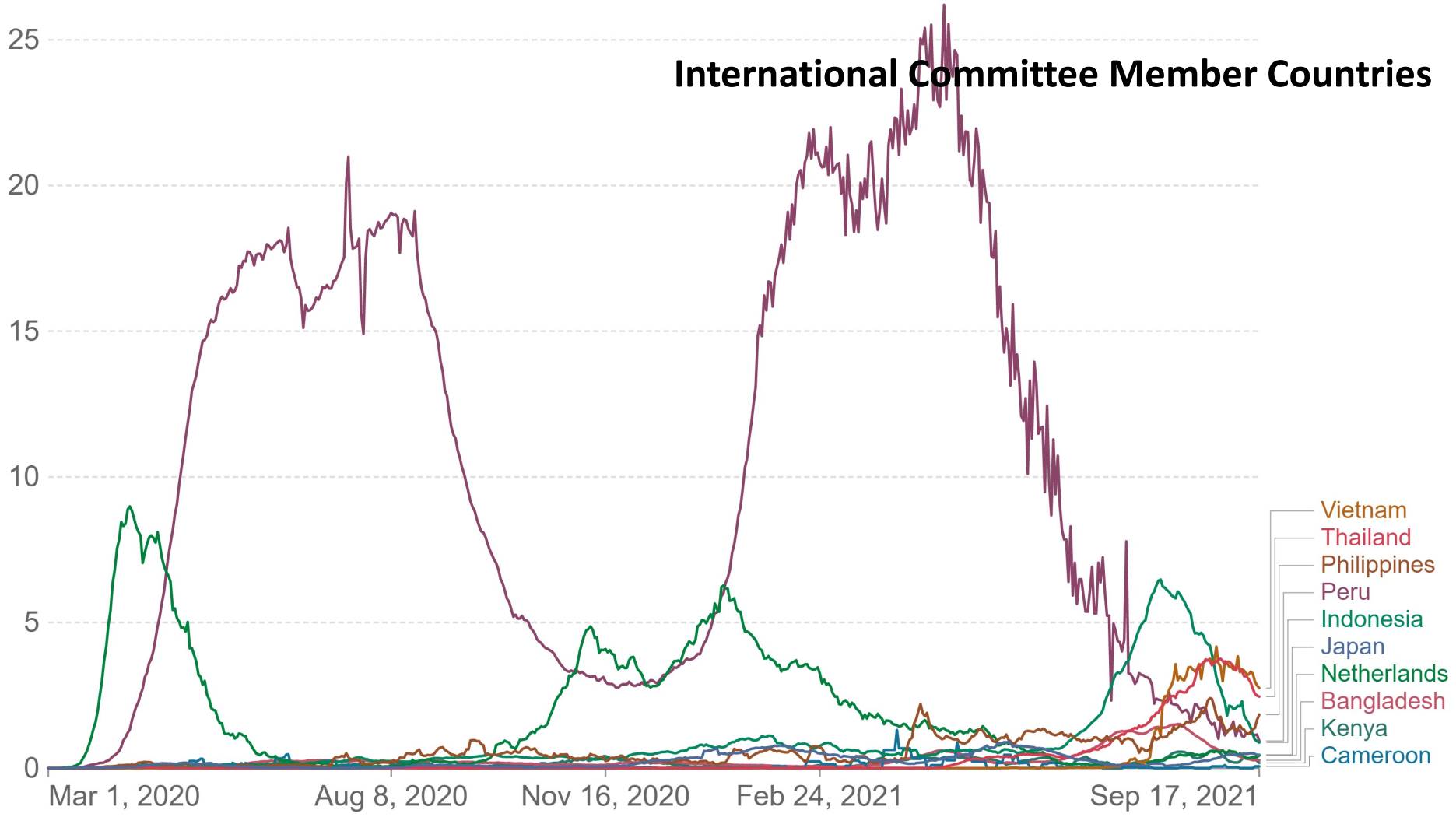

Source: Johns Hopkins University CSSE COVID-19 Data

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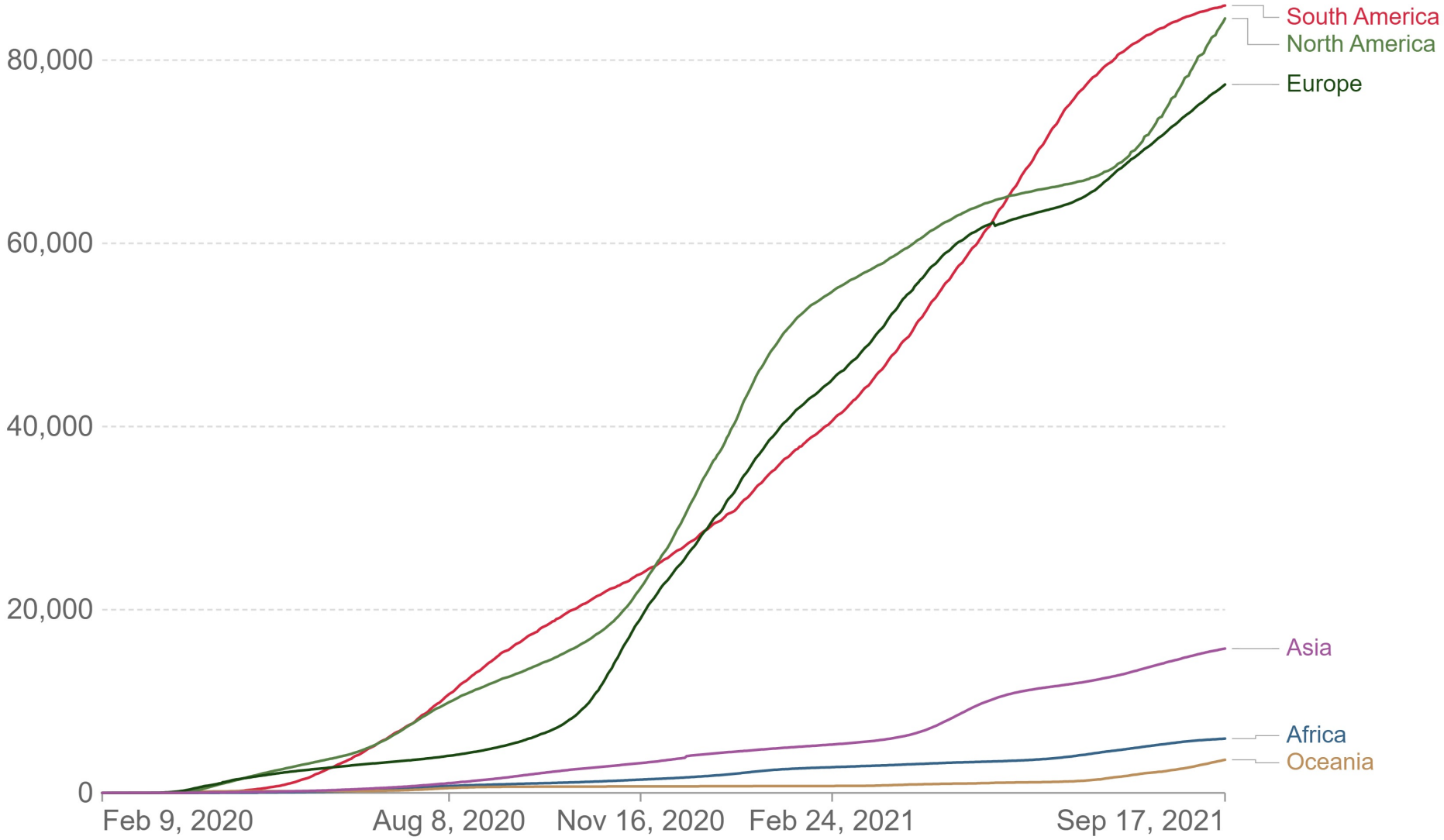

Source: Johns Hopkins University CSSE COVID-19 Data

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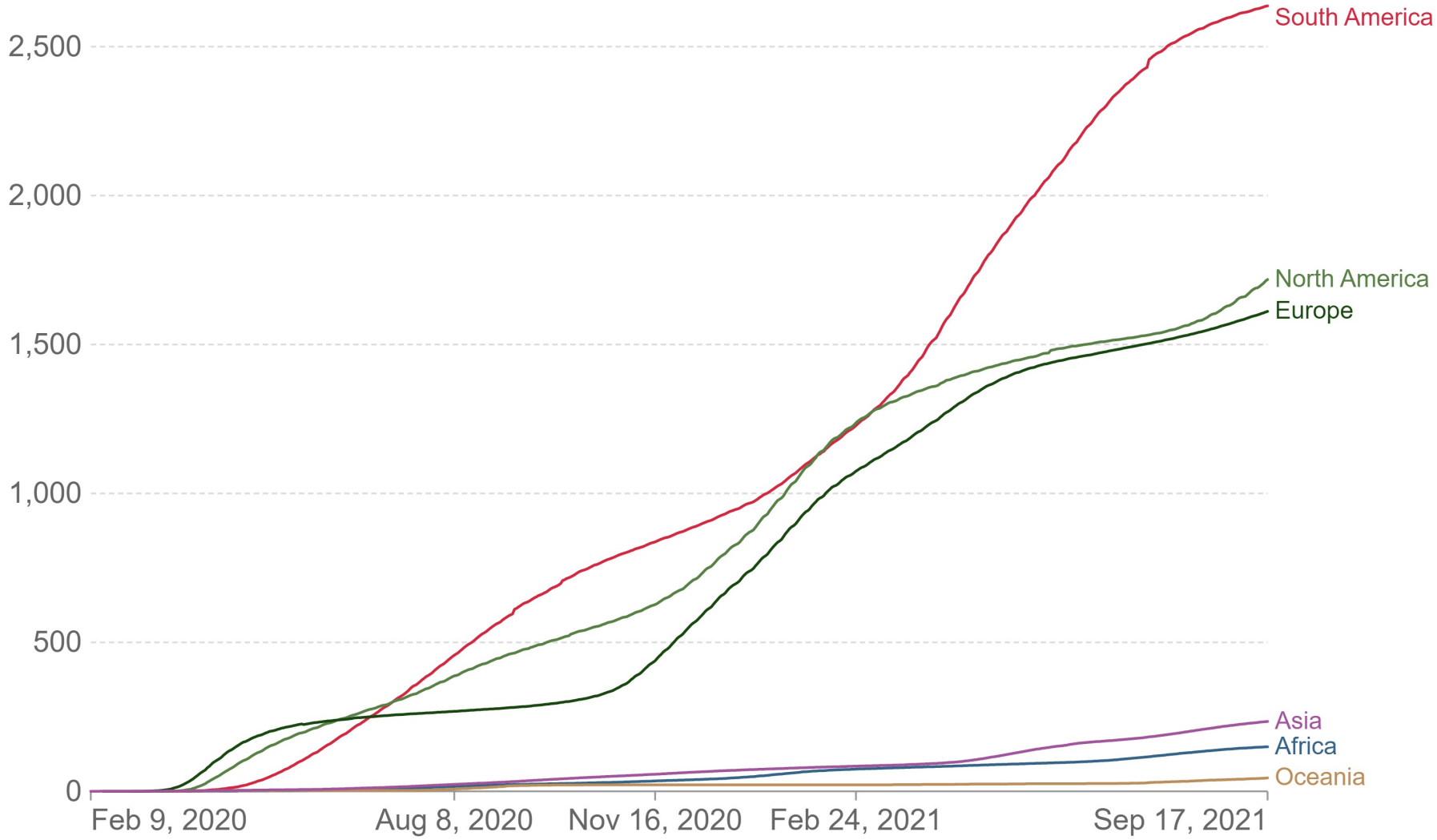

Source: Johns Hopkins University CSSE COVID-19 Data

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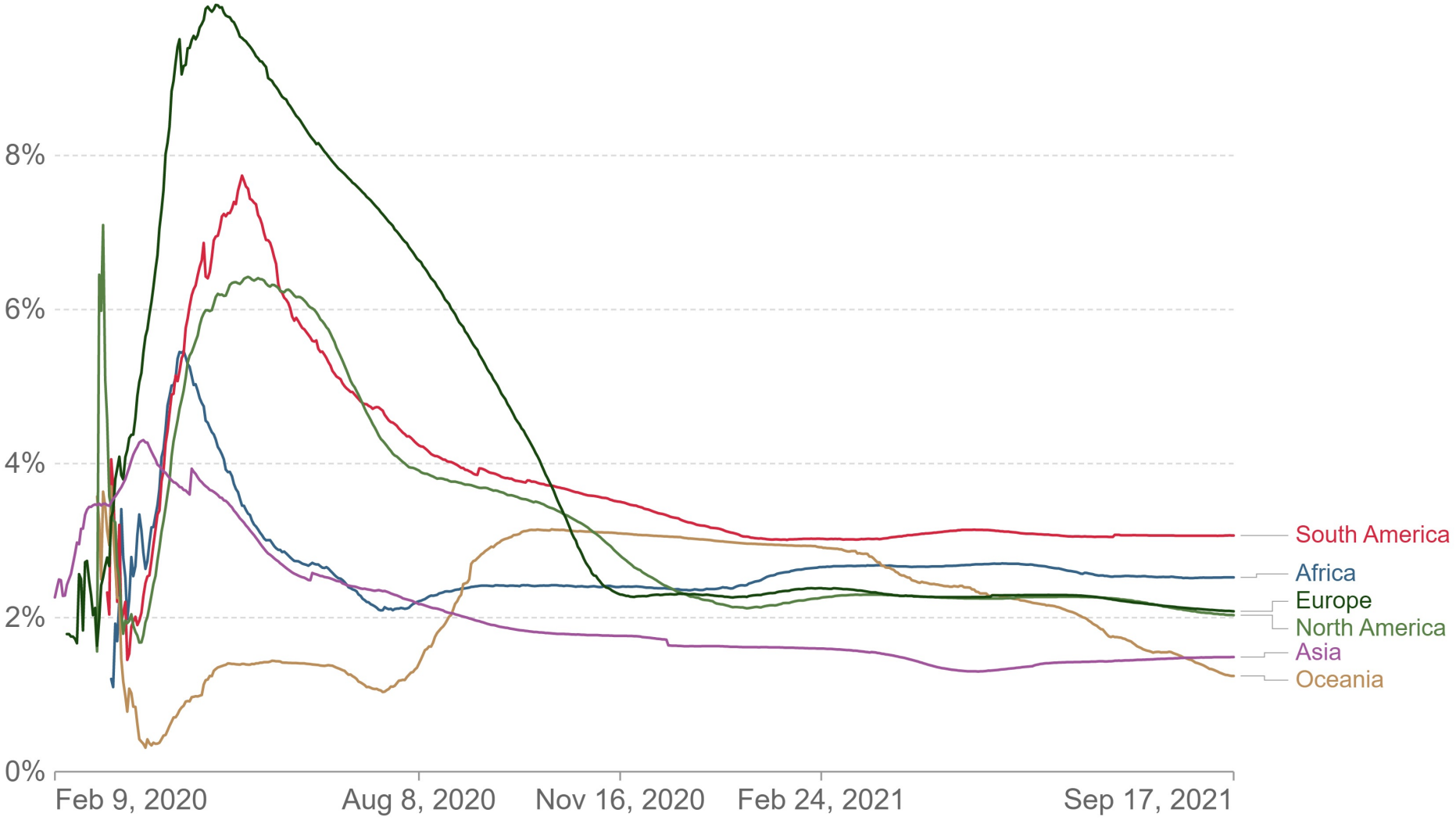
Case fatality rate of COVID-19

The case fatality rate (CFR) is the ratio between confirmed deaths and confirmed cases. The CFR can be a poor measure of the mortality risk of the disease. We explain this in detail at OurWorldInData.org/mortality-risk-covid

Our World in Data



Source: Johns Hopkins University CSSE COVID-19 Data

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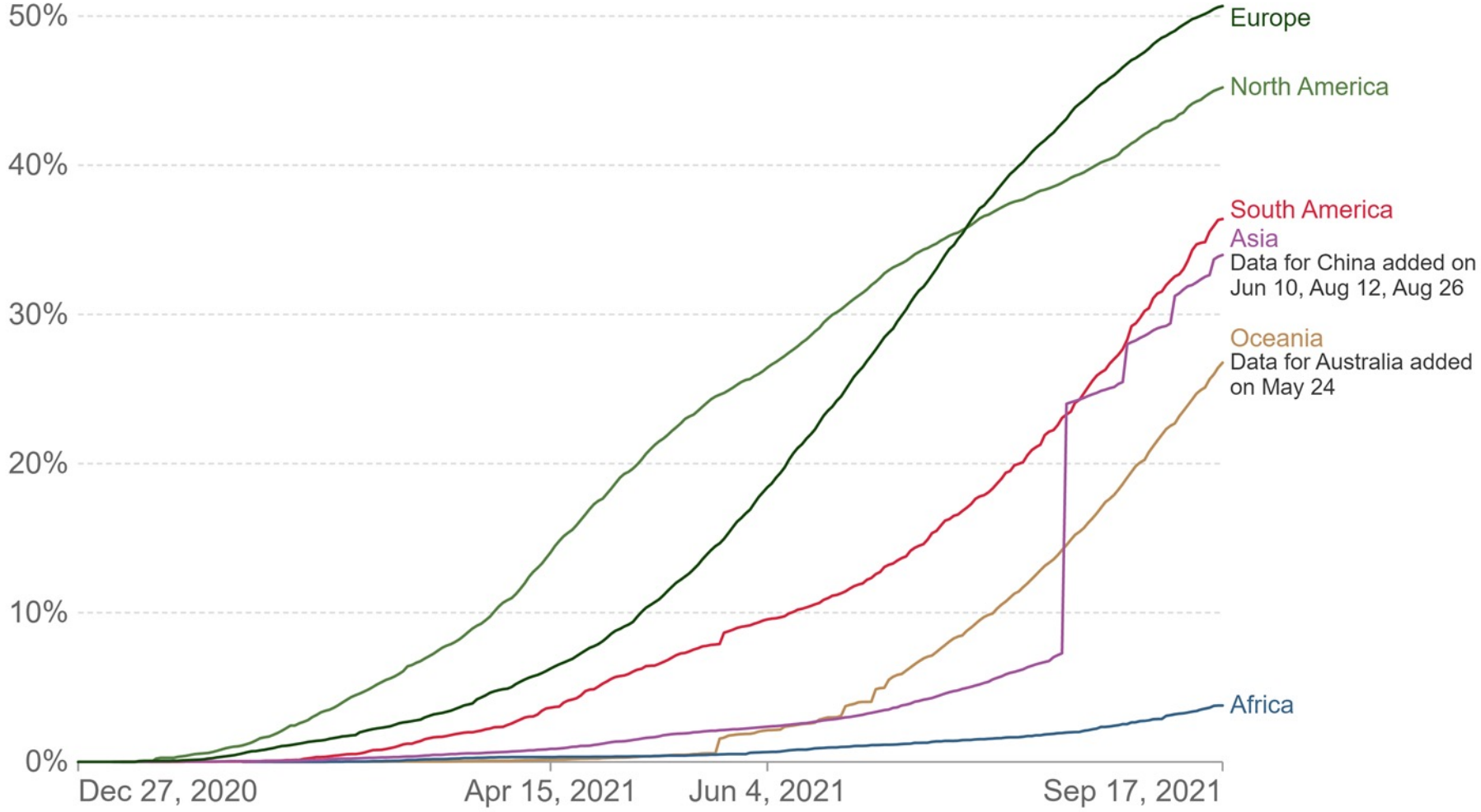
Share of the population fully vaccinated against COVID-19

Our World in Data

Total number of people who received all doses prescribed by the vaccination protocol, divided by the total population of the country.



Source: Official data collated by Our World in Data. Alternative definitions of a full vaccination, e.g. having been infected with SARS-CoV-2 and having 1 dose of a 2-dose protocol, are ignored to maximize comparability between countries.

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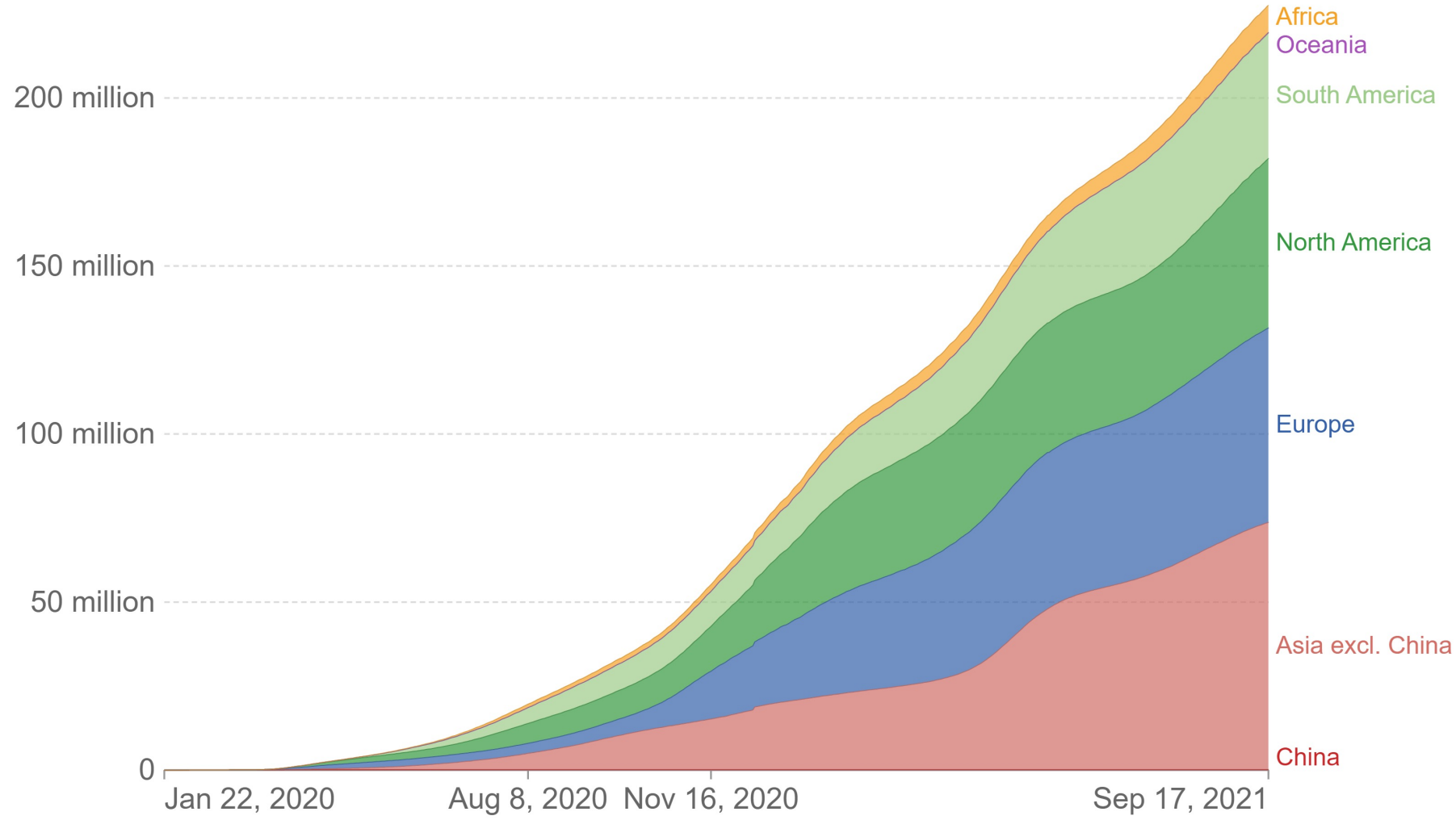
Cumulative confirmed COVID-19 cases

The number of confirmed cases is lower than the number of actual cases. The main reason for this is limited testing.

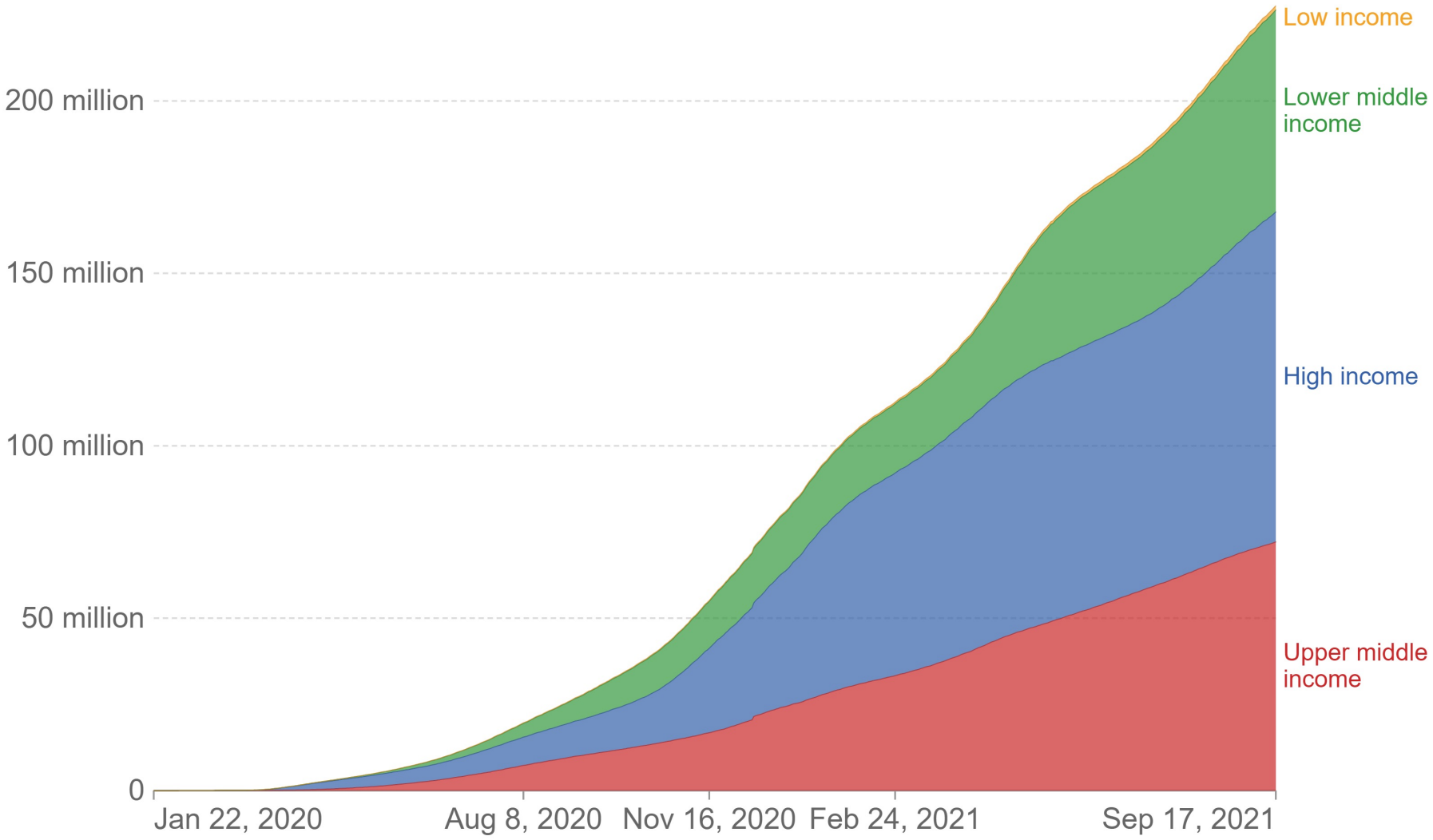


Source: Johns Hopkins University CSSE COVID-19 Data – Last updated 18 September, 06:03 (London time)
OurWorldInData.org/coronavirus • CC BY

Total confirmed COVID-19 cases

The number of confirmed cases is lower than the number of total cases. The main reason for this is limited testing.

Our World in Data



Source: Johns Hopkins University CSSE COVID-19 Data – Last updated 18 September, 06:03 (London time)

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Pandemic in developing countries is relatively small

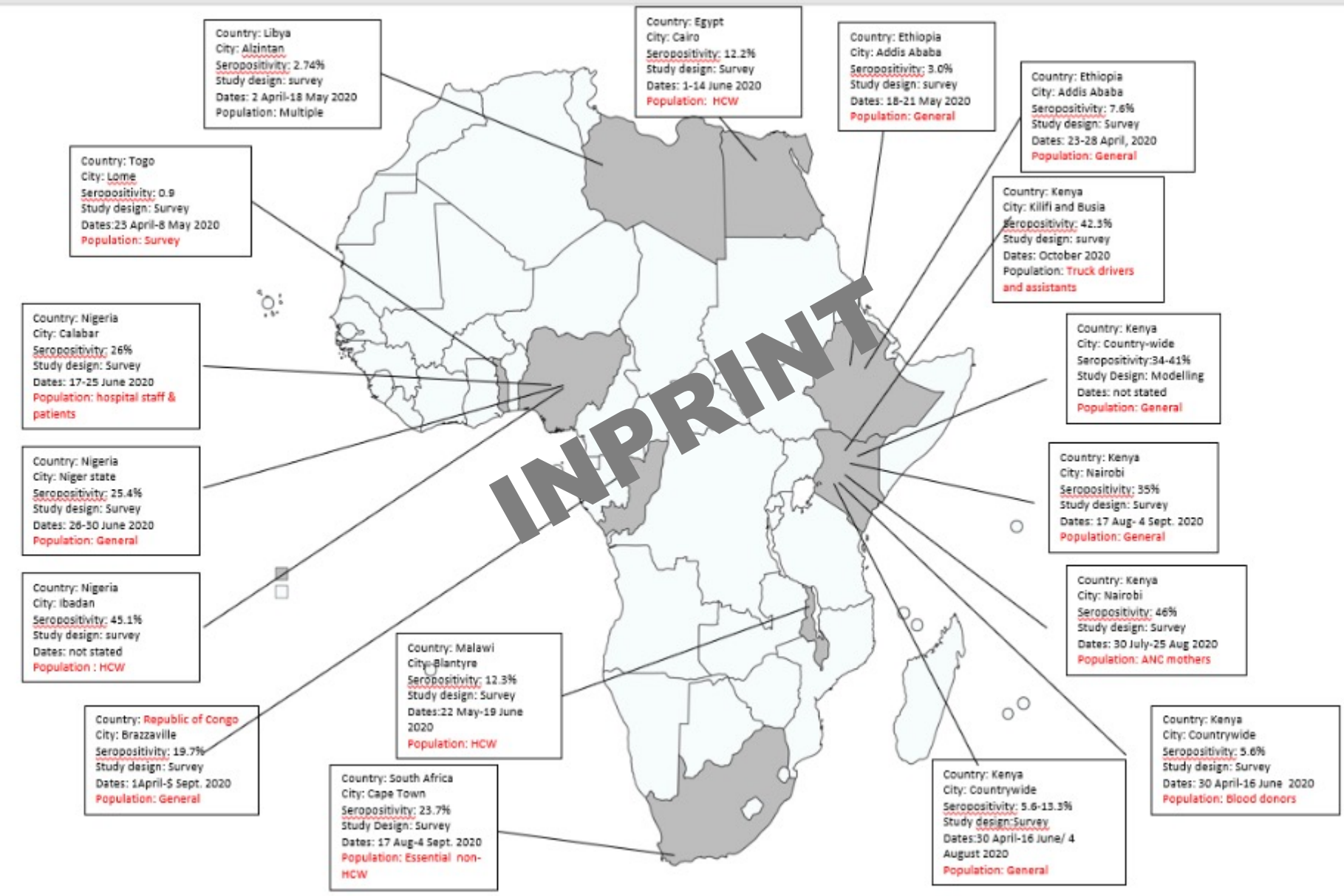
possible factors		explanations
Low covid 19 testing capacity	N	Most African countries have laboratories not well equipped for RT-PCR testing
Prompt response for physical distancing and enhanced hand hygiene	P	–Africa Taskforce for Coronavirus Preparedness and Response on 3 February 2020 -Lockdown measures, like closing schools, churches, mosques or markets to promote social distancing or shutting down airports and hand hygiene
Less frequent exchanges between China and Africa		Less air travel between China and Africa, those with high traffic between the two regions are- Egypt, Algeria, South Africa, Nigeria, Ethiopia
Demography hypothesis	L	60% of Africa's population is below 20 years, COVID 19 is associated with older age
Climatic factors- temperature and relative humidity		Africa has high temperatures which does not support COVID 19 transmission, 60% of the world cases occurred in areas where temperature ranged from 5 to 15°C
Genetic polymorphism	P	The major genetic risk factor for severe COVID-19 is inherited from Neanderthals (positive) Angiotensin Converting Enzyme 2 (ACE2)is the host cell receptor for SARS-CoV-2 (negative)
Cross immunity of SARS-CoV-2	P	B and T cell immunological memory from earlier viral encounters exist immunity conferred by BCG vaccines (positive)
Repeated use of antimalarials	N	Use of antimalarials to treat uncomplicated malaria in malaria endemic countries
Non communicable diseases		hypertension, diabetes, respiratory system disease, cardiovascular disease, and their susceptibility conditions have been linked to the pathogenesis of COVID-19
Obesity	P	people who are obese were more likely to get COVID 19 infection than their normal weight counterparts
Ebola experiences on the continent		The technical skills applied in these earlier outbreaks together with the lessons learnt were quickly adapted in most African countries under the leadership of the African Centers for Disease Control (CDC) to help mitigate the effects of COVID 19 on the continent
Traditional medicines		The current practice of traditional medicinal use might have had protective effect on populations
Viral mutations		The COVID19 virus may have mutated with time to circumvent strong immunologic pressure in humans. This has resulted in virus variants with different infectivity, transmissibility and viru
change in cultural practises	P	Moderate levels of behavior change can help to reduce infections. Majority of African countries have taken the pandemic seriously and heeded to advice from the Africa CDC and WHO

N Negative/Partially negative

P possible

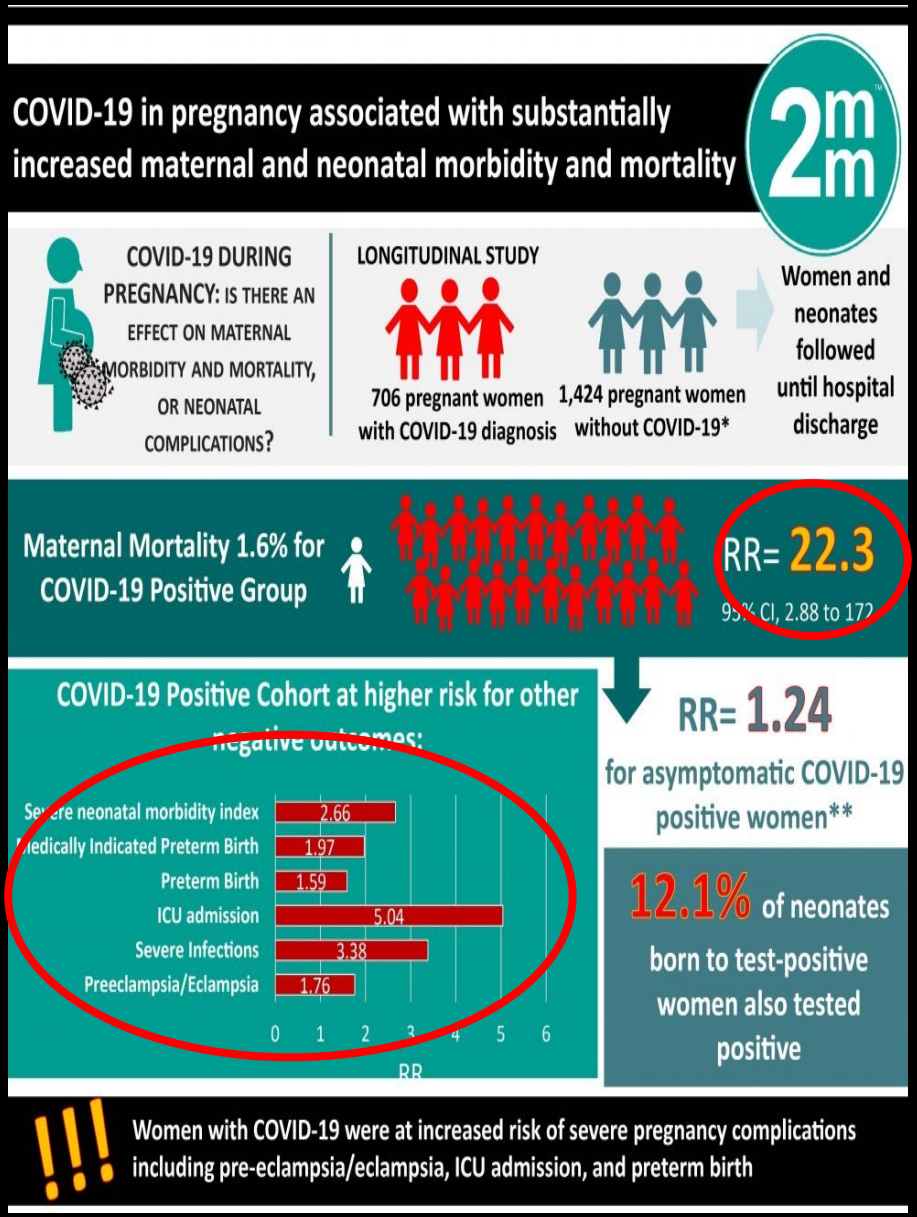
L likely

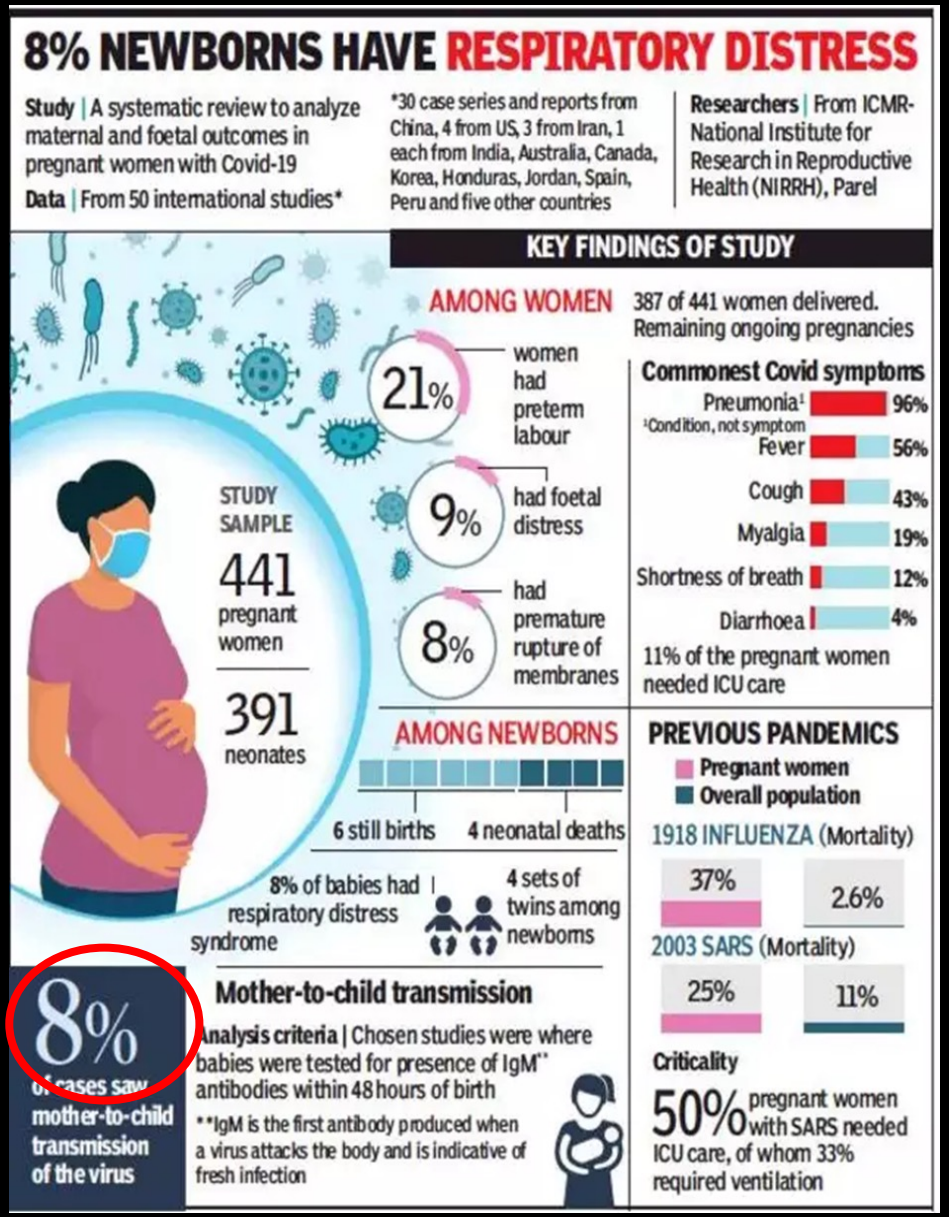
High COVID-19 positive rate in Africa




Gender vulnerability

COVID-19 direct impact on women's health





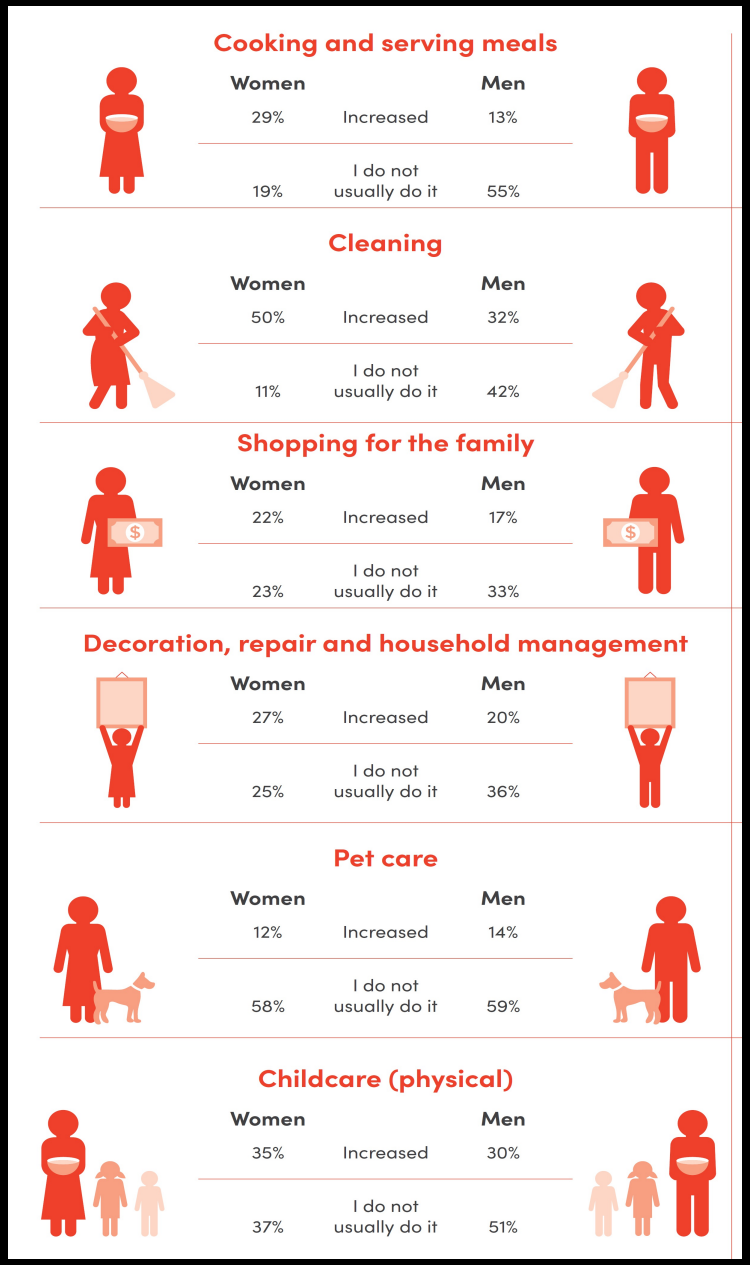


UN Women's Global Database on Violence against Women and the Women Count Data Hub.

Pandemic indirect effect on gender

- Female health worker
- High infection risks
- Service access
- School/office bullying
- Job security
- Sextual harassment
- Domestic violence
- School drop-off
- Teenager pregnancy
- Female genital mutilation
- High suicide rate

Increased Care Work



Genderr disparity

Female essential workers face elevated risks of infection

Globally,

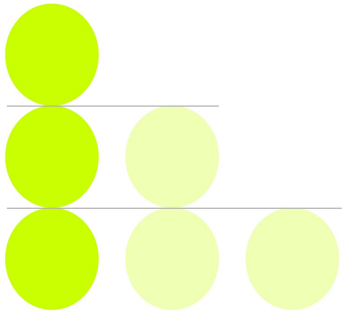


of the health and social care workforce

is female, and they are more likely to be **front-line health workers**, especially nurses, midwives and community health workers.

Infection rates among female health-care workers are up to

3x higher



than among their male counterparts.

Migrant women and **women from marginalized ethnic groups** are often overrepresented in **personal care jobs**, which require close contact with others.

In **Italy**,

72% of long-term-care workers are **foreign-born**.

Women with disabilities are at increased risk

Women with disabilities are up to

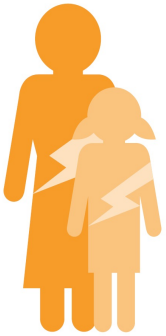
2x more likely to experience violence

from **partners and family members** than women without disabilities.

Experience of sexual violence is up to

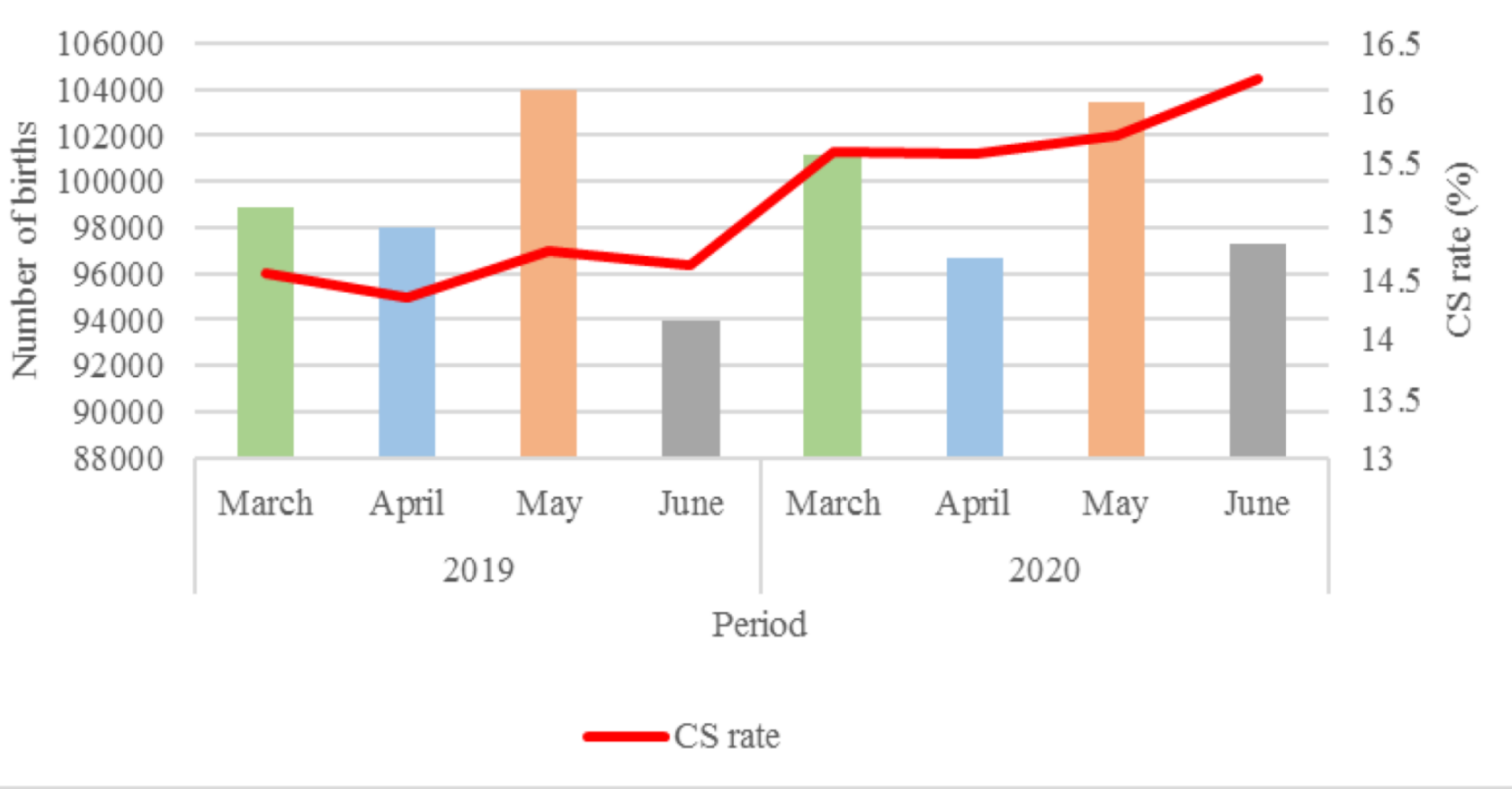
10x higher for women with disabilities

than women without disabilities.



Women and girls with disabilities may find it harder to report violence and abuse and access help due to the nature of disability as well as isolation and dependence on (or fear of) caregivers.

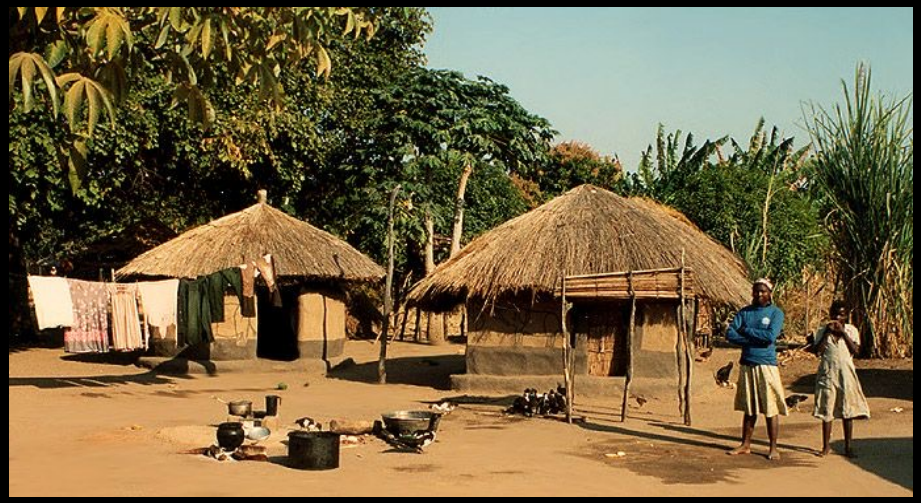
CS is increased in Nairobi



Duncan Shikuku[1], Early indirect impact of COVID-19 pandemic on utilization and outcomes of reproductive, maternal, newborn, child and adolescent health services in Kenya https://doi.org/10.1101/2020.09.09.20191247

Re-definition of Vulnerability

	Old vulnerability	New vulnerability
Attribution	**Poverty** Disparity Rural area Healthcare Systems Gender Nutrition Education	**Human prosperity** Globalization Economic prosperity Urbanization Aging NCDs Science/technology






A Use Case:
MCH Handbook and Dx in Kenya

Background



Rapid expansion of e-infrastructure,
IT development and demand creation

Mobile cellphone coverage in Africa



80
70
60
50
40
30
20
10
0

2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014

ブルキナファソ Burkina Faso
ケニア Kenya
スーダン Sudan
ザンビア Zambia

M Pesa

電子送金システム



Progressive development in Kenya

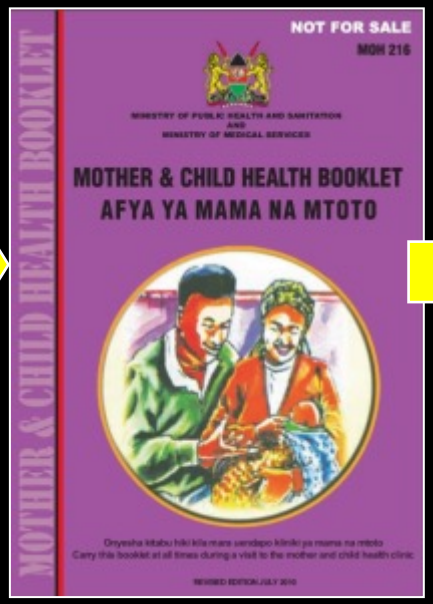
Antenatal card

Postnatal and family planning card

Child welfare card

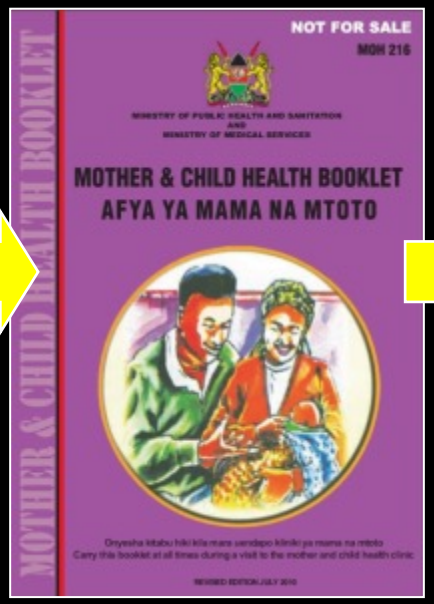
Before **2007**

HIV DNA Early infant diagnosis



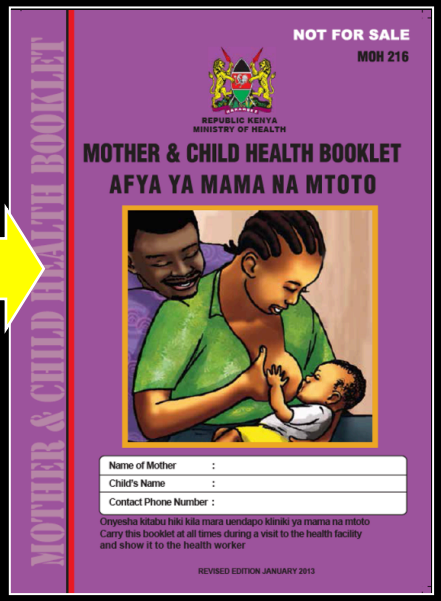
Pilot **2007-2009**

CoC and Essential services tracking



National Launch **2010**

Empowerment and educational material



First Revision **2013**

EMR through e-MCH Handbook

JICA-Oxford Pilot Program

Mother and Child Health Record - Clinic Visit

Paper Form ID: MoH 216

Consultation Details

Date: 27/05/2013 (dd/mm/yyyy) **Location:** Choose a Location... **Provider:** mch demo

Patient Profile

Unique Patient Number: 12345-1234-12-1234
Patient's Name: **Jane Bloggs**
Date of Birth: **10/May/1990** (Age: **23**)

Present Pregnancy

Urinalysis:
Weight (kg):
Blood Pressure: /
Hb:
Pallor: Yes No
Gestation (weeks):
Fundal Height (cm):
Presentation:
Lie:
Foetal Heart: Yes No
Foetal Movement: Yes No
Next visit: (dd/mm/yyyy)*

Care in Pregnancy

Eat one extra meal during pregnancy:	Yes No*
Eat plenty of fruits and vegetables:	Yes No*
Take iron and folic acid tablets:	Yes No*
Avoid heavy work, rest more:	Yes No*
Sleep under an insecticide treated bed net:	Yes No*
Go for ANC visit at least 4 times during pregnancy:	Yes No*

Overview of Danger Signs



Danger Signs in Pregnancy

Any vaginal bleeding:	Yes No*
Fits:	Yes No*
Severe abdominal pain:	Yes No*
Severe headache:	Yes No*
Very pale:	Yes No*
Fever:	Yes No*
Reduced or no foetal movements:	Yes No*

SMS reminders

Does the mother consent to receiving an SMS reminder if she misses her next clinic appointment?: Yes No*

Enter Form

Training (2 days)



Launch



Data entry support

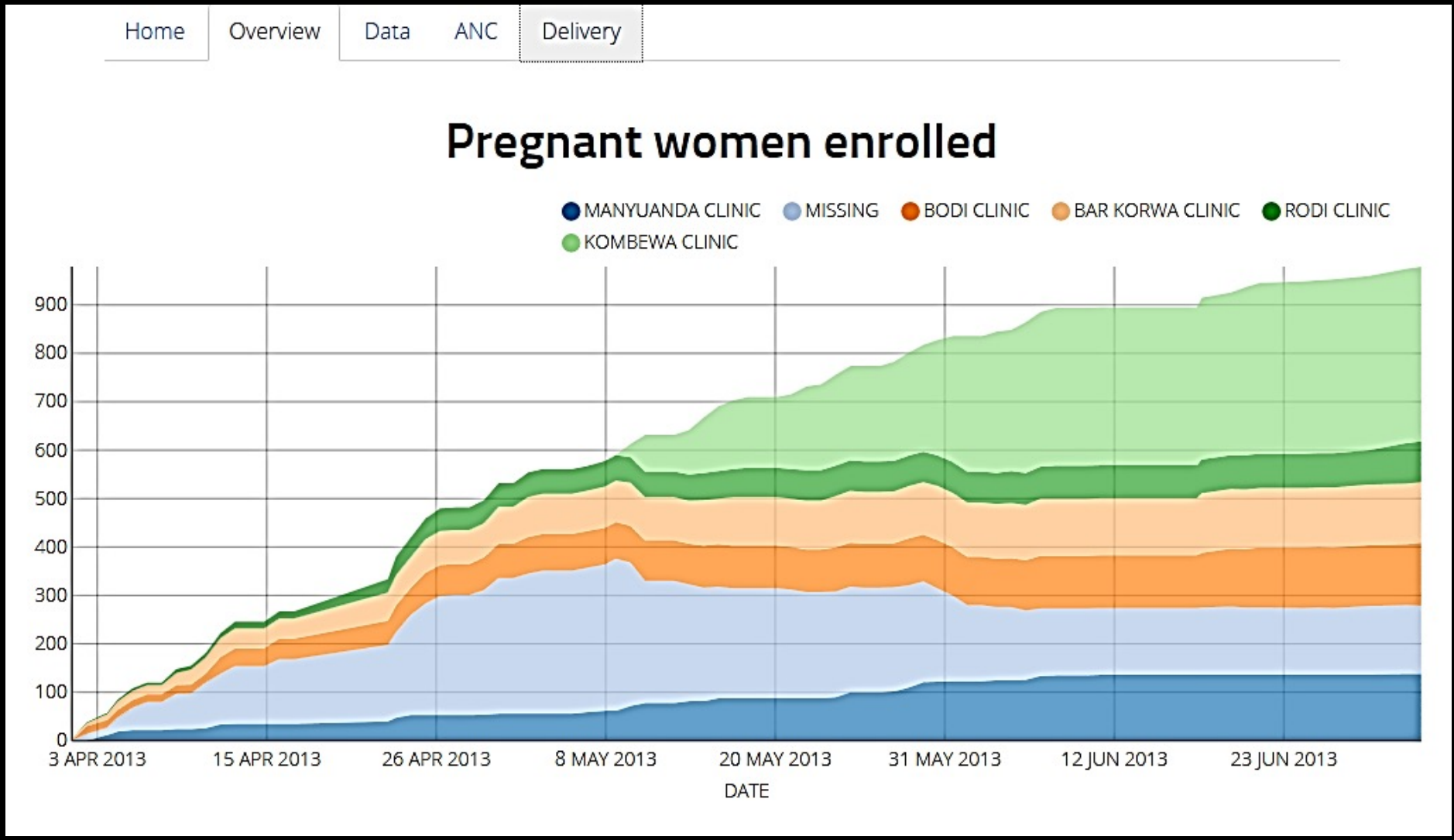


Supervision

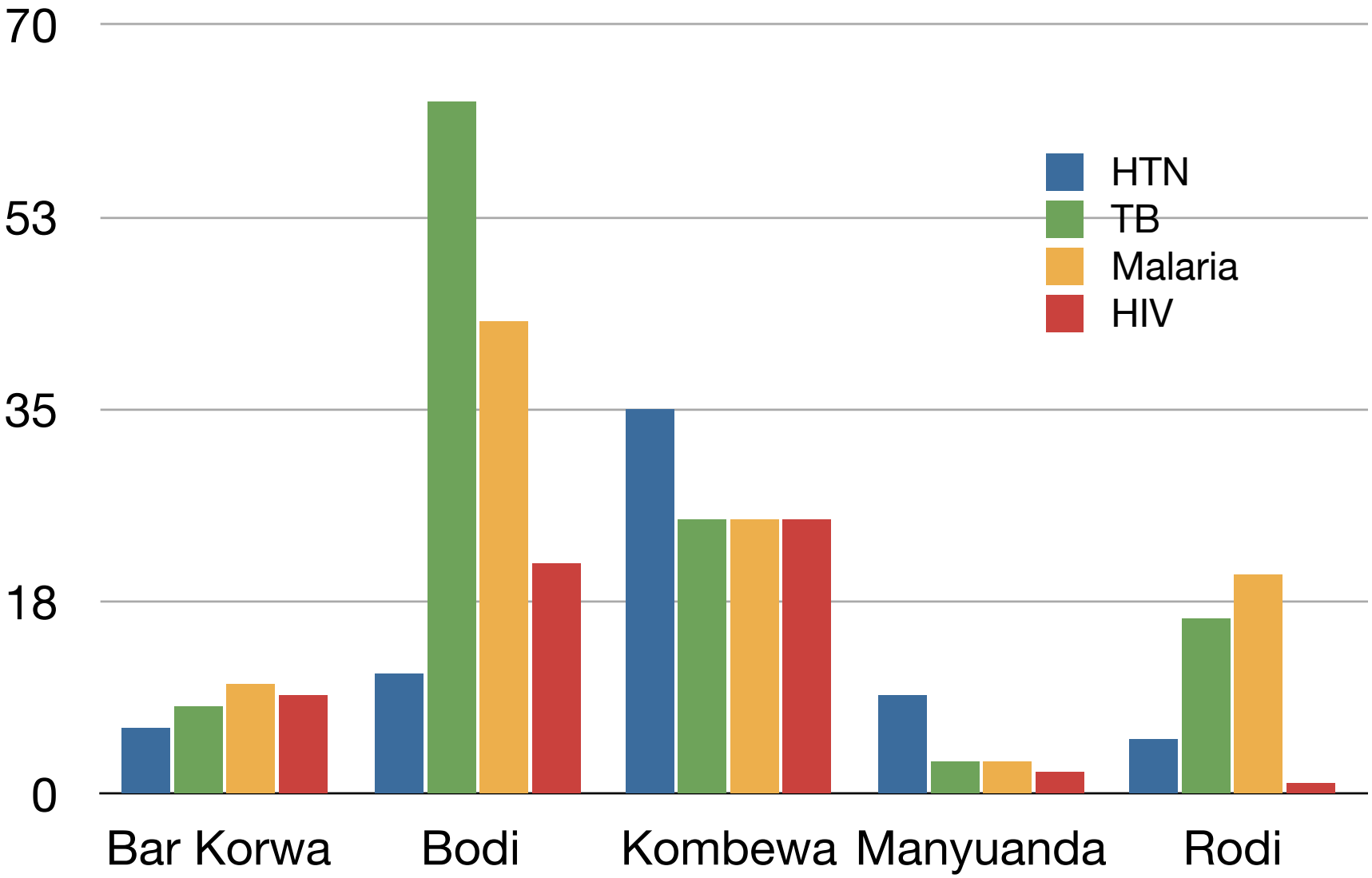



WRP

Digital MCH enrollment



Effective supervison





Implementation of a cloud-based electronic medical record for maternal and child health in rural Kenya

John Haskew[a,*,1], *Gunnar Rø*[a,b], *Kaori Saito*[c], *Kenrick Turner*[d], *George Odhiambo*[e], *Annah Wamae*[e], *Shahnaaz Sharif*[e], *Tomohiko Sugishita*[c]

HIV SCREENING TB MALARIA SCREENING BP SCREENING

100% 90% 80% 70% 60% 50% 40% 30% 20 10 0%

3 APR 2013 15 APR 2013 26 APR 2013 8 MAY 2013 20 MAY 2013 31 MAY 2013 12 JUN 2013 23 JUN 2013

Table 2 – Missing antenatal and delivery record data recorded for patients registered in the EMR system pre- and post-intervention.

Missing delivery data	Pre-EMR intervention n (%)	Post-EMR intervention n (%)	% diff[a]	95% CI	p-Value
Antenatal record missing data					
Hypertension screening	219 (39.0)	132 (14.0)	−25.1%	20.5–29.7	<0.001
Tuberculosis screening	271 (48.3)	182 (12.1)	−36.2%	31.8–40.7	<0.001
Malaria screening	266 (47.4)	169 (17.9)	−29.6%	24.8–34.3	<0.001
HIV status	201 (35.8)	122 (12.9)	−22.9%	18.4–27.4	<0.001
HIV+ women receiving ART	28 (49.1)	44 (32.6)	−16.7%	13.0–32.0	0.02
Total[b]	334 (59.5)	250 (16.6)	−42.9%	38.5–47.4	<0.001

[a] Two-sample test of proportions.
[b] Patient record missing screening for hypertension, tuberculosis, malaria, HIV status or ART status of HIV positive women.

MCH service quality improvement

Missing data and services

Hypertension, Tuberculosis, Malaria, HIV/ART missing data: **Total 43% reduction**

3 evidences from Kenya



Social protection for vulnerable mothers

Promoting CoC through CHWs

Service tracking & quality improvement

RESEARCH ARTICLE Open Access

Determinants of health facility utilization for childbirth in rural western Kenya: cross-sectional study

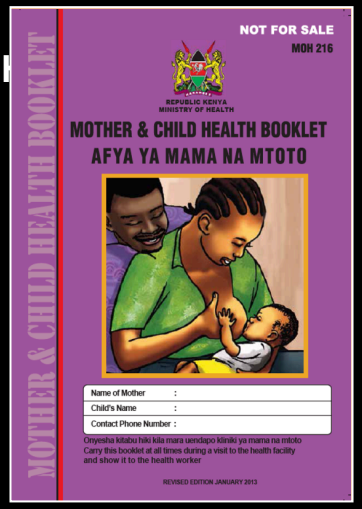
Yoshito Kawakatsu[1,2*], Tomohiko Sugishita[1], Kennedy Oruenjo[3], Steve Wakhule[3], Kennedy Kibosia[3], Eric Were[4] and Sumihisa Honda[2]



Continuum of Care



Pregnancy and Child Health Services





Danger sign management



Record tracking/ Family Memory





Delegation by guardian



Voucher Performance based financing

Linda Mana Initiative: Free MCH services



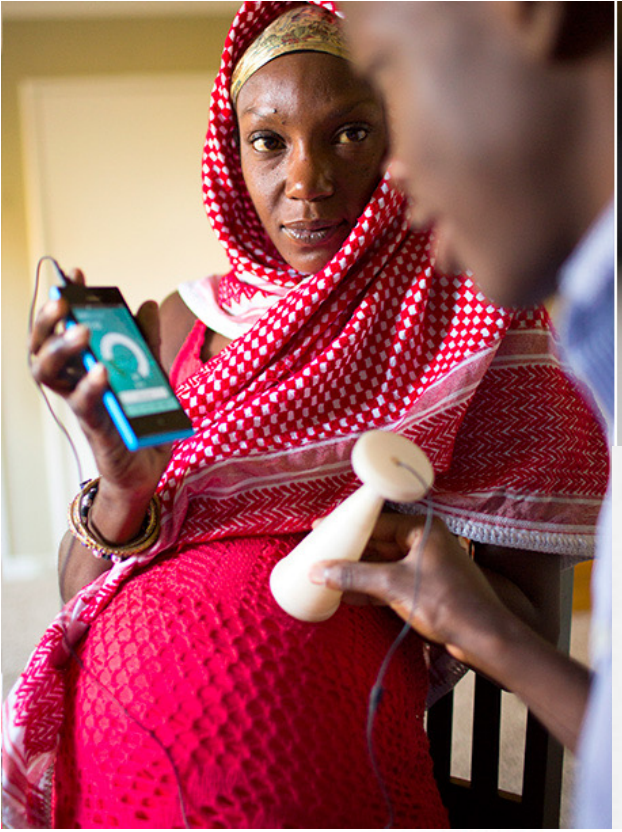


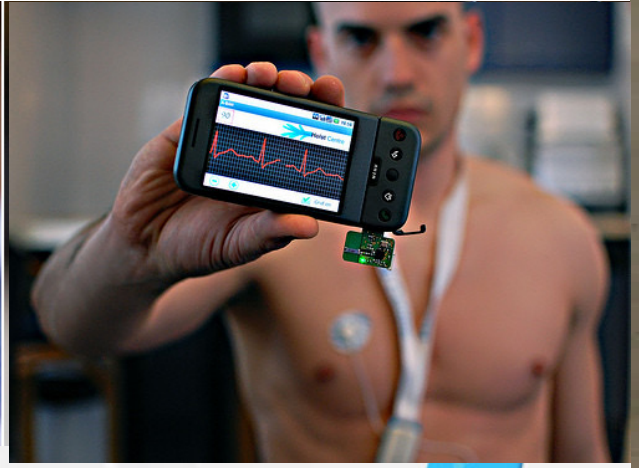






M健康保険：M-Tiba (Safaricom)






PHILIPS
SAMSUNG


Activity
10:09
MOVE
EXERCISE
STAND
Activity
10:09
MOVE
EXERCISE
STAND


97
73


GETTY IMAGES

*iHub_

Open innovation and incubation hub



Ms Geek Contest Rwanda



MCH Handbook Application in Japan

母子健康手帳アプリ

ABOUT US　自治体向け　医療関係者向け　ログイン



お子さまの成長記録をずっと

妊娠中の「妊婦健診」や出産後の「健康診査」「予防接種の記録」など、母子健康手帳の記録をデジタル化してクラウドに保管します。成長記録をデジタル化することで、成長の過程をグラフ化して確認できます。

データ管理は大丈夫？

Today's Baby & Child
お子さまの成長に関するコラムをこまめに配信

プレママ & 子育てレコード
お子さまの「できた」を写真とコメントで記録することができます

子育てQ&A
専門家が監修した妊娠期や育児期によある質問を配信

おすすめレシピ
管理栄養士の考える「妊娠期に必要な栄養素を多く含んだレシピ」を配信

お役立ち情報
妊娠期や育児期向けの便利なグッズやサービスについての情報を配信

NTT

MEDLEY

Benesse

「母子モ」 スマホ世代に合わせて、様々な課題・多様化するニーズに対応

大切な記録の
バックアップ
厚生労働省の
様式に対応した
母子健康手帳

保護者の不安解消、
負担軽減
実用的な
予防接種
スケジューラ

必要な人に
必要なタイミングで
効率的な
地域情報の
配信

自動グラフ化・専門家からのアドバイス



ルールが複雑な予防接種も自動で作成

国立感染症研究所
予防接種スケジュール（一部）



予定が近づいたらプッシュ通知



地域イベントの活性化、家族・地域で子育てに寄与



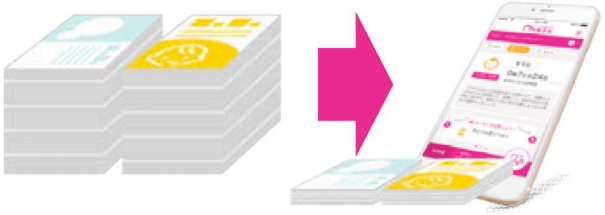
イベントに参加できなくても、後から動画で内容確認OK



多言語化対応など多様化するニーズに対応



行政業務の高度化・効率化



母子手帳アプリ『母子モ』 で妊娠から子育てまで切れ目なくサポート

208自治体※1で導入中！**日本最大級の導入数**!!
「ルナルナ」を利用する全国のママ・プレママの要望から生まれたサービスです。



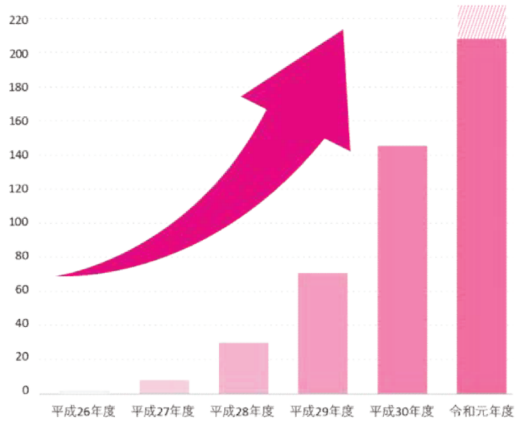
導入自治体数

45都道府県

208自治体

に導入いただいています。

（令和元年10月時点 契約中の自治体のみの数）



出生数カバー率

約15%

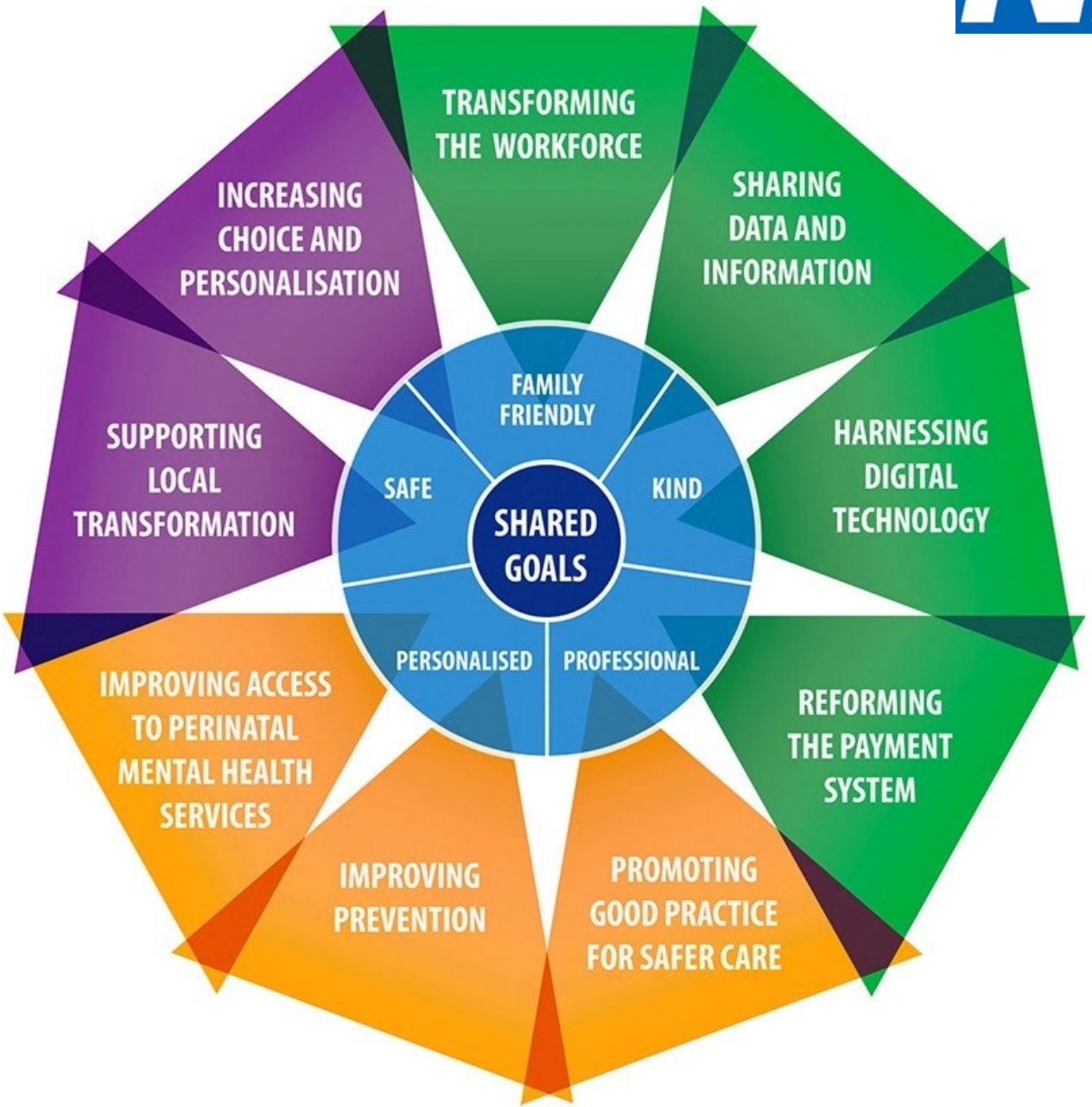
姉妹サービス「ルナルナ」



1400万超※2ダウンロードされ
年間約27万人※3**が妊娠**を報告する**日本最大級**
の健康情報サービス。
埼玉県、大阪府、北海道、大分県と連携し、
少子化対策の取組も実施。

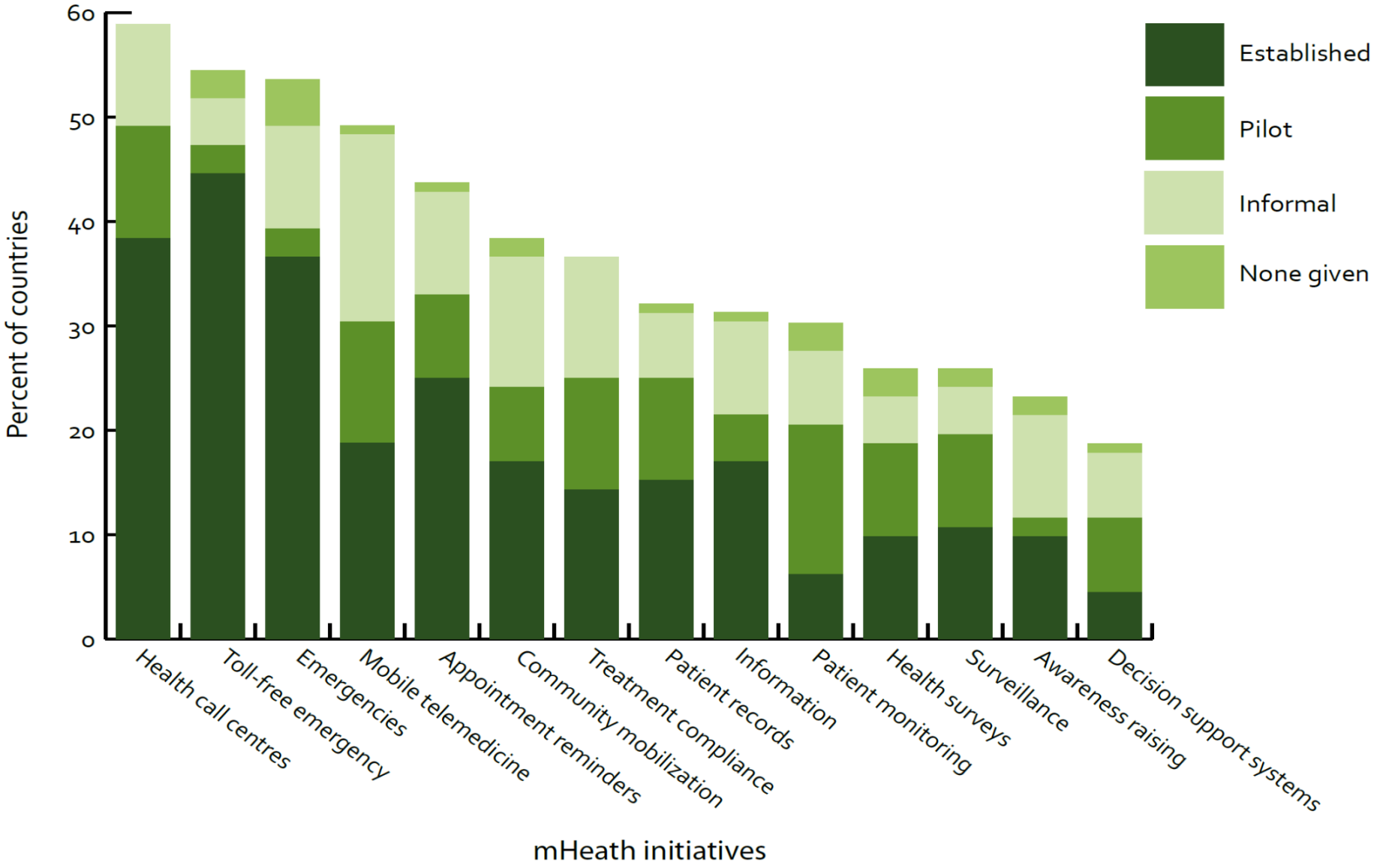
※1：令和元年10月1日時点
※2：令和元年7月時点
※3：平成30年（集計期間：平成30年1月1日～12月31日 ）に『ルナルナ』サービス内で「妊娠中ステージ」（妊娠中の利用者の健康サポートを目的とした利用ステージ）に切り替えがあった延べアカウント実績。
集計対象は、期間中に『ルナルナ』（アプリ/有料webサイト）、『ルナルナ 体温ノート』を利用したユーザー。（一定期間以上のステージの継続が認められなかったアカウントは除く。）

Maternity Transformation programme



Increased mHealth services

Figure 3. Adoption of mHealth initiatives and phases, globally




Opportunity
Digital transformation

Gigantic unsolved challenges

50% of delivery without health professional.

830 pregnant mortality everyday.

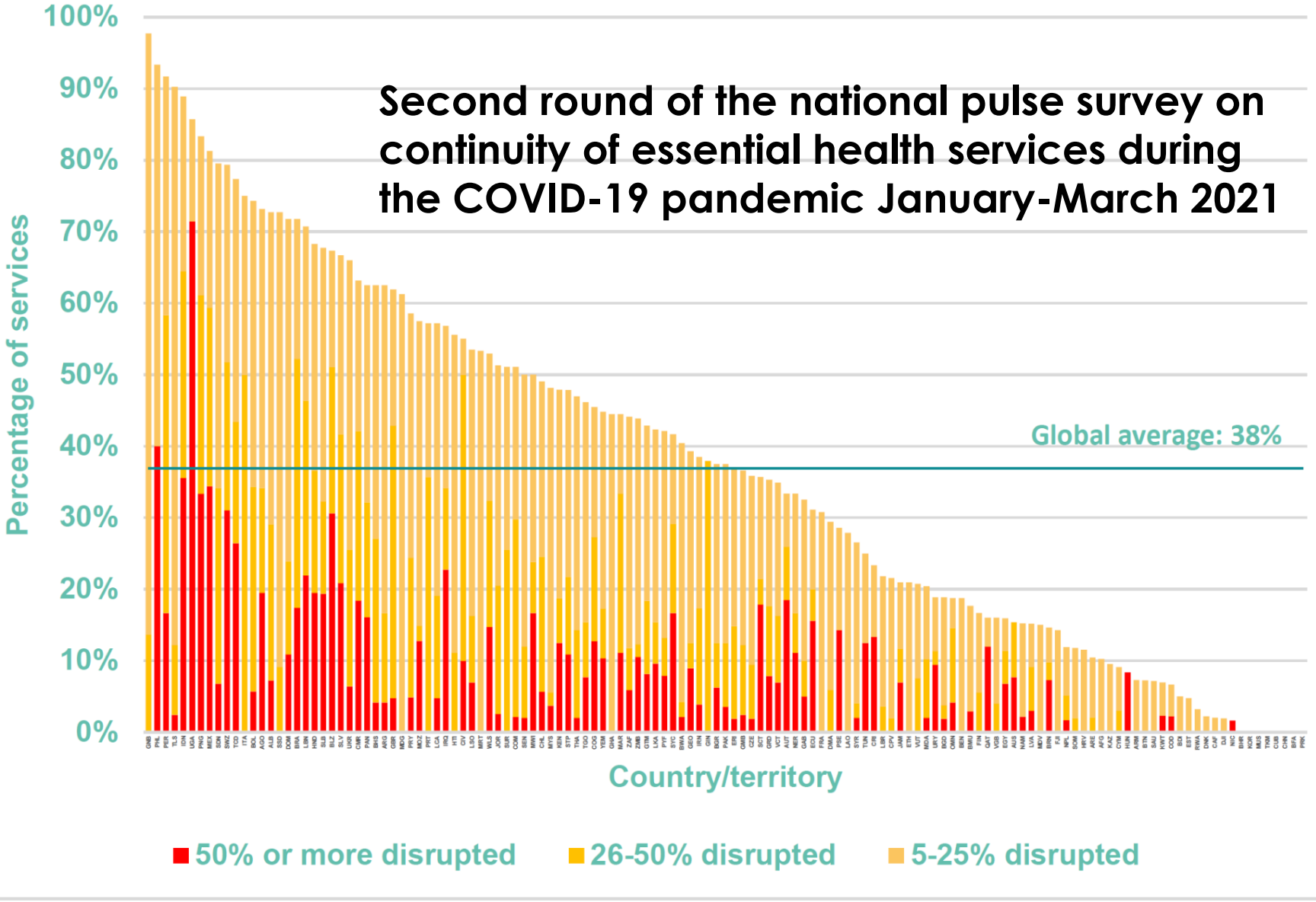
300,000 pregnant mortality every year.

22,000,000 unsafe induced abortion

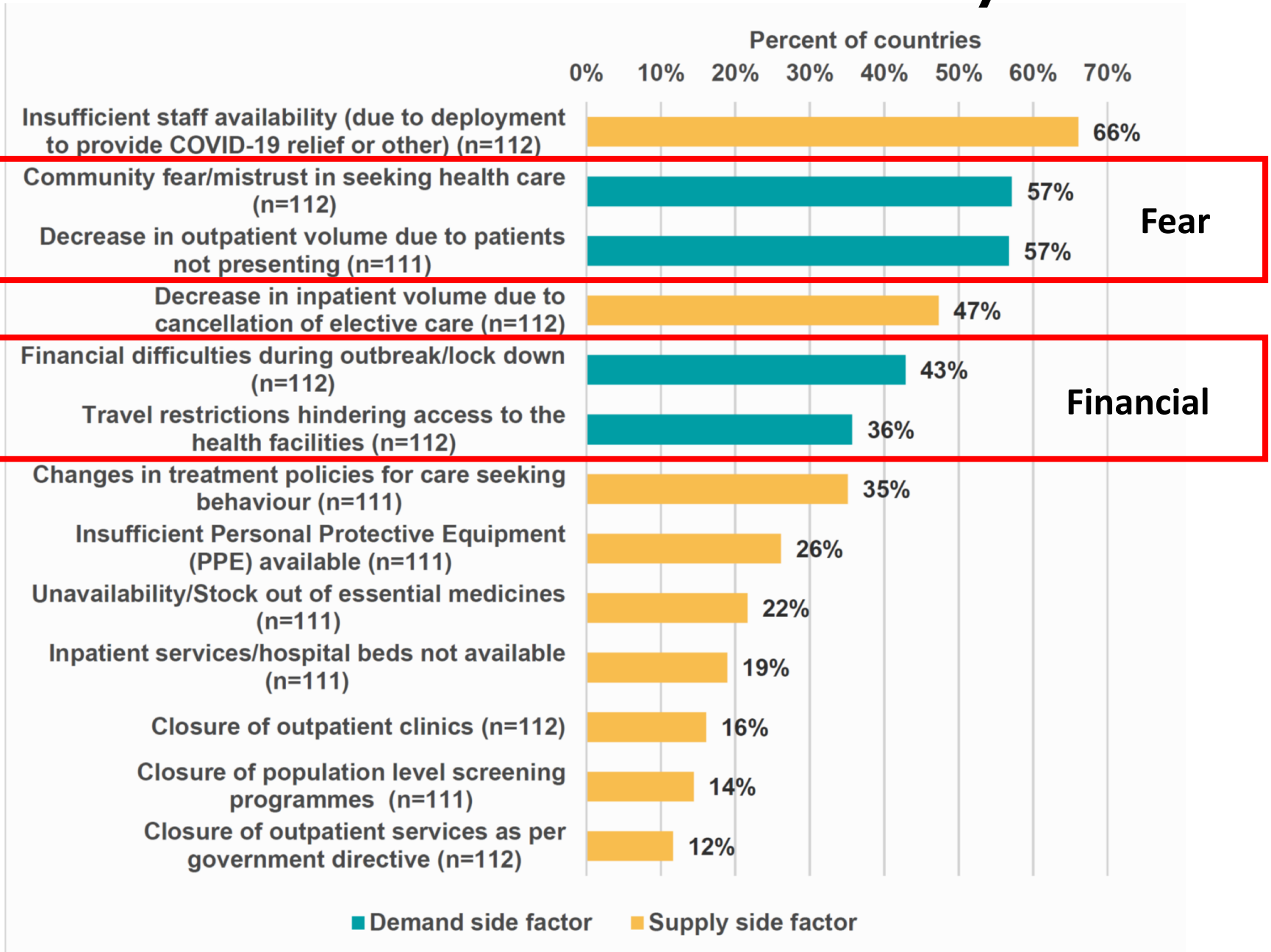
16,000,000 teenager pregnancy every year.

100,000 fistula every year.

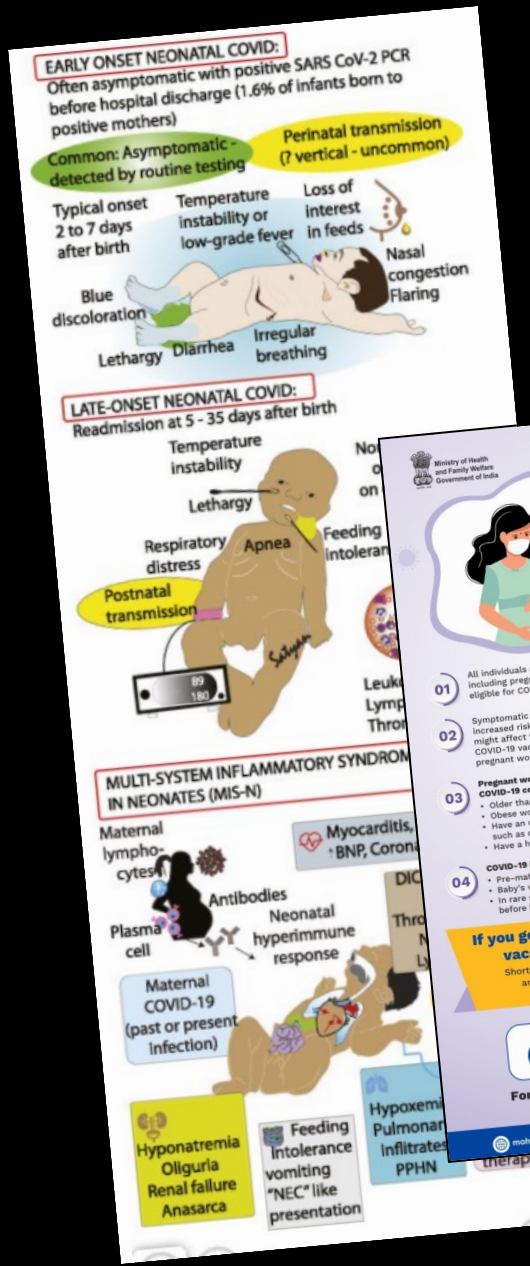
Health service delay during COVID-19

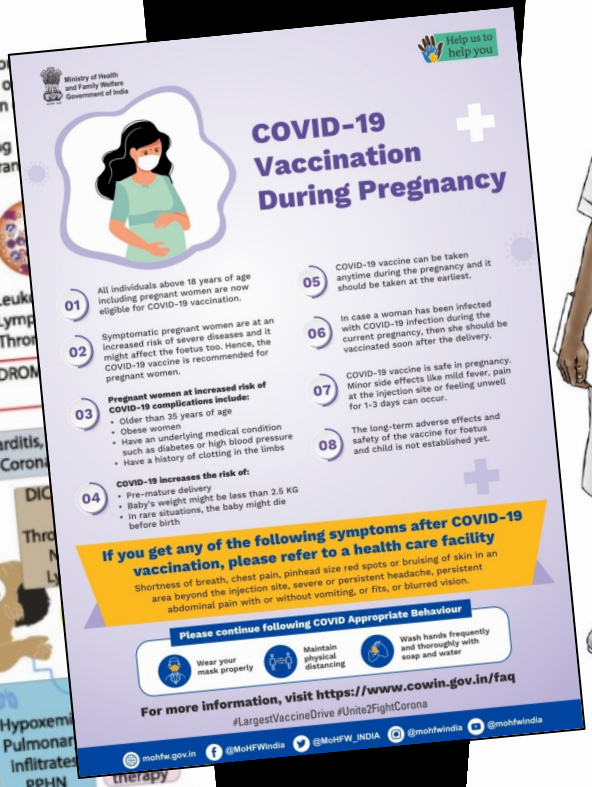


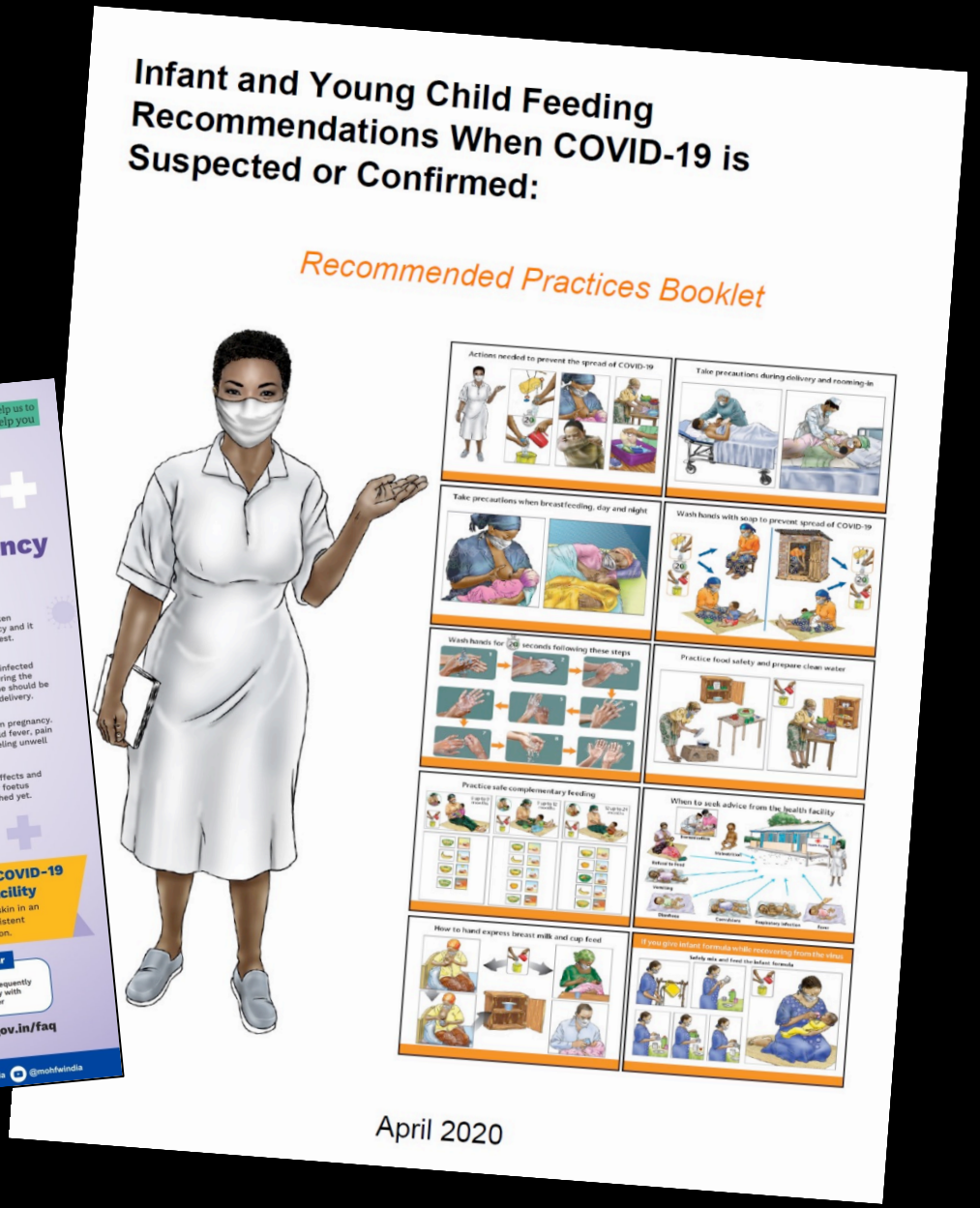
Reasons for service delay



Sharing ideas, experiences and up-to-date information











MCH Handbook

Personal tool – Social tool

Opportunity

Fintech



Global

Society





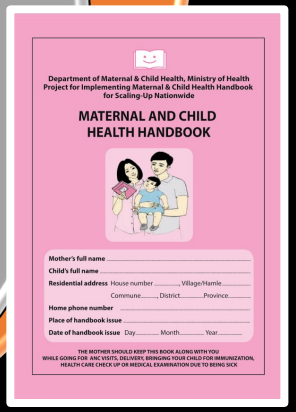
Family

Femtech

Babytech



Mindset



MOH



HFs



- Communication interface
- Educational and promotional tool
- Encyclopedia function
- Multiple languages
- Electric Medical Record
- Service tracking/deflater tracing
- Service quality improvement
- Clinical reminder/alert messaging
- Safe storage



Miracle functions

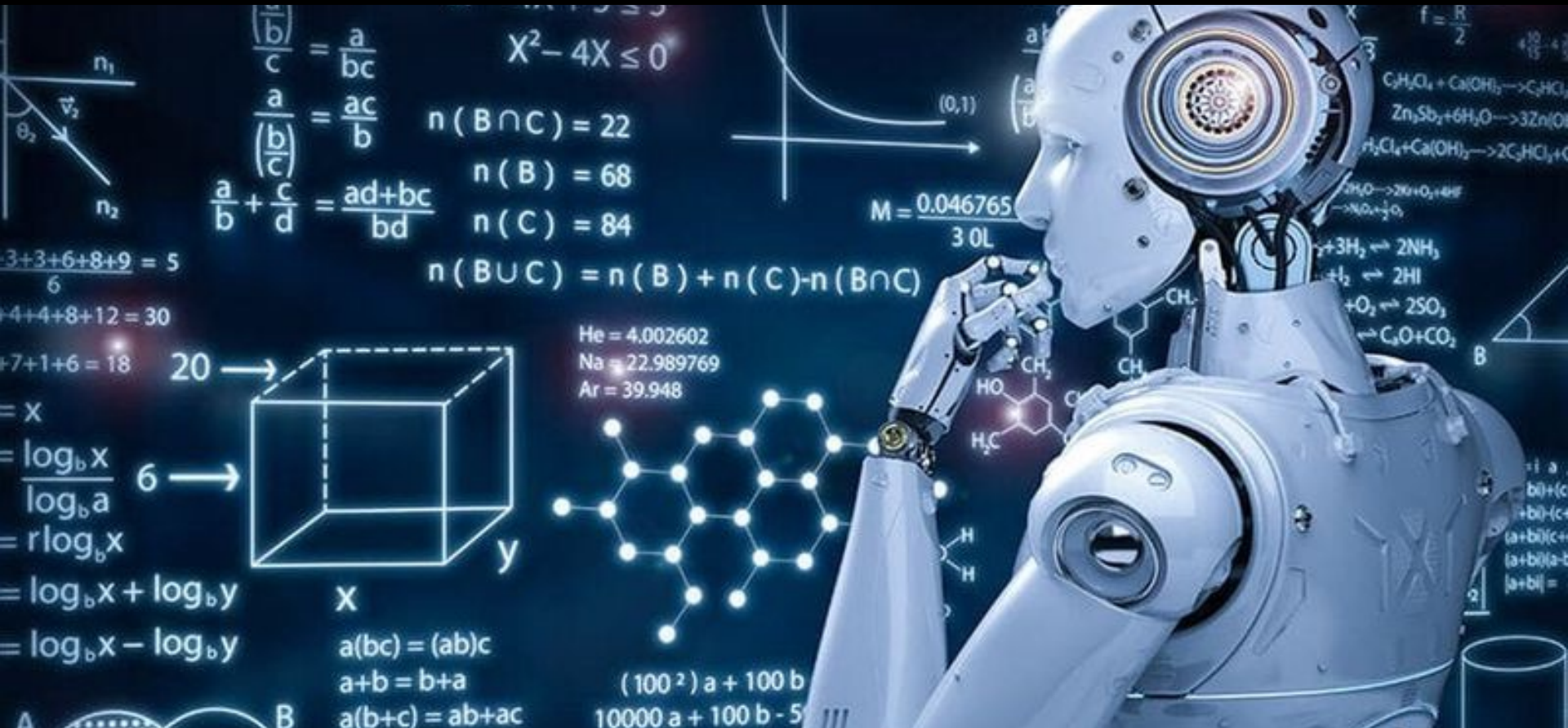
- Cash transfer/mobile banking
- Multiple medical/wearable devices
- CRVS/Birth registration
- Big data driven transformation
- Cost-effective intervention
- Nudge effect
- Systems leverage
- Mutual learning
- Innovation hub



Miracle extended functions

Singularity

The singularity describes a hypothetical future where technology growth is out of control and irreversible. These intelligent and powerful technologies will radically and unpredictably transform our reality.
It also describes social systems where a small change may have an enormous impact.



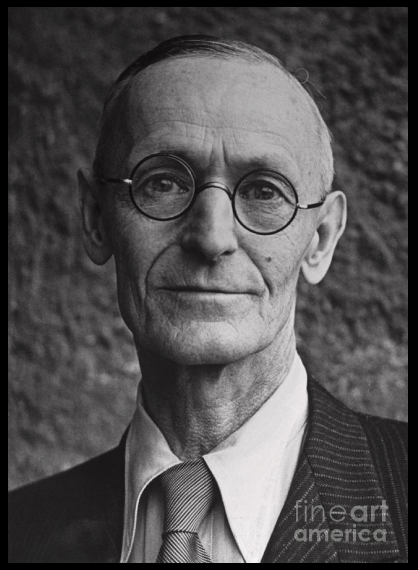
DX is ultimately creating **Open Democracy**

Audrey Tang, Digital Minister, Taiwan,



Hermann Hesse

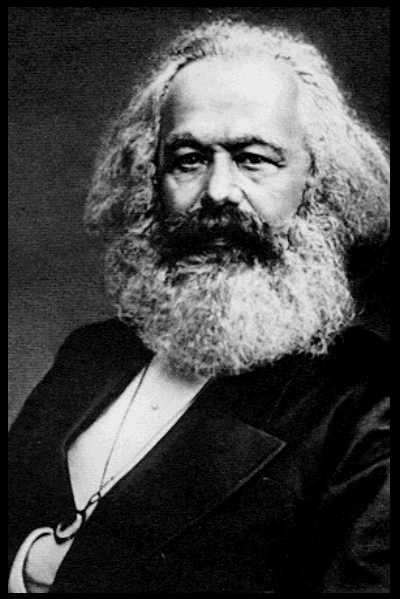
Every man represents the unique, the very special and always significant point at which the world's phenomena intersect.



Spiritual self-fulfilment
Mindset change

Karl Marx

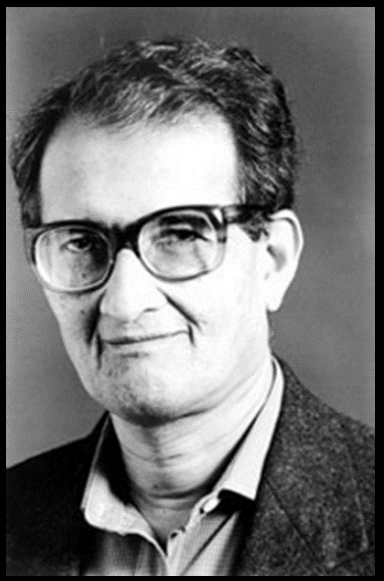
It is not the consciousness that determines their being. But the their social being that determines their consciousness.



Structure and revolution
Social change

Amartya Sen

Poverty is seen as deprivation of capabilities.



Empowerment
Social transformation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