新型コロナウイルス感染症と社会デザイン
アフリカで加速する保健分野のDX

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医師、外科学、公衆衛生学、医療人類学、地域保健学などを修める。1995年に青年海外協力隊としてマラウイ共和国で外科診療に携わり、以降、アフリカを中心に30か国以上で保健システム案件の立案や技術指導に携わる。2015年に策定された「持続可能な開発目標（SDGs）」の国際委員。2014年ソーシャルビジネス・グランプリ大賞受賞。2016年医療功労賞受賞。JICAグローバルヘルスアドバイザー

Transforming our world: the 2030 Agenda for Sustainable Development

1 NO POVERTY

2 NO HUNGER

3 GOOD HEALTH

4 QUALITY EDUCATION

5 GENDER EQUALITY

6 CLEAN WATER AND SANITATION

7 RENEWABLE ENERGY

8 GOOD JOBS AND ECONOMIC GROWTH

9 INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION

13 CLIMATE ACTION

14 LIFE BELOW WATER

15 LIFE ON LAND

16 PEACE AND JUSTICE

17 PARTNERSHIPS FOR THE GOALS

THE GLOBAL GOALS
For Sustainable Development

人類の未来は

繁栄か？

共存か？

アフリカにおけるCOVID-19の現状と課題

COVID-19は、なぜアフリカで広がらないのか？

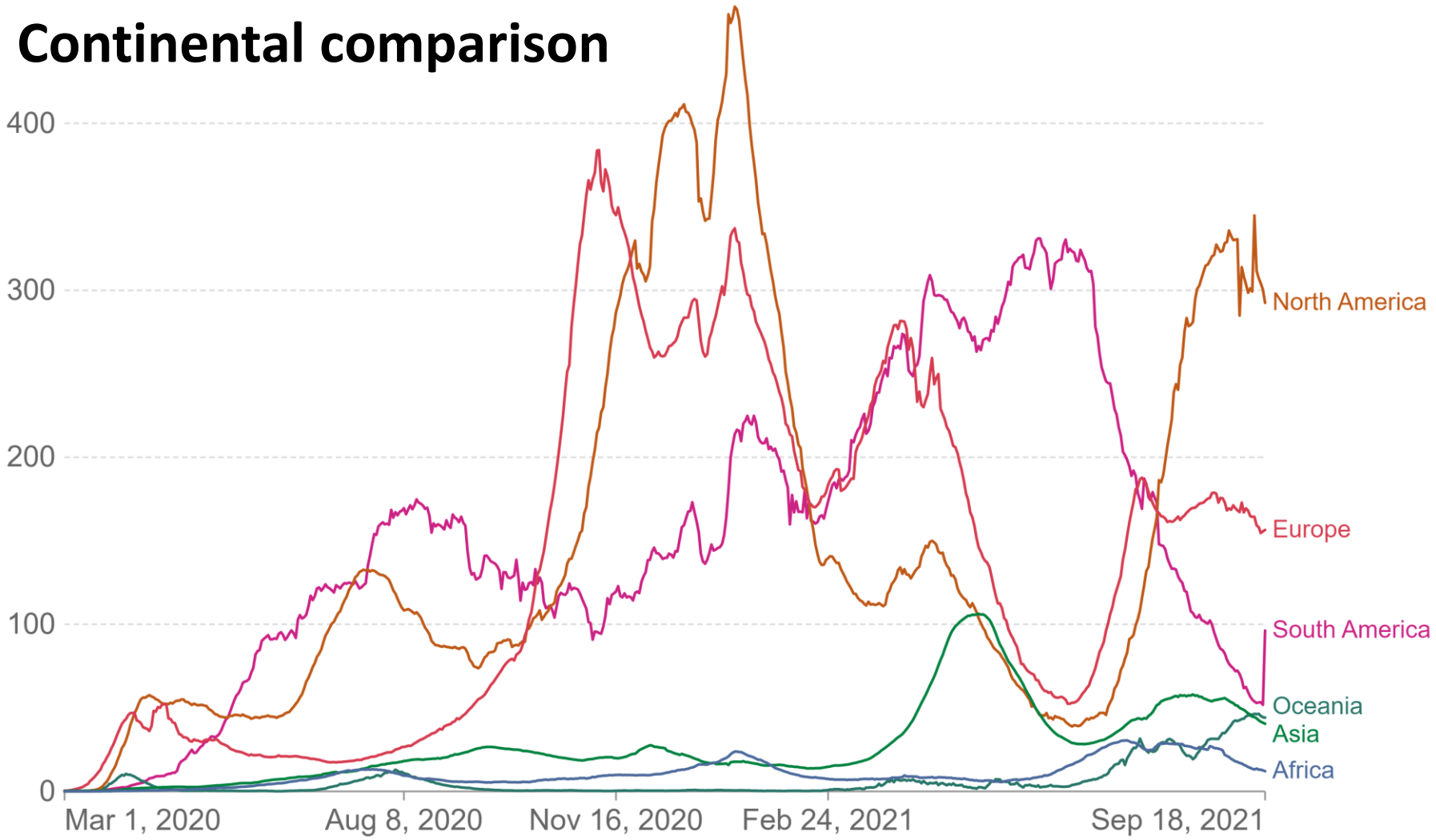
アフリカ大陸（世界人口の17%）のCOVID-19感染者数は、10月1日時点で831万人と世界全体（2億3400万人）のわずか3.5%、死者数も２１万１000人と世界全体（478万人）の4.4%と、脆弱な社会基盤と未整備な保健システムにもかかわらず、パンデミックの影響は予想に反して限定的です。

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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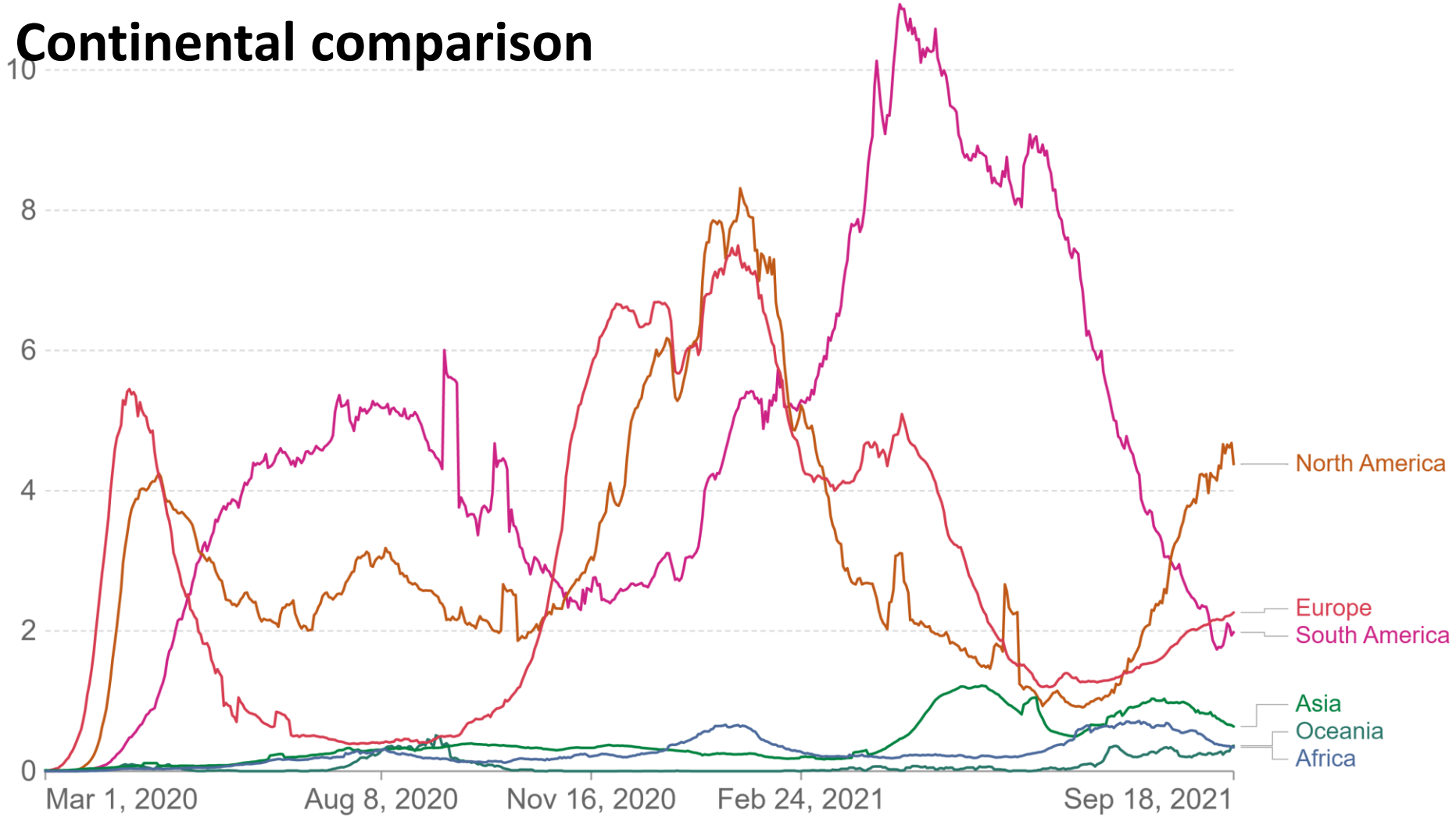
Daily new confirmed COVID-19 deaths per million people

Our World in Data

Shown is the rolling 7-day average. 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.

Continental comparison



Source: Johns Hopkins University CSSE COVID-19 Data

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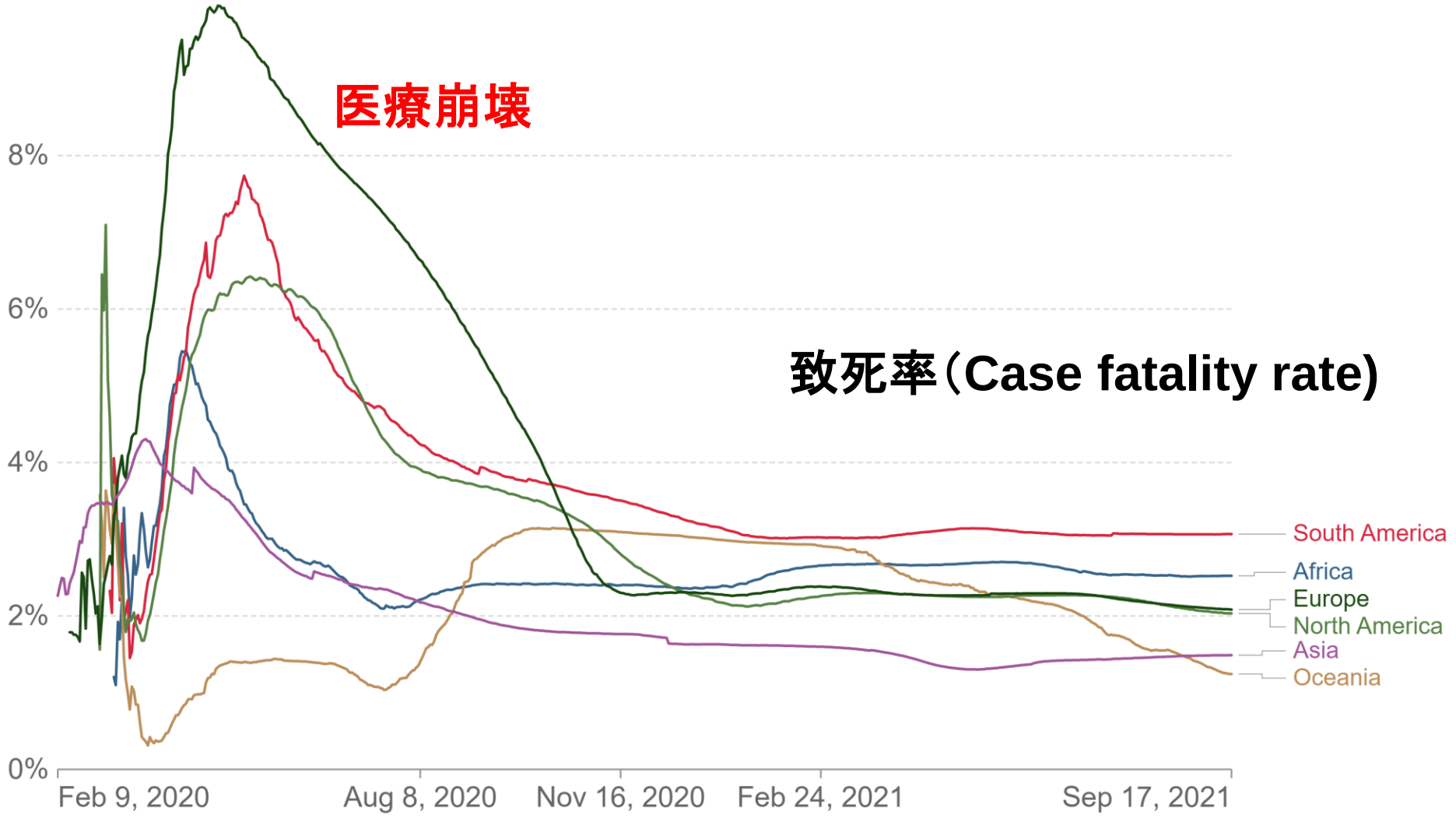
Case fatality rate of COVID-19

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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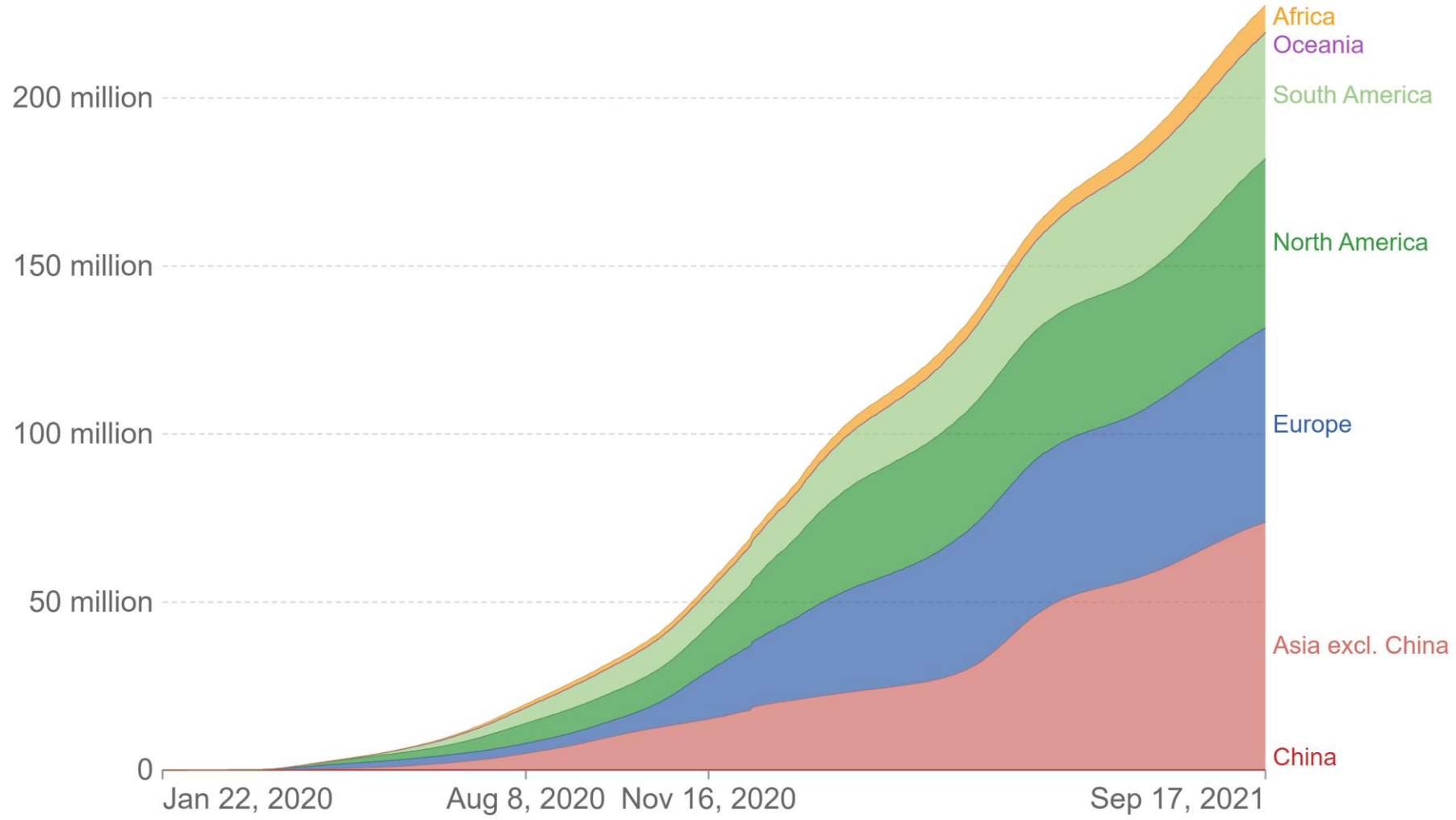
Cumulative confirmed COVID-19 cases

Our World in Data

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



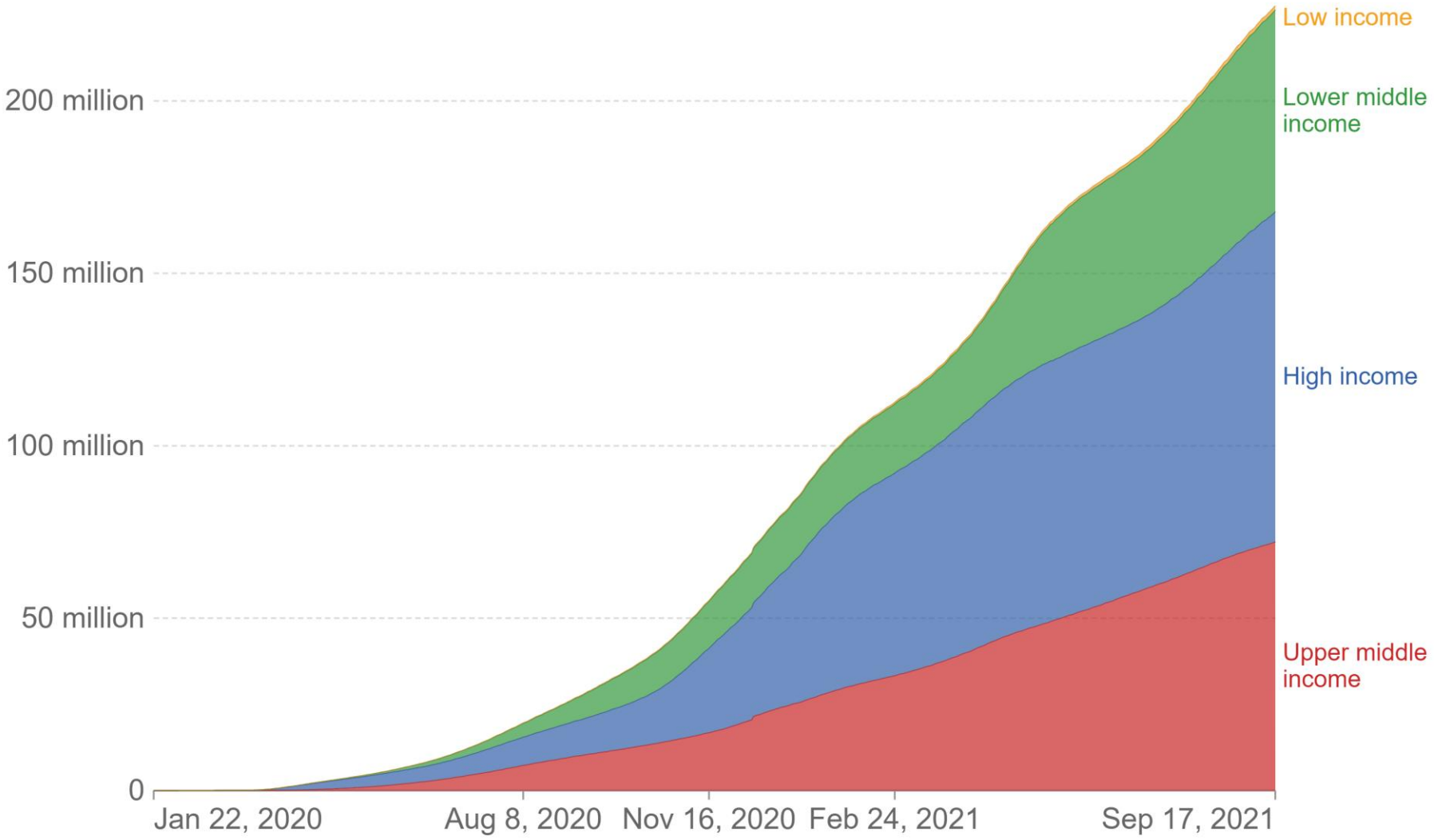
Source: Johns Hopkins University CSSE COVID-19 Data – Last updated 18 September, 06:03 (London time)

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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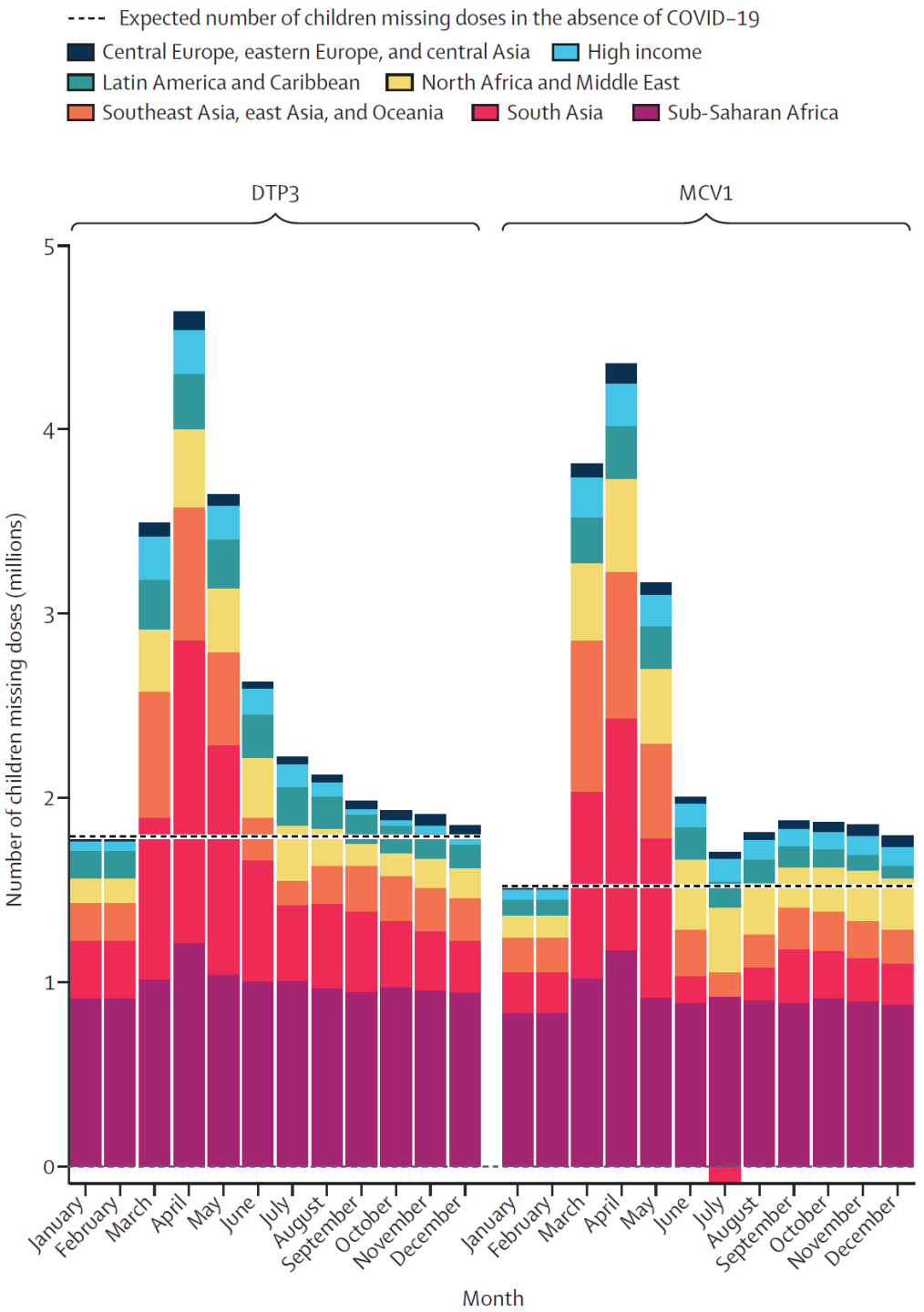
COVID-19 Pandemic and Vulnerability

社会の新しい脆弱性

COVID-19 パンデミックと小児予防接種



Pregnancy Intention during the COVID-19 Pandemic

JAMA Network Open™

Original Investigation | Obstetrics and Gynecology

Factors Associated With Changes in Pregnancy Intention Among Women Who Were Mothers of Young Children in New York City Following the COVID-19 Outbreak

Linda G. Kahn, PhD, MPH; Leonardo Trasande, MD, MPP; Mengling Liu, PhD; Shilpi S. Mehta-Lee, MD; Sara G. Brubaker, MD, MS; Melanie H. Jacobson, PhD, MPH

Abstract

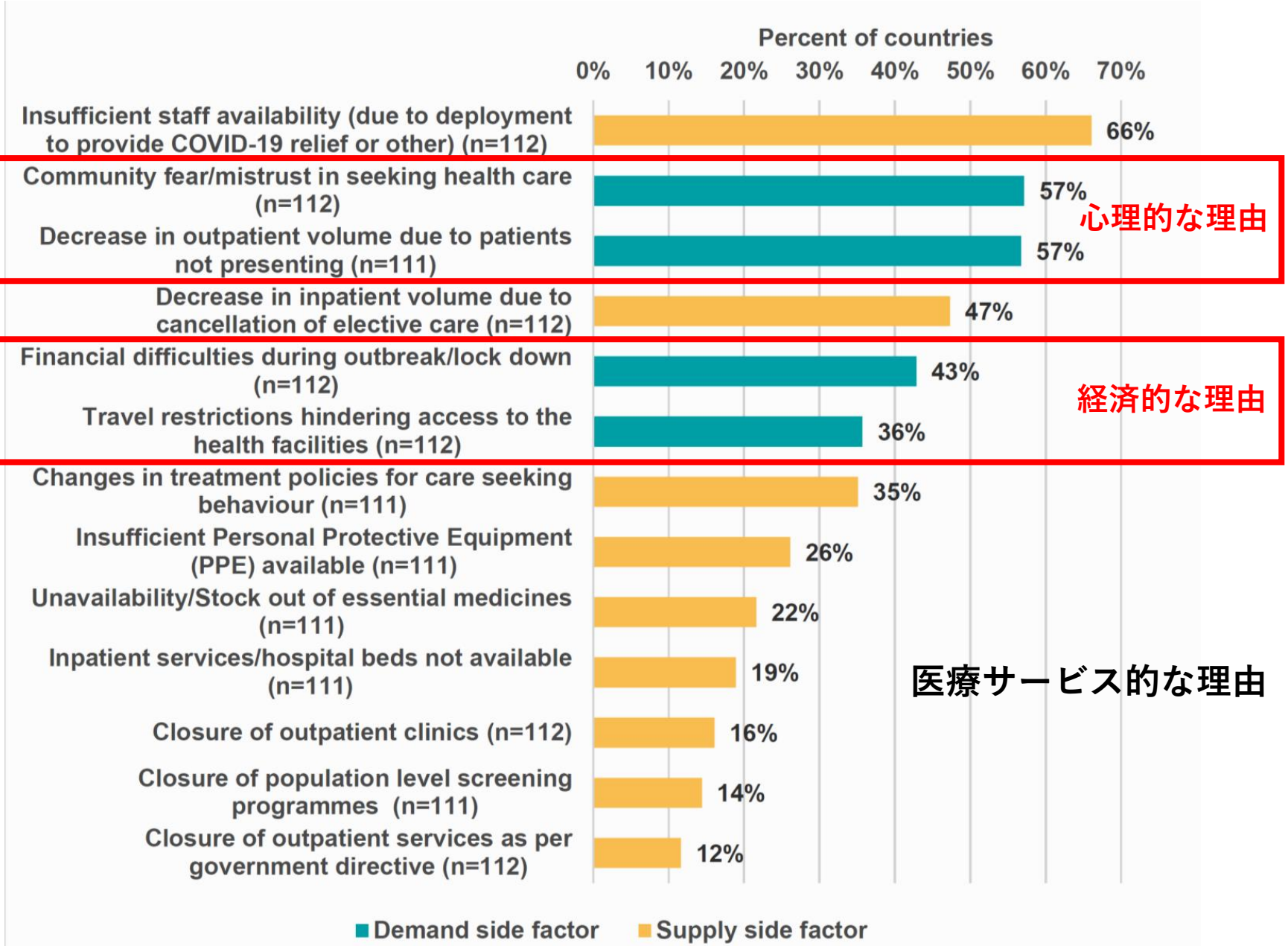
IMPORTANCE Early evidence shows a decrease in the number of US births during the COVID-19 pandemic, yet few studies have examined individual-level factors associated with pregnancy intention changes, especially among diverse study populations or in areas highly affected by COVID-19 in the US.

Key Points

Question Were there changes in pregnancy intentions among women who were mothers of young children around the peak of the first wave of COVID-19 in New York City?

43.3% thought they would resume after the pandemic. higher stress levels (OR, 1.09; 95%CI, 0.99-1.20) and increased stress and financial insecurity owing to the COVID-19 pandemic paralleled a reduction in pregnancy intention in the early months of the pandemic, potentially exacerbating long-term decreases in the fertility rate.

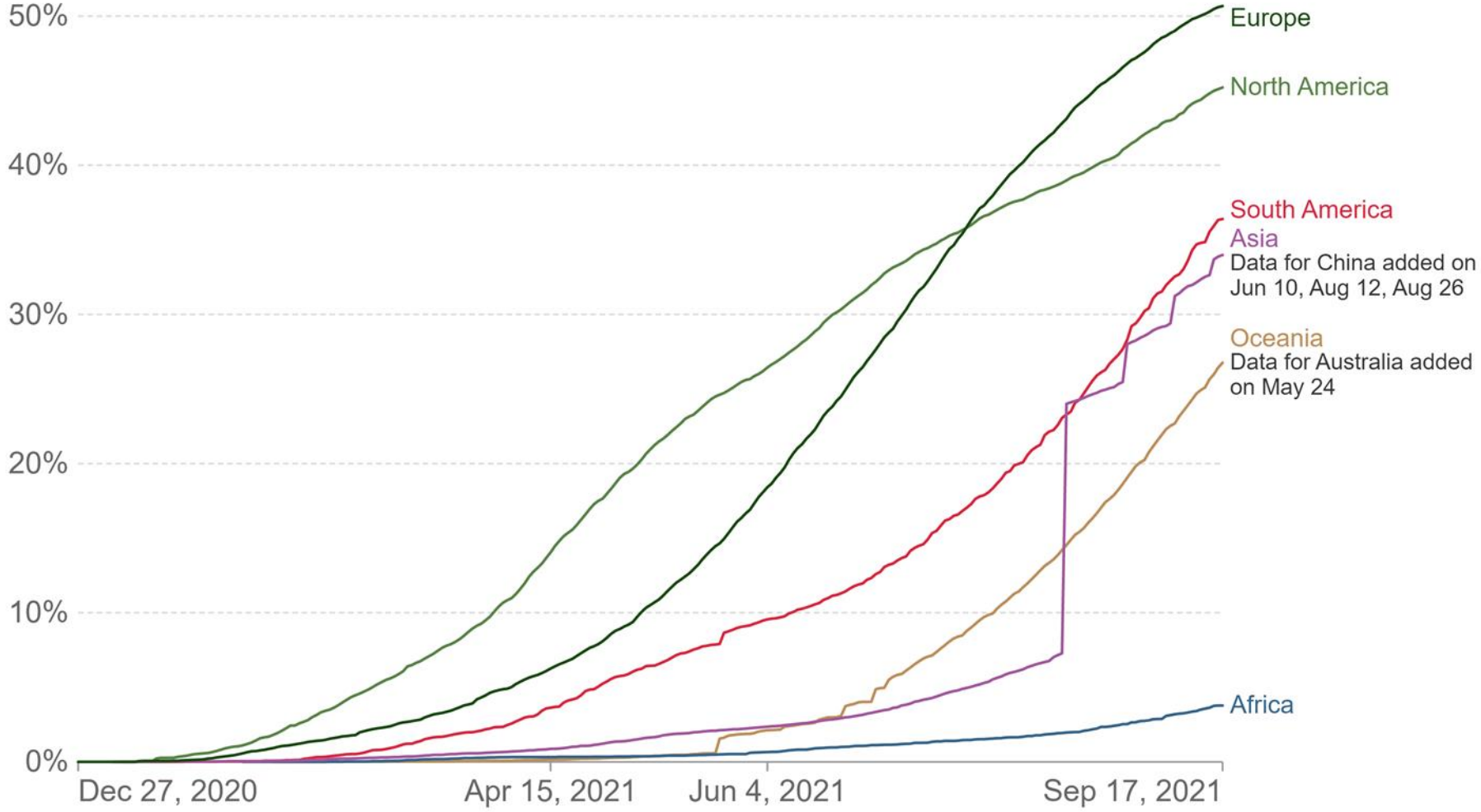
COVID-19でサービスが行えなかった理由



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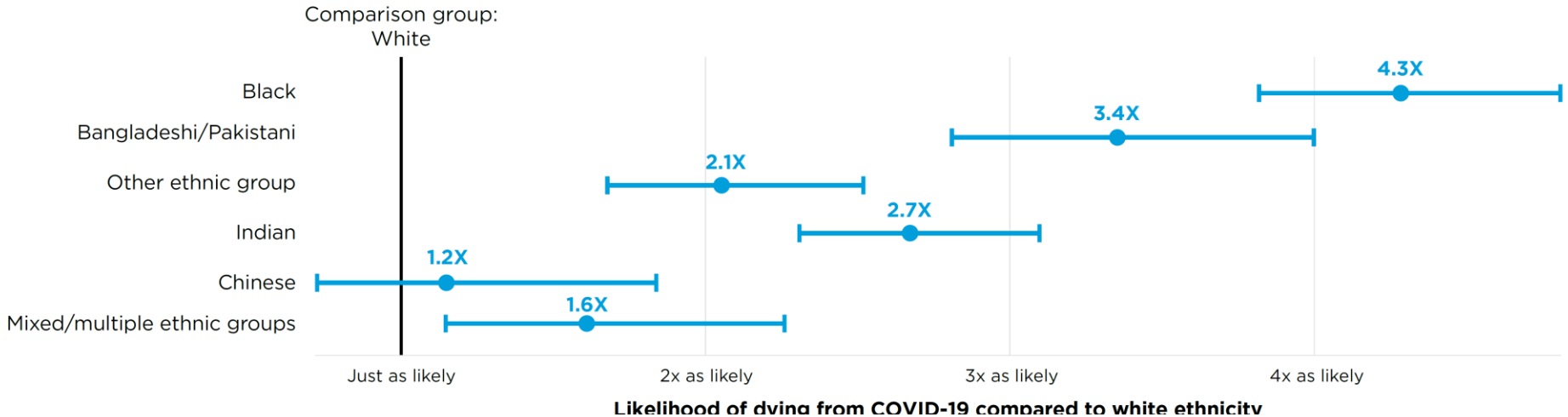
UN Women's Global Database on Violence against Women and the Women Count Data Hub.

社会の脆弱性と医療の公正性

Marginalized groups are more likely to die from COVID-19

In the United Kingdom, Black women are 4.3 times more likely than white women to die from COVID-19.



Before the pandemic, **810 women** died from preventable causes related to pregnancy and childbirth every day.

In sub-Saharan Africa, only **60% of births** are attended by skilled health personnel.

In Brazil, the maternal death rate due to COVID-19 is **2x higher** among Black women than white women.

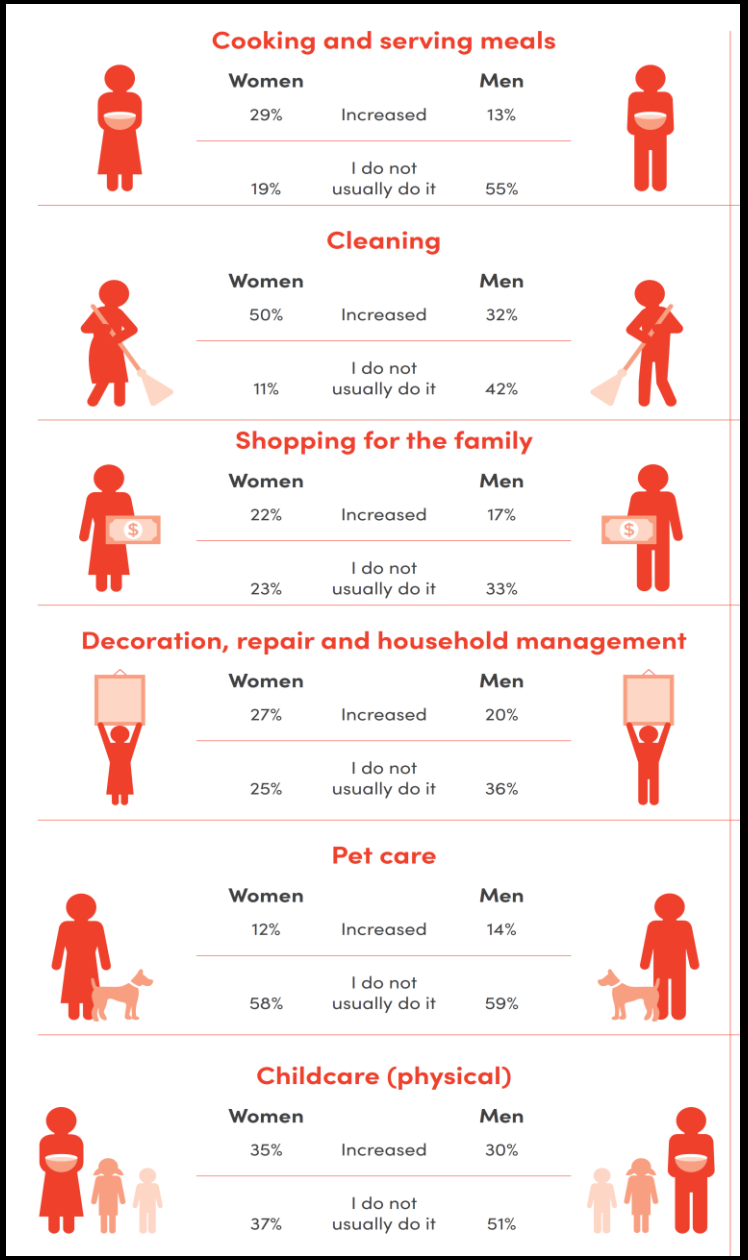
In Azerbaijan and Turkey, **60% of women** have had trouble accessing gynaecological and obstetric care as a result of COVID-19.

学校内でのいじめについては、特に女性へのいじめが普遍的になっており、11－15歳の女性の30％は学校を卒業するまでに1回以上のいじめを受けているとされ、とくに精神的ないじめが多い傾向がある。

欧州の18－29歳の女性では、約10％の女性がSNSなどによるサイバー・ハラスメントを受けている。中東では40－60％の女性が通行中にハラスメントを受けており、31－64％の男性がそのような言葉を発し、特に若くて学歴の高い男性にその傾向がある。

女性議員の82％が在職中に何らかの暴言を受けており、65％が性的表現での暴言を受け、44％が本人ばかりでなく家族にまで脅迫を受けたことがあると答えている。

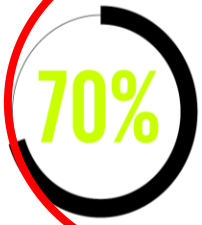
ケアワークの増加



Genderr disparity

Female essential workers face elevated risks of infection

Globally,

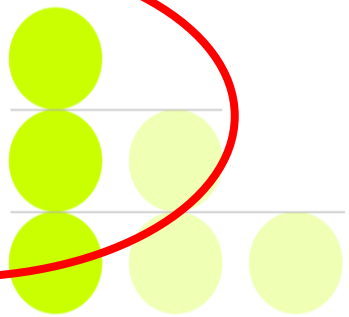


of the health and social care workforce

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.

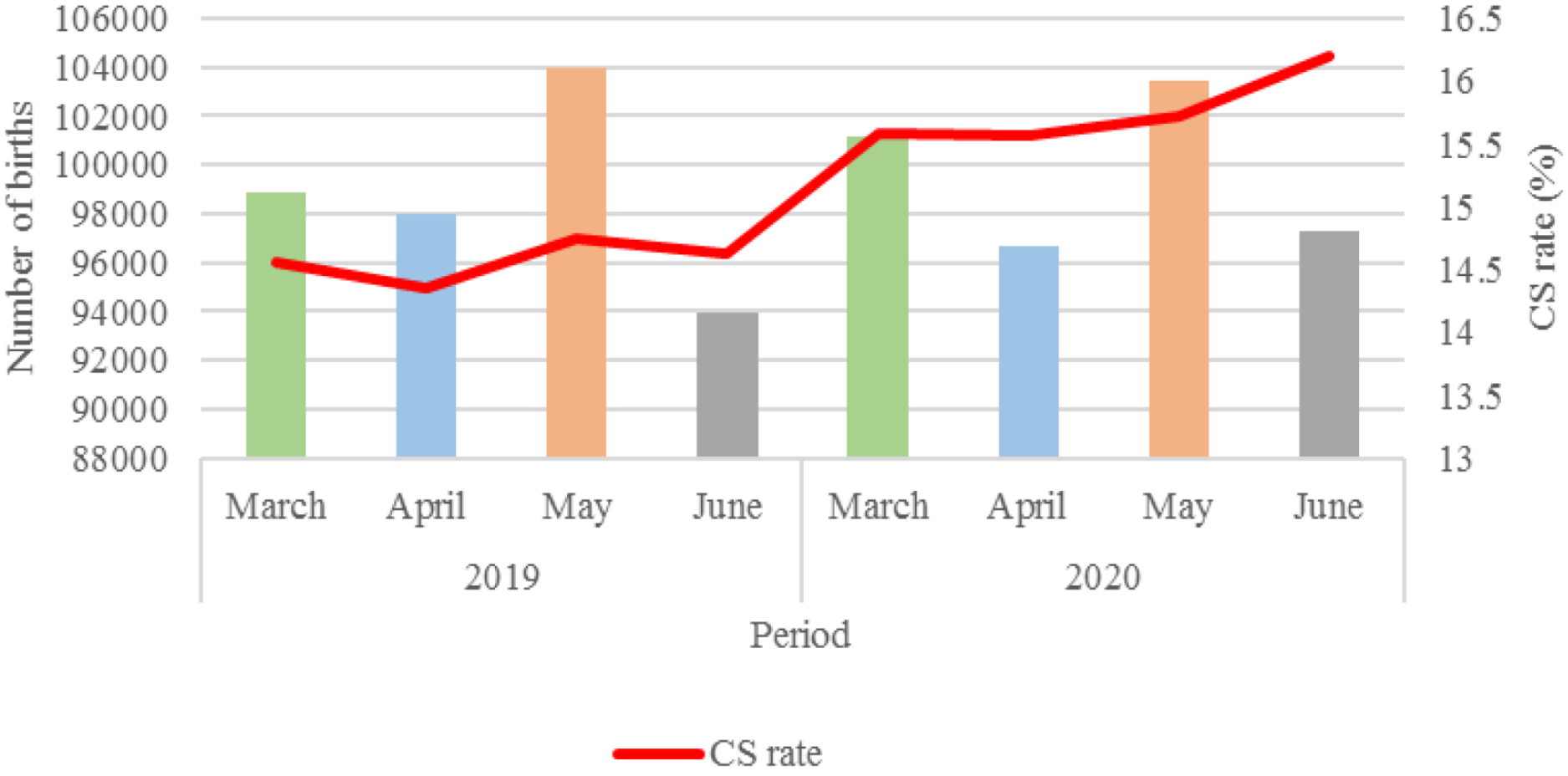
Experience of sexual violence is up to

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

アフリカの脆弱性（女性と子供）

新型コロナウイルス感染症によって、小児の予防接種率はリベリアで35%、ナイジェリアで13%の低下。小児の施設受診率も35%の低下。

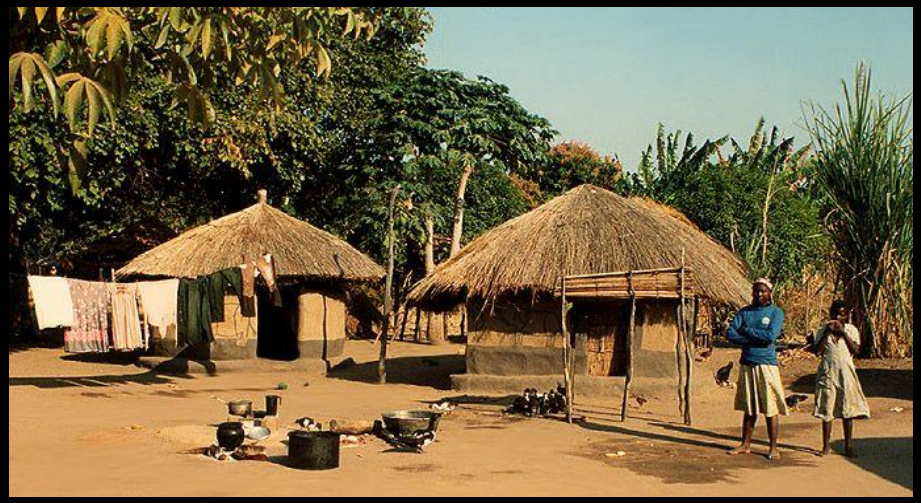
アフリカでは感染者の61%は男性で、39%が女性。産前健診の受診率は20%もの低下、施設分娩も10%の低下、家族計画も15%の低下。
7億人を超える女児がパンデミックにより学校に通えず、貧困や学校閉鎖によって子どもの結婚を急がせることで、児童婚が250万増加することが懸念され、望まない妊娠の増加や危険な人工妊娠中絶による合併症が危惧される。

さらに、女児や女性に対する暴力、ジェンダーに基づく暴力、10代の妊娠に加えて、女性性器切除(FGM)の増加が特に懸念されています。FGMは多くの国で違法になっていますが、エジプトでは、父親から新型コロナウイルス感染症のワクチンを受けに行くと伝えられていたが、実際はFGMに連れて行かれたという報告や、ソマリアでは子どもの学校が休みになっていることを利用してFGMの後の痛みを治す期間に充てようと考える大人が増えています。

Plan International. Girls at Risk as 新型コロナウイルス感染症 Threatens to Leave African Children Behind, https://plan-international.org/news/2020-06-16-girls-risk-新型コロナウイルス感染症-threatens-leave-african-children-behind

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



デジタルトランスフォーメーションの世界観

DXとは？

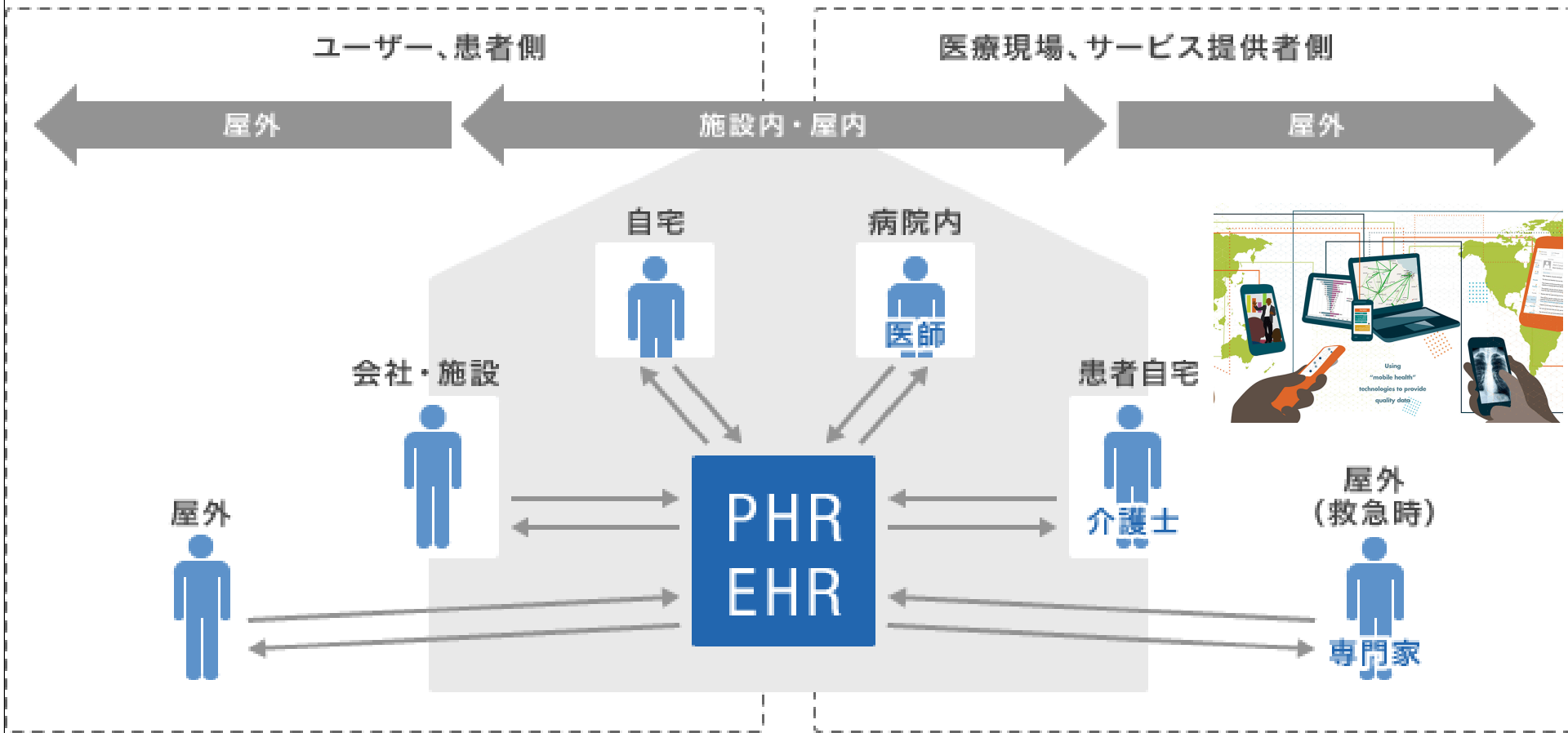
DX（デジタルトランスフォーメーション）は、2004年にスウェーデンのウメオ大学のエリック・ストルターマン教授によって提唱された概念。その内容は「進化し続けるテクノロジーが人々の生活を豊かにしていく」というもの。 単なる「変革」ではなく、デジタル技術によって既存の価値観や枠組みを根底から覆すような革新的なイノベーションをもたらすもの。

①アナログ情報をデジタル化する「デジタイゼーション」
②プロセス全体をデジタル化する「デジタライゼーション」
③結果として社会的な影響を生み出すのが「デジタルトランスフォーメーション」

mHealthとは？

通信・連携が可能なモバイル、ウェアラブルを活用した健康、医療サービスをそれぞれを点として捉えるのではなく、健康情報、医療情報の一体化・一元管理に向け、モバイルを活用して健康、医療サービスがシームレスに連携すること。

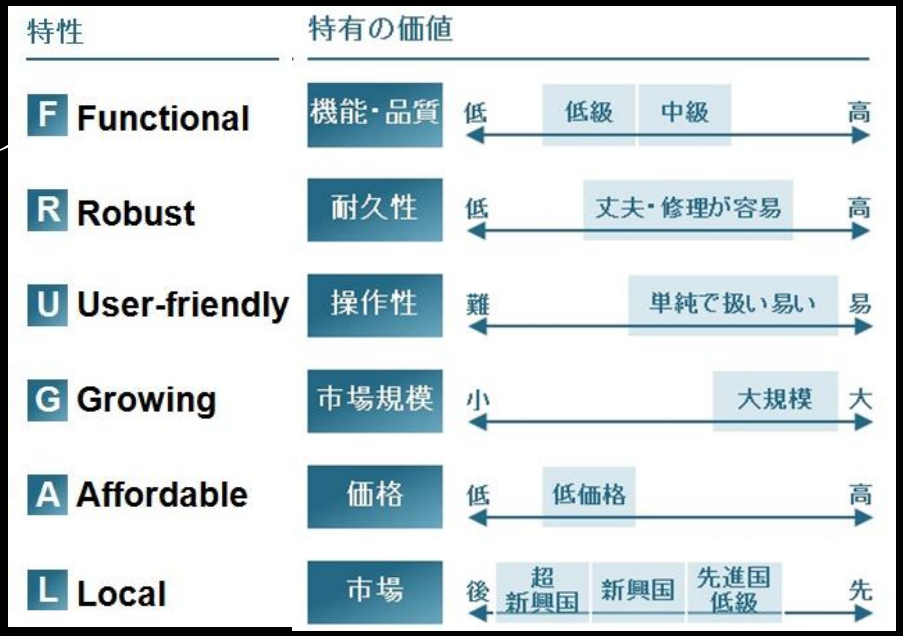
モバイルを活用したロケーションフリーな健康・医療情報のインプットとアウトプットが実現



世界における
デジタルトランスフォーメーション

新型コロナウイルスによって出現したメガトレンド

- 分散型都市
- ヒューマントレーサビリテ
- ニューアリアリティ
- 職住融合
- コンタクトレステック
- デジタルレンディング
- フルーガル（倹約的）
  イノベーション



途上国の医療現場の技術ニーズ

- 小型・軽量で持ち運びが容易
- POCT 型で簡易に分析できる
- 複数項目を少量の血液で測定できる
- 停電時に長時間対応できる（バッテリー、太陽電池）
- インターネット利用環境の乏しさに対応できる（伝送できる情報量が少なくても診断可能）
- 服薬コンプライアンスを向上させる
- 生体試料を安価に分析できる
- 感染症の迅速な診断ができる
- コールドチェーンの未整備に対応できる
- 創傷の治癒過程を客観的に評価できる

ケニアにおける
デジタルトランスフォーメーション

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

- コミュニケーション・プロモーション・ネットワーク
- 電子送金・おサイフ携帯・予約業務・個人認証・貧困認定

ケニア
EMRからMCH Handbook
WRP

MOTHER & CHILD HEALTH BOOKLET

NOT FOR SALE

MOH 216

REPUBLIC KENYA
MINISTRY OF HEALTH

MOTHER & CHILD HEALTH BOOKLET
AFYA YA MAMA NA MTOTO

Name of Mother	:	
Child's Name	:	
Contact Phone Number	:	

Onyesha kitabu hiki kila mara uendapo kliniki ya mama na mtoto
Carry this booklet at all times during a visit to the health facility and show it to the health worker

REVISED EDITION JANUARY 2013

ケニア電子母子手帳

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

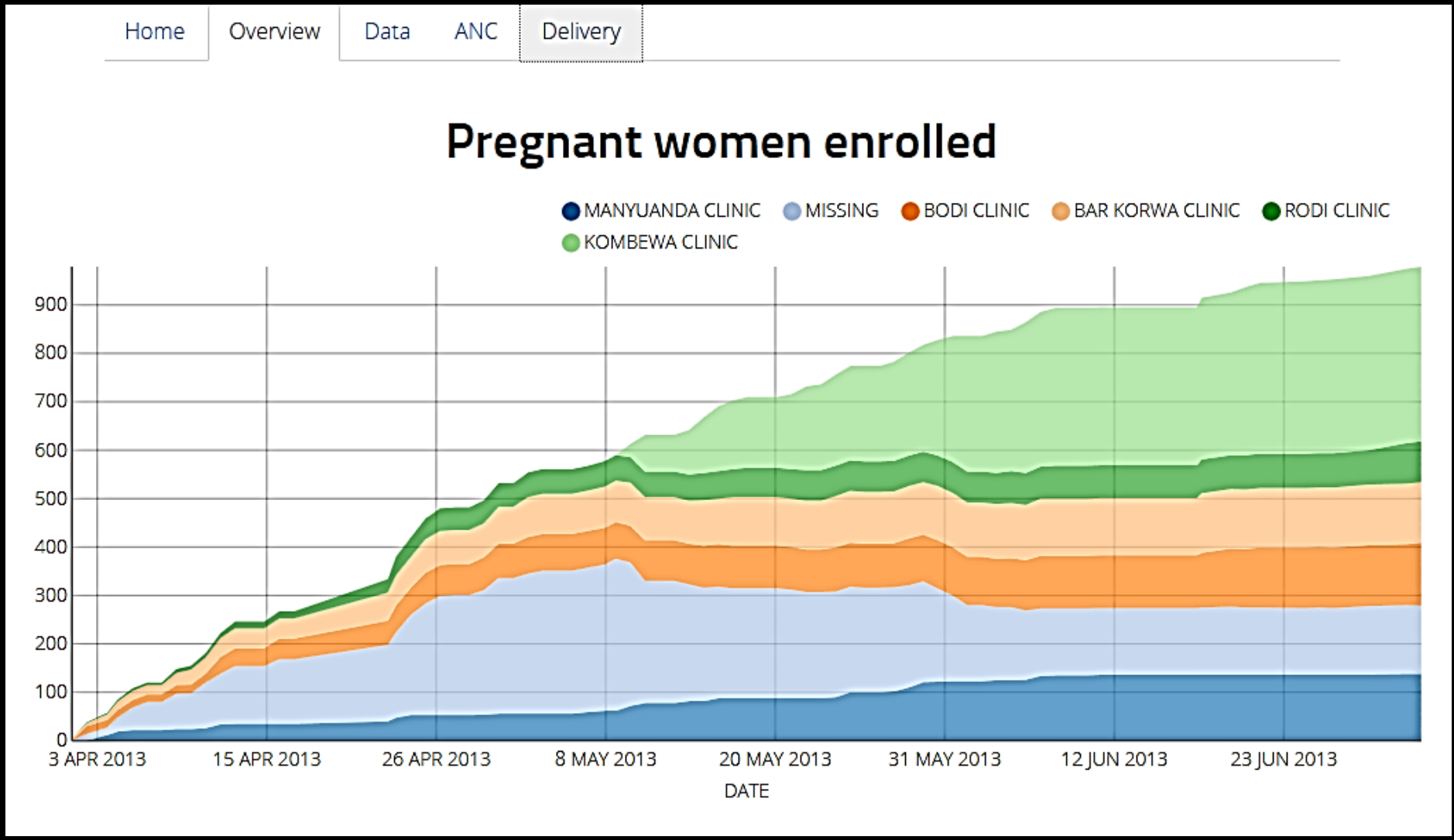
Does the mother consent to receiving an SMS reminder if she misses her next clinic appointment?: Yes No*

Enter Form

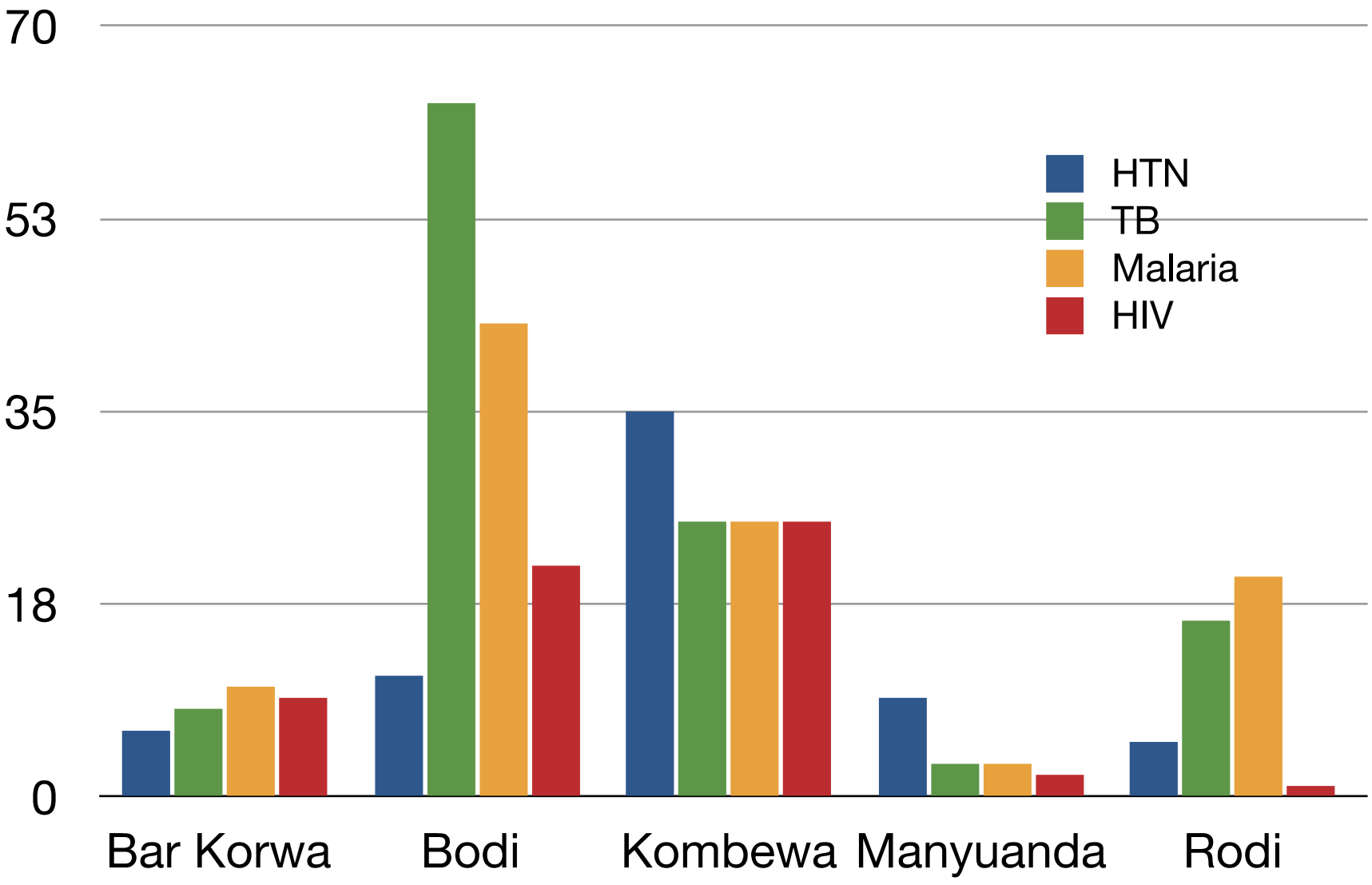
Training (2 days)

Launch

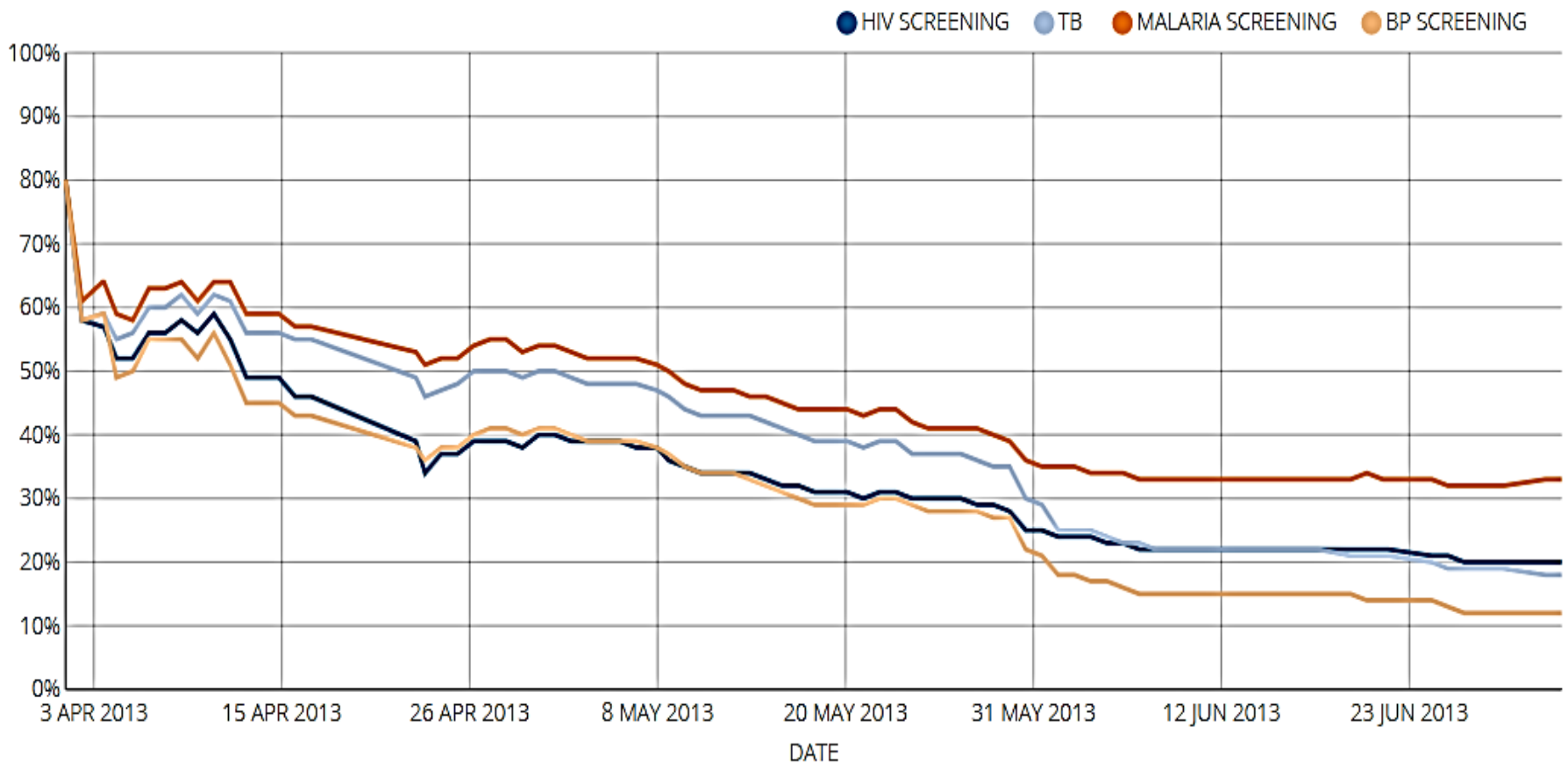
The Pilot (3 months)



データ管理による行政サポートの実施



サービスの質の向上


Missing data
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
DATE

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]

Table 1 – Number of pregnant women, deliveries and children registered in antenatal clinic, by socio-demographic and clinic characteristics.

Characteristic	Pre-EMR intervention n (%)	Post-EMR intervention n (%)
Women registered	561 (100.0%)	946 (100.0%)
Location of women		
Bar Korwa Clinic	83 (14.8%)	123 (13.0%)
Bodi Clinic	76 (13.6%)	124 (13.1%)
Kombewa Clinic	0 (0.0%)	353 (37.3%)
Manyuanda Clinic	56 (10.0%)	137 (14.5%)
Rodi Clinic	51 (9.1%)	71 (7.5%)
Missing	295 (52.6%)	138 (14.6%)
Age of women		
<15 years	2 (0.4%)	4 (0.4%)
15–24 years	336 (59.9%)	577 (61.0%)
25–34 years	188 (33.5%)	305 (32.2%)
35–44 years	35 (6.2%)	59 (6.2%)
>44 years	0 (0.0%)	1 (0.1%)
Deliveries registered	104 (100.0)	206 (100.0%)
Delivery conducted by		
Clinical officer	0 (0.0%)	2 (1.0%)
Doctor	1 (1.0%)	1 (0.5%)
Midwife	52 (50.0%)	107 (52.0%)
Nurse	30 (28.9%)	65 (31.6%)
Other	1 (1.0%)	3 (1.5%)
Missing	20 (19.2%)	28 (14.0%)
Place of delivery		
BBA	0 (0.0%)	1 (0.7%)
Clinic	15 (14.4%)	36 (12.6%)
Home	2 (1.9%)	7 (22.8%)
Hospital	68 (65.4%)	136 (57.6%)
Missing	19 (18.3%)	26 (6.3%)
Method of delivery		
Caesarean section	1 (1.0%)	1 (0.5%)
Vaginal delivery	99 (95.2%)	195 (94.7%)
Other	1 (1.0%)	2 (1.0%)
Missing	3 (2.9%)	8 (3.9%)
Children registered	158 (100.0%)	302 (100.0%)
Gender of child		
Male	72 (45.6%)	142 (47.0%)
Female	86 (54.4%)	160 (53.0%)
Location of child		
Bar Korwa Clinic	15 (9.5%)	28 (9.3%)
Bodi Clinic	11 (7.0%)	14 (4.6%)
Manyuanda Clinic	94 (59.5%)	201 (66.6%)
Rodi Clinic	8 (5.1%)	21 (7.0%)
Missing	30 (19.0%)	38 (12.6%)

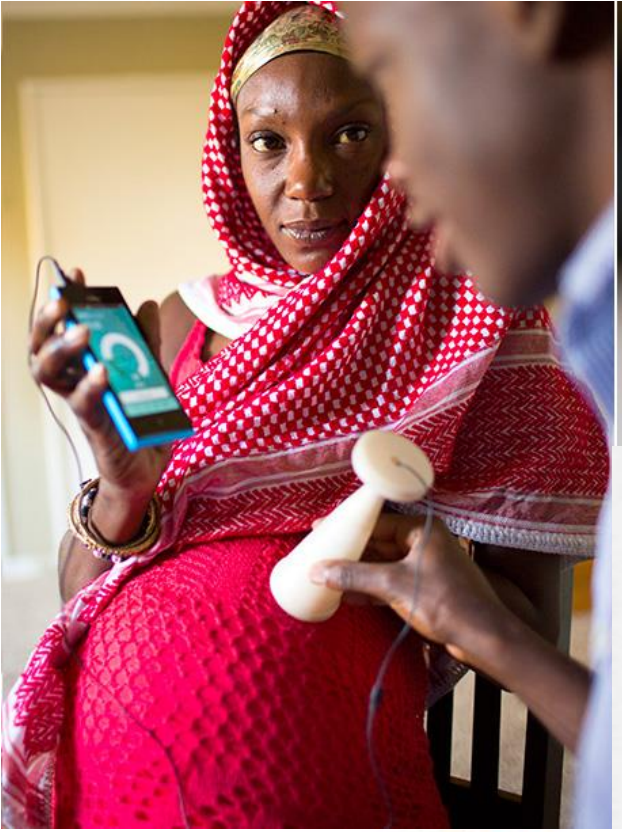
Table 2 – Missing antenatal and delivery record data recorded for patients registered in the EMR system pre- and post-intervention.

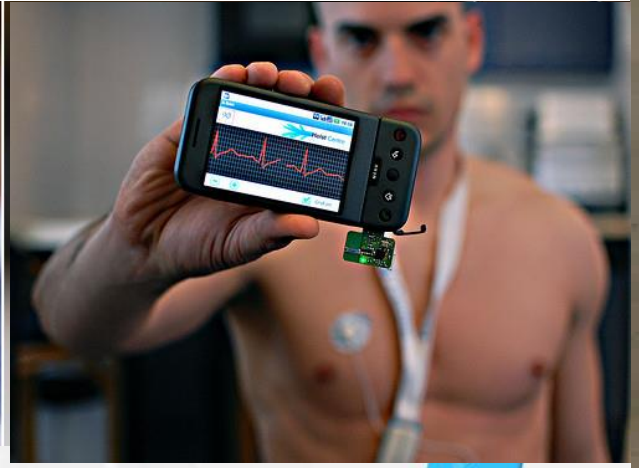
Missing delivery data	Pre-EMR intervention n (%)	Post-EMR intervention n (%)	% diff[a]	95% CI	p-Value
Antenatal record missing data					
Hypertension screening	219 (39.0)	132 (14.0)	−25.1%	20.5–29.7	<0.001
Tuberculosis screening	271 (48.3)	182 (12.1)	−36.2%	31.8–40.7	<0.001
Malaria screening	266 (47.4)	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.

妊娠期サービス無料化：Linda Mana Initiative

M健康保険：M-Tiba (Safaricom)





PHILIPS
Lumify
SAMSUNG

Activity
10:09
MOVE
EXERCISE
STAND

97
73

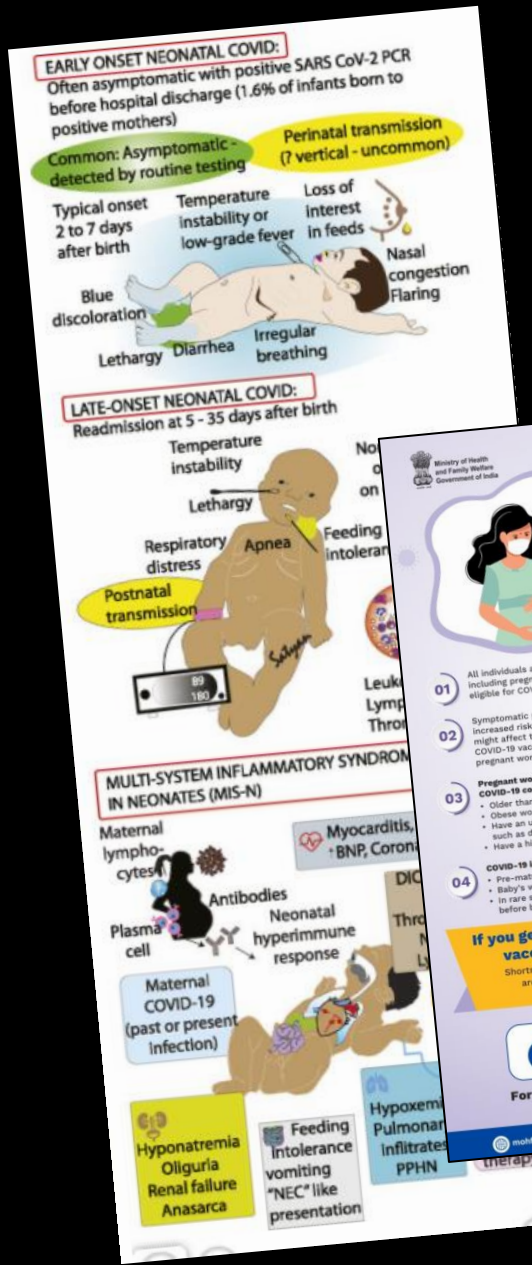
GETTY IMAGES

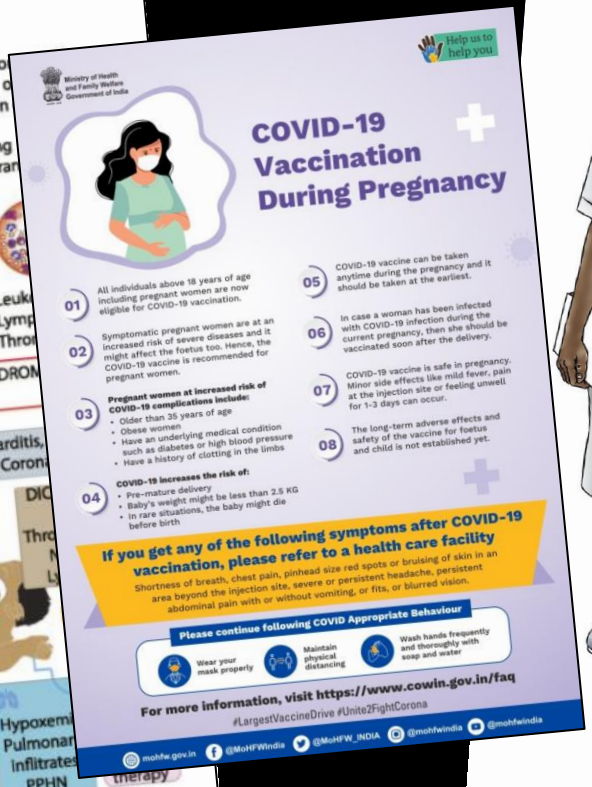
Open Innovation Incubation House Nairobi

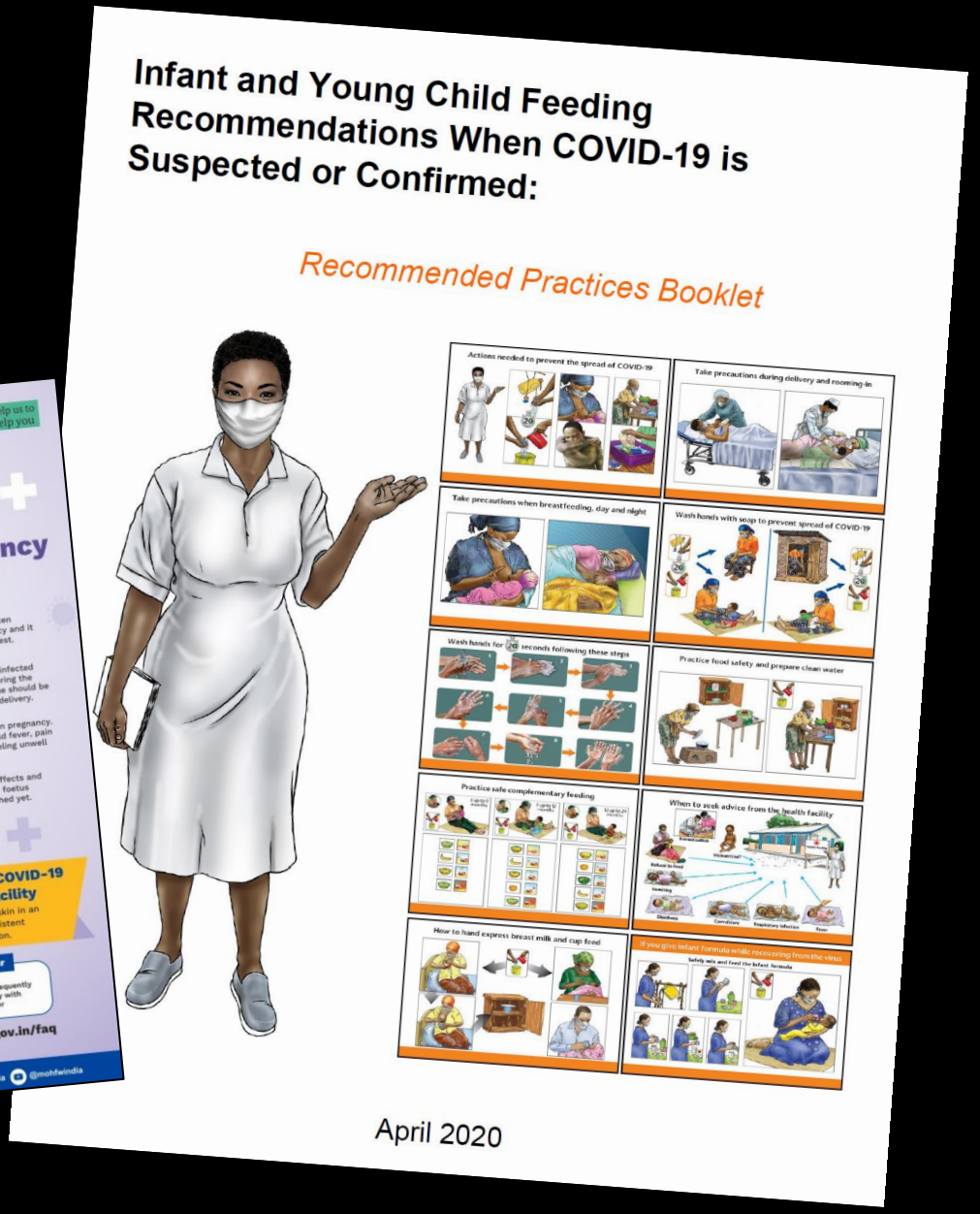
私たちの本当に望む未来
という社会デザイン

Gigantic unsolved challenges

Sharing ideas, experiences and up-to-date information







Opportunity

Fintech

Global

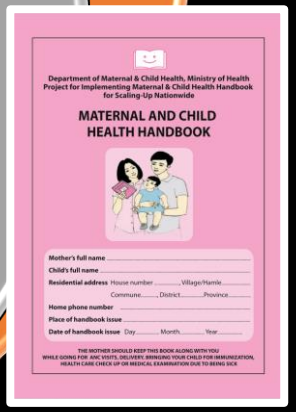
Society

Family

Femtech

Babytech

Mindset



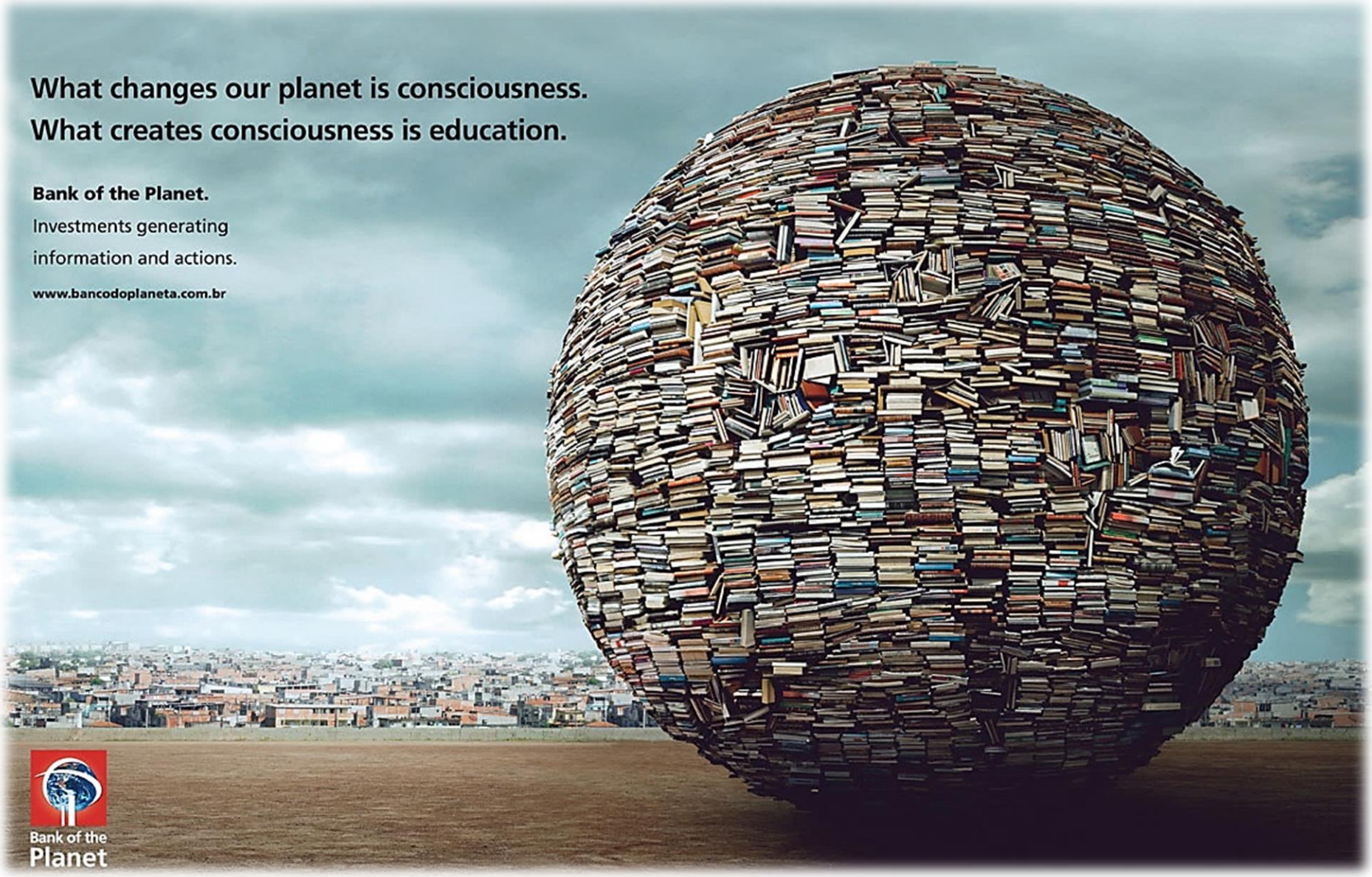
MOH

HFs

DX is ultimately creating **Open Democracy**

Audrey Tang, Digital Minister, Taiwan,

惑星意識


What changes our planet is consciousness.
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キーメッセージ

- COVID-19は、国際保健における根源的な教訓を示している。
- 社会の旧来の脆弱性と新しい脆弱性への配慮が重要である。
- 「DX」によって差別や格差が増大しない方向性を模索すること。
- 「DX」の究極の目的は３つのFによるオープンな民主主義である。
- 地球全体を俯瞰する惑星意識の視座が求められている。
- 繁栄か共存か、SDGsを目指した人類共通の対話が必要である。

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