



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



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？

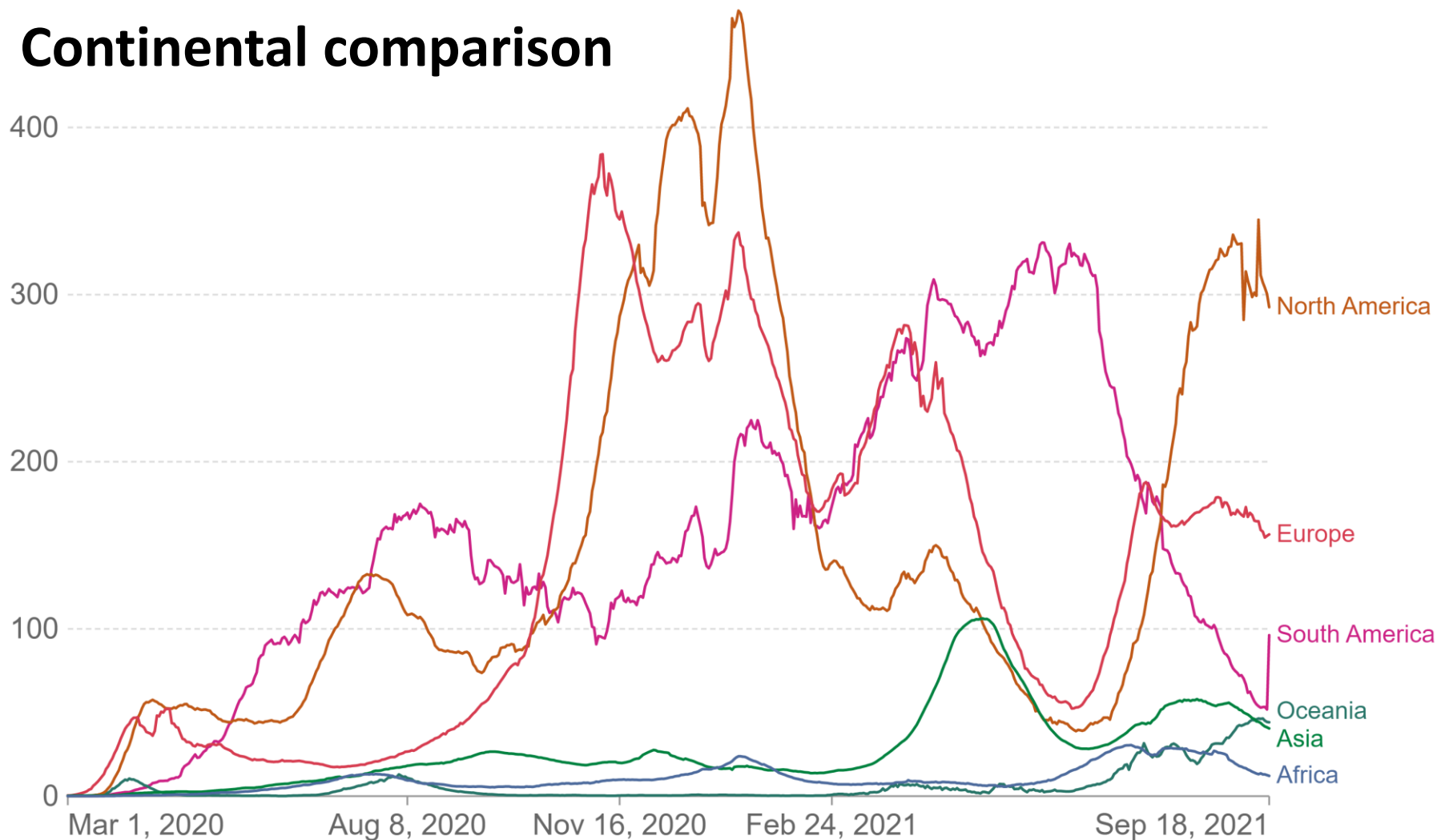


アフリカ大陸（世界人口の**17%**）のCOVID-19感染者数は、**10月1日時点**で**831万人**と世界全体（2億3400万人）のわずか**3.5%**、死者数も**21万1000人**と世界全体（478万人）の**4.4%**と、脆弱な社会基盤と未整備な保健システムにもかかわらず、パンデミックの影響は予想に反して限定的です。

Daily new confirmed COVID-19 cases per million people

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.

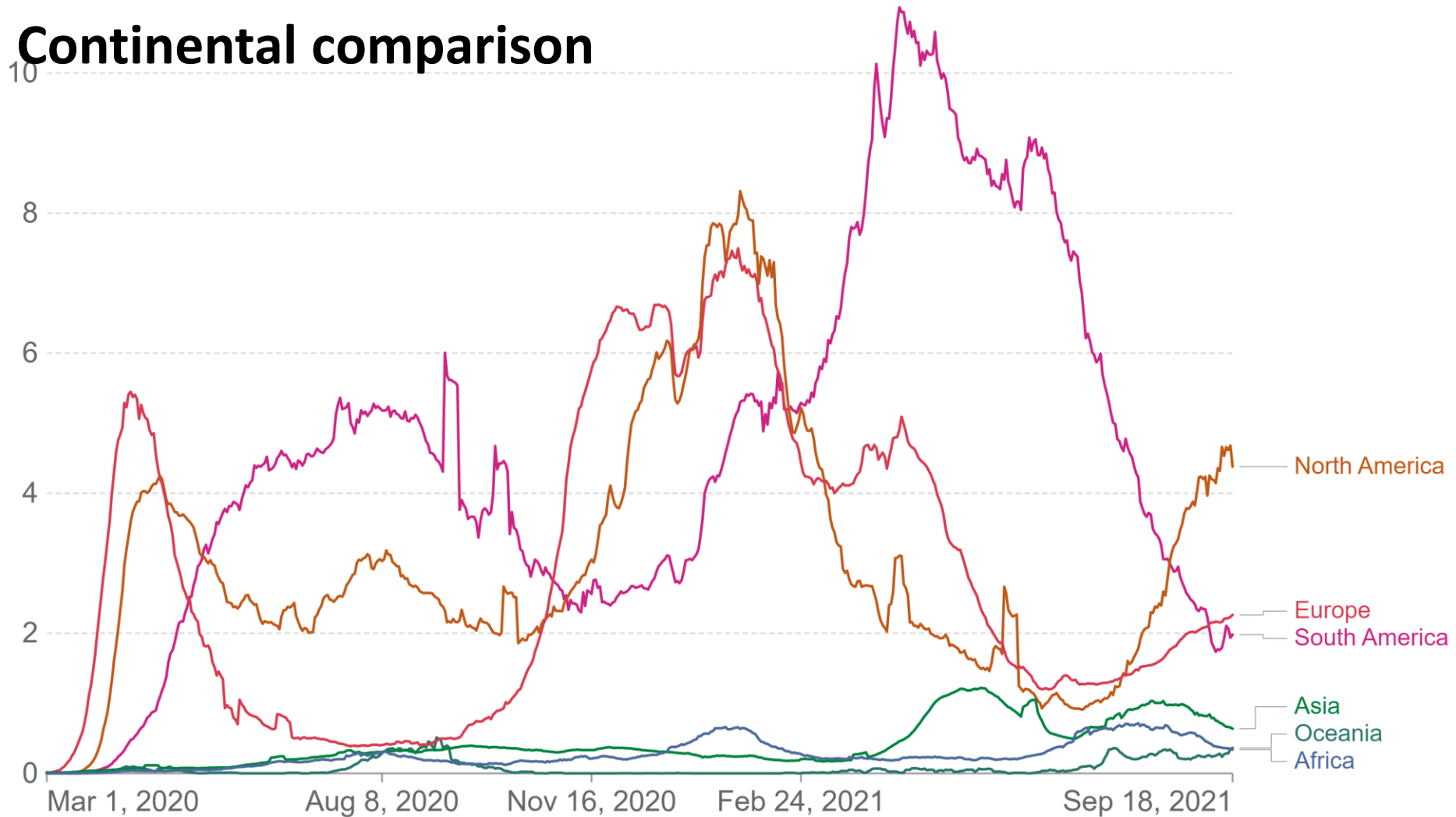
Continental comparison



Daily new confirmed COVID-19 deaths per million people

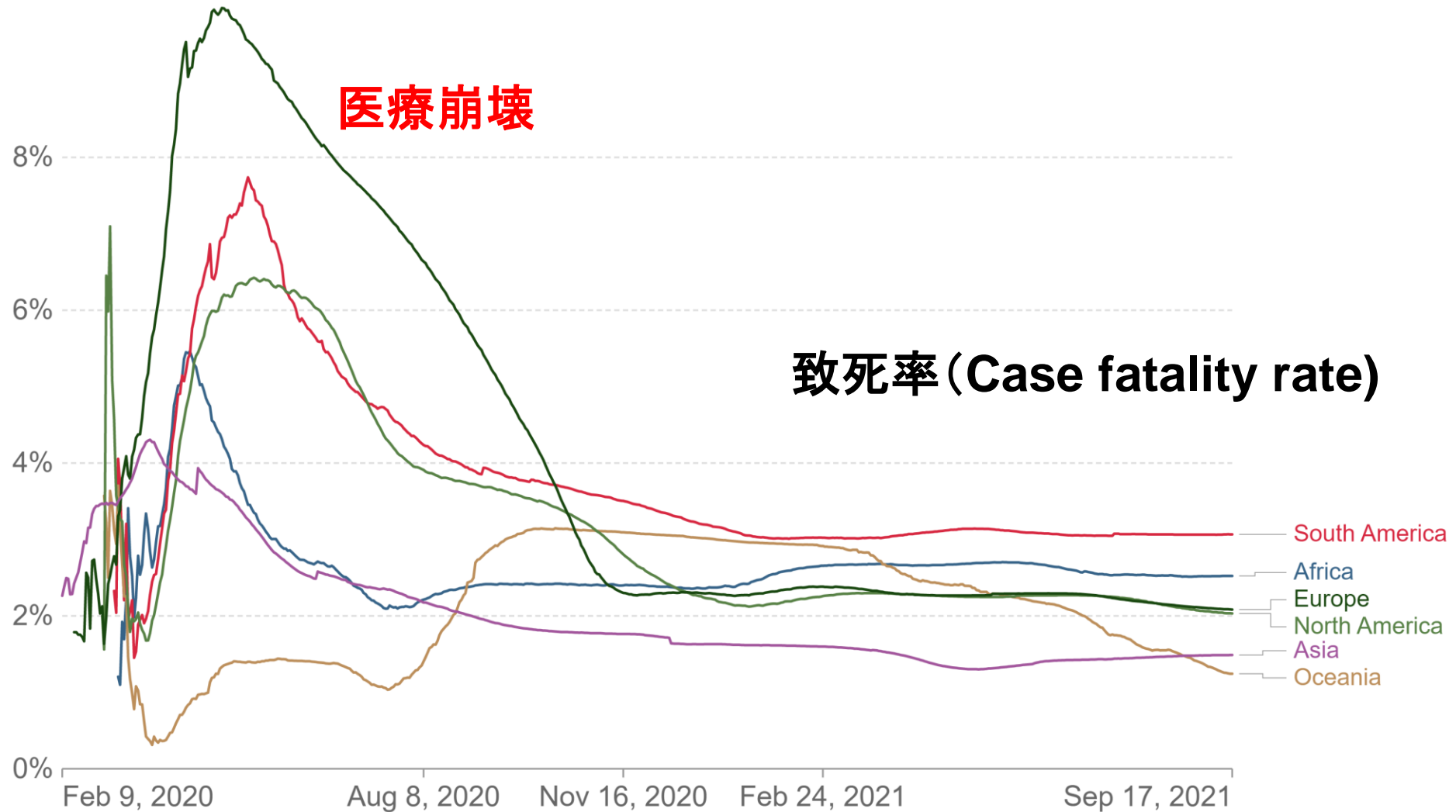
Shown is the rolling 7-day average. Limited testing and challenges in the attribution of the cause of death means that the number of confirmed deaths may not be an accurate count of the true number of deaths from COVID-19.

Continental comparison



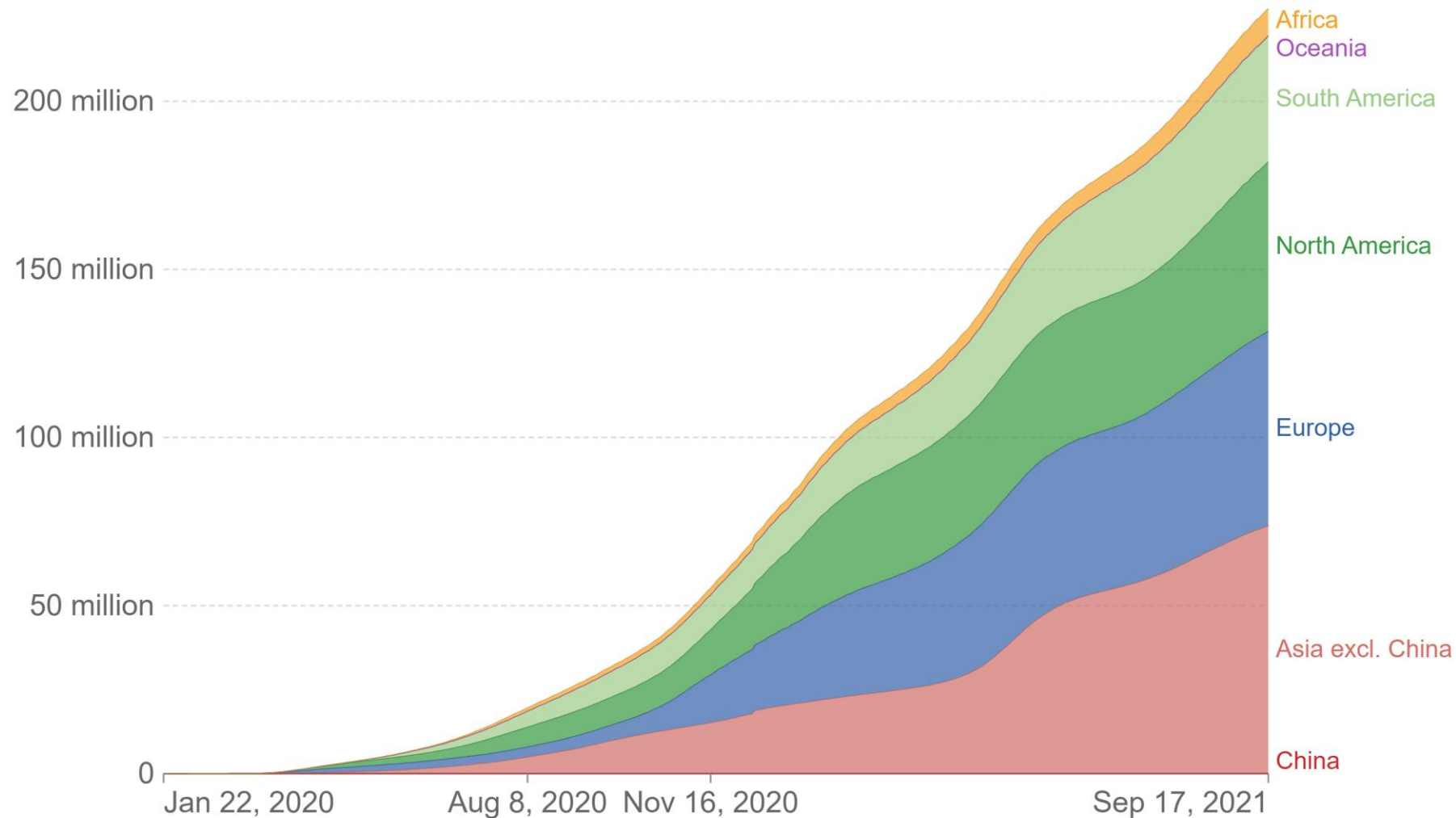
Case fatality rate of COVID-19

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](https://ourworldindata.org/mortality-risk-covid)



Cumulative confirmed COVID-19 cases

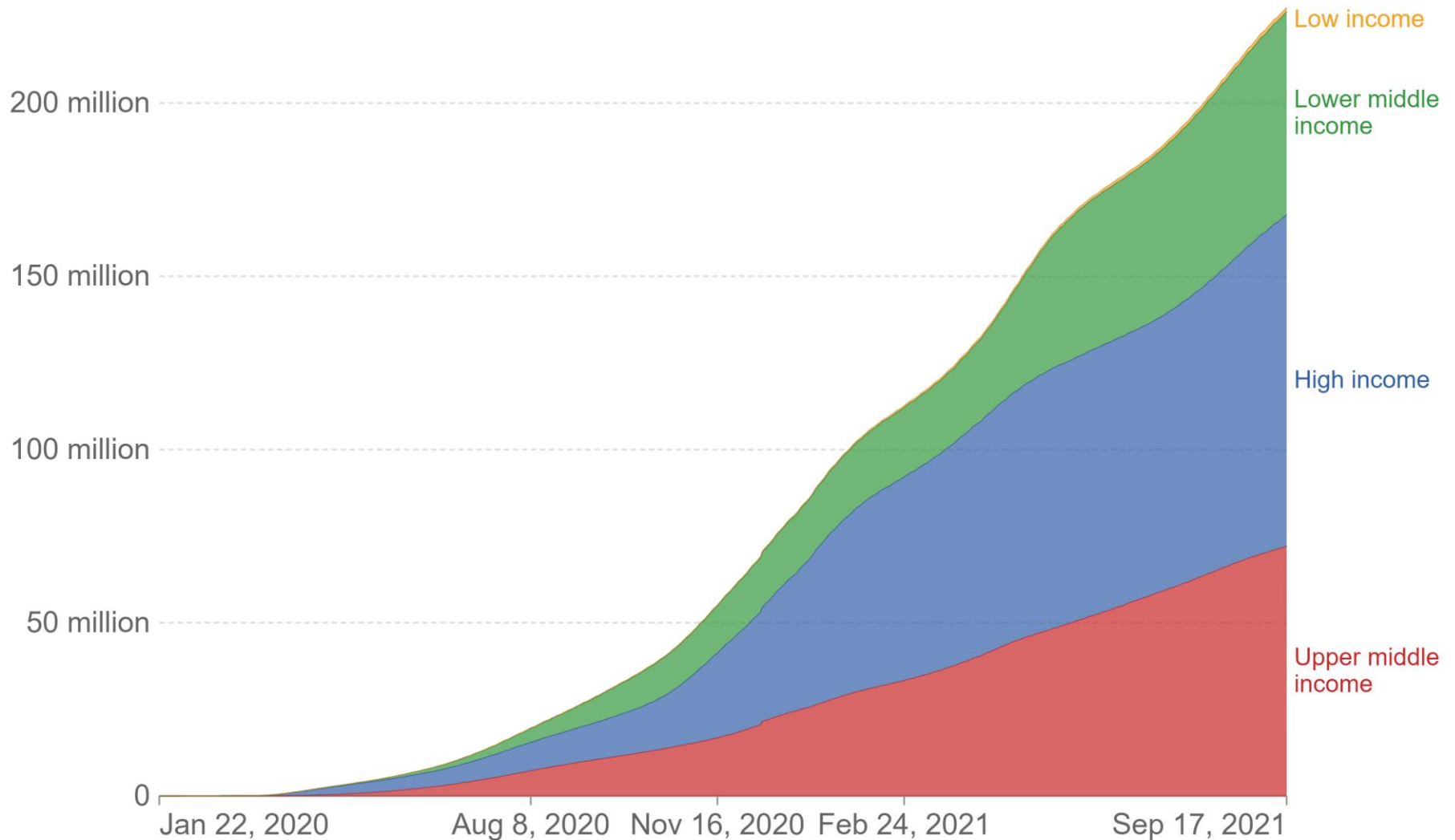
The number of confirmed cases is lower than the number of actual cases. The main reason for this is limited testing.



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.



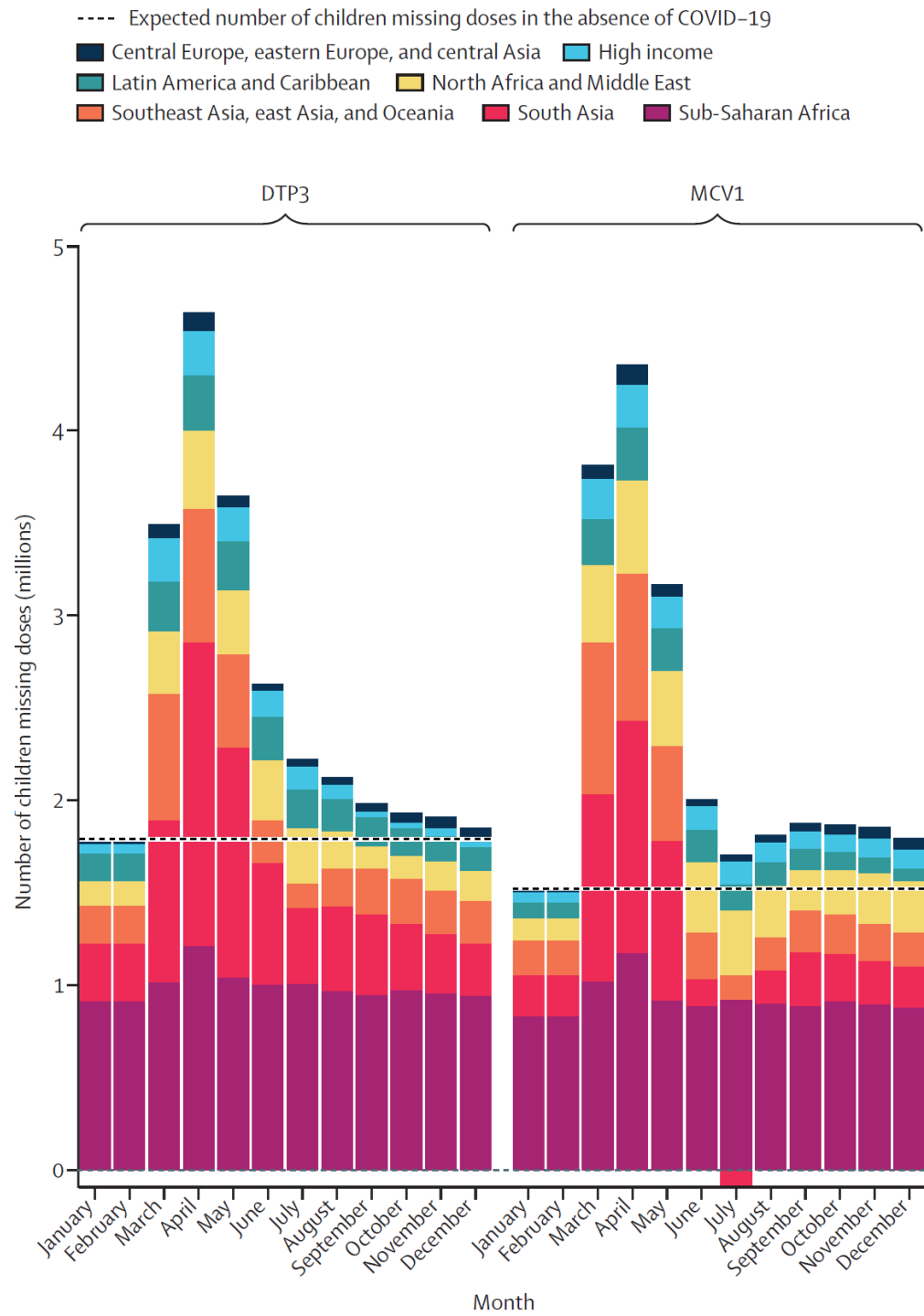


COVID-19 Pandemic and

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



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

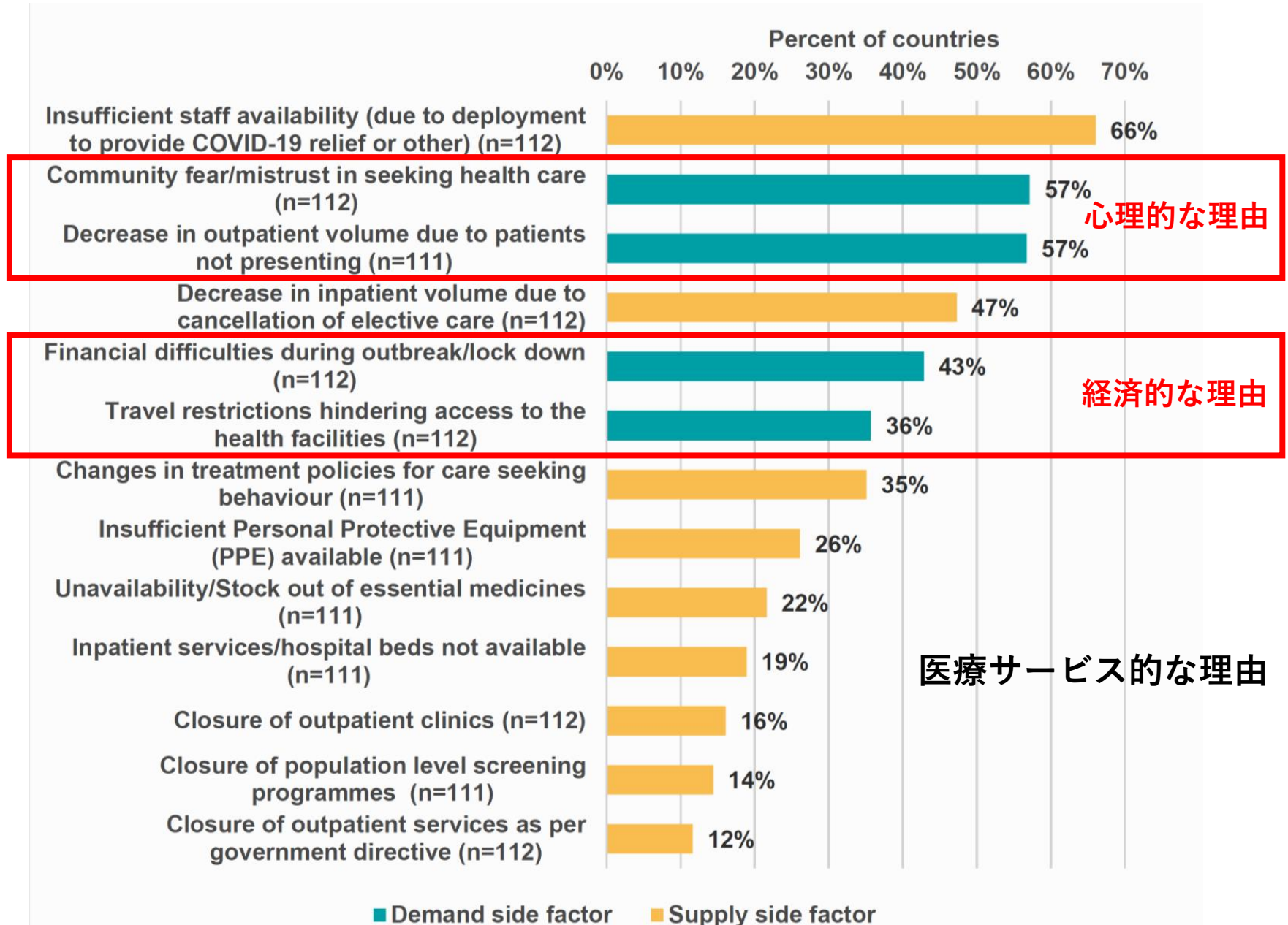
IMPORTANCE Early evidence shows a decrease in the number of US births during the COVID-19 pandemic, yet few studies have examined individual-level factors associated with pregnancy intention changes, especially among diverse study populations or in areas highly affected by COVID-19 in the US.

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?

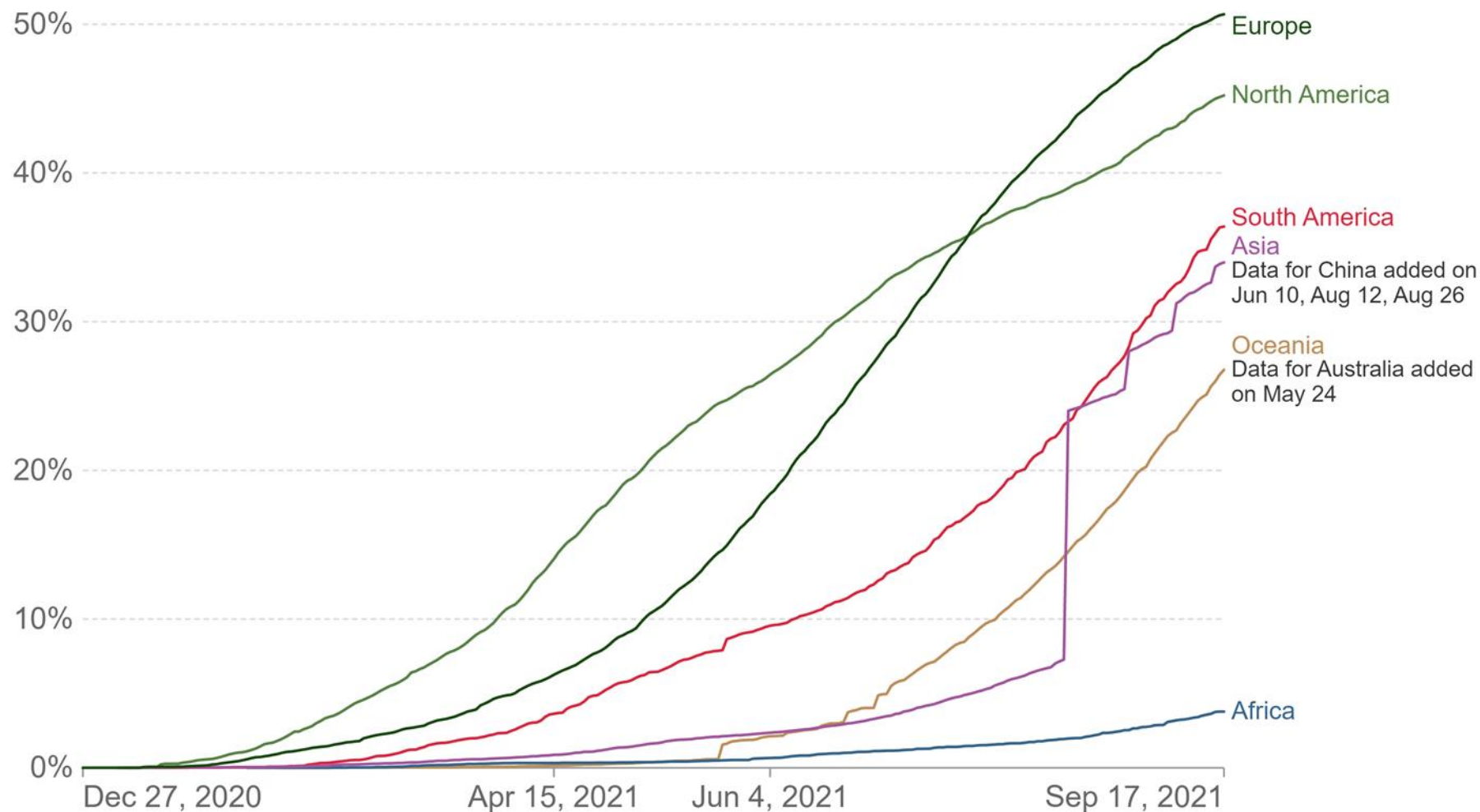
43.3% thought they would resume after the pandemic. higher stress levels (OR, 1.09; 95%CI, 0.99-1.20) and increased stress and financial insecurity owing to the COVID-19 pandemic paralleled a reduction in pregnancy intention in the early months of the pandemic, potentially exacerbating long-term decreases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

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.

CC BY

A large, stylized silhouette of a woman's head and shoulders, rendered in shades of red and orange, set against a dark brown background.

The Shadow Pandemic

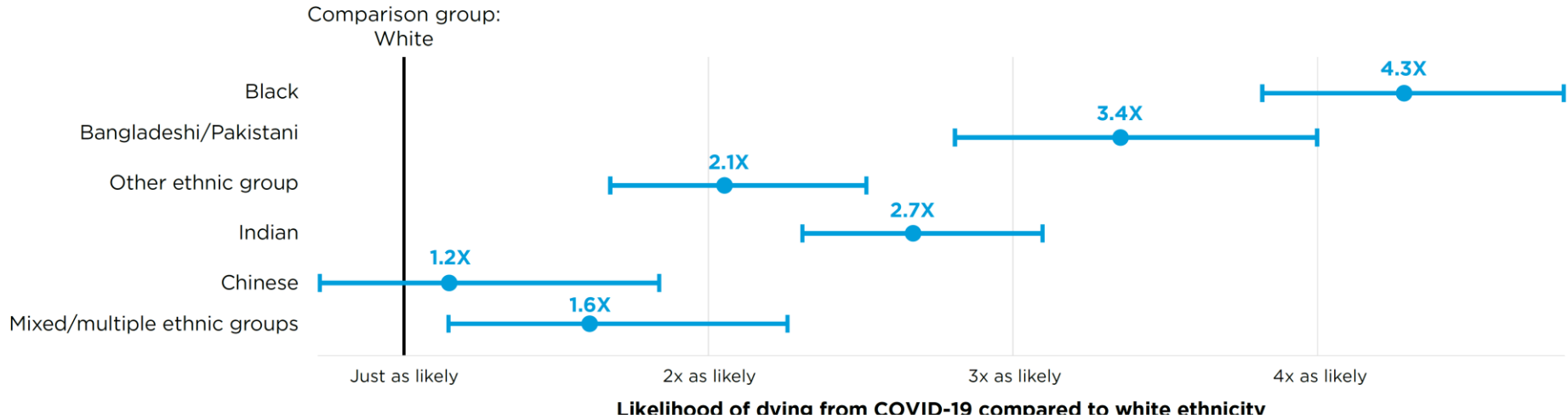
Violence against women during COVID-19

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.



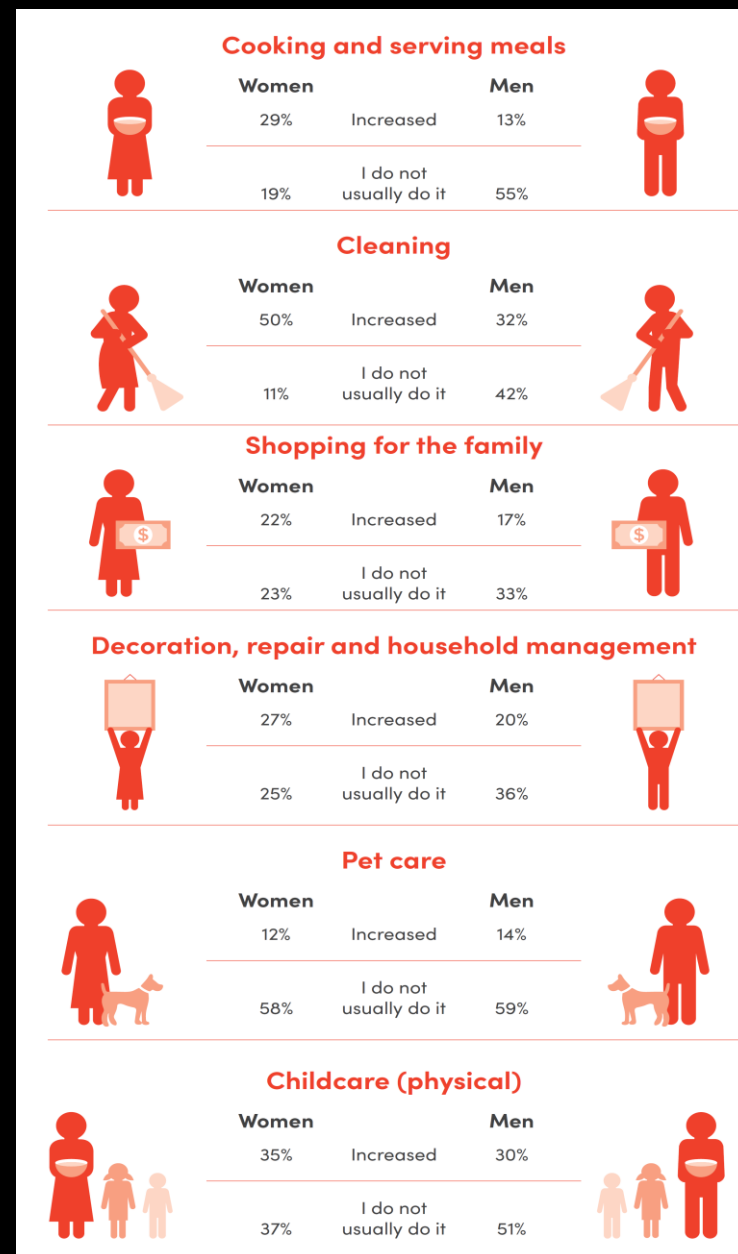
In Azerbaijan and Turkey, **60% of women** have had trouble accessing gynaecological and obstetric care as a result of COVID-19.

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



Gender disparity

Female essential workers face elevated risks of infection

Globally,

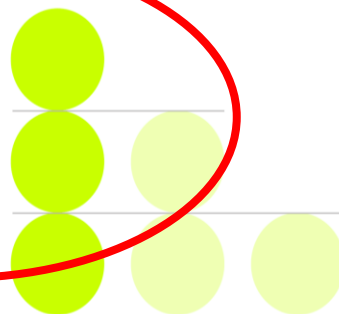
70%

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

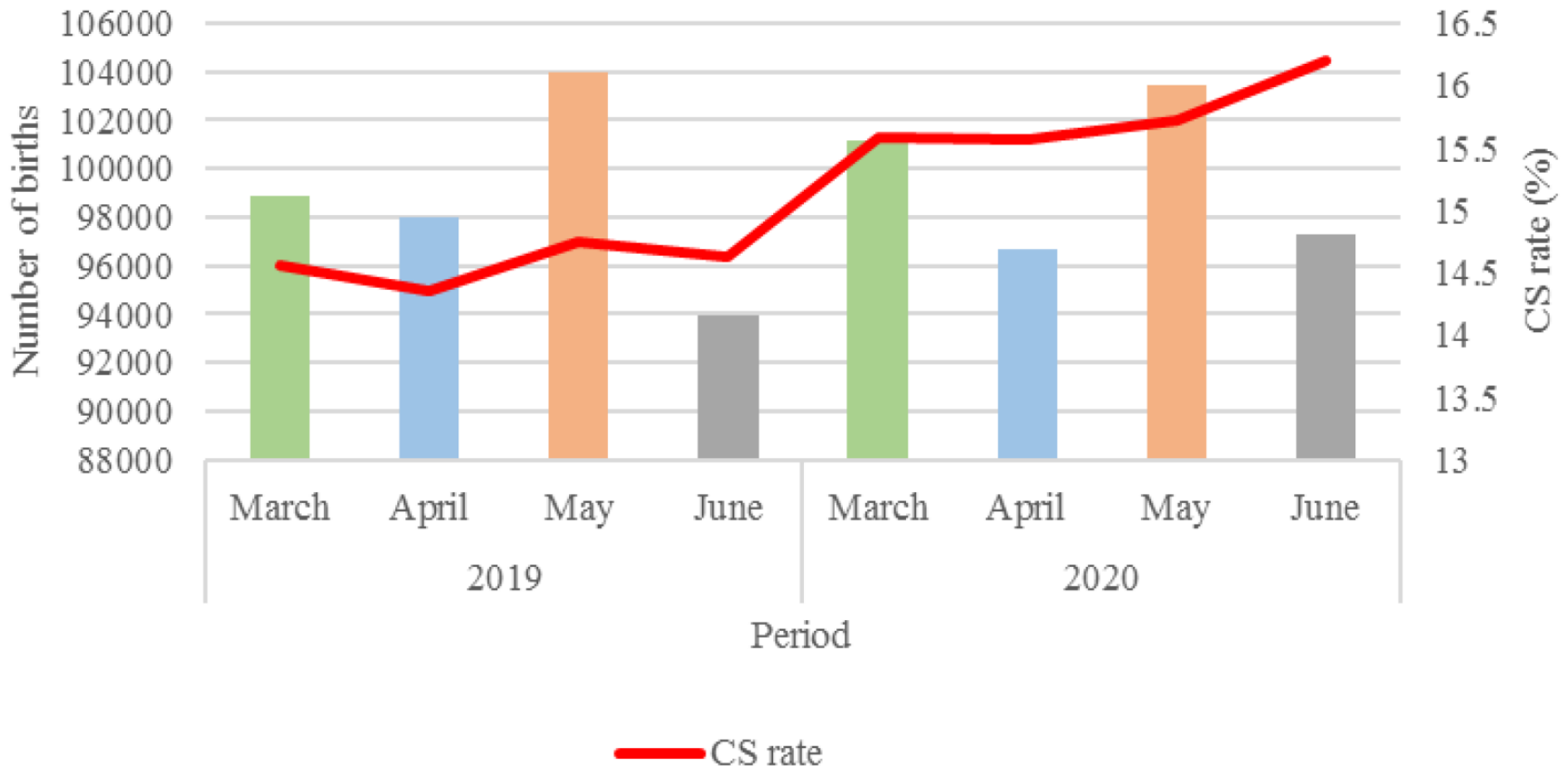
10x higher for
women with
disabilities

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 Shikuku¹, 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する大人が増えています。

Re-definition of Vulnerability

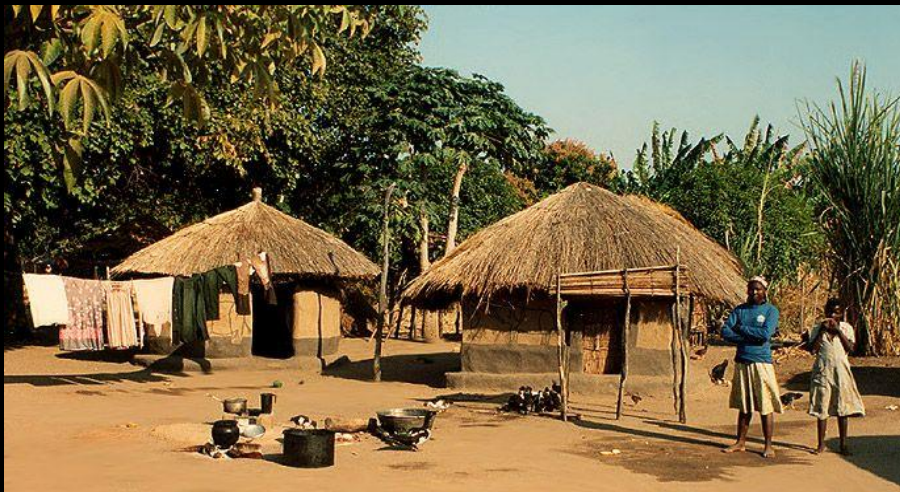
Old vulnerability

- **Poverty**
- Disparity
- Rural area
- Healthcare Systems
- Gender
- Nutrition
- Education

New vulnerability

- **Human prosperity**
- Globalization
- Economic prosperity
- Urbanization
- Aging
- NCDs
- Science/technology

Attribution





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。

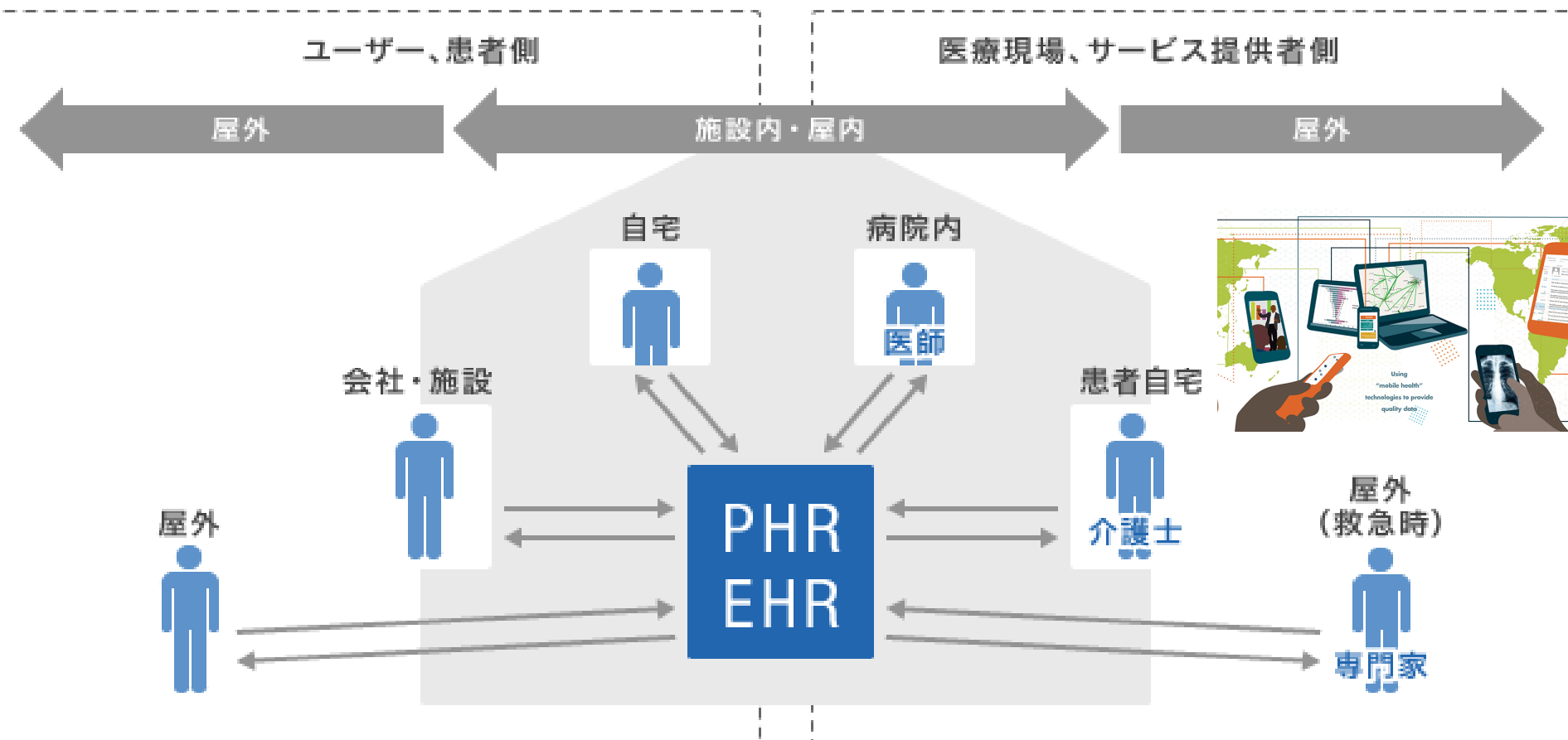


- ① アナログ情報をデジタル化する「デジタイゼーション」
- ② プロセス全体をデジタル化する「デジタライゼーション」
- ③ 結果として社会的な影響を生み出すのが「デジタルトランスフォーメーション」

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

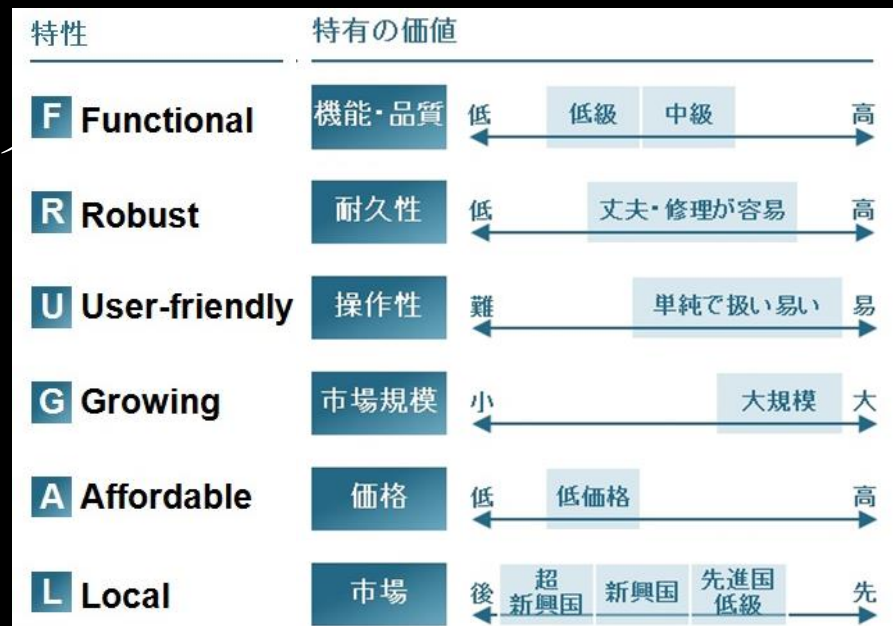




世界における
デジタルトランスフォーメーション

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ィ
- 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（儉約的）イノベーション



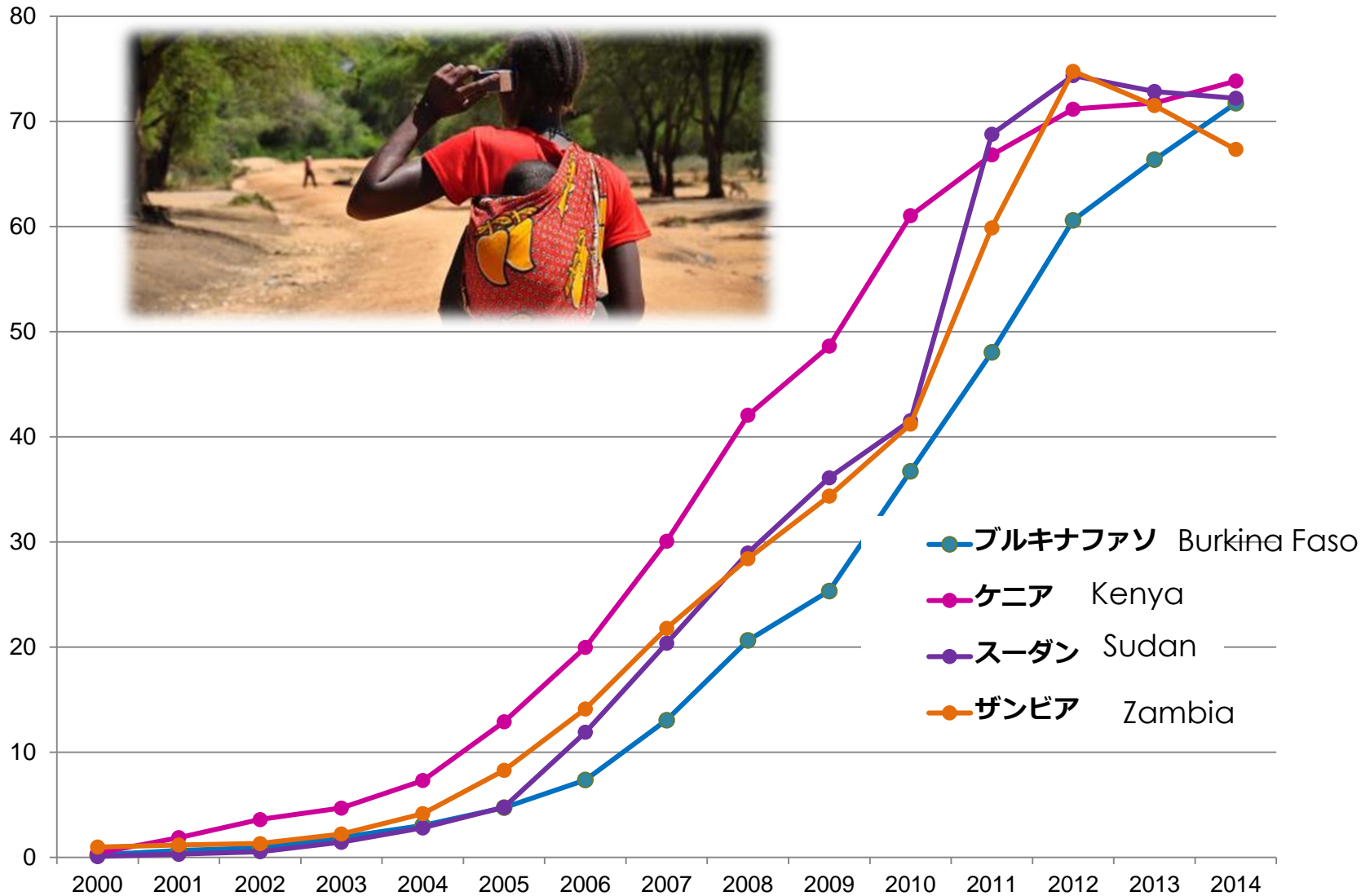
途上国の医療現場の技術ニーズ

- 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



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





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

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)*

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*

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*

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)



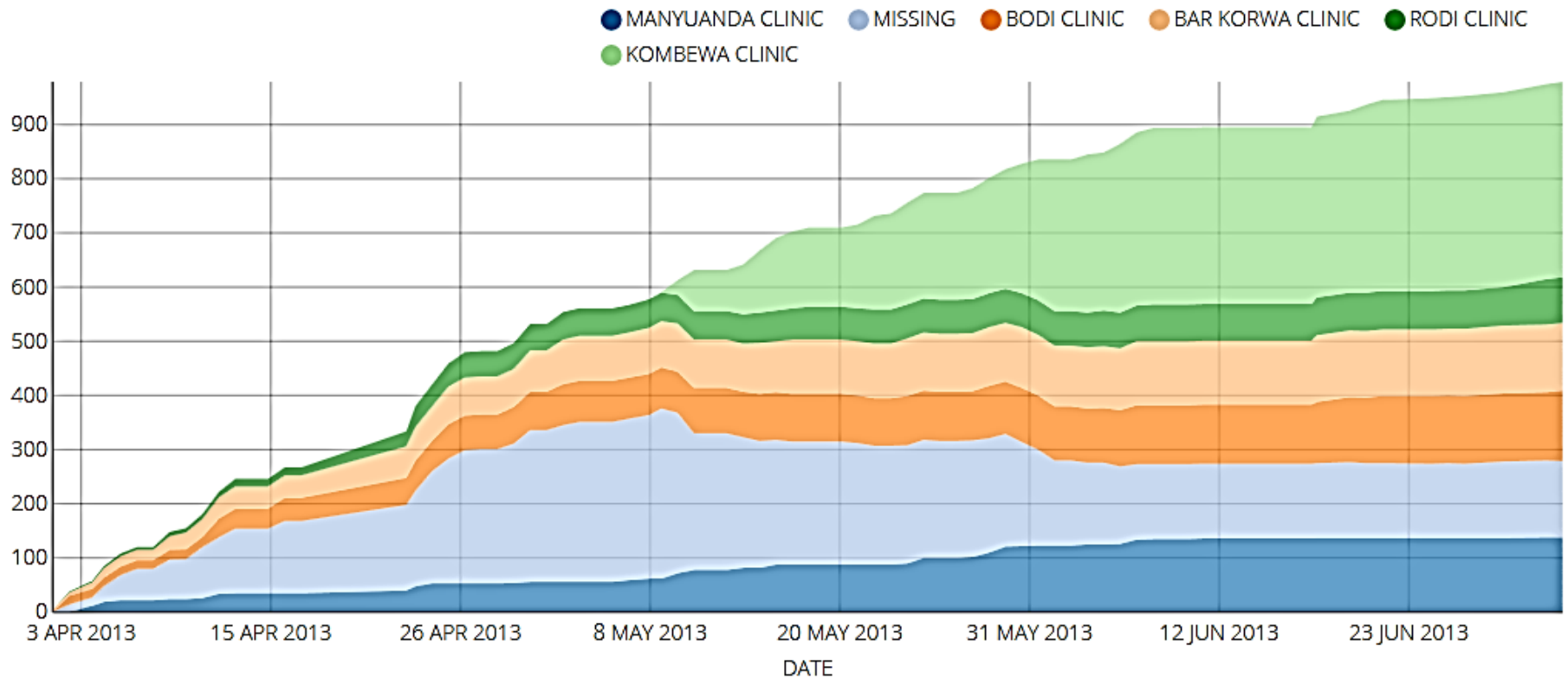
Launch



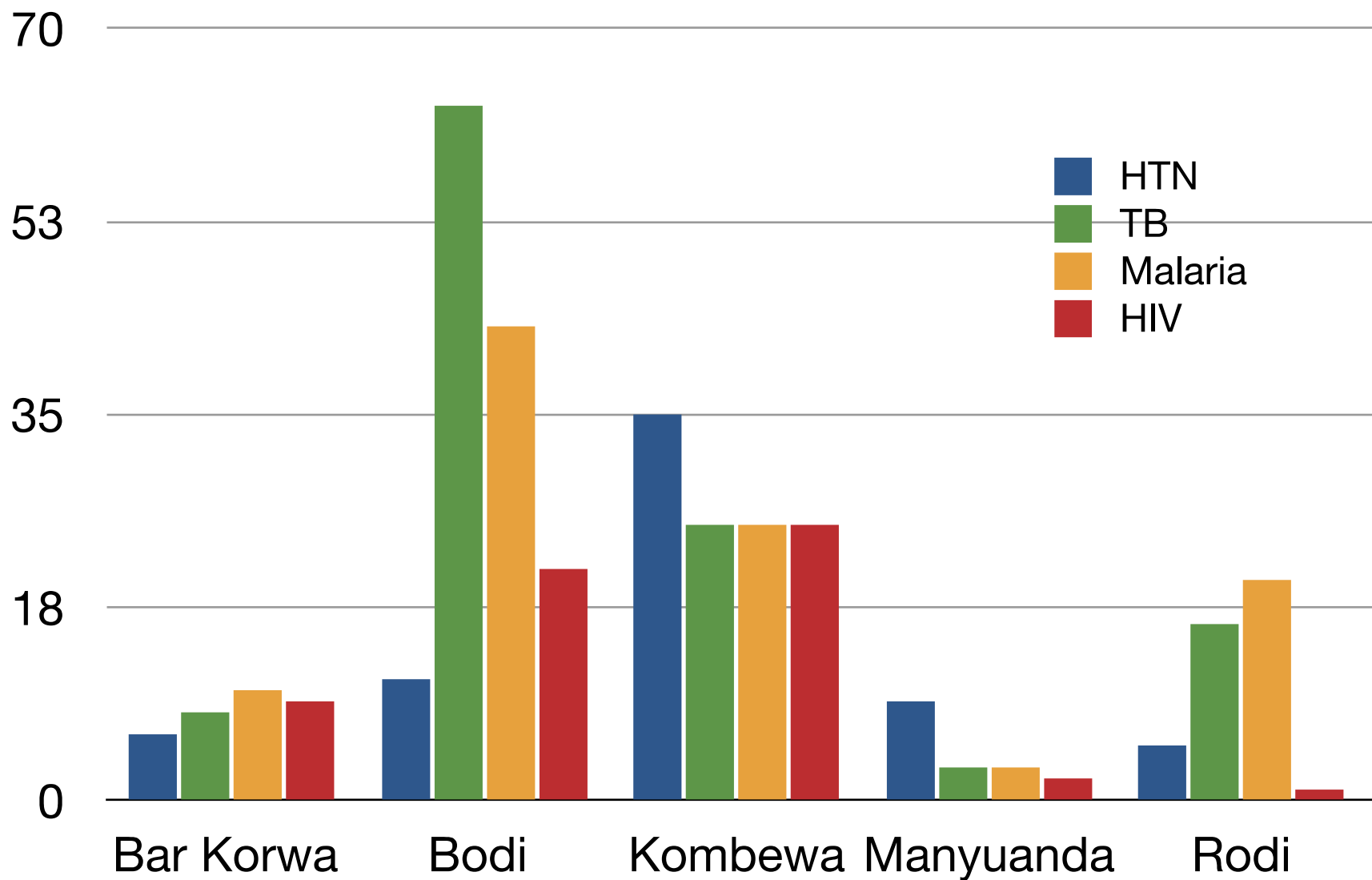
The Pilot (3 months)

[Home](#)[Overview](#)[Data](#)[ANC](#)[Delivery](#)

Pregnant women enrolled

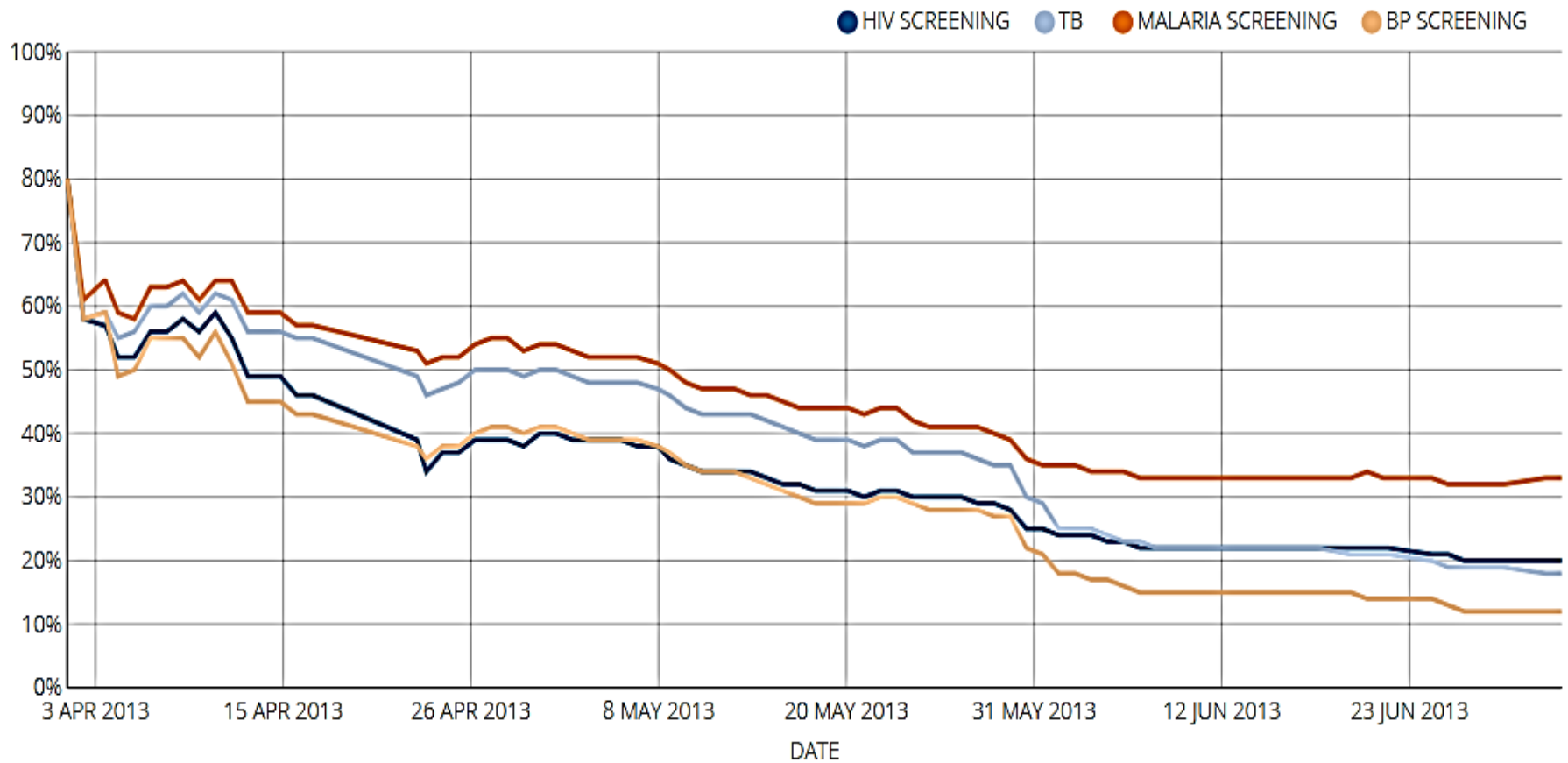


データ管理による行政サポートの実施



サービスの質の向上

Missing data



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 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.

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%) |

妊娠期サービス無料化：Linda Mama Initiative

REPUBLIC OF KENYA
MINISTRY OF HEALTH

Free Maternal Care Programme



LINDA MAMA

— BORESHA JAMII —

You can get the following services at no pay:

- Antenatal care
- Delivery including Caesarean section
- Postnatal care and care for the newborn

These services are available at all public health facilities and at accredited faith-based and private hospitals.

Register wherever you are by typing ***263#** and follow the instructions.

Linda Mama, Boresha Jamii is an initiative of the Government through NHIF

NHIF
Afya Yetu. Bima Yetu.



LINDA MAMA

DOOR TO DOOR REGISTRATION

Kirinyaga County

Door to Door Campaign for Linda Mama Initiative is ongoing in Kirinyaga County to ensure all eligible women are reached.

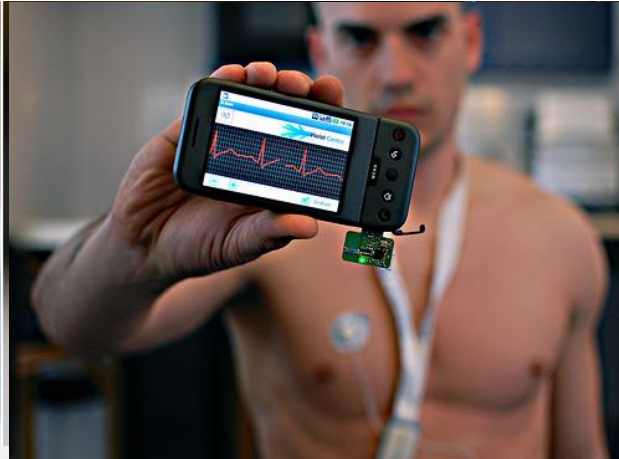


MOBILE HEALTH WALLET
Partnering to make healthcare inclusive to all in Africa

Powered by
mtiba **Care Pay**



M健康保險：M-Tiba (Safaricom)





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

The background is a classical painting depicting three women in blue robes, each cradling a baby. The scene is set against a warm, golden-brown background. Overlaid on this image are several dark, semi-transparent banners containing text about global health 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.

Sharing ideas, experiences and up-to-date information

EARLY ONSET NEONATAL COVID:

Often asymptomatic with positive SARS CoV-2 PCR before hospital discharge (1.6% of infants born to positive mothers)

Common: Asymptomatic - detected by routine testing
Perinatal transmission (vertical - uncommon)

Typical onset 2 to 7 days after birth
Temperature instability or low-grade fever
Loss of interest in feeds
Nasal congestion
Flaring
Blue discoloration
Lethargy
Diarrhea
Irregular breathing

LATE-ONSET NEONATAL COVID:

Readmission at 5 - 35 days after birth
Temperature instability
Lethargy
Respiratory distress
Apnea
Feeding intolerance
Postnatal transmission

MULTI-SYSTEM INFLAMMATORY SYNDROME IN NEONATES (MIS-N)

Maternal lymphocytes
Antibodies
Neonatal hyperimmune response
Maternal COVID-19 (past or present infection)
Myocarditis, BNP, Coronary artery disease
Hypoxemia
Pulmonary infiltrates
PPHN
Hypotension
Oliguria
Renal failure
Anasarca
Feeding intolerance
"NEC" like presentation



COVID-19 Vaccination During Pregnancy

- All individuals above 18 years of age including pregnant women are now eligible for COVID-19 vaccination.
- Symptomatic pregnant women are at an increased risk of severe diseases and it might affect the foetus too. Hence, the COVID-19 vaccine is recommended for pregnant women.
- Pregnant women at increased risk of COVID-19 complications include:
 - Older than 35 years of age
 - Obese women
 - Have an underlying medical condition such as diabetes or high blood pressure
 - Have a history of clotting in the limbs
- COVID-19 increases the risk of:
 - Pre-mature delivery
 - Baby's weight might be less than 2.5 kg
 - In rare situations, the baby might die before birth
- COVID-19 vaccine can be taken anytime during the pregnancy and it should be taken at the earliest.
- In case a woman has been infected with COVID-19 infection during the current pregnancy, then she should be vaccinated soon after the delivery.
- COVID-19 vaccine is safe in pregnancy. Minor side effects like mild fever, pain at the injection site or feeling unwell for 1-3 days can occur.
- The long-term adverse effects and safety of the vaccine for foetus and child is not established yet.

If you get any of the following symptoms after COVID-19 vaccination, please refer to a health care facility
Shortness of breath, chest pain, pinhead size red spots or bruising of skin in an area beyond the injection site, severe or persistent headache, persistent abdominal pain with or without vomiting, or itchy or blurred vision.

Please continue following COVID Appropriate Behaviour

- Wear your mask properly
- Maintain physical distancing
- Wash hands frequently and thoroughly with soap and water

For more information, visit <https://www.cowin.gov.in/faq>
#LargestVaccineDrive #Unite2FightCorona

Ministry of Health and Family Welfare Government of India
@MofHIndia @MofHIndia @MofHIndia @MofHIndia

Infant and Young Child Feeding Recommendations When COVID-19 is Suspected or Confirmed:

Recommended Practices Booklet



April 2020

Opportunity

Fintech

MOH



Global



Society



Family




Femtech

Babytech

Mindset

Department of Maternal & Child Health, Ministry of Health
Project for Implementing Maternal & Child Health Handbook
for Scaling-Up Nationwide

**MATERNAL AND CHILD
HEALTH HANDBOOK**



Mother's full name _____
Child's full name _____
Residential address: House number _____ Village/Town _____
Commune _____ District _____ Province _____
Home phone number _____
Place of handbook issue _____
Date of handbook issue: Day _____ Month _____ Year _____

* THE HANDBOOK SHOULD BE KEPT IN A SAFE PLACE, ALONG WITH YOUR
WHILE GOING FOR ANC VISITS, DELIVERY, AND/OR YOUR CHILD FOR IMMUNIZATION.
HEALTH CARE WORKERS WILL EXAMINE IT DURING YOUR VISITS.

HF's



DX is ultimately creating **Open Democracy**

Audrey Tang, Digital Minister, Taiwan,

Fast

Fair

Fun



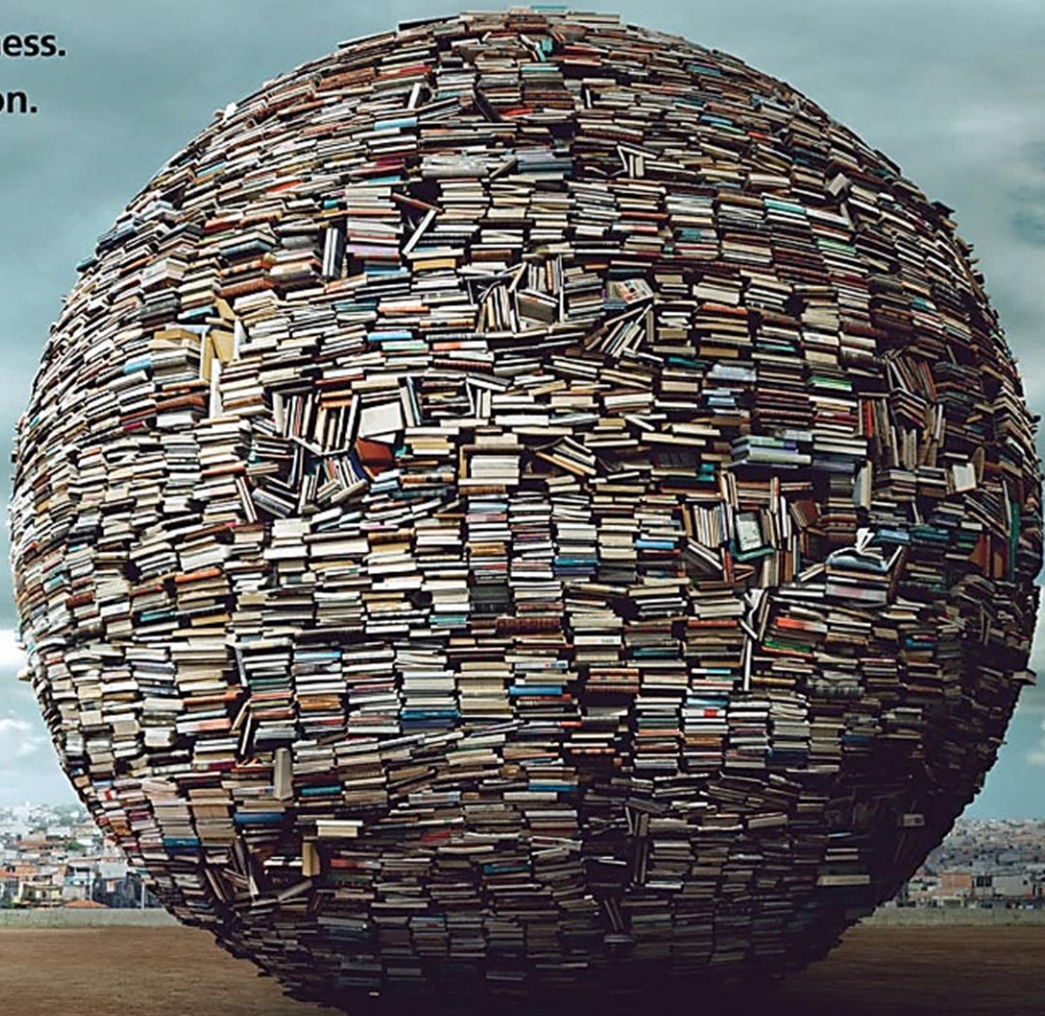
惑星意識

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What creates consciousness is education.

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キーマッセージ

- 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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