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International Health Alerts 2019-3 Abstracts

HEALTH SYSTEMS

1. [BMJ Global Health Sep 2019, 4 \(5\) e001822](#)

PHC Progression Model: a novel mixed-methods tool for measuring primary health care system capacity

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High-performing primary health care (PHC) is essential for achieving universal health coverage. However, in many countries, PHC is weak and unable to deliver on its potential. Improvement is often limited by a lack of actionable data to inform policies and set priorities. To address this gap, the Primary Health Care Performance Initiative (PHCPI) was formed to strengthen measurement of PHC in low-income and middle-income countries in order to accelerate improvement. PHCPI's Vital Signs Profile was designed to provide a comprehensive snapshot of the performance of a country's PHC system, yet quantitative information about PHC systems' capacity to deliver high-quality, effective

care was limited by the scarcity of existing data sources and metrics. To systematically measure the capacity of PHC systems, PHCPI developed the PHC Progression Model, a rubric-based mixed-methods assessment tool. The PHC Progression Model is completed through a participatory process by in-country teams and subsequently reviewed by PHCPI to validate results and ensure consistency across countries. In 2018, PHCPI partnered with five countries to pilot the tool and found that it was feasible to implement with fidelity, produced valid results, and was highly acceptable and useful to stakeholders. Pilot results showed that both the participatory assessment process and resulting findings yielded novel and actionable insights into PHC strengths and weaknesses. Based on these positive early results, PHCPI will support expansion of the PHC Progression Model to additional countries to systematically and comprehensively measure PHC system capacity in order to identify and prioritise targeted improvement efforts.

2. [BMJ Global Health Sep 2019, 4 \(Suppl 8\) e001496](#)

Primary health care performance: a scoping review of the current state of measurement in Africa

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Introduction Countries with strong primary healthcare (PHC) report better health outcomes, fewer hospital admissions and lower expenditure. People-centred care that delivers essential elements of primary care (PC) leads to improved health outcomes and reduced costs and disparities. Such outcomes underscore the need for validated instruments that measure the extent to which essential, evidence-based features of PC are available and applied to users; and to ensure quality care and provider accountability.

Methods A systematic scoping review method was used to identify peer-reviewed African studies and grey literature on PC performance measurement. The service delivery dimension in the Primary Healthcare Performance Initiative conceptual framework was used to identify key measurable components of PC.

Results The review identified 19 African studies and reports that address measuring elements of PC performance. 13 studies included eight nationally validated performance measuring instruments. Of the eight, the South African and Malawian versions of Primary Care Assessment Tool measured service delivery comprehensively and involved PC user, provider and manager stakeholders.

Conclusion 40 years after Alma Ata and despite strong evidence for people-centred care, significant gaps remain regarding use of validated instruments to measure PC performance in Africa; few validated instruments have been used. Agreement on indicators, fit-for-purpose validated instruments and harmonising existing instruments is needed. Rigorous performance-based research is necessary to inform policy, resource allocation, practice and health worker training; and to ensure access to high quality care in a universal health coverage (UHC) system—research with potential to promote socially responsive, accountable PHC in the true spirit of the Alma Ata and Astana Declarations.

3. [BMJ Global Health Sep 2019, 4 \(5\) e001669](#)

Use of standardised patients for healthcare quality research in low- and middle-income countries

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The use of standardised patients (SPs)—people recruited from the local community to present the same case to multiple providers in a blinded fashion—is increasingly used to measure the quality of

care in low-income and middle-income countries. Encouraged by the growing interest in the SP method, and based on our experience of conducting SP studies, we present a conceptual framework for research designs and surveys that use this methodology. We accompany the conceptual framework with specific examples, drawn from our experience with SP studies in low-income and middle-income contexts, including China, India, Kenya and South Africa, to highlight the versatility of the method and illustrate the ongoing challenges. A toolkit and manual for implementing SP studies is included as a companion piece in the online supplement.

4. [Health Policy and Planning, 34, 2019 \(5\): 403 - 406](#)

10 years of China's comprehensive health reform: a systems perspective

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As the world signed up to the Sustainable Development Goals by 2030 and reaffirmed health as a fundamental human right, universal health coverage (UHC) has become a shared collective task (Astana Declaration on Primary Health Care 2018). The challenge involved is daunting: more than half of the world's population do not have full coverage of essential health services; around 100 million people experience extreme poverty because of the need to pay for health care; and as many as 800 million allocate >10% of household disposable income to buy medicines and health services (World Health Organisation and World Bank, 2017).

China has the largest population in the world, with 1.4 billion people living in very diverse geographical and socio-economic contexts. The efforts, progress and challenges of UHC in China not only directly contribute to improving health conditions of a large proportion of the world's population, but also provide potentially valuable lessons that can help inspire action on a large scale. This year (2019) marks the 10th anniversary of China's comprehensive health system reform launched in 2009, which aimed at 'establishing a basic health care system covering all the population by 2020' (Central Committee of Communist Party of China and State Council, 2009). Health Policy and Planning (HPP) has been following the Chinese reform from the very beginning and published a number of research articles related to the reform. These are brought together in this collection to provide an overview of experiences and lessons learned.

Papers in this collection demonstrate that health reform in China has made commendable progress and demonstrated the feasibility of systemic health system reform in diverse settings at an exceptionally large scale. On the other hand, the articles also reveal some deep challenges. Both achievements and challenges have consequences for the global UHC movement.

In terms of financing, high population coverage has been achieved through rapid injection of government finance into social health insurance to cover rural and urban residents. China has substantially reduced OOP as a proportion of THE from 60% in 2000, to 40% in 2008 and to 28% in 2016, and will further reduce OOP/THE to 25% by 2030 as current projection suggests (Fu et al., 2018). However, OOP as a proportion of DPI has increased from 4.98% in urban areas and 5.17% in rural areas in 2008 to 5.59% in 2017 (China National Bureau of Statistics, 2009, 2018). Additional government funding, from both central and sub-national governments, is needed to reduce OOP and inequality in health services access, such as for non-communicable diseases. It seems likely also that these insurance schemes will be useful starting points to develop and extend services to address the changing needs of China's population, such as mental health and LTC.

Regarding service delivery, it is important to strengthen primary care, as hospital dominance is a systemic problem affecting the efficiency of the health system (Sylvia et al., 2017; Xu and Mills, 2017), the accessibility of services which need to be sensitive to local population needs (e.g. mental health services), as well as the equity of health services access particularly for non-communicable diseases. Primary care faces challenges in financing, quality, as well as low patient trust. In addition, a major challenge facing service delivery is the perverse provider incentives that have become embedded in clinical practice (Yip et al., 2010). Important progress has been made since the publication of these papers, including the removal of drug price markups (Yi et al., 2015; Zhuang et al., 2017; Fu et al., 2018). However, some deeply rooted provider incentives towards revenue generation have remained unchanged, and are likely to restrict the effectiveness of potentially useful approaches such as strengthened role of clinical pharmacy suggested by Penm et al. (2014).

There has been clear government commitment to expanded insurance coverage, as well as to a greater government role through insurance funds regulation and management. This is likely to contribute to stronger health system governance. However, public finance is yet to be effectively integrated across insurance schemes and levels of government to maximize the value that can be obtained from insurance. Furthermore, the goals of improved health outcomes, health equity and financial protection have not yet been fully institutionalized. More effective evaluation and monitoring, as well as community empowerment in ensuring accountability and responsiveness, is needed to make progress towards a people-centred health system that places health needs and equity at the centre of health services.

Future reform should adopt the lens of systems thinking. As the collection suggests, the outcome of insurance schemes is dependent on the delivery system that in turn is affected by financial incentives, professional norms of medical practice as well as the effective engagement of patients and population. The effectiveness of financial and service-delivery policy arrangements is facilitated or enabled by their institutional framework. Coordinated reform of governance, financing, as well as service delivery is a critical challenge that China and similar countries need to address. Integration of insurance funds as strategic purchasers is an important step, among many others (Yip et al., 2010; Meng et al., 2015). Such strengthened purchasers need to channel resources particularly towards a stronger primary care where patients and communities play an active role, in order to address the comprehensive needs of people in an integrated approach.

HEALTH WORKFORCE

5. [Health Policy and Planning, 34, 2019 \(5\): 249–256](#)

‘Gender is not even a side issue...it’s a non-issue’: career trajectories and experiences from the perspective of male and female healthcare managers in Kenya

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Women comprise a significant proportion of the health workforce globally but remain under-represented in the higher professional categories. Concern about the under-representation of women in health leadership positions has resulted in increased research on the topic, although this research has focused primarily on high-income countries. An improved understanding of the career trajectories and experiences of healthcare leaders in low- and middle-income countries (LMICs), and the role of gender, is therefore needed. This qualitative case study was undertaken in two counties in coastal Kenya. Drawing on the life-history approach, 12 male and 13 female healthcare leaders were interviewed between August 2015 and July 2016 on their career progression and related

experiences. Although gender was not spontaneously identified as a significant influence, closer exploration of responses revealed that gendered factors played an important role. Most fundamentally, women's role as child bearers and gendered societal expectations including child nurturing and other domestic responsibilities can influence their ability to take up leadership opportunities, and their selection and appointment as leaders. Women's selection and appointment as leaders may also be influenced by positive discrimination policies (in favour of women), and by perceptions of women and men as having different leadership styles (against women, who some described as more emotive and reactive). These gendered influences intersect in relatively invisible ways with other factors more readily identified by respondents to influence their progression and experience. These factors included: professional cadre, with doctors more likely to be selected into leadership roles; and personal and professional support systems ranging from family support and role models, through to professional mentorship and continuing education. We discuss the implications of these findings for policy, practice and research, including highlighting the need for more in-depth intersectionality analyses of leadership experience in LMICs.

6. [Health Policy and Planning, 34, 2019 \(4\): 298–306](#)

Does volunteer community health work empower women? Evidence from Ethiopia's Women's Development Army.

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Of the millions of Community Health Workers (CHWs) serving their communities across the world, there are approximately twice as many female CHWs as there are male. Hiring women has in many cases become an ethical expectation, in part because working as a CHW is often seen as empowering the CHW herself to enact positive change in her community. This article draws on interviews, participant observation, document review and a survey carried out in rural Amhara, Ethiopia from 2013 to 2016 to explore discourses and experiences of empowerment among unpaid female CHWs in Ethiopia's Women's Development Army (WDA). This programme was designed to encourage women to leave the house and gain decision-making power vis-à-vis their husbands—and to use this power to achieve specific, state-mandated, domestically centred goals. Some women discovered new opportunities for mobility and self-actualization through this work, and some made positive contributions to the health system. At the same time, by design, women in the WDA had limited ability to exercise political power or gain authority within the structures that employed them, and they were taken away from tending to their individual work demands without compensation. The official rhetoric of the WDA—that women's empowerment can happen by rearranging village-level social relations, without offering poor women opportunities like paid employment, job advancement or the ability to shape government policy—allowed the Ethiopian government and its donors to pursue 'empowerment' without investments in pay for lower-level health workers, or fundamental freedoms introduced into state-society relations.

7. [Lancet 2019;394\(10196\):360](#)

Editorial: Building capacity in Africa's national science academies

On July 23, the InterAcademy Partnership released *Harnessing Science, Engineering and Medicine to Address Africa's Challenges*, a call for greater collaboration and investment in Africa's national science academies from policymakers and international organisations such as the UN. Countries in Africa face enormous challenges that require scientific and technical solutions: climate change, infectious diseases such as HIV and Ebola virus disease, as well as non-communicable conditions.

Across the continent, headway in achieving global Sustainable Development Goals (SDGs) is in places stagnant. Importantly, science academies can play a vital role in deepening relevant research and policy around advancing the SDG agenda. Africa has a young population expected to double by 2050, emerging and dynamic economies, and has made substantial progress in sustainable production and climate action. Yet investment has been scarce; sub-Saharan African governments on average contribute only 0.4% of their GDP to scientific research.

The report has several recommendations to help bolster African science, engineering, and medical capacity. At the international level, it calls on the UN and the African Union to work with African researchers to develop skills in policy advocacy—helping local governments formulate research activities and identify solutions for local problems. It calls for the Network of African Science Academies to increase capacity and build stronger collaborative networks among each other and the diaspora of African researchers in the global north.

Addressing Africa's challenges will require getting away from the historical, hierarchical, externally driven model that too closely echoes a colonial past. Too often, well intentioned institutions from the global north "parachute" into Africa to help address challenges or conduct research, only to leave without having stimulated, supported, and built capacity for local expertise and knowledge to fuel solutions. Capacity building, investment in research, and networks where local governments can look to African science academies as equal partners in identifying, researching, and addressing problems will be needed to address challenges we already know about, and those we have not even envisioned yet.

8. [Lancet 2019;394\(10198\):542](#)

Editorial: The gender plight of humanitarian aid

World Humanitarian Day, which takes place on Aug 19 each year, celebrates the efforts of humanitarian aid workers operating in war-torn, resource deprived, or disease-affected settings to sustain human life. This year, special tribute is paid to the unsung heroes of humanitarian health—women. Whether they are at the forefront of an international crisis or operating within local communities, their long-lasting and stabilising impact makes them true peace keepers of humanitarian health.

In the past few decades, the number of major attacks on aid workers in hostile environments has soared. According to the Aid Worker Security Report 2019 update published in June by Humanitarian Outcomes, 2018 was the second worst year on record for aid security, with 226 separate attacks involving 405 aid workers, of whom 131 were killed, 144 wounded, and 130 kidnapped. South Sudan continued to surpass Syria and Afghanistan in the number of major attacks on aid workers, which also put the Ebola response in the

Democratic Republic of the Congo at risk. The report focused on the variance in risk between male and female aid workers. Men were more likely to be victims of shootings and aerial bombings, whereas women were more likely to be physically attacked, kidnapped, or involved in complex attacks such as bombings. Sexual violence had the highest gender variance, comprising 8% of all attacks on female aid workers since 1997. The report calls for the risk of sexual violence to be re-examined in humanitarian operational security.

Multiple reporting pathways and a higher degree of decision-making autonomy offered to survivors would improve case identification and analysis of security risks and needs. Governments need to recognise the female plight in humanitarian aid. Applying a gender-focused lens to the identification,

assessment, and management of the security needs of humanitarian responders is a good place to start. As humanitarians, women are often first to respond in a crisis and they should not be the last to be considered.

HIV

9. [Lancet 2019;394\(10200\):394-5](#)

Sexual violence, HIV, and conflict in South Sudan

Sperber A.

As refugees flee conflict in South Sudan, the burden of HIV grows, in part because of rampant sexual violence. Because of the lack of infrastructure combined with the rampant amount of sexual abuse, it is impossible to determine the extent to which the levels of sexualised violence, once described by the UN as “epic”, are contributing to HIV rates among the South Sudanese population that are coming to Uganda.

The second Sudanese civil war lasted more than two decades and took an incalculable number of lives, both on the battlefield and in subsequent humanitarian emergencies. South Sudan became its own country, independent from Sudan, in July, 2011. Although it is about the size of France, South Sudan had only about 200 km of paved road, according to the UN. Health infrastructure was essentially non-existent. Scarcity of data makes it difficult to explicate the full scale of the conflict and its aftermath, but a 2012 report from the Center for Strategic and International Studies said that there were fewer than 1200 functioning clinics to serve a population of more than 10 million people, and that one in seven women had a chance of dying in childbirth. Less than 3% of the population were estimated to have HIV—a relatively low percentage, given the circumstances—but the true number could be substantially higher, given the little opportunity available for testing the population.

In December, 2013, war came again to South Sudan—this time, the splintering along ethnic lines between leading tribes, the Dinka and Nuer, that had previously been united in the fight for independence from the north. Almost 6 years later, other tribes have been brought into the war, complicating the situation. In the meantime, the young state has totally disintegrated, leading to fears that HIV will spread because of the fragile infrastructure and lack of health services.

Alfred Yayi is the district health officer in Yumbe District, in northwest Uganda, part of the northern region housing more than 700 000 of the approximately 1 million South Sudanese refugees who have crossed the border. He is concerned about the lack of information: There are not enough resources to determine how many South Sudanese in Uganda are HIV positive and that is a problem, he says.

When the war in South Sudan reached the Equatoria region in 2016, refugees started coming across the border into northern Uganda in record numbers—at one point in July, 2016, the UN counted 8337 people entering Uganda in a single day. There was no way to test everyone for HIV, according to Yayi. “The number was overwhelming”, he told *The Lancet*. He was told to prepare for 40000 refugees, when Yumbe District alone now plays host to more than 225 000. HIV data for the refugee population in Uganda are currently collated via the aggregated number of rapid response HIV tests done by various non-governmental organisations (NGOs), such as the International Rescue Committee and Médecins Sans Frontières (MSF), which all get sent to the UN and the District Health Office. This does not provide an accurate number of HIV cases because not everyone gets a rapid response test; Yayi says that a baseline survey is needed. “The lack of data is a problem because you cannot put a hand on the situation”, he said. The Ministry of Health, the UN, and NGOs cannot

address the problem if they do not know the scale. “Much of the sexual violence in the areas of armed conflict appears clearly designed to humiliate the victim and the victim’s community”, noted Alan Boswell, an analyst on South Sudan for the International Crisis Group. “Most of the dozens of fighters I have interviewed over the years view this civil war as a fight over supremacy: who dominates whom?” Spreading HIV seems to fit with that pattern of domination and humiliation.

INFECTIOUS DISEASES

10. [Am J Trop Med Hyg. 2019 Jul;101\(1\):84-92](#)

The Efficacy of Doxycycline Treatment on *Mansonella perstans* Infection: An Open-Label, Randomized Trial in Ghana

Batsa Debrah L et al., Department of Clinical Microbiology, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.

Treating *Mansonella perstans* is challenged by the low efficacy of registered antihelminthics. *Wolbachia endobacteria* provide an alternative treatment target because depletion results in amicrofilaremia in filarial infections with *Wuchereria bancrofti* and *Onchocerca volvulus* infections. This open-label, randomized study sought to confirm that i) *Wolbachia* are present in *M. perstans* in Ghana and ii) doxycycline treatment will deplete *Wolbachia* and cause a slow, sustained decline in microfilariae (MF). Two hundred and two Ghanaians with *M. perstans* infection were randomized into early (immediate) and delayed (6 months deferred) treatment groups, given doxycycline 200 mg/day for 6 weeks, and monitored for MF and *Wolbachia* levels at baseline, 4, 12, and 24 months after the study onset (= time of randomization and start of treatment for the early group). Per protocol analysis revealed that the median MF/mL in the early group declined from 138 at baseline to 64 at month 4 and further to 0 at month 12. In the delayed group, MF load did not change from a baseline median of 97 to 102 at month 4 but declined to 42 at month 12, that is, 6 months after receiving treatment, trailing the early group as expected. By month 24, both treatment groups had reached a median MF level of 0. After treatment, *Wolbachia* were depleted from MF by ≥ 1 -log drop compared with baseline levels. We conclude that *M. perstans* in Ghana harbor *Wolbachia* that are effectively depleted by doxycycline with subsequent reduction in MF loads, most likely because of interruption of fertility of adult worms.

11. [Am J Trop Med Hyg. 2019 Aug 5. \[Epub ahead of print\]](#)

Simplification of Rabies Postexposure Prophylaxis: A New 2-Visit Intradermal Vaccine Regimen

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A 2-visit multiple-site intradermal (ID) vaccine protocol would be the most economical, immunogenic, and practicable regimen for postexposure rabies prophylaxis (PEP) in clinics seeing few patients a month. This regimen with an additional day 28 dose is now recommended by the WHO. The difficulties surrounding ID rabies vaccination have hindered progress in provision of prophylaxis, especially in rural Asia and Africa. Although the latest WHO recommendations include 1-week ID postexposure vaccine regimens, these are unlikely to prove economical where rabies vaccination is presently unavailable. The new protocol uses a whole vial of vaccine divided between 4-site ID on the first day and half a vial at 2-site ID on day 7. Gavi has recently approved support for rabies PEP. This 2-visit 4-site ID regimen, with or without a day 28 dose, should be considered for implementation in this remarkable new initiative.

12. [Am J Trop Med Hyg. 2019 Sep 16. \[Epub ahead of print\]](#)

Impact of Antibiotic Resistance on Treatment of Pneumococcal Disease in Ethiopia: An Agent-Based Modeling Simulation

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Antimicrobial resistance (AMR) is a growing threat to global health. Although AMR endangers continued effectiveness of antibiotics, the impact of AMR has been poorly estimated in low-income countries. This study sought to quantify the effect of AMR on treatments for pediatric pneumococcal disease in Ethiopia. We developed the DREAMR (Dynamic Representation of the Economics of AMR) model that simulated children younger than 5 years who acquire pneumococcal disease (pneumonia, meningitis, and acute otitis media) and seek treatment from various health facilities in Ethiopia over a year. We examined the AMR levels of three antibiotics (penicillin, amoxicillin, and ceftriaxone), treatment failures, and attributable deaths. We used a cost-of-illness method to assess the resulting economic impact of AMR from a societal perspective by estimating the direct and indirect treatment costs and productivity losses. Findings showed that AMR against antibiotics that were used to treat pneumococcal disease led to 195,763 treatment failures, which contributed to 2,925 child deaths annually in Ethiopia. Antimicrobial resistance resulted in a first-line treatment failure rate of 29.4%. In 1 year, the proportion of nonsusceptible *Streptococcus pneumoniae* bacteria increased by 2.1% and 0.5% for amoxicillin and penicillin and reduced by 0.3% for less commonly used ceftriaxone. Annual costs of AMR to treat pneumococcal disease were around US\$15.8 million, including US\$3.3 million for ineffective first-line treatments, US\$3.7 million for second-line treatments, and US\$8.9 million for long-term productivity losses. Antibiotic stewardship to reduce misuse and overuse of antibiotics is essential to maintain the effectiveness of antibiotics and lessen the health and economic burden of AMR.

13. [Am J Trop Med Hyg. 2019 Sep;101\(3\):513-520.](#)

Clinical Evaluation of a Multiplex PCR for the Detection of *Salmonella enterica* Serovars Typhi and Paratyphi A from Blood Specimens in a High-Endemic Setting.

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Enteric fever is a major public health concern in endemic areas, particularly in infrastructure-limited countries where *Salmonella Paratyphi A* has emerged in increasing proportion of cases. We aimed to evaluate a method to detect *Salmonella Typhi* (*S. Typhi*) and *Salmonella Paratyphi A* (*S. Paratyphi A*) in febrile patients in Bangladesh. We conducted a prospective study enrolling patients with fever > 38°C admitted to two large urban hospitals and two outpatient clinics located in Dhaka, Bangladesh. We developed and evaluated a method combining short culture with a new molecular assay to simultaneously detect and differentiate *S. Typhi* and *S. Paratyphi A* from other *Salmonella* directly from 2 to 4 mL of whole blood in febrile patients (n = 680). A total of 680 cases were enrolled from the four participating sites. An increase in the detection rate (+38.8%) in *S. Typhi* and *S. Paratyphi A* was observed with a multiplex polymerase chain reaction (PCR) assay, and absence of non-typhoidal *Salmonella* detection was reported. All 45 healthy controls were culture and PCR negative, generating an estimated 92.9% of specificity on clinical samples. When clinical performance was assessed in the absence of blood volume prioritization for testing, a latent class model estimates

clinical performance $\geq 95\%$ in sensitivity and specificity with likelihood ratio (LR) $LR+ > 10$ and $LR- < 0.1$ for the multiplex PCR assay. The alternative method to blood culture we developed may be useful alone or in combination with culture or serological tests for epidemiological studies in high disease burden settings and should be considered as secondary endpoint test for future vaccine trials.

14. [BMJ Global Health Aug 2019, 4 \(4\) e001885](#)

Protecting the world from infectious disease threats: now or never

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Whether by microbial mutation, movement across borders, or man-made biological release, a new health threat is inevitable, unpredictable and potentially devastating. For the first time, the world now has a clear picture of how prepared countries are for this potentially catastrophic event. When the international evaluation team left Haiti in July 2019, one hundred countries had completed a Joint External Evaluation (JEE) of health emergency readiness. The JEE is a voluntary, externally validated assessment of 19 technical areas required to prevent, detect and respond to health emergencies. This milestone, in addition to the ongoing uncontrolled Ebola epidemic in the Democratic Republic of Congo, makes this an opportune time to take stock of both the status of the world's preparedness and of what needs to be done to make the world safer.

When the JEE process began in 2016, many doubted that countries would be willing to openly share information, or that the evaluations would be consistent. Fortunately, these concerns were unfounded: countries—including nearly every country in Africa—were eager to participate and openly shared detailed information on their strengths and weaknesses. International teams, using standard measures, created a consistent rating system. JEEs have documented that, despite the certainty that the world will face another epidemic challenge at least as great as recent outbreaks of severe acute respiratory syndrome, H1N1 influenza, Middle East respiratory syndrome, Ebola and Zika, most countries remain woefully underprepared to manage large-scale epidemic disease threats.

The first 100 JEEs lead to three overarching conclusions. First, no country is fully prepared to manage disease epidemics. Second, the number of preparedness gaps, and the resulting to-do list of actions to take to fill them, is overwhelming: more than 7000 priority tasks await action. Third, JEEs have diagnosed preparedness gaps well.

15. [BMJ Global Health Aug 2019, 4 \(4\) e001593](#)

Duty of care and health worker protections in the age of Ebola: lessons from Médecins Sans Frontières

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Health workers were differentially infected during the 2014 to 2016 Ebola outbreak with an incidence rate of 30 to 44/1000 depending on their job duties, compared to the wider population's rate of 1.4/1000, according to the WHO. Médecins Sans Frontières (MSF) health workers had a much lower incidence rate of 4.3/1000, explained as the result of MSF's 'duty of care' toward staff safety. Duty of care is defined as an obligation to conform to certain standards of conduct for the protection of others against an unreasonable risk of harm. The duty of care was operationalised through four actions: performing risk assessments prior to deployment, organising work and work practices to minimise exposure, providing extensive risk communication and training of staff and providing

medical follow-up for staff exposures. Adopting and consistently enforcing these broader, duty of care safety policies in deployed teams augments and fortifies standard infection prevention practices, creating a more protective, comprehensive safety programme. Prioritising staff safety by taking such actions will help avoid the catastrophic loss of the health work force and assist in building resilient health systems. Protecting health workers from preventable illness, disability and death must become a fundamental first step in building resilient health systems capable of planning for and effectively responding to public health emergencies while maintaining core services. The health sector is already known as a 'high-hazard' employment zone, even when workers provide routine clinical care under circumstances clearly safer than an emergency response. Beyond the anticipated infectious agents such as tuberculosis and hepatitis that a worker might encounter, other hazard categories include chemical, physical and psychological risks which threaten worker health and safety.

16. [Emerg Infect Dis. 2019 Jul;25\(7\):1394-1396. Epub 2019 Jul 17.](#)

Whole-Blood Testing for Diagnosis of Acute Zika Virus Infections in Routine Diagnostic Setting.

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We evaluated the benefit of whole blood versus plasma to detect acute Zika virus infections. Comparison of Zika virus quantitative reverse transcription PCR results in single timepoint whole blood-plasma pairs from 227 patients with suspected Zika virus infection resulted in confirmation of 8 additional patients with Zika virus infection.

17. [Lancet 2019 Jul 6;394\(10192\):81-92](#)

The public health control of scabies: priorities for research and action

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Scabies is a parasitic disease of the skin that disproportionately affects disadvantaged populations. The disease causes considerable morbidity and leads to severe bacterial infection and immune-mediated disease. Scientific advances from the past 5 years suggest that scabies is amenable to population-level control, particularly through mass drug administration. In recognition of these issues, WHO added scabies to the list of neglected tropical diseases in 2017. To develop a global control programme, key operational research questions must now be addressed. Standardised approaches to diagnosis and methods for mapping are required to further understand the burden of disease. The safety of treatments for young children, including with ivermectin and moxidectin, should be investigated. Studies are needed to inform optimum implementation of mass treatment, including the threshold for intervention, target, dosing, and frequency. Frameworks for surveillance, monitoring, and evaluation of control strategies are also necessary.

18. [N Engl J Med 2019; 381:373-383](#)

The Ongoing Ebola Epidemic in the Democratic Republic of Congo, 2018–2019

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The international response to the evolving Ebola epidemic in eastern Democratic Republic of Congo (DRC) has had interim successes while facing ongoing difficulties. The outbreak has occurred in an

area of intractable conflict among multiple armed groups at a time of contentious national elections. Despite porous international borders and considerable population movement, however, transmission has been confined to North Kivu and Ituri provinces. Factors potentially contributing to this containment include conduct of about 55 million screenings, surveillance of contacts (12,591 under surveillance currently), testing of 280 samples per day, provision of safe and dignified burials for most deaths, vaccination of high-risk people (112,485 vaccinated as of May 7, 2019), and medical treatment including four investigational therapies. Major challenges remain. Since late February 2019, a sharp rise in cases and increased transmission have been observed. These coincide with organized attacks by armed groups targeting response teams, deteriorating security, and the population's increasing distrust of the response effort. The risk of local and regional spread remains high given the high proportion of deaths occurring outside treatment facilities, relatively low proportions of new patients who were known contacts, ongoing nosocomial transmission, and persistent delays in detection and reporting. Stopping this epidemic will require the alignment of the principal political and armed groups in eastern DRC in support of the response.

MALARIA

19. [Am J Trop Med Hyg. 2019 Aug 5. \[Epub ahead of print\]](#)

Using Short Messaging System Alerts to Increase Antenatal Care and Malaria Prevention: Findings from Implementation Research Pilot in Guinea

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Intermittent preventive treatment with sulfadoxine-pyrimethamine (SP) is recommended to prevent malaria in pregnancy. Intermittent preventive treatment coverage, particularly for three or more doses, is dependent on pregnant women attending antenatal care (ANC) services as scheduled. The StopPalu project pilot tested short messaging services (SMSs) to remind women of upcoming ANC visits in the Conakry and Kindia regions of Guinea. Health facilities were selected as pilot and comparison facilities. All women who attended an initial ANC visit at a selected facility during the pilot period and had access to a mobile telephone were enrolled. The pilot group was sent an SMS before each appointment. Percentage of attendance and SP distribution were calculated. A log-binomial regression model determined odds ratios. Pregnant women receiving SMS were 48 times more likely to attend all visits and were 12 times more likely to receive all SP doses during pregnancy.

20. [Emerg Infect Dis. 2019 Jul;25\(7\):1431-1433. Epub 2019 Jul 17.](#)

Increased Threat of Urban Malaria from *Anopheles stephensi* Mosquitoes, Africa.

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Malaria continues to be a major health threat in Africa, mainly in rural areas. Recently, the urban malaria vector *Anopheles stephensi* invaded Djibouti and Ethiopia, potentially spreading to other areas of Africa. Urgent action is needed to prevent urban malaria epidemics from emerging and causing a public health disaster.

21. [Lancet 2019;394\(10202\):929-938](#)

Short-course primaquine for the radical cure of *Plasmodium vivax* malaria: a multicentre, randomised, placebo-controlled non-inferiority trial

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Background: Primaquine is the only widely used drug that prevents *Plasmodium vivax* malaria relapses, but adherence to the standard 14-day regimen is poor. We aimed to assess the efficacy of a shorter course (7 days) of primaquine for radical cure of vivax malaria.

Methods: We did a randomised, double-blind, placebo-controlled, non-inferiority trial in eight health-care clinics (two each in Afghanistan, Ethiopia, Indonesia, and Vietnam). Patients (aged ≥ 6 months) with normal glucose-6-phosphate dehydrogenase (G6PD) and presenting with uncomplicated vivax malaria were enrolled. Patients were given standard blood schizontocidal treatment and randomly assigned (2:2:1) to receive 7 days of supervised primaquine (1.0 mg/kg per day), 14 days of supervised primaquine (0.5 mg/kg per day), or placebo. The primary endpoint was the incidence rate of symptomatic *P. vivax* parasitaemia during the 12-month follow-up period, assessed in the intention-to-treat population. A margin of 0.07 recurrences per person-year was used to establish non-inferiority of the 7-day regimen compared with the 14-day regimen. This trial is registered at ClinicalTrials.gov (NCT01814683).

Findings: Between July 20, 2014, and Nov 25, 2017, 2336 patients were enrolled. The incidence rate of symptomatic recurrent *P. vivax* malaria was 0.18 (95% CI 0.15 to 0.21) recurrences per person-year for 935 patients in the 7-day primaquine group and 0.16 (0.13 to 0.18) for 937 patients in the 14-day primaquine group, a difference of 0.02 (-0.02 to 0.05, $p=0.3405$). The incidence rate for 464 patients in the placebo group was 0.96 (95% CI 0.83 to 1.08) recurrences per person-year. Potentially drug-related serious adverse events within 42 days of starting treatment were reported in nine (1.0%) of 935 patients in the 7-day group, one (0.1%) of 937 in the 14-day group and none of 464 in the control arm. Four of the serious adverse events were significant haemolysis (three in the 7-day group and one in the 14-day group).

Interpretation: In patients with normal G6PD, 7-day primaquine was well tolerated and non-inferior to 14-day primaquine. The short-course regimen might improve adherence and therefore the effectiveness of primaquine for radical cure of *P. vivax* malaria.

MCH

22. [BMJ Global Health Sep 2019, 4 \(5\) e001605](#)

The rate and perioperative mortality of caesarean section in Sierra Leone

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Introduction Sierra Leone has the world's highest maternal mortality, partly due to low access to caesarean section. Limited data are available to guide improvement. In this study, we aimed to analyse the rate and mortality of caesarean sections in the country.

Methods We conducted a retrospective study of all caesarean sections and all reported in-facility maternal deaths in Sierra Leone in 2016. All facilities performing caesarean sections were visited. Data on in-facility maternal deaths were retrieved from the Maternal Death Surveillance and Response database. Caesarean section mortality was defined as in-facility perioperative mortality.

Results In 2016, there were 7357 caesarean sections in Sierra Leone. This yields a population rate of 2.9% of all live births, a 35% increase from 2012, with district rates ranging from 0.4% to 5.2%. The most common indications for surgery were obstructed labour (42%), hypertensive disorders (25%)

and haemorrhage (22%). Ninety-nine deaths occurred during or after caesarean section, and the in-facility perioperative caesarean section mortality rate was 1.5% (median 0.7%, IQR 0–2.2). Haemorrhage was the leading cause of death (73%), and of those who died during or after surgery, 80% had general anaesthesia, 75% received blood transfusion and 22% had a uterine rupture diagnosed.

Conclusions The caesarean section rate has increased rapidly in Sierra Leone, but the distribution remains uneven. Caesarean section mortality is high, but there is wide variation. More access to caesarean sections for maternal and neonatal complications is needed in underserved areas, and expansion should be coupled with efforts to limit late presentation, to offer assisted vaginal delivery when indicated and to ensure optimal perioperative care.

23. [BMJ Global Health Sep 2019, 4 \(5\) e001713](#)

Tracking coverage, dropout and multidimensional equity gaps in immunisation systems in West Africa, 2000–2017

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Background Several West African countries are unlikely to achieve the recommended Global Vaccine Action Plan (GVAP) immunisation coverage and dropout targets in a landscape beset with entrenched intra-country equity gaps in immunisation. Our aim was to assess and compare the immunisation coverage, dropout and equity gaps across 15 West African countries between 2000 and 2017.

Methods We compared Bacille Calmette Guerin (BCG) and the third dose of diphtheria–tetanus–pertussis (DTP3) containing vaccine coverage between 2000 and 2017 using the WHO and Unicef Estimates of National Immunisation Coverage for 15 West African countries. Estimated subregional median and weighted average coverages, and dropout (DTP1–DTP3) were tracked against the GVAP targets of $\geq 90\%$ coverage (BCG and DTP3), and $\leq 10\%$ dropouts. Equity gaps in immunisation were assessed using the latest disaggregated national health survey immunisation data.

Results The weighted average subregional BCG coverage was 60.7% in 2000, peaked at 83.2% in 2009 and was 65.7% in 2017. The weighted average DTP3 coverage was 42.3% in 2000, peaked at 70.3% in 2009 and was 61.5% in 2017. As of 2017, 46.7% of countries (7/15) had met the GVAP targets on DTP3 coverage. Average weighted subregional immunisation dropouts consistently reduced from 16.4% in 2000 to 7.4% in 2017, meeting the GVAP target in 2008. In most countries, inequalities in BCG, and DTP3 coverage and dropouts were mainly related to equity gaps of more than 20% points between the wealthiest and the poorest, high coverage regions and low coverage regions, and between children of mothers with at least secondary education and those with no formal education. A child's sex and place of residence (urban or rural) minimally determined equity gaps.

Conclusions The West African subregion made progress between 2000 and 2017 in ensuring that its children utilised immunisation services, however, wide equity gaps persist.

24. [BMJ Global Health Sep 2019, 4 \(5\) e001715](#)

Risk factors for death among children aged 5–14 years hospitalised with pneumonia: a retrospective cohort study in Kenya

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There were almost 1 million deaths in children aged between 5 and 14 years in 2017, and pneumonia accounted for 11%. However, there are no validated guidelines for pneumonia management in older children and data to support their development are limited. We sought to understand risk factors for mortality among children aged 5–14 years hospitalised with pneumonia in district-level health facilities in Kenya.

Methods We did a retrospective cohort study using data collected from an established clinical information network of 13 hospitals. We reviewed records for children aged 5–14 years admitted with pneumonia between 1 March 2014 and 28 February 2018. Individual clinical signs were examined for association with inpatient mortality using logistic regression. We used existing WHO criteria (intended for under 5s) to define levels of severity and examined their performance in identifying those at increased risk of death.

Results 1832 children were diagnosed with pneumonia and 145 (7.9%) died. Severe pallor was strongly associated with mortality (adjusted OR (aOR) 8.06, 95% CI 4.72 to 13.75) as were reduced consciousness, mild/moderate pallor, central cyanosis and older age (>9 years) (aOR >2). Comorbidities HIV and severe acute malnutrition were also associated with death (aOR 2.31, 95% CI 1.39 to 3.84 and aOR 1.89, 95% CI 1.12 to 3.21, respectively). The presence of clinical characteristics used by WHO to define severe pneumonia was associated with death in univariate analysis (OR 2.69). However, this combination of clinical characteristics was poor in discriminating those at risk of death (sensitivity: 0.56, specificity: 0.68, and area under the curve: 0.62).

Conclusion Children >5 years have high inpatient pneumonia mortality. These findings also suggest that the WHO criteria for classification of severity for children under 5 years do not appear to be a valid tool for risk assessment in this older age group, indicating the urgent need for evidence-based clinical guidelines for this neglected population.

25. [Health Policy and Planning, 34, 2019 \(4\): 257–270](#)

The effectiveness of training in emergency obstetric care: a systematic literature review

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Providing quality emergency obstetric care (EmOC) reduces the risk of maternal and newborn mortality and morbidity. There is evidence that over 50% of maternal health programmes that result in improving access to EmOC and reduce maternal mortality have an EmOC training component. The objective was to review the evidence for the effectiveness of training in EmOC. Eleven databases and websites were searched for publications describing EmOC training evaluations between 1997 and 2017. Effectiveness was assessed at four levels: (1) participant reaction, (2) knowledge and skills, (3) change in behaviour and clinical practice and (4) availability of EmOC and health outcomes. Weighted means for change in knowledge and skills obtained, narrative synthesis of results for other levels. One hundred and one studies including before–after studies ($n = 44$) and randomized controlled trials (RCTs) ($n = 15$). Level 1 and/or 2 was assessed in 68 studies; Level 3 in 51, Level 4 in 21 studies. Only three studies assessed effectiveness at all four levels. Weighted mean scores pre-training, and change after training were 67.0% and 10.6% for knowledge (7750 participants) and 53.1% and 29.8% for skills (6054 participants; 13 studies). There is strong evidence for improved clinical practice (adherence to protocols, resuscitation technique, communication and team work) and improved neonatal outcomes (reduced trauma after shoulder dystocia, reduced number of babies with hypothermia and hypoxia). Evidence for a reduction in the number of cases of post-partum haemorrhage, case fatality rates, stillbirths and institutional maternal mortality is less strong. Short

competency-based training in EmOC results in significant improvements in healthcare provider knowledge/skills and change in clinical practice. There is emerging evidence that this results in improved health outcomes.

26. [N Engl J Med 2019; 381:407-419](#)

Immediate Transfusion in African Children with Uncomplicated Severe Anemia

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Background: The World Health Organization recommends not performing transfusions in African children hospitalized for uncomplicated severe anemia (hemoglobin level of 4 to 6 g per deciliter and no signs of clinical severity). However, high mortality and readmission rates suggest that less restrictive transfusion strategies might improve outcomes.

Methods: In this factorial, open-label, randomized, controlled trial, we assigned Ugandan and Malawian children 2 months to 12 years of age with uncomplicated severe anemia to immediate transfusion with 20 ml or 30 ml of whole-blood equivalent per kilogram of body weight, as determined in a second simultaneous randomization, or no immediate transfusion (control group), in which transfusion with 20 ml of whole-blood equivalent per kilogram was triggered by new signs of clinical severity or a drop in hemoglobin to below 4 g per deciliter. The primary outcome was 28-day mortality. Three other randomizations investigated transfusion volume, postdischarge supplementation with micronutrients, and postdischarge prophylaxis with trimethoprim–sulfamethoxazole.

Results: A total of 1565 children (median age, 26 months) underwent randomization, with 778 assigned to the immediate-transfusion group and 787 to the control group; 984 children (62.9%) had malaria. The children were followed for 180 days, and 71 (4.5%) were lost to follow-up. During the primary hospitalization, transfusion was performed in all the children in the immediate-transfusion group and in 386 (49.0%) in the control group (median time to transfusion, 1.3 hours vs. 24.9 hours after randomization). The mean (\pm SD) total blood volume transfused per child was 314 \pm 228 ml in the immediate-transfusion group and 142 \pm 224 ml in the control group. Death had occurred by 28 days in 7 children (0.9%) in the immediate-transfusion group and in 13 (1.7%) in the control group (hazard ratio, 0.54; 95% confidence interval [CI], 0.22 to 1.36; $P=0.19$) and by 180 days in 35 (4.5%) and 47 (6.0%), respectively (hazard ratio, 0.75; 95% CI, 0.48 to 1.15), without evidence of interaction with other randomizations ($P>0.20$) or evidence of between-group differences in readmissions, serious adverse events, or hemoglobin recovery at 180 days. The mean length of hospital stay was 0.9 days longer in the control group.

Conclusions: There was no evidence of differences in clinical outcomes over 6 months between the children who received immediate transfusion and those who did not. The triggered-transfusion strategy in the control group resulted in lower blood use; however, the length of hospital stay was longer, and this strategy required clinical and hemoglobin monitoring.

Non Communicable Diseases

27. [BMJ Global Health Sep 2019, 4 \(5\) e001542](#)

Sex and area differences in the association between adiposity and lipid profile in Malawi

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Background Evidence from high-income countries shows that higher adiposity results in an adverse lipid profile, but it is unclear whether this association is similar in Sub-Saharan African (SSA) populations. This study aimed to assess the association between total and central adiposity measures and lipid profile in Malawi, exploring differences by sex and area of residence (rural/urban).

Methods In this cross-sectional study, data from 12 096 rural and 12 847 urban Malawian residents were used. The associations of body mass index (BMI) and waist to hip ratio (WHR) with fasting lipids (total cholesterol (TC), low-density lipoprotein-cholesterol (LDL-C), high-density lipoprotein-cholesterol (HDL-C) and triglycerides (TG)) were assessed by area and sex.

Results After adjusting for potential confounders, higher BMI and WHR were linearly associated with increased TC, LDL-C and TG and reduced HDL-C. BMI was more strongly related to fasting lipids than was WHR. The associations of adiposity with adverse lipid profile were stronger in rural compared with urban residents. For instance, one SD increase in BMI was associated with 0.23 mmol/L (95% CI 0.19 to 0.26) increase in TC in rural women and 0.13 mmol/L (95% CI 0.11 to 0.15) in urban women. Sex differences in the associations between adiposity and lipids were less evident.

Conclusions The consistent associations observed of higher adiposity with adverse lipid profiles in men and women living in rural and urban areas of Malawi highlight the emerging adverse cardio-metabolic epidemic in this poor population. Our findings underline the potential utility of BMI in estimating cardiovascular risk and highlight the need for greater investment to understand the long-term health outcomes of obesity and adverse lipid profiles and the extent to which lifestyle changes and treatments effectively prevent and modify adverse cardio-metabolic outcomes.

28. [Health Policy and Planning, 34, 2019 \(5\): 370–383](#)

The process of prioritization of non-communicable diseases in the global health policy arena

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Although non-communicable diseases (NCDs) are the leading cause of morbidity and mortality worldwide, the global policy response has not been commensurate with their health, economic and social burden. This study examined factors facilitating and hampering the prioritization of NCDs on the United Nations (UN) health agenda. Shiffman and Smith's (Generation of political priority for global health initiatives: a framework and case study of maternal mortality. *The Lancet* 370: 1370–9.) political priority framework served as a structure for analysis of a review of NCD policy documents identified through the World Health Organization's (WHO) NCD Global Action Plan 2013–20, and complemented by 11 semi-structured interviews with key informants from different sectors. The results show that a cohesive policy community exists, and leaders are present, however, actor power does not extend beyond the health sector and the role of guiding institutions and civil society have only recently gained momentum. The framing of NCDs as four risk factors and four diseases does not necessarily resonate with experts from the larger policy community, but the economic argument seems to have enabled some traction to be gained. While many policy windows have occurred, their impact has been limited by the institutional constraints of the WHO. Credible indicators and effective interventions exist, but their applicability globally, especially in low- and middle-income countries, is questionable. To be effective, the NCD movement needs to expand beyond global health experts, foster civil society and develop a broader and more inclusive global governance structure. Applying the Shiffman and Smith framework for NCDs enabled different elements of how NCDs were able to get on the UN policy agenda to be disentangled. Much work has been done to frame the challenges and solutions, but implementation processes and their applicability remain challenging globally. NCD

responses need to be adapted to local contexts, focus sufficiently on both prevention and management of disease, and have a stronger global governance structure.

29. [International Journal of Epidemiology, 48, 2019 \(4\): 1125–1141.](#)

Early-life exposure to ambient fine particulate air pollution and infant mortality: pooled evidence from 43 low- and middle-income countries

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Background Many low- and middle-income countries are experiencing high and increasing exposure to ambient fine particulate air pollution (PM_{2.5}). The effect of PM_{2.5} on infant and child mortality is usually modelled using concentration response curves extrapolated from studies conducted in settings with low ambient air pollution, which may not capture its full effect.

Methods We pool data on more than half a million births from 69 nationally representative Demographic and Health Surveys that were conducted in 43 low- and middle-income countries between 1998 and 2014, and we calculate early-life exposure (exposure in utero and post partum) to ambient PM_{2.5} using high-resolution calibrated satellite data matched to the child's place of residence. We estimate the association between the log of early-life PM_{2.5} exposure, both overall and separated by type, and the odds of neonatal and infant mortality, adjusting for child-level, parent-level and household-level characteristics.

Results We find little evidence that early-life exposure to overall PM_{2.5} is associated with higher odds of mortality relative to low exposure to PM_{2.5}. However, about half of PM_{2.5} is naturally occurring dust and sea-salt whereas half is from other sources, comprising mainly carbon-based compounds, which are mostly due to human activity. We find a very strong association between exposure to carbonaceous PM_{2.5} and infant mortality, particularly neonatal mortality, i.e. mortality in the first 28 days after birth. We estimate that, at the mean level of exposure in the sample to carbonaceous PM_{2.5}—10.9 µg/m³—the odds of neonatal mortality are over 50% higher than in the absence of pollution.

Conclusion Our results suggest that the current World Health Organization guideline of limiting the overall ambient PM_{2.5} level to less than 10 µg/m³ should be augmented with a lower limit for harmful carbonaceous PM_{2.5}.

30. [Lancet 2019;394\(10198\):553-4](#)

People with albinism in Africa: contending with skin cancer

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Attacks against people with albinism are lessening, but the fear of stigma and lack of awareness mean skin cancer is still a major threat to their health.

People with albinism are present worldwide. Studies show that the condition affects an estimated one in 17 000 people globally; however, in sub-Saharan Africa, the prevalence of albinism is around one in 5000.

Ikponwosa Ero, the UN independent expert on the enjoyment of human rights by persons with albinism, said that albinism often results in two congenital permanent health conditions: variable visual impairments and high susceptibility to skin cancer. According to the UN, 98% of people with albinism do not live beyond age 40 years because of sun exposure, with skin cancers responsible for

at least 80% of deaths. People with albinism have been kidnapped and targeted because of myths and superstition around the condition. In some African societies, it is believed that the body parts of people with albinism bring wealth. Although people with albinism are still being killed for their limbs, hair, and nails, civil society organisations say the attacks against people with this condition have substantially decreased in most African countries. According to Under The Same Sun (UTSS), a Canadian non-governmental organisation, attacks have decreased in Malawi, Mozambique, and Tanzania. Although these individuals are still attacked, these attacks are much less frequent and less successful because of early family, community intervention, and awareness creation by UTSS, says Don Sawatzky, the director of operations at UTSS.

UTSS believes that a key reason for this decrease in attacks and increased protection by families and communities is because of a decade of advocacy and awareness-raising campaigns, especially in the rural regions where most of the attacks were occurring. Efforts are in place to inform communities of people with albinism and their caretakers about skin cancer, particularly on how to prevent it. SNUPA officials say they have community outreach sessions in which they teach people with albinism how to prevent skin cancer. However, this advocacy is being slowed down because the Protocol to the African Charter on Human and Peoples' Rights on the Rights of Persons with Disabilities in Africa has not been ratified.

The Protocol, which was adopted at the African Union Summit in Addis Ababa, Ethiopia, on Jan 29, 2018, should lead to improvements of the lives of African people with disabilities, including those with albinism. According to Kondowe, the chairperson of the African Union for Persons with Albinism, most of the 53 African countries have signed onto the Protocol, but only three countries have ratified it.

Most organisations to help people with albinism rely on partnerships and donations to provide some of these essentials. Sunscreen is not widely available and is usually donated from abroad. For instance, last year, Advantage Africa and Ultrasun UK donated substantial quantities of high-quality sunscreen to Uganda through SNUPA, which was distributed to more than 650 people with albinism in eastern Uganda. Another international non-governmental organisation, Standing Voice, which is based in Tanzania (with headquarters in the UK), is also providing dermatology and ophthalmology services to people with albinism in Tanzania and Malawi.

Standing Voice works in partnership with Tanzania-based Kilimanjaro Sunscreen Production Unit, which manufactures and distributes the Kilimanjaro sunscreen or Kilisun, a sunscreen tailor-made for people with albinism, locally and for free. Standing Voice are lobbying all African governments to reduce taxes on sunscreen and make it an essential drug. For now, most African governments still consider this product as a cosmetic.

31. [Lancet 2019;394\(10199\):652-62](#)

The state of hypertension care in 44 low-income and middle-income countries: a cross-sectional study of nationally representative individual-level data from 1.1 million adults

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Background: Evidence from nationally representative studies in low-income and middle-income countries (LMICs) on where in the hypertension care continuum patients are lost to care is sparse. This information, however, is essential for effective targeting of interventions by health services and monitoring progress in improving hypertension care. We aimed to determine the cascade of

hypertension care in 44 LMICs—and its variation between countries and population groups—by dividing the progression in the care process, from need of care to successful treatment, into discrete stages and measuring the losses at each stage.

Methods: In this cross-sectional study, we pooled individual-level population-based data from 44 LMICs. We first searched for nationally representative datasets from the WHO Stepwise Approach to Surveillance (STEPS) from 2005 or later. If a STEPS dataset was not available for a LMIC (or we could not gain access to it), we conducted a systematic search for survey datasets; the inclusion criteria in these searches were that the survey was done in 2005 or later, was nationally representative for at least three 10-year age groups older than 15 years, included measured blood pressure data, and contained data on at least two hypertension care cascade steps. Hypertension was defined as a systolic blood pressure of at least 140 mm Hg, diastolic blood pressure of at least 90 mm Hg, or reported use of medication for hypertension. Among those with hypertension, we calculated the proportion of individuals who had ever had their blood pressure measured; had been diagnosed with hypertension; had been treated for hypertension; and had achieved control of their hypertension. We weighted countries proportionally to their population size when determining this hypertension care cascade at the global and regional level. We disaggregated the hypertension care cascade by age, sex, education, household wealth quintile, body-mass index, smoking status, country, and region. We used linear regression to predict, separately for each cascade step, a country's performance based on gross domestic product (GDP) per capita, allowing us to identify countries whose performance fell outside of the 95% prediction interval.

Findings: Our pooled dataset included 1 100 507 participants, of whom 192 441 (17·5%) had hypertension. Among those with hypertension, 73·6% of participants (95% CI 72·9-74·3) had ever had their blood pressure measured, 39·2% of participants (38·2-40·3) had been diagnosed with hypertension, 29·9% of participants (28·6-31·3) received treatment, and 10·3% of participants (9·6-11·0) achieved control of their hypertension. Countries in Latin America and the Caribbean generally achieved the best performance relative to their predicted performance based on GDP per capita, whereas countries in sub-Saharan Africa performed worst. Bangladesh, Brazil, Costa Rica, Ecuador, Kyrgyzstan, and Peru performed significantly better on all care cascade steps than predicted based on GDP per capita. Being a woman, older, more educated, wealthier, and not being a current smoker were all positively associated with attaining each of the four steps of the care cascade.

Interpretation: Our study provides important evidence for the design and targeting of health policies and service interventions for hypertension in LMICs. We show at what steps and for whom there are gaps in the hypertension care process in each of the 44 countries in our study. We also identified countries in each world region that perform better than expected from their economic development, which can direct policy makers to important policy lessons. Given the high disease burden caused by hypertension in LMICs, nationally representative hypertension care cascades, as constructed in this study, are an important measure of progress towards achieving universal health coverage.

ORAL HEALTH

32. [Lancet 2019;394\(10194\):188](#)

Editorial Oral health at a tipping point

What comes to mind when you think of dentistry? A luxury, a pain, excessive costs, the quest for straight, white teeth? Any way that dentistry is thought of, it's rarely as a mainstream part of health-care practice and policy, despite the centrality of the mouth and oral cavity to people's wellbeing and identity. The inattention to dental and oral health is concerning given the fact that oral diseases—

tooth decay, gum disease, and oral cancers—are exceedingly common, affecting an estimated 3-5 billion people across the world.

A new Lancet Series lays out why oral health has been neglected and argues that radical public health action is needed. The Series presents a considerable critique of current oral health-care systems and comes at a time when shifts within the global health agenda present an opportunity to bring much needed visibility to oral health.

A central issue in the Series is modern dentistry itself, which Series lead Richard Watt and colleagues argue has failed to combat the global challenge of oral diseases. They say a radical reform of dental care systems, which are increasingly treatment-dominated, high-technology, and focused on providing aesthetic treatments driven by profit motives and consumerism, is needed. As such, a key ask of the Series is for a public health refashioning of oral health. Dental health conditions and access to care are shown to be so starkly inequitable between the rich and the poor that a social determinants of health approach is the only way to improve outcomes.

Radical action on oral health will benefit from harnessing a clear global health mandate. Because oral diseases share the main risk factors of other non-communicable diseases (NCDs)—sugar consumption, tobacco use, and harmful alcohol use—oral health should have a stronger place on the global NCDs agenda. As a clear need exists for broader accessibility and integration of dental services into health-care systems, especially primary care, oral health must have more prominence within universal health coverage commitments. Everyone who cares about global health should advocate to end the neglect of oral health

- [Lancet 2019;394\(10194\):249-260](#)

Oral diseases: a global public health challenge

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- [Lancet 2019;394\(10194\):261-272](#)

Ending the neglect of global oral health: time for radical action

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TUBERCULOSIS

33. [Am J Trop Med Hyg. 2019 Jul;101\(1\):12-21](#)

Breast Tuberculosis in Women: A Systematic Review

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Breast tuberculosis (TB) is rarely reported and poorly described. This review aims to update the existing literature on risk factors, clinical presentations, constitutional symptoms, diagnostic procedures, and medical and surgical treatments for breast TB. In all, 1,478 cases of breast TB were collected. Previous history of TB was reported in 19% of cases. The most common clinical appearance of the lesion was breast lump (75%). The most common associated finding was axillary lymphadenitis (33%) followed by sinus or fistula (24%). The most common symptoms were pain and fever, reported

in 42% and 28% of cases, respectively. The most used diagnostic method was fine-needle aspiration cytology (32%), followed by biopsy (27%), acid-fast bacteria Ziehl-Neelsen stain (26%), culture (13%), and polymerase chain reaction (2%). These tested positive in 64%, 93%, 27%, 26%, and 58% of cases, respectively. The majority (69%) of patients received a 6-month anti-TB treatment (isoniazid, rifampicin, pyrazinamide, and ethambutol). Surgery consisted of excision in 39% of cases, drainage in 23%, and mastectomy in 5%. The great majority of patients had a positive outcome. It often mimics breast cancer, which makes it difficult to diagnose. Most patients, when diagnosed in time, respond to antitubercular therapy alone.

34. [Lancet 2019;394\(10202\):896](#)

Editorial: Tuberculosis needs accelerated and continued attention

Ahead of the annual meeting of the European Respiratory Society (Madrid, Spain, Sept 28–Oct 2), we publish together with The Lancet Respiratory Medicine a three-part Series on tuberculosis. This Series, which focuses on the management of drug-resistant tuberculosis, challenges in childhood tuberculosis, and the state of vaccine development, will be discussed in a special symposium at the conference. Tuberculosis is now the most common and deadly infectious disease. An estimated 1.6 million people die from the disease annually, including 230 000 children. The Lancet Commission on tuberculosis, published in March this year, sadly concluded that little has changed over the past decade.

About 4–6% of patients globally have multidrug-resistant tuberculosis, although in some countries, such as Kazakhstan and Ukraine, the percentage is much higher (more than 25%). Christoph Lange and colleagues review the optimal diagnostic and treatment strategies in these patients. On Aug 14, the US Food and Drug Administration approved the oral drug pretomanid, a nitroimidazole, as part of an oral, three-drug regimen (together with bedaquiline and linezolid) over 6 months. It has been hailed as a landmark decision for patients with very few choices. The decision was based on an open-label, uncontrolled, small trial of 107 patients with extensively drug-resistant disease, in which 95 (89%) patients achieved a culture-negative status at 6 months—a remarkable cure rate compared with historical results of only about 34% with multidrug regimens for 18–24 months. The drug was only the second approved under the so-called Limited Population Pathway for Antibacterial and Antifungal Drugs and was developed and licensed by the TB Alliance in partnership with Mylan under a public–private partnership model.

Although this development is a welcome new option, which hopefully will also be adopted by the European Medicines Agency and WHO, there is much to do to improve diagnosis and case finding (including drug resistance testing), especially in children younger than 14 years. Without greatly accelerated efforts, the goal of a tuberculosis-free world will remain a noble but distant dream.

- [Lancet 2019;394\(10202\):953-966](#)

Management of drug-resistant tuberculosis

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- [Lancet 2019;394\(10202\):967-978](#)

Challenges and controversies in childhood tuberculosis

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Highly successful treatment outcome of multidrug-resistant and genetic diversity of multidrug-resistant *Mycobacterium tuberculosis* strains in Rwanda

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Objective: To determine prevalent MDR-TB genotypes and describe treatment outcome and bacteriology conversion in MDR-TB patients.

Methods: Review of laboratory records of 173 MDR-TB patients from all over Rwanda who initiated treatment under programmatic management of MDR-TB (PMDT) between 2014 and 2015. Fifty available archived isolates were genotyped by mycobacterial interspersed repetitive units - variable number of tandem repeats (MIRU-VNTR) genotyping.

Result: Of the 170 patients whose outcome was known, 114 (66.3%) were cured and 36 (21%) completed the treatment, giving a successful outcome (cured and completed) of 150 (87.3%) patients. Of 20 MDR-TB patients with unfavourable treatment outcome, 18 died, one failed and one defaulted/stopped treatment. Of the 18 patients who died, 11 (61%) were HIV-coinfected. The treatment outcome was successful for 93.9% among HIV negative and 81.8% among HIV-coinfected patients ($P = 0.02$). Sputum smear conversion occurred in 3, 46, 57 and 78 patients before 2, 3, 4 and 6 months, respectively, with median time of sputum smear and culture conversion at 3 months. The 44 MDR-TB isolates with MIRU-VNTR result, showed high genetic diversity with low clustering rate (9.09%) and Uganda II being the most prevalent sub-family lineage detected in 68.2% of isolates. Beijing family was the least common genotype detected (2.3%, 1 isolate).

Conclusion: The high success rates for MDR-TB treatment achieved in Rwanda were comparable to outcomes observed in resource-rich settings with HIV being an independent risk factor for poor treatment outcome. High genetic diversity and low clustering rate reported here suggest that reactivation of previous disease plays an important role in the transmission of MDR-TB in Rwanda.