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29. PLoS Med 17(7): e1003198.
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30. BMJ Glob Health 2020 Sep;5(9):e003393.
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31. Hum Resour Health 2020;18(1):27.
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32. Am J Trop Med Hyg. 2020 Jul;103(1_Suppl):1-4.
Schistosomiasis Consortium for Operational Research and Evaluation: Mission Accomplished

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Challenges in Protocol Development and Interpretation of the Schistosomiasis Consortium for Operational Research and Evaluation Intervention Studies

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The Schistosomiasis Consortium for Operational Research and Evaluation 2008-2020: Approaches, Experiences, Lessons, and Recommendations

SCORE Operational Research on Moving toward Interruption of Schistosomiasis Transmission

Parasite Population Genetic Contributions to the Schistosomiasis Consortium for Operational Research and Evaluation within Sub-Saharan Africa

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What will it cost to prevent violence against women and girls in low- and middle-income countries? Evidence from Ghana, Kenya, Pakistan, Rwanda, South Africa and Zambia.

34. Sexual and Reproductive Health Matters, 28:2 (2020)
Sexual and reproductive health services in universal health coverage: a review of recent evidence from low- and middle-income countries

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35. Am J Trop Med Hyg. 2020 Jul;103(1):221-230.
Engaging Community Pharmacies in Early Detection of Missing Tuberculosis Patients through Public-Private Mix Intervention in Pakistan

International Health Alerts 2020-3 Abstracts

Child Health

1. Am J Trop Med Hyg. 2020 Sep;103(3):p. 1274 - 1275
Mass Drug Administration of Azithromycin to Reduce Child Mortality: Only for High-Mortality Settings?
Kirkby D. Tickell et al., Department of Epidemiology, University of Washington, Seattle, Washington.

Dramatic global reductions in child mortality over the past several decades have not been equitably realized across populations. Less than one quarter of sub-Saharan African countries achieved the child mortality targets outlined in the Millennium Development Goals. Without new approaches to improve child survival, these countries are also likely to fail to meet the 2030 Sustainable Development targets (less than 25 deaths before the age of 5 years per 1,000 live births). Biannual mass drug administration (MDA) of azithromycin has been shown to reduce child mortality in several large trials. Delivery via MDA offers the opportunity to impact the most marginalized and disadvantaged communities, as MDA programs appear to be among the most equitable intervention platforms in low-resource settings. However, in the largest of these trials (Macrolide Oraux pour Réduire Les Décès avec un Oeil sur la Résistance [MORDOR]), conducted in three African countries, the site-specific effect size was only significant in Niger, where the baseline mortality rate was highest. Although mortality reductions were observed in the other sites, the statistically nonsignificant effects and fact that the study was not powered to evaluate effect modification by site complicate their interpretation, especially when considering the balance of risk (including toxicity and emergence of antibiotic resistance) versus benefit. This has led to uncertainty surrounding whether such an intervention should be recommended in lower mortality settings.
In this issue of AJTMH, both Oron et al. and Porco et al. provide secondary analyses of available studies of azithromycin delivered by MDA to understand whether the effect size of the observed mortality benefit differs by the baseline mortality rate. Importantly, neither analysis concluded that there was a strong relationship between baseline mortality and effect size, although neither could exclude a modest interaction.

Special Supplement containing the following articles

Efficacy of Mass Azithromycin Distribution for Reducing Childhood Mortality Across Geographic Regions

Effect of Mass Treatment with Azithromycin on Causes of Death in Children in Malawi: Secondary Analysis from the MORDOR Trial

Cost-Effectiveness of Mass Treatment with Azithromycin for Reducing Child Mortality in Malawi: Secondary Analysis from the MORDOR Trial

Effects of Biannual Azithromycin Mass Drug Administration on Malaria in Malawian Children: A Cluster-Randomized Trial

2. Health Policy and Planning, Vol 35 (7): 878 - 887
Quality of clinical assessment and child mortality: a three-country cross-sectional study
Nicole A Perales, et al., University of California Berkeley School of Public Health, USA.
nperales@berkeley.edu

This analysis describes specific gaps in the quality of health care in Central Africa and assesses the association between quality of clinical care and mortality at age 2–59 months. Regionally representative facility and household surveys for the Democratic Republic of the Congo, Cameroon and Central African Republic were collected between 2012 and 2016. These data are novel in linking facilities with households in their catchment area. Compliance with diagnostic and danger sign protocols during sick-child visits was observed by trained assessors. We computed facility- and district-level compliance indicators for patients aged 2–59 months and used multivariate multi-level logistic regression models to estimate the association between clinical assessment quality and mortality at age 2–59 months in the catchment areas of the observed facilities. A total of 13 618 live births were analysed and 1818 sick-child visits were directly observed and used to rate 643 facilities. Eight percent of observed visits complied with 80% of basic diagnostic protocols, and 13% of visits fully adhered to select general danger sign protocols. A 10% greater compliance with diagnostic protocols was associated with a 14.1% (adjusted odds ratio (aOR) 95% CI: 0.025–0.244) reduction in the odds of mortality at age 2–59 months; a 10% greater compliance with select general danger sign protocols was associated with a 15.3% (aOR 95% CI: 0.058–0.237) reduction in the same odds. The results of this article suggest that compliance with recommended clinical protocols remains poor in many settings and improvements in mortality at age 2–59 months could be possible if compliance were improved.

COVID-19

3. Am J Trop Med Hyg. 2020 Aug;103(2):564-569.
Why is There Low Morbidity and Mortality of COVID-19 in Africa?
Njenga MK et al., Washington State University Global Health Program - Kenya, Nairobi, Kenya.

Three months since the detection of the first COVID-19 case in Africa, almost all countries of the continent continued to report lower morbidity and mortality than the global trend, including Europe and North America. We reviewed the merits of various hypotheses advanced to explain this phenomenon, including low seeding rate, effective mitigation measures, population that is more youthful, favorable weather, and possible prior exposure to a cross-reactive virus. Having a youthful population and favorable weather appears compelling, particularly their combined effect; however, progression of the pandemic in the region and globally may dispel these in the coming months.

4. Am J Trop Med Hyg. 2020 Aug;103(2):587-589.
Erroneous Communication Messages on COVID-19 in Africa
Seytre B et al., bnscommunication, Paris, France.

Adherence of the population to COVID-19 prevention recommendations is crucial to control the epidemic. However, a study of communication messages around COVID-19 in 15 West African countries showed a number of unfounded messages, as well as a lack of communication on critical information to understand the prevention measures being promoted. Incidents of violence that have taken place recently suggest that general mistrust and hostility could grow, similar to the events that occurred during the previous Ebola epidemics. It is therefore urgent to review and revise the COVID-19 communication messages currently used in sub-Saharan Africa.

5. Am J Trop Med Hyg. 2020 Sep 15.
COVID-19 Response in Latin America
Garcia PJ et al., Alianza Latinoamericana de Salud Global (ALASAG), Latin American Alliance for Global Health.

Effective management of a pandemic due to a respiratory virus requires public health capacity for a coordinated response for mandatory restrictions, large-scale testing to identify infected individuals, capacity to isolate infected cases and track and test contacts, and health services for those infected who require hospitalization. Because of contextual and socioeconomic factors, it has been hard for Latin America to confront this epidemic. In this article, we discuss the context and the initial responses of eight selected Latin American countries, including similarities and differences in public health, economic, and fiscal measures, and provide reflections on what worked and what did not work and what to expect moving forward.

6. BMJ 2020;370:m2615 News The Big Picture
Covid care creates oxygen drought
Raul Sifuentes/Getty Images

The long tail of damage left behind by the covid-19 pandemic continues to grow, with a worldwide shortage of oxygen. Massive amounts of the pure gas are used to treat hypoxia in patients with severe covid-19. But millions of people with other medical conditions also rely on oxygen, and their lives are at risk as supplies run out and what is available has soared in price.
Peru has been particularly badly hit, and long queues have formed around oxygen plants in Lima (pictured).The situation has become so extreme that authorities are arresting anyone who tries to jump the queue or to pay someone to keep their place.
In response to this new emergency, the World Health Organization has said it is working with partners to increase access to medical oxygen in developing countries. Its director general, Tedros Adhanom Ghebreyesus, said that at the current incidence of about a million new covid-19 cases a week, the world would need about 88 000 large cylinders of oxygen every day.

7. BMJ 2020;370:m2722 Editorials
Vaccines, convalescent plasma, and monoclonal antibodies for covid-19
Herb F Sewell, et al., Herb.Sewell@nottingham.ac.uk

We have good reason to be cautious about these high profile options
The devastating pandemic caused by the SARS-CoV-2 coronavirus appears to be a prime candidate for traditional prevention (vaccines) and passive immunity approaches. Passive immunity, using convalescent plasma from recovered patients or monoclonal antibodies with high levels of neutralising antiviral activity, have potential for both therapy and prevention. Worldwide, many covid-19 vaccines are at various phases of development.1 Trials are also investigating convalescent plasma as a containment option or supportive therapy for patients with covid-19. Understandably, there is great public expectation that these efforts will be successful, but caution is necessary with respect to both vaccines and passive immunity.
Vaccines
Many candidate vaccines target the virus spike protein, a molecule essential for the virus to bind to the angiotensin converting enzyme 2 receptor complexes in the cell membrane as a first step for infection. Studies of SARS-CoV-2 genomic sequences indicate that regions encoding the receptor binding

domain of the spike protein are highly conserved, providing hope for a successful vaccine directed at a stable target. However, substantial mutations (albeit rare) in the spike protein close to the receptor binding domain are described along with other drift variants. The effect of these mutations on protein expression and the antigenicity required to provoke an antibody response (or to interact with passive antibody) is unclear.
There are further reasons for caution over covid-19 vaccines. Over a decade, attempts to develop vaccines against SARS and MERS, caused by related coronaviruses, have been unsuccessful. Attempts to produce vaccines against other RNA viruses, such as dengue, resulted in candidates that were not protective, and some exacerbated disease through antibody dependent enhancement. Although there is no evidence that the SARS-CoV-2 vaccine candidates produce antibody dependent enhancement, it remains a possibility.
Furthermore, covid-19 disproportionately affects older age groups, where immune senescence leads to poorer quality immune responses. Vaccines may be less effective in those with greatest need. Additionally, infections with other coronaviruses and challenges with experimental vaccines have resulted in short term (1-2 years) protective immunity. Vaccine effectiveness and duration may therefore require repeated vaccinations and the use of adjuvants to improve responses.

8. BMJ 2020;370:m2743 Research

Physical distancing interventions and incidence of coronavirus disease 2019: natural experiment in 149 countries

Nazrul Islam et al., nazrul.islam@ndph.ox.ac.uk

Objective To evaluate the association between physical distancing interventions and incidence of coronavirus disease 2019 (covid-19) globally.
Design Natural experiment using interrupted time series analysis, with results synthesised using meta-analysis.
Setting 149 countries or regions, with data on daily reported cases of covid-19 from the European Centre for Disease Prevention and Control and data on the physical distancing policies from the Oxford covid-19 Government Response Tracker.
Participants Individual countries or regions that implemented one of the five physical distancing interventions (closures of schools, workplaces, and public transport, restrictions on mass gatherings and public events, and restrictions on movement (lockdowns)) between 1 January and 30 May 2020.
Main outcome measure Incidence rate ratios (IRRs) of covid-19 before and after implementation of physical distancing interventions, estimated using data to 30 May 2020 or 30 days post-intervention, whichever occurred first. IRRs were synthesised across countries using random effects meta-analysis.
Results On average, implementation of any physical distancing intervention was associated with an overall reduction in covid-19 incidence of 13% (IRR 0.87, 95% confidence interval 0.85 to 0.89; n=149 countries). Closure of public transport was not associated with any additional reduction in covid-19 incidence when the other four physical distancing interventions were in place (pooled IRR with and without public transport closure was 0.85, 0.82 to 0.88; n=72, and 0.87, 0.84 to 0.91; n=32, respectively). Data from 11 countries also suggested similar overall effectiveness (pooled IRR 0.85, 0.81 to 0.89) when school closures, workplace closures, and restrictions on mass gatherings were in place. In terms of sequence of interventions, earlier implementation of lockdown was associated with a larger reduction in covid-19 incidence (pooled IRR 0.86, 0.84 to 0.89; n=105) compared with a delayed implementation of lockdown after other physical distancing interventions were in place (pooled IRR 0.90, 0.87 to 0.94; n=41).
Conclusions Physical distancing interventions were associated with reductions in the incidence of covid-19 globally. No evidence was found of an additional effect of public transport closure when the other four physical distancing measures were in place. Earlier implementation of lockdown was associated with a larger reduction in the incidence of covid-19. These findings might support policy decisions as countries prepare to impose or lift physical distancing measures in current or future epidemic waves.

9. Lancet 2020;396(10247):301-2
World Report
COVID-19 has “devastating” effect on women and girls
Cousins S

As the COVID-19 pandemic accelerates, fears are increasing about the effect of the pandemic on women's and girls' sexual and reproductive health and their access to care. In response to COVID-19, in March, WHO issued interim guidance for maintaining essential services during an outbreak, which

Health Policy

10. BMJ Glob Health 2020 Aug;5(8):e003310.
Global health degrees: at what cost?
Anita Svadzian et al., Epidemiology & Biostats, McGill University, Montreal, Quebec, Canada
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In theory, global health, as a field, takes pride in principles such as equity, fairness, reciprocity and bidirectional partnerships. In practice, many aspects of global health are dominated by individuals and institutions in high-income countries (HICs) who seem to benefit more than their counterparts in low-income and middle-income countries (LMICs). Global health organisations are mostly head-quartered in HICs, and run by people, primarily men, from HICs. Further, authorship of global health publications is dominated by people in HICs, as well as editorial boards of global health journals. What about global health education? In the past two decades, global health has become very popular among students in HICs. In response to higher demand and availability of increased funding, many HIC universities invested heavily in global health programmes. Although dozens of degree programmes in global health emerged as a consequence, it remains unclear who the target audience really is, and what it might cost to earn one of these degrees. Are these degree programmes aimed at LMICs, where training gaps are enormous, or are they primarily for the benefit of HIC trainees and institutions?
To answer this question, we identified academic programmes that offer either a Master’s of Global Health or a Master’s of International Health degree. We used the Academic Global Health Programmes database maintained by the Consortium of Universities for Global Health (CUGH), supplemented by online searches for universities not included in the CUGH list. We focused on Master’s of Global or International Health programmes (on campus or online), rather than related degrees such as Master’s of Public Health (MPH) which might offer global health concentrations, options or tracks.
Most programmes in our analysis (95%) were based in HICs, with an average tuition of US$37 732. The mean tuition fee for online-option degrees (degrees which can be completed either in part or in full away from the traditional campus setting) was US$19 353 vs US$40 244 for on-campus programmes. On average, tuition for programmes in privately funded schools were considerably higher than for public schools, US$69 446 and US$19 379, respectively.

In conclusion, even if HIC universities made their degrees more accessible, we should still ask why an African trainee must go to London or Boston to learn about control of sleeping sickness or malaria (and pay top dollars for such training)? The traditional mindset in global health that expertise flows from North to South, is reflected in research, training, consultancy and technical assistance. This colonial model is ripe for disruption. Building top-notch institutions in LMICs is critical, to reduce dependence on HICs, and to improve the overall quality, depth and relevance of global health training and research. Someday, we hope HIC trainees will earn global health degrees from such LMIC universities, and learn directly from experts who are closest to the problems and closest to the solution.

11. BMJ Glob Health 2020 Aug;5(8):e003394.
Decolonising global health: if not now, when?
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The current global health ecosystem is ill equipped to address structural violence as a determinant of health.
Histories of slavery, redlining, environmental racism and the predatory nature of capitalism underpin the design of global and public health systems, resulting in structural, racial and ethnic inequities within Black, Indigenous and People of Color (BIPOC) communities globally.
While the manifestation of inequity in individual countries or regions is bound up in the local-to-global interface of historical, economical, social and political forces, COVID-19 disproportionately affects BIPOC and other marginalised communities.
Aside from direct health impacts on marginalised communities, exclusionary colonialist patterns that centre Euro-Western knowledge systems have also shaped the language and response to the pandemic—which, in turn, can have adverse health outcomes.
Decolonising global health advances an agenda of repoliticising and rehistoricising health through a paradigm shift, a leadership shift and a knowledge shift.
While the global response to COVID-19 has so far reinforced injustices, the coming months present a window of opportunity to transform global health.
Introduction
The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) outbreak has grinded the world economy to a halt and upended health systems across the globe, contributing to disruptions in routine health services and skyrocketing rates of death. Against this backdrop, the pandemic highlights with renewed clarity the way structural violence operates both within and between countries. Defined as the discriminatory social arrangement that, when encoded into laws, policies and norms, unduly privileges some social groups while harming others, this concept broadens our thinking about drivers of disease. While the manifestation of inequity in each country or region is bound up in the local-to-global interface of historical, economical, social and political forces, COVID-19 disproportionately affects the world's marginalised, from Black, Indigenous and People of Color (BIPOC) communities in North America to migrant workers in Singapore. Health outcomes related to SARS-CoV-2 infection such as access to emergency services and prolonged intensive care, capacity to prevent infection through non-medical countermeasures like handwashing and social distancing, and economic security while in lockdown are all mediated by the confluence of global, regional and local systems of oppression. This reality shows that the current global health ecosystem is ill equipped to address structural violence as a determinant of health, and the system itself upholds the supremacy of the white saviour. As early career global health practitioners, we see this pandemic as an opportunity to critically appraise what is not working and to offer an alternative vision for the future of global health. Global health needs integrated, decolonised approaches—advanced by individuals and institutions—that address the complex interdependence between histories of imperialism with health, economic development, governance and human rights. The global movement to Decolonize Global Health, led by students and other professionals, is one step towards this vision. In this commentary, we draw on examples that show how the most vulnerable and marginalised in society are ignored and exploited by design and in context-specific ways in the pandemic response. Through these examples, we call for a threefold shift in global health research, policy and practice.

12. BMJ Glob Health 2020 Sep;5(9):e002763
Allocating resources to support universal health coverage: development of a geographical funding formula in Malawi
Finn McGuire et al., Centre for Health Economics, University of York, York, UK

Background Universal health coverage (UHC) requires that local health sector institutions—such as local authorities—are properly funded to fulfil their service delivery commitments. In this study, we examine how formula funding can align sub-national resource allocations with national priorities. This

is illustrated by outlining alternative options for using mathematical formula to guide the allocation of national drug and service delivery budgets to district councils in Malawi in 2018/2019.
Methods We use demographic, epidemiological and health sector budget data with information on implementation constraints to construct three variant allocation formulae. The first gives an equal per capita allocation to each district, and is included as a baseline to compare alternatives. The second allocates funds to districts using estimates of the resources required to provide Malawi's essential health package of priority cost-effective interventions to the full population in need of each intervention. The third adjusts these estimates to reflect a practicable level of attainable coverage for each intervention, based on the current configurations of health services and demand for interventions.
Findings Compared with current district allocations, not underpinned by an explicit formula, the formulae presented in this study suggest sizeable shifts in the allocations received by many districts. In some cases, the magnitude of these shifts exceed 50% reductions or doubling of district budgets. The large shifts illustrate inequities in the current system of budget allocation and the potential improvements possible.
Conclusion The use of mathematical formulae can guide the efficient and equitable allocation of healthcare funds to local health authorities. The formulae developed were facilitated by the existence of an explicit package of priority interventions. The approach can be replicated in wide range of countries seeking to achieve UHC.

13. BMJ Glob Health 2020 Sep;5(9):e002859
Global strategies and local implementation of health and health-related SDGs: lessons from consultation in countries across five regions
Sameen Siddiqi et al., Department of Community Health Sciences, Aga Khan University, Karachi, Pakistan

Evidence on early achievements, challenges and opportunities would help low-income and middle-income countries (LMICs) accelerate implementation of health and health-related sustainable development goals (HHSDGs). A series of country-specific and multicountry consultative meetings were conducted during 2018–2019 that involved 15 countries across five regions to determine the status of implementation of HHSDGs. Almost 120 representatives from health and non-health sectors participated. The assessment relied on a multidomain analytical framework drawing on existing public health policy frameworks. During the first 5 years of the sustainable development goals (SDGs) era, participating LMICs from South and Central Asia, East Africa and Latin America demonstrated growing political commitment to HHSDGs, with augmentation of multisectoral institutional arrangements, strengthening of monitoring systems and engagement of development partners. On the other hand, there has been limited involvement of civic society representatives and academia, relatively few capacity development initiatives were in place, a well-crafted communication strategy was missing, and there is limited evidence of additional domestic financing for implementing HHSDGs. While the momentum towards universal health coverage is notable, explicit linkages with non-health SDGs and integrated multisectoral implementation strategies are lacking. The study offers messages to LMICs that would allow for a full decade of accelerated implementation of HHSDGs, and points to the need for more implementation research in each domain and for testing interventions that are likely to work before scale-up.

14. Health Policy and Planning, Vol 35 (7): 765 – 774.
The development of a new accountability measurement framework and tool for global health initiatives
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The Global Strategy for Women's Children's and Adolescents' Health emphasizes accountability as essential to ensure that decision-makers have the information required to meet the health needs of their populations and stresses the importance of tracking resources, results, and rights to see 'what works, what needs improvement and what requires increased attention'. However, results from accountability initiatives are mixed and there is a lack of broadly applicable, validated tools for planning, monitoring

and evaluating accountability interventions. This article documents an effort to transform accountability markers—including political will, leadership and the monitor–review–act cycle—into a measurement tool that can be used prospectively or retrospectively to plan, monitor and evaluate accountability initiatives. It describes the development process behind the tool including the literature review, framework development and subsequent building of the measurement tool itself. It also examines feedback on the tool from a panel of global experts and the results of a pilot test conducted in Bauchi and Gombe states in Nigeria. The results demonstrate that the tool is an effective aid for accountability initiatives to reflect on their own progress and provides a useful structure for future planning, monitoring and evaluation. The tool can be applied and adapted to other accountability mechanisms working in global health.

15. Lancet. 2020 Aug 27:S0140-6736(20)30750-9.
Measuring universal health coverage based on an index of effective coverage of health services in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019
GBD 2019 Universal Health Coverage Collaborators.

Background: Achieving universal health coverage (UHC) involves all people receiving the health services they need, of high quality, without experiencing financial hardship. Making progress towards UHC is a policy priority for both countries and global institutions, as highlighted by the agenda of the UN Sustainable Development Goals (SDGs) and WHO's Thirteenth General Programme of Work (GPW13). Measuring effective coverage at the health-system level is important for understanding whether health services are aligned with countries' health profiles and are of sufficient quality to produce health gains for populations of all ages. Methods: Based on the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) 2019, we assessed UHC effective coverage for 204 countries and territories from 1990 to 2019. Drawing from a measurement framework developed through WHO's GPW13 consultation, we mapped 23 effective coverage indicators to a matrix representing health service types (eg, promotion, prevention, and treatment) and five population-age groups spanning from reproductive and newborn to older adults (≥65 years). Effective coverage indicators were based on intervention coverage or outcome-based measures such as mortality-to-incidence ratios to approximate access to quality care; outcome-based measures were transformed to values on a scale of 0-100 based on the 2·5th and 97·5th percentile of location-year values. We constructed the UHC effective coverage index by weighting each effective coverage indicator relative to its associated potential health gains, as measured by disability-adjusted life-years for each location-year and population-age group. For three tests of validity (content, known-groups, and convergent), UHC effective coverage index performance was generally better than that of other UHC service coverage indices from WHO (ie, the current metric for SDG indicator 3.8.1 on UHC service coverage), the World Bank, and GBD 2017. We quantified frontiers of UHC effective coverage performance on the basis of pooled health spending per capita, representing UHC effective coverage index levels achieved in 2019 relative to country-level government health spending, prepaid private expenditures, and development assistance for health. To assess current trajectories towards the GPW13 UHC billion target-1 billion more people benefiting from UHC by 2023-we estimated additional population equivalents with UHC effective coverage from 2018 to 2023. FINDINGS: Globally, performance on the UHC effective coverage index improved from 45·8 (95% uncertainty interval 44·2-47·5) in 1990 to 60·3 (58·7-61·9) in 2019, yet country-level UHC effective coverage in 2019 still spanned from 95 or higher in Japan and Iceland to lower than 25 in Somalia and the Central African Republic. Since 2010, sub-Saharan Africa showed accelerated gains on the UHC effective coverage index (at an average increase of 2·6% [1·9-3·3] per year up to 2019); by contrast, most other GBD super-regions had slowed rates of progress in 2010-2019 relative to 1990-2010. Many countries showed lagging performance on effective coverage indicators for non-communicable diseases relative to those for communicable diseases and maternal and child health, despite non-communicable diseases accounting for a greater proportion of potential health gains in 2019, suggesting that many health systems are not keeping pace with the rising non-communicable disease burden and associated population health needs. In 2019, the UHC effective coverage index was associated with pooled health spending per capita (r=0·79), although countries across the development spectrum had much lower UHC effective

coverage than is potentially achievable relative to their health spending. Under maximum efficiency of translating health spending into UHC effective coverage performance, countries would need to reach $1398 pooled health spending per capita (US$ adjusted for purchasing power parity) in order to achieve 80 on the UHC effective coverage index. From 2018 to 2023, an estimated 388·9 million (358·6-421·3) more population equivalents would have UHC effective coverage, falling well short of the GPW13 target of 1 billion more people benefiting from UHC during this time. Current projections point to an estimated 3·1 billion (3·0-3·2) population equivalents still lacking UHC effective coverage in 2023, with nearly a third (968·1 million [903·5-1040·3]) residing in south Asia. Interpretation: The present study demonstrates the utility of measuring effective coverage and its role in supporting improved health outcomes for all people-the ultimate goal of UHC and its achievement. Global ambitions to accelerate progress on UHC service coverage are increasingly unlikely unless concerted action on non-communicable diseases occurs and countries can better translate health spending into improved performance. Focusing on effective coverage and accounting for the world's evolving health needs lays the groundwork for better understanding how close-or how far-all populations are in benefiting from UHC.

Malaria

16. Am J Trop Med Hyg. 2020 Jul;103(1):41-47.
Is Malaria an Important Cause of Death among Adults?
Gelband H, Centre for Global Health Research, Dalla Lana School of Public Health, St. Michael's Hospital, University of Toronto, Toronto, Canada

A long-held assumption has been that nearly all malaria deaths in high-transmission areas are of children younger than 5 years and pregnant women. Most global malaria mortality estimates incorporate this assumption in their calculations. In 2010, the Indian Million Death Study, which assigns cause of death by verbal autopsy (VA), challenged the reigning perception, producing a U-shaped mortality age curve, with rates rising after age 45 years in areas of India with substantial malaria transmission. Similar patterns are seen in Africa in the International Network for the Demographic Evaluation of Populations and Their Health (INDEPTH) network, also relying on VA. Whether these results are accurate or are misidentified deaths can be resolved by improving the evidence for assigning causes for adult acute infectious deaths in high malaria transmission areas. The options for doing so include improving the accuracy of VA and adding postmortem biological evidence, steps we believe should be initiated without delay.

17. Am J Trop Med Hyg. 2020 Jul;103(1):359-368.
The WorldWide Antimalarial Resistance Network Clinical Trials Publication Library: A Live, Open-Access Database of Plasmodium Treatment Efficacy Trials
Takata J et al., Infectious Diseases Data Observatory (IDDO), Oxford, United Kingdom.

Parasite resistance to antimalarial drugs poses a serious threat to malaria control. The WorldWide Antimalarial Resistance Network (WWARN) aims to provide a collaborative platform to support the global malaria research effort. Here, we describe the "WWARN clinical trials publication library," an open-access, up-to-date resource to streamline the synthesis of antimalarial safety and efficacy data. A series of iteratively refined database searches were conducted to identify prospective clinical trials assessing antimalarial drug efficacy with at least 28 days of follow-up. Of approximately 45,000 articles screened, 1,221 trials published between 1946 and 2018 were identified, representing 2,339 treatment arms and 323,819 patients. In trials from endemic locations, 75.7% (787/1,040) recruited patients with Plasmodium falciparum, 17.0% (177/1,040) Plasmodium vivax, 6.9% (72/1,040) both, and 0.4% (4/1,040) other Plasmodium species; 57.2% (585/1,022) of trials included under-fives and 5.3% (55/1,036) included pregnant women. In Africa, there has been a marked increase in both P. falciparum and P. vivax studies over the last two decades. The WHO-recommended artemisinin-based combination therapies alone or with a gametocidal drug were assessed in 39.5% (705/1,783) of P. falciparum treatment arms and 10.5% (45/429) of P. vivax arms, increasing to 78.0% (266/341) and

22.9% (27/118), respectively, in the last five years. The library is a comprehensive, open-access tool that can be used by the malaria community to explore the collective knowledge on antimalarial efficacy (available at https://www.wwarn.org/tools-resources/literature-reviews/wwarn-clinical-trials-publication-library). It is the first of its kind in the field of global infectious diseases, and lessons learnt in its creation can be adapted to other infectious diseases.

18. Am J Trop Med Hyg. 2020 Jul 20.
Malaria Transmission, Infection, and Disease following Sustained Indoor Residual Spraying of Insecticide in Tororo, Uganda
Nankabirwa JI et al., Infectious Diseases Research Collaboration, Kampala, Uganda.

Tororo, a district in Uganda with historically high malaria transmission intensity, has recently scaled up control interventions, including universal long-lasting insecticidal net distribution in 2013 and 2017, and sustained indoor residual spraying (IRS) of insecticide since December 2014. We describe the burden of malaria in Tororo 5 years following the initiation of IRS. We followed a cohort of 531 participants from 80 randomly selected households in Nagongera subcounty, Tororo district, from October 2017 to October 2019. Mosquitoes were collected every 2 weeks using CDC light traps in all rooms where participants slept, symptomatic malaria was identified by passive surveillance, and microscopic and submicroscopic parasitemia were measured every 4 weeks using active surveillance. Over the 2 years of follow-up, 15,780 female anopheline mosquitos were collected, the majority (98.0%) of which were Anopheles arabiensis. The daily human biting rate was 2.07, and the annual entomological inoculation rate was 0.43 infective bites/person/year. Only 38 episodes of malaria were diagnosed (incidence 0.04 episodes/person/year), and there were no cases of severe malaria or malarial deaths. The prevalence of microscopic parasitemia was 1.9%, and the combined prevalence of microscopic and submicroscopic parasitemia was 10.4%, each highest in children aged 5-15 years (3.3% and 14.0%, respectively). After 5 years of intensive vector control measures in Tororo, the burden of malaria was reduced to very low transmission levels. However, a significant proportion of the population remained parasitemic, primarily school-aged children with submicroscopic parasitemia, providing a potential reservoir for malaria transmission.

19. Am J Trop Med Hyg. 2020 Aug 17.
Travel Is a Key Risk Factor for Malaria Transmission in Pre-Elimination Settings in Sub-Saharan Africa: A Review of the Literature and Meta-Analysis
Ahmed S et al., Institute of Public Health, University of Cambridge, Cambridge, United Kingdom.

By sustaining transmission or causing malaria outbreaks, imported malaria undermines malaria elimination efforts. Few studies have examined the impact of travel on malaria epidemiology. We conducted a literature review and meta-analysis of studies investigating travel as a risk factor for malaria infection in sub-Saharan Africa using PubMed. We identified 22 studies and calculated a random-effects meta-analysis pooled odds ratio (OR) of 3.77 (95% CI: 2.49-5.70), indicating that travel is a significant risk factor for malaria infection. Odds ratios were particularly high in urban locations when travel was to rural areas, to more endemic/high transmission areas, and in young children. Although there was substantial heterogeneity in the magnitude of association across the studies, the pooled estimate and directional consistency support travel as an important risk factor for malaria infection.

20. Am J Trop Med Hyg. 2020 Aug;103(2):558-560.
Emergence of Undetectable Malaria Parasites: A Threat under the Radar amid the COVID-19 Pandemic?
Beshir KB et al., Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, United Kingdom.

Rapid diagnostic tests (RDTs) play a critical role in malaria diagnosis and control. The emergence of Plasmodium falciparum parasites that can evade detection by RDTs threatens control and elimination efforts. These parasites lack or have altered genes encoding histidine-rich proteins (HRPs) 2 and 3,

the antigens recognized by HRP2-based RDTs. Surveillance of such parasites is dependent on identifying false-negative RDT results among suspected malaria cases, a task made more challenging during the current pandemic because of the overlap of symptoms between malaria and COVID-19, particularly in areas of low malaria transmission. Here, we share our perspective on the emergence of P. falciparum parasites lacking HRP2 and HRP3, and the surveillance needed to identify them amid the COVID-19 pandemic.

21. Am J Trop Med Hyg. 2020 Aug;103(2_Suppl):1-2.
The Role of Mass Drug Administration of Antimalarials
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Global progress in malaria control has stalled in the last few years.5 We are probably seeing the limits of what can be achieved with the imperfect tools and limited financial resources available. There is thus a need to challenge the status quo if malaria's contribution to the unacceptably high levels of under-five mortality is to be tackled. Doing the same thing over and over again will not allow us to get back on track to meet the internationally agreed targets of the Global Technical Strategy for Malaria 2016–2030.
In response, the WHO and partners have called for the implementation of a High Burden to High Impact approach. Central to this approach is the use of local data to move away from a one-size-fits-all approach and rather to identify the optimal mix of interventions for particular subnational settings to maximize the impact of available resources.
The use of malaria medicines for the prevention of infection—either in high-risk groups or for entire populations—remains one of the few options available and one whose full potential has yet to be realized. We thus welcome the generation of new data, as exemplified by the articles in this AJTMH supplement, as well as the review of old data, that will help the WHO strengthen evidence-based policy recommendations and lead to greater impact in endemic countries.

Special Supplement containing the following articles

Assessment of the Acceptability of Testing and Treatment during a Mass Drug Administration Trial for Malaria in Zambia Using Mixed Methods

Pyrethroid and Carbamate Resistance in Anopheles funestus Giles along Lake Kariba in Southern Zambia

A Longitudinal Cohort to Monitor Malaria Infection Incidence during Mass Drug Administration in Southern Province, Zambia

Impact of Four Rounds of Mass Drug Administration with Dihydroartemisinin-Piperaquine Implemented in Southern Province, Zambia

Cost-Effectiveness of Focal Mass Drug Administration and Mass Drug Administration with Dihydroartemisinin-Piperaquine for Malaria Prevention in Southern Province, Zambia: Results of a Community-Randomized Controlled Trial

Recent Travel History and Plasmodium falciparum Malaria Infection in a Region of Heterogenous Transmission in Southern Province, Zambia

Treatment Coverage Estimation for Mass Drug Administration for Malaria with Dihydroartemisinin-Piperaquine in Southern Province, Zambia

Prevalence of Plasmodium falciparum and Non-falciparum Infections by Photo-Induced Electron Transfer-PCR in a Longitudinal Cohort of Individuals Enrolled in a Mass Drug Administration Trial in Southern Province, Zambia

Evidence for Reduced Malaria Parasite Population after Application of Population-Level Antimalarial Drug Strategies in Southern Province, Zambia

Adherence to Mass Drug Administration with Dihydroartemisinin-Piperaquine and Plasmodium falciparum Clearance in Southern Province, Zambia

Moving from Malaria Burden Reduction toward Elimination: An Evaluation of Mass Drug Administration in Southern Province, Zambia

22. Am J Trop Med Hyg. 2020 Sep;103(3):1094-1099.
Estimating the Proportion of Plasmodium vivax Recurrences Caused by Relapse: A Systematic Review and Meta-Analysis
Commons RJ et al., Global Health Division, Menzies School of Health Research and Charles Darwin University, Darwin, Australia.

Plasmodium vivax and Plasmodium ovale form dormant liver hypnozoites that can reactivate weeks to months following initial infection. Malaria recurrences caused by relapses are an important cause of morbidity and source of transmission. To estimate the proportions of P. vivax malaria recurrences caused by relapses in different geographical locations, we systematically reviewed clinical efficacy studies of uncomplicated P. vivax malaria, in which patients were randomized to treatment with or without radical cure primaquine regimens and were followed up for 1 year. The minimum proportion of recurrences caused by relapses was estimated for each study site by assuming primaquine prevented all relapses and did not augment blood-stage efficacy. Of the 261 studies identified, six were eligible enrolling 4,092 patients from 14 treatment arm comparisons across seven countries. Of the 2,735 patients treated with primaquine, 24.3% received low dose (2.5 to < 5.0 mg/kg total) and 75.7% received high-dose primaquine (≥ 5.0 mg/kg total). The overall pooled incidence rate ratio of P. vivax relapses for patients treated with primaquine versus no primaquine was 0.15 (95% CI: 0.10-0.21; I 2 = 83.3%), equating to a minimum of 79% of recurrences attributable to relapse. Country-specific incidence rate ratios ranged from 0.05 (95% CI: 0.01-0.34; one estimate) in Pakistan to 0.34 in Nepal (95% CI: 0.12-0.83; one estimate) and Afghanistan (95% CI: 0.22-0.51; three estimates). Relapses account for a very high proportion of recurrent infections following schizontocidal treatment of acute P. vivax malaria across diverse geographic locations. This emphasizes the importance of implementing hypnozoitocidal treatment.

Mental Health

23. Health Policy and Planning, Vol 35 (6): 657 - 664
Strengthening mental health services in Sierra Leone: perspectives from within the health system
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Though mental and substance use disorders are a leading cause of disability worldwide, mental health systems are vastly under-resourced in most low- and middle-income countries and the majority of people with serious mental health needs receives no formal treatment. Despite international calls for the integration of mental health into routine care, availability of outpatient mental health services and integration of mental health into the broader healthcare system remain weak in many countries. Efforts to strengthen mental healthcare systems must be informed by the local context, with attention to key health system components. The current study is a qualitative analysis of stakeholder perspectives on mental health system strengthening in one low-income country, Sierra Leone. It utilizes locally grounded knowledge from frontline healthcare providers to identify constraints and opportunities for strengthening mental health care within each component of the health system. In-depth semi-structured interviews were conducted with 43 participants including doctors, nurses, community health workers, mental health advocates, mental health specialists, and traditional healers recruited from the Bo, Moyamba and Western Area Urban Districts. Interview transcripts were content-coded in NVivo using both a priori and emergent codes and aggregated into broader themes, utilizing the World Health

Organization Health Systems Framework. Participants described an extremely limited system of mental health care, with constraints and obstacles within each health system component. Participants identified potential strategies to help overcome these constraints. Findings reinforce the importance of factors outside of the healthcare system that shape the implementation of mental health initiatives, including pervasive stigma towards mental illness, local conceptualizations of mental illness and an emphasis on traditional treatment approaches. Implications for mental health initiatives in Sierra Leone and other low-income countries include a need for investment in primary care clinics to support integrated mental health services and the importance of engaging communities to promote the utilization of mental health services.

24. Lancet 2020; 396(10251):612-22

Effect of collaborative care between traditional and faith healers and primary health-care workers on psychosis outcomes in Nigeria and Ghana (COSIMPO): a cluster randomised controlled trial

Gureje O et al., WHO Collaborating Centre for Research and Training in Mental Health, Neuroscience, and Substance Abuse, Department of Psychiatry, University of Ibadan, Ibadan

Traditional and faith healers (TFH) provide care to a large number of people with psychosis in many sub-Saharan African countries but they practise outside the formal mental health system. We aimed to assess the effectiveness and cost-effectiveness of a collaborative shared care model for psychosis delivered by TFH and primary health-care providers (PHCW).

Methods. In this cluster-randomised trial in Kumasi, Ghana and Ibadan, Nigeria, we randomly allocated clusters (a primary care clinic and neighbouring TFH facilities) 1:1, stratified by size and country, to an intervention group or enhanced care as usual. The intervention included a manualised collaborative shared care delivered by trained TFH and PHCW. Eligible participants were adults (aged ≥18 years) newly admitted to TFH facilities with active psychotic symptoms (positive and negative syndrome scale [PANSS] score ≥60). The primary outcome, by masked assessments at 6 months, was the difference in psychotic symptom improvement as measured with the PANSS in patients in follow-up at 3 and 6 months. Patients exposure to harmful treatment practices, such as shackling, were also assessed at 3 and 6 months. Care costs were assessed at baseline, 3-month and 6-month follow-up, and for the entire 6 months of follow-up. This trial was registered with the National Institutes of Health Clinical Trial registry, NCT02895269.

Findings. Between Sept 1, 2016, and May 3, 2017, 51 clusters were randomly allocated (26 intervention, 25 control) with 307 patients enrolled (166 [54%] in the intervention group and 141 [46%] in the control group). 190 (62%) of participants were men. Baseline mean PANSS score was 107·3 (SD 17·5) for the intervention group and 108·9 (18·3) for the control group. 286 (93%) completed the 6-month follow-up at which the mean total PANSS score for intervention group was 53·4 (19·9) compared with 67·6 (23·3) for the control group (adjusted mean difference −15·01 (95% CI −21·17 to −8·84; 0·0001). Harmful practices decreased from 94 (57%) of 166 patients at baseline to 13 (9%) of 152 at 6 months in the intervention group (–0·48 [–0·60 to −0·37] p<0·001) and from 59 (42%) of 141 patients to 13 (10%) of 134 in the control group (–0·33 [–0·45 to −0·21] p<0·001), with no significant difference between the two groups. Greater reductions in overall care costs were seen in the intervention group than in the control group. At the 6 month assessment, greater reductions in total health service and time costs were seen in the intervention group; however, cumulative costs over this period were higher (US $627 per patient vs $526 in the control group). Five patients in the intervention group had mild extrapyramidal side effects.

Interpretation. A collaborative shared care delivered by TFH and conventional health-care providers for people with psychosis was effective and cost-effective. The model of care offers the prospect of scaling up improved care to this vulnerable population in settings with low resources.

Miscellaneous

25. Am J Trop Med Hyg. 2020 Jun 29.

Endocrine and Metabolic Manifestations of Snakebite Envenoming

Bhattacharya S et al., Department of Endocrinology, Max Superspeciality Hospital, New Delhi, India. Hospital, Rohtak, India.

Snake envenoming is a neglected, public health problem in tropical and subtropical regions. Local tissue necrosis, neurotoxic, and hemo-vasculotoxic effects are well-recognized features, whereas the endocrine and metabolic derangements are not as well known. In addition to contributing to morbidity, some of these manifestations can be potentially life-threatening if not recognized early. The most prominent endocrine manifestation is hypopituitarism (HP), which can manifest acutely or remain asymptomatic and present years later. Unexplained recurrent hypoglycemia and refractory hypotension are early clinical clues to suspect corticotroph axis involvement in acute settings. Chronic pituitary failure may present, like Sheehan's syndrome, several years after the bite. The occurrence of acute kidney injury, capillary leak syndrome, and disseminated intravascular coagulation are predictors of HP. Adrenal hemorrhages are documented in autopsy series; however, primary adrenal insufficiency is very rare and confounded by the presence of HP. Hyponatremia, hypokalemia or hyperkalemia, and dysglycemia can occur, but the mechanisms involved are only partially understood. Awareness, a high index of suspicion, correct interpretation of hormonal parameters, and timely treatment of these abnormalities can be lifesaving.

26. BMJ 2020;369:m2578 News 4
Presenting clinical features on darker skin: five minutes with . . . Malone Mukwende
Abi Rimmer

The medical student who created a handbook presenting clinical features on darker skin describes the ambition behind it
“Mind the Gap is a handbook of clinical signs in black and brown skin. Its aim is to teach medical students and other health professionals about the importance of recognising how some conditions can present differently in darker skins.
“On arrival at medical school I noticed a lack of teaching about darker skin. We were often taught to look for symptoms, such as rashes, in a way that I knew wouldn’t appear on my own skin.

27. BMJ 2020;370:m2322
The healthiness and sustainability of national and global food based dietary guidelines: modelling study
Marco Springmann et al., marco.springmann@ndph.ox.ac.uk

Objective To analyse the health and environmental implications of adopting national food based dietary guidelines (FBDGs) at a national level and compared with global health and environmental targets.
Main outcome measures A graded coding method was developed and used to extract quantitative recommendations from 85 FBDGs. The health and environmental impacts of these guidelines were assessed by using a comparative risk assessment of deaths from chronic diseases and a set of country specific environmental footprints for greenhouse gas emissions, freshwater use, cropland use, and fertiliser application. For comparison, the impacts of adopting the global dietary recommendations of the World Health Organization and the EAT-Lancet Commission on Healthy Diets from Sustainable Food Systems were also analysed. Each guideline’s health and sustainability implications were assessed by modelling its adoption at both the national level and globally, and comparing the impacts to global health and environmental targets, including the Action Agenda on Non-Communicable Diseases, the Paris Climate Agreement, the Aichi biodiversity targets related to land use, and the sustainable development goals and planetary boundaries related to freshwater use and fertiliser application.
Results Adoption of national FBDGs was associated with reductions in premature mortality of 15% on average (95% uncertainty interval 13% to 16%) and mixed changes in environmental resource demand, including a reduction in greenhouse gas emissions of 13% on average (regional range −34% to 35%). When universally adopted globally, most of the national guidelines (83, 98%) were not compatible with at least one of the global health and environmental targets. About a third of the

FBDGs (29, 34%) were incompatible with the agenda on non-communicable diseases, and most (57 to 74, 67% to 87%) were incompatible with the Paris Climate Agreement and other environmental targets. In comparison, adoption of the WHO recommendations was associated with similar health and environmental changes, whereas adoption of the EAT-Lancet
recommendations was associated with 34% greater reductions in premature mortality, more than three times greater reductions in greenhouse gas emissions, and general attainment of the global health and environmental targets. As an example, the FBDGs of the UK, US, and China were incompatible with the climate change, land use, freshwater, and nitrogen targets, and adopting guidelines in line with the EAT-Lancet recommendation could increase the number of avoided deaths from 78 000 (74 000 to 81 000) to 104 000 (96 000 to 112 000) in the UK, from 480 000 (445 000 to 516 000) to 585 000 (523 000 to 646 000) in the USA, and from 1 149 000 (1 095 000 to 1 204 000) to 1 802 000 (1 664 000 to 1 941 000) in China.
Conclusions This analysis suggests that national guidelines could be both healthier and more sustainable. Providing clearer advice on limiting in most contexts the consumption of animal source foods, in particular beef and dairy, was found to have the greatest potential for increasing the environmental sustainability of dietary guidelines, whereas increasing the intake of whole grains, fruits and vegetables, nuts and seeds, and legumes, reducing the intake of red and processed meat, and highlighting the importance of attaining balanced energy intake and weight levels were associated with most of the additional health benefits. The health results were based on observational data and assuming a causal relation between dietary risk factors and health outcomes. The certainty of evidence for these relations is mostly graded as moderate in existing meta-analyses.

Non Communicable Diseases

28. BMJ Glob Health. 2020 Sep;5(9):e002213

The cost-effectiveness of hypertension management in low-income and middle-income countries: a review

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Hypertension in low-income and middle-income countries (LMICs) is largely undiagnosed and uncontrolled, representing an untapped opportunity for public health improvement. Implementation of hypertension control strategies in low-resource settings depends in large part on cost considerations. However, evidence on the cost-effectiveness of hypertension interventions in LMICs is varied across geographical, clinical and evaluation contexts. We conducted a comprehensive search for published economic evaluations of hypertension treatment programmes in LMICs. The search identified 71 articles assessing a wide range of hypertension intervention designs and cost components, of which 42 studies across 15 countries reported estimates of cost-effectiveness. Although comparability of results was limited due to heterogeneity in the interventions assessed, populations studied, costs and study quality score, most interventions that reported cost per averted disability-adjusted life-year (DALY) were cost-effective, with costs per averted DALY not exceeding national income thresholds. Programme elements that may reduce cost-effectiveness included screening for hypertension at younger ages, addressing prehypertension, or treating patients at lower cardiovascular disease risk. Cost-effectiveness analysis could provide the evidence base to guide the initiation and development of hypertension programmes.

29. PLoS Med 17(7): e1003198.

The global burden of disease attributable to high body mass index in 195 countries and territories, 1990–2017: An analysis of the Global Burden of Disease Study

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Background
Obesity represents an urgent problem that needs to be properly addressed, especially among children. Public and global health policy- and decision-makers need timely, reliable quantitative information to

develop effective interventions aimed at counteracting the burden generated by high body mass index (BMI). Few studies have assessed the high-BMI-related burden on a global scale.
Methods and findings
Following the methodology framework and analytical strategies used in the Global Burden of Disease Study (GBD) 2017, the global deaths and disability-adjusted life years (DALYs) attributable to high BMI were analyzed by age, sex, year, and geographical location and by Socio-demographic Index (SDI). All causes of death and DALYs estimated in GBD 2017 were organized into 4 hierarchical levels: level 1 contained 3 broad cause groupings, level 2 included more specific categories within the level 1 groupings, level 3 comprised more detailed causes within the level 2 categories, and level 4 included sub-causes of some level 3 causes. From 1990 to 2017, the global deaths and DALYs attributable to high BMI have more than doubled for both females and males. However, during the study period, the age-standardized rate of high-BMI-related deaths remained stable for females and only increased by 14.5% for males, and the age-standardized rate of high-BMI-related DALYs only increased by 12.7% for females and 26.8% for males. In 2017, the 6 leading GBD level 3 causes of high-BMI-related DALYs were ischemic heart disease, stroke, diabetes mellitus, chronic kidney disease, hypertensive heart disease, and low back pain. For most GBD level 3 causes of high-BMI-related DALYs, high-income North America had the highest attributable proportions of age-standardized DALYs due to high BMI among the 21 GBD regions in both sexes, whereas the lowest attributable proportions were observed in high-income Asia Pacific for females and in eastern sub-Saharan Africa for males. The association between SDI and high-BMI-related DALYs suggested that the lowest age-standardized DALY rates were found in countries in the low-SDI quintile and high-SDI quintile in 2017, and from 1990 to 2017, the age-standardized DALY rates tended to increase in regions with the lowest SDI, but declined in regions with the highest SDI, with the exception of high-income North America. The study's main limitations included the use of information collected from some self-reported data, the employment of cutoff values that may not be adequate for all populations and groups at risk, and the use of a metric that cannot distinguish between lean and fat mass.
Conclusions
In this study, we observed that the number of global deaths and DALYs attributable to high BMI has substantially increased between 1990 and 2017. Successful population-wide initiatives targeting high BMI may mitigate the burden of a wide range of diseases. Given the large variations in high-BMI-related burden of disease by SDI, future strategies to prevent and reduce the burden should be developed and implemented based on country-specific development status.

Primary Care

30. BMJ Glob Health 2020 Sep;5(9):e003393.
Antibiotic overuse in the primary health care setting: a secondary data analysis of standardised patient studies from India, China and Kenya
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Introduction Determining whether antibiotic prescriptions are inappropriate requires knowledge of patients' underlying conditions. In low-income and middle-income countries (LMICs), where misdiagnoses are frequent, this is challenging. Additionally, such details are often unavailable for prescription audits. Recent studies using standardised patients (SPs) offer a unique opportunity to generate unbiased prevalence estimates of antibiotic overuse, as the research design involves patients with predefined conditions.
Methods Secondary analyses of data from nine SP studies were performed to estimate the proportion of SP–provider interactions resulting in inappropriate antibiotic prescribing across primary care settings in three LMICs (China, India and Kenya). In all studies, SPs portrayed conditions for which antibiotics are unnecessary (watery diarrhoea, presumptive tuberculosis (TB), angina and asthma). We conducted descriptive analyses reporting overall prevalence of antibiotic overprescribing by healthcare sector, location, provider qualification and case. The WHO Access–Watch–Reserve framework was used to categorise antibiotics based on their potential for selecting resistance. As richer data were

available from India, we examined factors associated with antibiotic overuse in that country through hierarchical Poisson models.
Results Across health facilities, antibiotics were given inappropriately in 2392/4798 (49.9%, 95% CI 40.8% to 54.5%) interactions in India, 83/166 (50.0%, 95% CI 42.2% to 57.8%) in Kenya and 259/899 (28.8%, 95% CI 17.8% to 50.8%) in China. Prevalence ratios of antibiotic overuse in India were significantly lower in urban versus rural areas (adjusted prevalence ratio (aPR) 0.70, 95% CI 0.52 to 0.96) and higher for qualified versus non-qualified providers (aPR 1.55, 95% CI 1.42 to 1.70), and for presumptive TB cases versus other conditions (aPR 1.19, 95% CI 1.07 to 1.33). Access antibiotics were predominantly used in Kenya (85%), but Watch antibiotics (mainly quinolones and cephalosporins) were highly prescribed in India (47.6%) and China (32.9%).
Conclusion Good-quality SP data indicate alarmingly high levels of antibiotic overprescription for key conditions across primary care settings in India, China and Kenya, with broad-spectrum agents being excessively used in India and China.

31. Hum Resour Health 2020;18(1):27.
A scoping review on family medicine in sub-Saharan Africa: practice, positioning and impact in African health care systems
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Background: Family medicine (FM) is a relatively new discipline in sub-Saharan Africa (SSA), still struggling to find its place in the African health systems. The aim of this review was to describe the current status of FM in SSA and to map existing evidence of its strengths, weaknesses, effectiveness and impact, and to identify knowledge gaps.
Methods: A scoping review was conducted by systematically searching a wide variety of databases to map the existing evidence. Articles exploring FM as a concept/philosophy, a discipline, and clinical practice in SSA, published in peer-reviewed journals from 2000 onwards and in English language, were included. Included articles were entered in a matrix and then analysed for themes. Findings were presented and validated at a Primafamed network meeting, Gauteng 2018.
Results: A total of 73 articles matching the criteria were included. FM was first established in South Africa and Nigeria, followed by Ghana, several East African countries and more recently additional Southern African countries. In 2009, the Rustenburg statement of consensus described FM in SSA. Implementation of the discipline and the roles and responsibilities of family physicians (FPs) varied between and within countries depending on the needs in the health system structure and the local situation. Most FPs were deployed in district hospitals and levels of the health system, other than primary care. The positioning of FPs in SSA health systems is probably due to their scarcity and the broader mal-distribution of physicians. Strengths such as being an "all- round specialist", providing mentorship and supervision, as well as weaknesses such as unclear responsibilities and positioning in the health system were identified. Several studies showed positive perceptions of the impact of FM, although only a few health impact studies were done, with mixed results.
Conclusions: FM is a developing discipline in SSA. Stronger evidence on the impact of FM on the health of populations requires a critical mass of FPs and shared clarity of their position in the health system. As FM continues to grow in SSA, we suggest improved government support so that its added value and impact on health systems in terms of health equity and universal health coverage can be meaningfully explored.

Schistosomiasis

32. Am J Trop Med Hyg. 2020 Jul;103(1_Suppl):1-4.
Schistosomiasis Consortium for Operational Research and Evaluation: Mission Accomplished
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The Schistosomiasis Consortium for Operational Research and Evaluation (SCORE), a program focusing on schistosomiasis control in sub-Saharan Africa between 2008 and 2019, investigated ways

to improve coverage and efficacy of ongoing chemotherapy programs and concluded that because of continued transmission, mass distribution of praziquantel cannot eliminate the disease without complementary control activities. Schistosomiasis Consortium for Operational Research and Evaluation's activities comprised large-scale, multicountry field studies comparing various mass drug administration strategies and some specific research avenues, such as assessment of high-sensitivity diagnostics, identification of hotspots, quantification of the role of the snail host, predictive modeling, and changes in schistosome population genetics under drug pressure. The discoveries made and the insights gained regarding cost-effective strategies for delivering preventive chemotherapy should assist policy makers to develop guidelines for the control and ultimate elimination of schistosomiasis.

Special Suplement containing the following articles

Lessons Learned in Conducting Mass Drug Administration for Schistosomiasis Control and Measuring Coverage in an Operational Research Setting
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The Schistosomiasis Consortium for Operational Research and Evaluation (SCORE) was created to conduct research that could inform programmatic decision-making related to schistosomiasis. SCORE included several large cluster randomized field studies involving mass drug administration (MDA) with praziquantel. The largest of these were studies of gaining or sustaining control of schistosomiasis, which were conducted in five African countries. To enhance relevance for routine practice, the MDA in these studies was coordinated by or closely aligned with national neglected tropical disease (NTD) control programs. The study protocol set minimum targets of at least 90% for coverage among children enrolled in schools and 75% for all school-age children. Over the 4 years of intervention, an estimated 3.5 million treatments were administered to study communities. By year 4, the median village coverage was at or above targets in all studies except that in Mozambique. However, there was often a wide variation behind these summary statistics, and all studies had several villages with very low or high coverage. In studies where coverage was estimated by comparing the number of people treated with the number eligible for treatment, denominator estimation was often problematic. The SCORE experiences in conducting these studies provide lessons for future efforts that attempt to implement strong research designs in real-world contexts. They also have potential applicability to country MDA campaigns against schistosomiasis and other NTDs, most of which are conducted with less logistical and financial support than was available for the SCORE study efforts.

Challenges in Protocol Development and Interpretation of the Schistosomiasis Consortium for Operational Research and Evaluation Intervention Studies

Schistosomiasis Consortium for Operational Research and Evaluation (SCORE): Its Foundations, Development, and Evolution

Circulating Anodic Antigen (CAA): A Highly Sensitive Diagnostic Biomarker to Detect Active Schistosoma Infections-Improvement and Use during SCORE

Contributions of the Schistosomiasis Consortium for Operational Research and Evaluation (SCORE) to Schistosomiasis Control and Elimination: Key Findings and Messages for Future Goals, Thresholds, and Operational Research

The Schistosomiasis Consortium for Operational Research and Evaluation Rapid Answers Project: Systematic Reviews and Meta-Analysis to Provide Policy Recommendations Based on Available Evidence

Evaluation, Validation, and Recognition of the Point-of-Care Circulating Cathodic Antigen, Urine-Based Assay for Mapping Schistosoma mansoni Infections

SCORE Studies on the Impact of Drug Treatment on Morbidity due to Schistosoma mansoni and Schistosoma haematobium Infection

The Schistosomiasis Consortium for Operational Research and Evaluation 2008-2020: Approaches, Experiences, Lessons, and Recommendations

SCORE Operational Research on Moving toward Interruption of Schistosomiasis Transmission

Parasite Population Genetic Contributions to the Schistosomiasis Consortium for Operational Research and Evaluation within Sub-Saharan Africa

Impact of Different Mass Drug Administration Strategies for Gaining and Sustaining Control of Schistosoma mansoni and Schistosoma haematobium Infection in Africa

Application of Schistosomiasis Consortium for Operational Research and Evaluation Study Findings to Refine Predictive Modeling of Schistosoma mansoni and Schistosoma haematobium Control in Sub-Saharan Africa

Discovering, Defining, and Summarizing Persistent Hotspots in SCORE Studies

Sexual and Reproductive Health

33. Health Policy and Planning, Vol 35 (7): 855 – 866.

What will it cost to prevent violence against women and girls in low- and middle-income countries? Evidence from Ghana, Kenya, Pakistan, Rwanda, South Africa and Zambia.

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Violence against women and girls (VAWG) is a global problem with profound consequences. Although there is a growing body of evidence on the effectiveness of VAWG prevention interventions, economic data are scarce. We carried out a cross-country study to examine the costs of VAWG prevention interventions in low- and middle-income countries. We collected primary cost data on six different pilot VAWG prevention interventions in six countries: Ghana, Kenya, Pakistan, Rwanda, South Africa and Zambia. The interventions varied in their delivery platforms, target populations, settings and theories of change. We adopted a micro-costing methodology. We calculated total costs and a number of unit costs common across interventions (e.g. cost per beneficiary reached). We used the pilot-level cost data to model the expected total costs and unit costs of five interventions scaled up to the national level. Total costs of the pilots varied between ~US $208 000 in a small group intervention in South Africa to US $2 788 000 in a couples and community-based intervention in Rwanda. Staff costs were the largest cost input across all interventions; consequently, total costs were sensitive to staff time use and salaries. The cost per beneficiary reached in the pilots ranged from ~US $4 in a community-based intervention in Ghana to US $1324 for one-to-one counselling in Zambia. When scaled up to the national level, total costs ranged from US $32 million in Ghana to US $168 million in Pakistan. Cost per beneficiary reached at scale decreased for all interventions compared to the pilots, except for school-based interventions due to differences in student density per school between the pilot and the national average. The costs of delivering VAWG prevention vary greatly due to differences in the geographical reach, number of intervention components and the complexity of adapting the intervention to the country. Cost-effectiveness analyses are necessary to determine the value for money of interventions.

34. Sexual and Reproductive Health Matters, 28:2 (2020)

Sexual and reproductive health services in universal health coverage: a review of recent evidence from low- and middle-income countries

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If universal health coverage (UHC) cannot be achieved without the sexual and reproductive health (SRH) needs of the population being met, what then is the current situation vis-à-vis universal coverage of SRH services, and the extent to which SRH services have been prioritised in national UHC plans and processes? This was the central question that guided this critical review of more than 200 publications between 2010 and 2019. The findings are the following. The Essential Package of Healthcare Services (EPHS) across many countries excludes several critical SRH services (e.g. safe abortion services, reproductive cancers) that are already poorly available. Inadequate international and domestic public funding of SRH services contributes to a sustained burden of out-of-pocket expenditure (OOPE) and inequities in access to SRH services. Policy and legal barriers, restrictive gender norms and gender-based inequalities challenge the delivery and access to quality SRH services. The evidence is mixed as to whether an expanded role and scope of the private sector improves availability and access to services of underserved populations. As momentum gathers towards SRH and UHC, the following actions are necessary and urgent. Advocacy for greater priority for SRH in government EPHS and health budgets aligned with SRH and UHC goals is needed. Implementation of stable and sustained financing mechanisms that would reduce the proportion of SRH-financing from OOPE is a priority. Evidence, moving from descriptive towards explanatory studies which provide insights into the “hows” and “whys” of processes and pathways are ess ential for guiding policy and programme actions.

Tuberculosis

35. Am J Trop Med Hyg. 2020 Jul;103(1):221-230.
Engaging Community Pharmacies in Early Detection of Missing Tuberculosis Patients through Public-Private Mix Intervention in Pakistan
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Globally, Pakistan ranks fifth in terms of missing tuberculosis (TB) patients' burden. Missed TB cases are either undiagnosed or diagnosed but not notified to the national TB database. Public-private mix interventions are contributing significantly to the case detection, diagnosis, and treatment of TB in Pakistan. However, it is estimated that many cases of infected TB patients go undetected. It is likely that these "undiagnosed" active TB cases seek treatment from community pharmacies, among other venues. This study aimed at assessing the feasibility of community pharmacy-based TB case detection. Case detection protocol implementation in three Pakistani districts in a nonrandom selection of pharmacies was followed by a review of routinely maintained prospective records of patients referred from these private community pharmacies to general practitioner (GP) clinics. The study engaged 500 community pharmacies for referring presumptive TB patients to GP clinics. In total, 85% of the engaged pharmacies remained active in providing referrals during the study period. The community pharmacy-referral network achieved an annual referral rate of 3,025 presumptive TB patients and identified 547 active TB cases for the period January-December 2017. Every fifth referral among presumptives presenting and counseled at pharmacies was diagnosed with TB at GP clinics. This contribution was 9% of all new TB cases identified in these districts through all other private venues linked with the Greenstar Social Marketing setup. Identified barriers and facilitators to implementation and cost effectiveness of pharmacy models for TB case detection should be considered if the model were to be scaled up.