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Jakub Jan Kakietek, et al. Corresponding author. Department of Health Policy, London School of Economics and Political Science, London, UK. E-mail: n.k.stacey@lse.ac.uk

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Shiffman J et al., Johns Hopkins Bloomberg School of Public Health and Paul H Nitze School of Advanced International Studies, Johns Hopkins University, Baltimore, MD, USA <jeremy.shiffman@jhu.edu> (This is the first in a Series of three papers on Political Science and Health.)

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Albert Gautier Ndione, et al. Corresponding author. Institute for Global Health, Faculty of Population Health Sciences, University College London, UK. E-mail: f.procureur@ucl.ac.uk

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27. Psychol Med 2022;52(8):1509-16.
Comparing psychotic experiences in low-and-middle-income-countries and high-income-countries with a focus on measurement invariance
Jaya ES et al., Psychosis Studies Research Group, Faculty of Psychology, Universitas Indonesia, Depok, Indonesia (with participation of universities from across the world, among which several Dutch universities/institutes)

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Burden of chronic obstructive pulmonary disease and its attributable risk factors in 204 countries and territories, 1990-2019: results from the Global Burden of Disease Study 2019.
Saeid Safiri, assistant professor. Tuberculosis and Lung Diseases Research Centre, Tabriz University of Medical Sciences, Tabriz, Iran. Correspondence to: A-A Kolahi a.kolahi@sbmu.ac.ir

29. BMJ 2022;378:e067582
Patterns of tobacco use in low and middle income countries by tobacco product and sociodemographic characteristics: nationally representative survey data from 82 countries.
Michaela Theilmann, doctoral student, et al., Heidelberg Institute of Global Health, Heidelberg University, Heidelberg, Germany. Correspondence to: Pascal Geldsetzer pgeldsetzer@stanford.edu

30. PLoS Med 19(8): e1004079.
Urban-rural differences in hypertension prevalence in low-income and middle-income countries, 1990–2020: A systematic review and meta-analysis
Otavio T. Ranzani, et al. Corresponding author: Barcelona Institute for Global Health, ISGlobal, Universitat Pompeu Fabra, CIBER Epidemiología y Salud Pública, Barcelona, Spain, Mail: cathryn.tonne@isglobal.org

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31. Lancet. 2022 Jul 9;400(10346):127-136.
The political and social contexts of global road safety: challenges for the next decade
Adnan A Hyder et al Milken Institute School of Public Health, George Washington University, Washington, DC, USA. Electronic address: hydera1@gwu.edu.

32. Lancet. 2022 Jul 23;400(10348):329-336.
Improvement in trauma care for road traffic injuries: an assessment of the effect on mortality in low-income and middle-income countries
Junaid A Razzak et al Weill Cornell Medical Centre, New York, NY, USA; College of Medicine, Aga Khan University, Karachi Pakistan. Electronic address: junaid.razzak@med.cornell.edu.

Sexual and Reproductive Health; Maternal and Child health services

33. BMJ Global Health 2022;7:e009465.
Maternal mortality decline in Zimbabwe, 2007/2008 to 2018/2019: findings from mortality surveys using civil registration, vital statistics and health system data.
Musarandega R, Cresswell J, Magwali T . the Zimbabwe Maternal and Perinatal Mortality Study (ZMPMS) Group. Correspondence to Mr Reuben Musarandega; rmusarandega@pedaids.org

34. Health Policy and Planning, May 2022, Vol. 37 (5): 565–574
Zooming in and out: a holistic framework for research on maternal, late foetal and newborn survival and health
Neha S Singh, et al. Corresponding author. London School of Hygiene and Tropical Medicine, Keppel Street, London, UK. E-mail: neha.singh@lshtm.ac.uk

35. Health Policy and Planning, August 2022, Vol.7 (7): 895–914
Evaluations of effective coverage of maternal and child health services: A systematic review
Aster Ferede Gebremedhin, et al. Corresponding author. Debre Markos University, Ethiopia. E-mail: goasterferede123@gmail.com

36.
Lancet. 2022 Jul 23;400(10348):295-327.
Measuring contraceptive method mix, prevalence, and demand satisfied by age and marital status in 204 countries and territories, 1970-2019: a systematic analysis for the Global Burden of Disease Study 2019
Annie Haakenstad et al. Institute for Health Metrics and Evaluation, University of Washington, Seattle, WA, USA; Department of Health Metrics Sciences, University of Washington, Seattle, WA, USA.

37. Lancet 2022;399(10341):2103–12
Intrauterine device-related uterine perforation incidence and risk (APEX-IUD): a large multisite cohort study
Reed SD et al., Department of Obstetrics & Gynecology, University of Washington, Seattle, WA, USA <reeds@uw.edu>

38. Lancet 2022;400(10353):670-9
A telemedicine model for abortion in South Africa: a randomised, controlled, non-inferiority trial
Endler M et al., Department of Women's and Children's Health and WHO Collaborating Centre for Research and Research Training in Human Reproduction, Karolinska Institutet, Stockholm, Sweden; School of Public Health and Family Medicine, University of Cape Town, South Africa <margit.endler@ki.se>

39. PLoS Med 19(8): e1004070.
Healthcare utilization and maternal and child mortality during the COVID-19 pandemic in 18 low- and middle-income countries: An interrupted time-series analysis with mathematical modeling of administrative data.
Ahmed T, Roberton T, Vergeer P, Hansen PM, Peters MA, Ofosu AA, et al. (2022) Corresponding author: The Global Financing Facility for Women, Children, and Adolescents, Washington, DC, United States of America,
Mail: tahmed13@worldbank.org

International Health Alerts October 2022 Abstracts

Alcohol and substance abuse

1. PLoS Med 19(4): e1003961

Patient-level interventions to reduce alcohol-related harms in low- and middle-income countries: A systematic review and meta-summary.

Staton CA, et al. (2022). Corresponding author: Duke Division of Emergency Medicine, Duke University, Durham, North Carolina, USA, Duke Global Health Institute, Duke University, Health Sciences Graduate Program, State University of Maringa, Parana State, Brazil. Mail Catherine.staton@duke.edu

Background

Disease and disability from alcohol use disproportionately impact people in low- and middle-income countries (LMICs). While varied interventions have been shown to reduce alcohol use in high-income countries, their efficacy in LMICs has not been assessed. This systematic review describes current published literature on patient-level alcohol interventions in LMICs and specifically describes clinical trials evaluating interventions to reduce alcohol use in LMICs.

Methods and findings

In accordance with PRISMA, we performed a systematic review using an electronic search strategy from January 1, 1995 to December 1, 2020. Title, abstract, as well as full-text screening and extraction were performed in duplicate. A meta-summary was performed on randomized controlled trials (RCTs) that evaluated alcohol-related outcomes. We searched the following electronic databases: PubMed, EMBASE, Scopus, Web of Science, Cochrane, WHO Global Health Library, and PsycINFO. Articles that evaluated patient-level interventions targeting alcohol use and alcohol-related harm in LMICs were eligible for inclusion. No studies were excluded based on language.

After screening 5,036 articles, 117 articles fit our inclusion criteria, 75 of which were RCTs. Of these RCTs, 93% were performed in 13 middle-income countries, while 7% were from 2 low-income countries. These RCTs evaluated brief interventions (24, defined as any intervention ranging from advice to counseling, lasting less than 1 hour per session up to 4 sessions), psychotherapy or counseling (15, defined as an interaction with a counselor longer than a brief intervention or that included a psychotherapeutic component), health promotion and education (20, defined as an intervention encouraged individuals' agency of taking care of their health), or biologic treatments (19, defined as interventions where the biological function of alcohol use disorder (AUD) as the main nexus of intervention) with 3 mixing categories of intervention types. Due to high heterogeneity of intervention types, outcome measures, and follow-up times, we did not conduct meta-analysis to compare and contrast studies, but created a meta-summary of all 75 RCT studies. The most commonly evaluated intervention with the most consistent positive effect was a brief intervention; similarly, motivational interviewing (MI) techniques were most commonly utilized among the diverse array of interventions evaluated.

Conclusions

Our review demonstrated numerous patient-level interventions that have the potential to be effective in LMICs, but further research to standardize interventions, populations, and outcome measures is necessary to accurately assess their effectiveness. Brief interventions and MI techniques were the most commonly evaluated and had the most consistent positive effect on alcohol-related outcomes.

Child Health

2. BMJ Global Health 2022;7:e009548.

Aetiology and incidence of diarrhoea requiring hospitalisation in children under 5 years of age in 28 low-income and middle-income countries: findings from the Global Pediatric Diarrhea Surveillance network.

Cohen AL, Platts-Mills JA, Nakamura T, et al

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Introduction Diarrhoea remains a leading cause of child morbidity and mortality. Systematically collected and analysed data on the aetiology of hospitalised diarrhoea in low-income and middle-income countries are needed to prioritise interventions.
Methods We established the Global Pediatric Diarrhea Surveillance network, in which children under 5 years hospitalised with diarrhoea were enrolled at 33 sentinel surveillance hospitals in 28 low-income and middle-income countries. Randomly selected stool specimens were tested by quantitative PCR for 16 causes of diarrhoea. We estimated pathogen-specific attributable burdens of diarrhoeal hospitalisations and deaths. We incorporated country-level incidence to estimate the number of pathogen-specific deaths on a global scale.
Results During 2017–2018, 29 502 diarrhoea hospitalisations were enrolled, of which 5465 were randomly selected and tested. Rotavirus was the leading cause of diarrhoea requiring hospitalisation (attributable fraction (AF) 33.3%; 95% CI 27.7 to 40.3), followed by Shigella (9.7%; 95% CI 7.7 to 11.6), norovirus (6.5%; 95% CI 5.4 to 7.6) and adenovirus 40/41 (5.5%; 95% CI 4.4 to 6.7). Rotavirus was the leading cause of hospitalised diarrhoea in all regions except the Americas, where the leading aetiologies were Shigella (19.2%; 95% CI 11.4 to 28.1) and norovirus (22.2%; 95% CI 17.5 to 27.9) in Central and South America, respectively. The proportion of hospitalisations attributable to rotavirus was approximately 50% lower in sites that had introduced rotavirus vaccine (AF 20.8%; 95% CI 18.0 to 24.1) compared with sites that had not (42.1%; 95% CI 33.2 to 53.4). Globally, we estimated 208 009 annual rotavirus-attributable deaths (95% CI 169 561 to 259 216), 62 853 Shigella-attributable deaths (95% CI 48 656 to 78 805), 36 922 adenovirus 40/41-attributable deaths (95% CI 28 469 to 46 672) and 35 914 norovirus-attributable deaths (95% CI 27 258 to 46 516).
Conclusions Despite the substantial impact of rotavirus vaccine introduction, rotavirus remained the leading cause of paediatric diarrhoea hospitalisations. Improving the efficacy and coverage of rotavirus vaccination and prioritising interventions against Shigella, norovirus and adenovirus could further reduce diarrhoea morbidity and mortality.

3. Lancet 2022;400(10345):48–59

Effectiveness of interventions to improve drinking water, sanitation, and handwashing with soap on risk of diarrhoeal disease in children in low-income and middle-income settings: a systematic review and meta-analysis

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Background Estimates of the effectiveness of water, sanitation, and hygiene (WASH) interventions that provide high levels of service on childhood diarrhoea are scarce. We aimed to provide up-to-date estimates on the burden of disease attributable to WASH and on the effects of different types of WASH interventions on childhood diarrhoea in low-income and middle-income countries (LMICs).

Methods In this systematic review and meta-analysis, we updated previous reviews following their search strategy by searching MEDLINE, Embase, Scopus, Cochrane Library, and BIOSIS Citation Index for studies of basic WASH interventions and of WASH interventions providing a high level of service, published between Jan 1, 2016, and May 25, 2021. We included randomised and non-randomised controlled trials conducted at household or community level that matched exposure categories of the so-called service ladder approach of the Sustainable Development Goal (SDG) for WASH. Two reviewers independently extracted study-level data and assessed risk of bias using a modified Newcastle-Ottawa Scale and certainty of evidence using a modified Grading of Recommendations, Assessment, Development, and Evaluation approach. We analysed extracted relative risks (RRs) and 95% CIs using random-effects meta-analyses and meta-regression models. This study is registered with PROSPERO, CRD42016043164.

Findings 19 837 records were identified from the search, of which 124 studies were included, providing 83 water (62616 children), 20 sanitation (40799 children), and 41 hygiene (98416 children) comparisons.

Compared with untreated water from an unimproved source, risk of diarrhoea was reduced by up to 50% with water treated at point of use (POU): filtration (n=23 studies; RR 0·50 [95% CI 0·41–0·60]), solar treatment (n=13; 0·63 [0·50–0·80]), and chlorination (n=25; 0·66 [0·56–0·77]). Compared with an unimproved source, provision of an improved drinking water supply on premises with higher water quality reduced diarrhoea risk by 52% (n=2; 0·48 [0·26–0·87]). Overall, sanitation interventions reduced diarrhoea risk by 24% (0·76 [0·61–0·94]). Compared with unimproved sanitation, providing sewer connection reduced diarrhoea risk by 47% (n=5; 0·53 [0·30–0·93]). Promotion of handwashing with soap reduced diarrhoea risk by 30% (0·70 [0·64–0·76]).

Interpretation WASH interventions reduced risk of diarrhoea in children in LMICs. Interventions supplying either water filtered at POU, higher water quality from an improved source on premises, or basic sanitation services with sewer connection were associated with increased reductions. Our results support higher service levels called for under SDG 6. Notably, no studies evaluated interventions that delivered access to safely managed WASH services, the level of service to which universal coverage by 2030 is committed under the SDG.

Communicable diseases

4. Am J Trop Med Hyg. 2022 Sep 6. Online ahead of print.

Malaria Control, Elimination, and Prevention as Components of Health Security: A Review

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International travel, a major risk factor for imported malaria, has emerged as an important challenge in sustaining malaria elimination and prevention of its reestablishment. To make travel and trade safe, the WHO adopted the International Health Regulations (IHR) which provides a legal framework for the prevention, detection, and containment of public health risks at source. We conducted a systematic review to assess the relevance and the extent of implementation of IHR practices that can play a role in reducing malaria transmission. Selected studies addressed control, elimination, and prevention of reestablishment of malaria. Study themes focused on appraisal of surveillance and response, updating national policies to facilitate malaria control and elimination, travel as a risk factor for malaria and risk mitigation methods, vector control, transfusion malaria, competing interests, malaria in border areas, and other challenges posed by emerging communicable diseases on malaria control and elimination efforts. Review results indicate that malaria has not been prioritized as part of the IHR nor has the IHR focused on vector-borne diseases such as malaria. The IHR framework in its current format can be applied to malaria and other vector-borne diseases to strengthen surveillance and response, overcome challenges at borders, and improve data sharing-especially among countries moving toward elimination-but additional guidelines are required. Application of the IHR in countries in the malaria control phase may not be effective until the disease burden is brought down to elimination levels. Considering existing global elimination goals, the application of IHR for malaria should be urgently reviewed and included as part of the IHR.

5. Am J Trop Med Hyg. 2022 Sep 6. Online ahead of print.

Multiple Organ Dysfunction Syndrome and Pediatric Logistic Organ Dysfunction-2 Score in Pediatric Cerebral Malaria

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Malaria resulted in an estimated 627,000 deaths in 2020, the majority of which occurred in children under 5 years of age. Cerebral malaria (CM) is a severe manifestation of the disease with case fatality rates of up to 40%. Autopsies in children with CM have demonstrated sequestration of Plasmodium falciparum parasites in the brain as well as multiple other organs. Thus, multiple organ dysfunction syndrome (MODS) may be present in pediatric patients with CM, but its frequency and association with mortality have not been evaluated. This is a retrospective study of data collected prospectively from children with CM admitted in Blantyre, Malawi. Physical examination findings and laboratory values necessary to calculate a Pediatric Logistic Organ Dysfunction-2 (PELOD-2) score, a validated method that quantifies organ dysfunction in critically ill children, were abstracted. A total of 145 patients were included. Mortality was 15% (n = 22). Ten patients (7%) had single organ dysfunction, 36 (25%) had two organs involved, 68 (47%) had dysfunction of three organs, and 31 (21%) patients had four organs affected. Beyond neurologic dysfunction, other organ systems involved included hematologic (77%), renal (61%), cardiovascular (44%), and respiratory (1%). The median PELOD-2 score on admission was 4 (range: 3-6) in survivors and 6.5 (range: 5-10) in the nonsurvivors ($P < 0.0001$). Admission PELOD-2 score predicted mortality with an area under the curve of 0.75. MODS is widespread in pediatric patients with CM. Objectively identifying children with MODS, and therefore at an increased risk of mortality, may allow for the allocation of limited resources.

6. Am J Trop Med Hyg. 2022 Aug 15. Online ahead of print.

Secondary Effects from Mass Azithromycin Administration: A Systematic Review and Meta-analysis

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The effects of azithromycin mass drug administration (MDA) on trachoma and yaws have been addressed. However, the secondary effects of azithromycin MDA remain unclear. This study aimed to explore the secondary effects of azithromycin MDA. PubMed, Embase, Cochrane Library, Web of Science, and ClinicalTrials.gov were searched from conception to January 5, 2022. Studies on secondary effects of azithromycin MDA were included. A total of 34 studies were included. Six of them reported on child mortality, 10 on malaria, and 20 on general morbidity and condition. Azithromycin MDA reduced child mortality, and quarterly MDA may be most beneficial for reducing child mortality. The effect of azithromycin MDA on malaria was weak. No association was observed between azithromycin MDA and malaria parasitemia (rate ratio: 0.71, 95% confidence interval: 0.43-1.15). Azithromycin MDA was associated with a lower risk of respiratory tract infections and diarrhea. Additionally, it was associated with a lower risk of fever, vomiting, and headache. The carriage of pathogenic organisms such as Streptococcus pneumoniae and gut Campylobacter species was reduced. However, these secondary effects of azithromycin MDA appeared to last only a few weeks. Moreover, no association was observed between azithromycin MDA and nutritional improvement in children. In conclusion, azithromycin MDA had favorable secondary effects on child mortality and morbidity. However, the effects were short term.

7. Am J Trop Med Hyg. 2022 Aug 1. Online ahead of print.

Private Sector Contributions to National Malaria Surveillance Systems in Elimination Settings: Lessons Learned from Cambodia, Lao PDR, Myanmar, and Vietnam

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Comprehensive malaria case surveillance is necessary to achieve and sustain malaria elimination. In the Greater Mekong Subregion (GMS), the private sector plays a substantial role in malaria treatment. Yet,

none of the six GMS countries collects complete case data from private sector points-of-care. Between 2016 and 2019, the GMS Elimination of Malaria through Surveillance program supported national malaria programs in Cambodia, Lao PDR, Myanmar, and Vietnam to execute elimination strategies by engaging the private sector in malaria case management, generating private sector case data, and integrating these data into national surveillance systems. The project enrolled 21,903 private sector outlets, covering between 52% and 80% of the private sector in targeted geographies, which were trained and equipped to perform rapid diagnostic tests (RDTs) and report malaria case data. By 2019, the private providers enrolled in the program reported a total of 3,521,586 suspected cases and 96,400 confirmed malaria cases into national surveillance systems, representing 16% of the total reported caseload by these countries (Cambodia, 25%; Lao PDR, 5%; Myanmar, 12%; Vietnam, 8%). Results demonstrated that with comprehensive support, such as training, provision of free or subsidized RDTs, first-line treatments, and routine supportive supervision, private providers can provide quality malaria case management and achieve high reporting rates.

8. Am J Trop Med Hyg. 2022 Jul 11. Online ahead of print.

40 Years of Pfs48/45 Research as a Transmission-Blocking Vaccine Target of Plasmodium falciparum Malaria

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In the early 1980s, Richard Carter was among the first researchers to identify the sexual stage-specific Pfs48/45 protein, leading to the identification of target epitopes. Carter predicted its tertiary conformation while involved in a number of studies on naturally acquired sexual stage-specific antibodies. Pfs48/45 is a cysteine-rich surface protein of sexual stages of Plasmodium falciparum that plays a critical role in male gamete fertility. Antibodies against Pfs48/45 prevent parasite development in the mosquito vector, and therefore prevent the spread of malaria in the population. Since the gene was sequenced in the early 1990s, Pfs48/45 has been considered a prime target candidate for a malaria transmission-blocking vaccine. However, major manufacturing challenges-in particular, difficulty realizing satisfactory yields of a properly folded protein for the induction of functional antibodies-delayed clinical development significantly. These challenges were met roughly 20 years later. The first clinical trial with a Pfs48/45 subunit vaccine (R0.6C) was started in the Netherlands in early 2021. The excellent contributions to the long and winding path of Pfs48/45 research by Richard Carter are well recognized and are an integrated part of his seminal contributions to unraveling Plasmodium sexual stage biology.

9. Lancet 2022;399(10343):2310–24

Seminar

Thalassaemia

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Thalassaemia is a diverse group of genetic disorders with a worldwide distribution affecting globin chain synthesis. The pathogenesis of thalassaemia lies in the unbalanced globin chain production, leading to ineffective erythropoiesis, increased haemolysis, and deranged iron homoeostasis. The clinical phenotype shows heterogeneity, ranging from close to normal without complications to severe requiring lifelong transfusion support. Conservative treatment with transfusion and iron chelation has transformed the natural history of thalassaemia major into a chronic disease with a prolonged life expectancy, albeit with co-morbidities and substantial disease burden. Curative therapy with allogeneic haematopoietic

stem cell transplantation is advocated for suitable patients. The understanding of the pathogenesis of the disease is guiding therapeutic advances. Novel agents have shown efficacy in improving anaemia and transfusion burden, and initial results from gene therapy approaches are promising. Despite scientific developments, worldwide inequality in the access of health resources is a major concern, because most patients live in underserved areas.

10. N Engl J Med 2022; 387:488-491

Perspective: Bringing Sickle-Cell Treatments to Children in Sub-Saharan Africa (Abridged)

Albert E. Zhou, and Mark A. Travassos, From the Malaria Research Program, Center for Vaccine Development and Global Health, University of Maryland School of Medicine, Baltimore.

A diagnosis of sickle-cell disease (SCD) portends a lifetime of crises marked by substantial pain, infections, anemia, and increased risk of stroke. Sub-Saharan Africa is home to the majority of people living with SCD. About 236,000 babies are born with SCD in sub-Saharan Africa each year (more than 80 times as many as in the United States), and up to 90% will die during childhood, typically before their fifth birthday.

In the United States, by contrast, people with SCD often live into their 40s or beyond. An important contributor to this disparity is differential access to hydroxyurea, a chemotherapeutic agent that reduces the frequency of sickle-cell crises and prolongs survival. Hydroxyurea's clinical benefit in people with SCD was first demonstrated more than two decades ago, and it was approved by the U.S. Food and Drug Administration (FDA) in 1998. Whereas hydroxyurea has become the standard of care for SCD in the United States, it has been vastly underutilized in sub-Saharan Africa. Concerns regarding the drug's toxic effects and effects on vulnerability to malaria initially prevented its widespread use. Recent studies have demonstrated that hydroxyurea is safe and effective in children in sub-Saharan Africa, with treatment reducing vaso-occlusive crises, malaria incidence, and mortality.

Despite these benefits, efforts to introduce hydroxyurea throughout sub-Saharan Africa have been limited owing to a dearth of clinicians in rural settings, insufficient equipment for routine blood monitoring, and relatively high costs. The Novartis Africa Sickle Cell Disease program runs 11 treatment centers in Ghana that administer hydroxyurea and serves more than 2000 patients, with plans to expand to Kenya, Uganda, and Tanzania. Although admirable, this initiative represents only a small step toward ensuring access to hydroxyurea throughout the subcontinent. We believe a much larger effort is required. A multicountry program with international backing to support therapies for SCD could prevent hundreds of thousands of children from dying. One structure for implementing such a program already exists: the U.S. President's Emergency Plan for AIDS Relief (PEPFAR). //

Hydroxyurea administration requires clinician oversight and periodic blood tests to support dose titration, efficacy, and safety. We believe it would be feasible to leverage PEPFAR's framework to expand the distribution, use, and oversight of medications for SCD in resource-limited settings. These services could be grafted onto existing PEPFAR initiatives. Employing PEPFAR-trained African health care professionals might alleviate practical challenges in rural areas; for example, existing PEPFAR staff and sites in these regions could conduct routine clinical follow-up for people with SCD. These efforts could relieve bottlenecks in the provision of SCD care. Although capacity for diagnosing SCD is limited in much of sub-Saharan Africa, improving access to treatments could create incentives for national health care systems to improve testing and foster enthusiasm for participation in community-based screening programs. //

Additional promising medications for SCD are on the horizon, and the global health community can start developing a platform to support their implementation in regions with the greatest need. In addition to the voxelotor trial, a phase 3 trial was recently completed for l-glutamine, an antioxidant that prevents sickle-cell adherence to the microvasculature, and both medications have been approved by the FDA for use in adults and some children. With an effective delivery platform in place, new therapies could be swiftly introduced in sub-Saharan Africa.

Support from PEPFAR, the Global Fund, other international health agencies and stakeholders, and regulatory agencies such as the FDA and the European Medicines Agency could expedite testing,

certification, and implementation of new therapies and minimize the need for redundant clinical trials in low-income countries. The fundamental goal will be to generate evidence on the safety and efficacy of such medications for all children with SCD. Using resources established by PEPFAR and Global Fund–supported efforts to build a pipeline for delivering medications would also be an important step toward creating sustainable programs — one that could permit further expansion and development of health care systems, particularly systems to address other childhood illnesses.
Pharmaceutical companies are shepherding gene therapies and biologic products through research and development pipelines without a clear strategy for introducing these medications to the populations with the greatest need. We believe the medical community should advocate for effective, safe, and affordable therapies for SCD throughout sub-Saharan Africa. Taking advantage of existing platforms such as PEPFAR could help accomplish this important goal.

11. TMIH 2022;27(7):619-29

Review

Maternal and foetal-neonatal outcomes of dengue virus infection during pregnancy

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Objective: Given that women of reproductive age in dengue-endemic areas are at risk of infection, it is necessary to determine whether dengue virus (DENV) infection during pregnancy is associated with adverse outcomes. The aim of this systematic review and meta-analysis is to investigate the consequences of DENV infection in pregnancy on various maternal and foetal-neonatal outcomes.

Methods: A systematic literature search was undertaken using PubMed, Google Scholar, and Embase till December 2021. Mantel-Haenszel risk ratios were calculated to report overall effect size using random effect models. The pooled prevalence was computed using the random effect model. All statistical analyses were performed on MedCalc Software.

Result: We obtained data from 36 studies involving 39,632 DENV-infected pregnant women. DENV infection in pregnancy was associated with an increased risk of maternal mortality (OR = 4.14 [95% CI, 1.17-14.73]), stillbirth (OR = 2.71 [95% CI, 1.44-5.10]), and neonatal deaths (OR = 3.03 [95% CI, 1.17-7.83]) compared with pregnant women without DENV infection. There was no significant statistical association established between maternal DENV infection and the outcomes of preterm birth, maternal bleeding, low birth weight in neonates, and risk of miscarriage. Pooled prevalences were 14.9% for dengue shock syndrome, 14% for preterm birth, 13.8% for maternal bleeding, 10.1% for low birth weight, 6% for miscarriages, and 5.6% for stillbirth.

Conclusion: DENV infection in pregnant women may be associated with adverse outcomes such as maternal mortality, stillbirth, and neonatal mortality. Hence, pregnant women should be considered an at-risk population for dengue management programmes.

Community Health

12. BMJ Global Health 2022;7:e009934.

Community-based surveillance of infectious diseases: a systematic review of drivers of success

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Introduction Community-based surveillance may improve early detection and response to disease outbreaks by leveraging the capacity of community members to carry out surveillance activities within their communities. In 2021, the WHO published a report detailing the evidence gaps and research priorities around community-centred approaches to health emergencies. In response, we carried out a

systematic review and narrative synthesis of the evidence describing the drivers of success of community-based surveillance systems.
Methods We included grey literature and peer-reviewed sources presenting empirical findings of the drivers of success of community-based surveillance systems for the detection and reporting of infectious disease-related events. We searched for peer-reviewed literature via MEDLINE, EMBASE, Global Health, SCOPUS and ReliefWeb. We carried out grey literature searches using Google Search and DuckDuckGo. We used an evaluation quality checklist to assess quality.
Results Nineteen sources (17 peer-reviewed and 2 grey literature) met our inclusion criteria. Included sources reported on community-based surveillance for the detection and reporting of a variety of diseases in 15 countries (including three conflict settings). The drivers of success were grouped based on factors relating to: (1) surveillance workers, (2) the community, (3) case detection and reporting, (4) and integration.
Discussion The drivers of success were found to map closely to principles of participatory community engagement with success factors reflecting high levels of acceptability, collaboration, communication, local ownership, and trust. Other factors included: strong supervision and training, a strong sense of responsibility for community health, effective engagement of community informants, close proximity of surveillance workers to communities, the use of simple and adaptable case definitions, quality assurance, effective use of technology, and the use of data for real-time decision-making. Our findings highlight strategies for improving the design and implementation of community-based surveillance. We suggest that investment in participatory community engagement more broadly may be a key surveillance preparedness activity.

COVID-19

13. Health Policy and Planning, June 2022, Vol.37 (6): 737–746

Effects of COVID-19 on child health services utilization and delivery in rural Mozambique: a qualitative study

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Little is known about the COVID-19 pandemic-related disruptions in health services and the resilience of the health system response in rural low-resource settings. We conducted a phenomenological qualitative study (October–November 2020) to understand COVID-19-related influences on the utilization and delivery of child health services in Monapo district, rural Mozambique. We interviewed 36 caregivers with children <2.5 years, 21 health providers and 4 district health services staff using in-person in-depth interviews. Data were analysed using inductive thematic content analysis. Our findings showed that caregivers, providers and district health services staff unanimously reported a decrease in child consultations at the start of the pandemic. Administrative data from health facilities confirmed persisting declines in monthly consultations. Respondents explained reductions due to miscommunication about health facility operations, fear of COVID-19, reduced consultation schedules and reduced household incomes. Providers reported several challenges in delivering services including lack of caregiver compliance with risk mitigation measures, caregivers' fear of risk mitigation measures, perceived lack of caregiver knowledge about COVID-19 and lack of supplies and protective equipment. All respondents described how COVID-19 had increased food insecurity and food prices and reduced incomes and livelihoods. These negative economic consequences were perceived as the main reason for reported increases in cases of child malnutrition. Despite reductions, child health service utilization and delivery have largely continued throughout the COVID-19 pandemic, indicating an adaptive and resilient primary health system response in Monapo district. Our findings highlighted the persistent difficulties providers and caregivers face adhering to COVID-19 prevention and risk mitigation measures. A coordinated multi-sectoral response is needed to address the persistent negative economic impacts of the pandemic for young children and their families in rural areas.

14. Health Policy and Planning, June 2022, Vol.37 (6): 771-778

Foregone healthcare during the COVID-19 pandemic: early survey estimates from 39 low- and middle-income countries

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In addition to the direct health effects of the Coronavirus disease (COVID-19) pandemic, the pandemic has increased the risks of foregone non-COVID-19 healthcare. Likely, these risks are greatest in low- and middle-income countries (LMICs), where health systems are less resilient and economies more fragile. However, there are no published studies on the prevalence of foregone healthcare in LMICs during the pandemic. We used pooled data from phone surveys conducted between April and August 2020, covering 73 638 households in 39 LMICs. We estimated the prevalence of foregone care and the relative importance of various reported reasons for foregoing care, disaggregated by country income group and region. In the sample, 18.8% (95% CI 17.8–19.8%) of households reported not being able to access healthcare when needed. Financial barriers were the most-commonly self-reported reason for foregoing care, cited by 31.4% (28.6–34.3%) of households. More households in wealthier countries reported foregoing care for reasons related to COVID-19 [27.2% (22.5–31.8%) in upper-middle-income countries compared to 8.0% (4.7–11.3%) in low-income countries]; more households in poorer countries reported foregoing care due to financial reasons [65.6% (59.9–71.2%)] compared to 17.4% (13.1–21.6%) in upper-middle-income countries. A substantial proportion of households in LMICs had to forgo healthcare in the early months of the pandemic. While in richer countries this was largely due to fear of contracting COVID-19 or lockdowns, in poorer countries foregone care was due to financial constraints.

15. Lancet 2022;399(10339):1941–53

Remdesivir and three other drugs for hospitalised patients with COVID-19: final results of the WHO Solidarity randomised trial and updated meta-analyses

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Background. The Solidarity trial among COVID-19 inpatients has previously reported interim mortality analyses for four repurposed antiviral drugs. Lopinavir, hydroxychloroquine, and interferon (IFN)-β1a were discontinued for futility but randomisation to remdesivir continued. Here, we report the final results of Solidarity and meta-analyses of mortality in all relevant trials to date.

Methods. Solidarity enrolled consenting adults (aged ≥18 years) recently hospitalised with, in the view of their doctor, definite COVID-19 and no contraindication to any of the study drugs, regardless of any other patient characteristics. Participants were randomly allocated, in equal proportions between the locally available options, to receive whichever of the four study drugs (lopinavir, hydroxychloroquine, IFN-β1a, or remdesivir) were locally available at that time or no study drug (controls). All patients also received the local standard of care. No placebos were given. The protocol- specified primary endpoint was in-hospital mortality, subdivided by disease severity. Secondary endpoints were progression to ventilation if not already ventilated, and time-to-discharge from hospital. Final log-rank and Kaplan-Meier analyses are presented for remdesivir, and are appended for all four study drugs. Meta-analyses give weighted averages of the mortality findings in this and all other randomised trials of these drugs among hospital inpatients. Solidarity is registered with ISRCTN, ISRCTN83971151, and ClinicalTrials.gov, NCT04315948.

Findings. Between March 22, 2020, and Jan 29, 2021, 14304 potentially eligible patients were recruited from 454 hospitals in 35 countries in all six WHO regions. After the exclusion of 83 (0·6%) patients with a

refuted COVID-19 diagnosis or encrypted consent not entered into the database, Solidarity enrolled 14 221 patients, including 8275 randomly allocated (1:1) either to remdesivir (ten daily infusions, unless discharged earlier) or to its control (allocated no study drug although remdesivir was locally available). Compliance was high in both groups. Overall, 602 (14·5%) of 4146 patients assigned to remdesivir died versus 643 (15·6%) of 4129 assigned to control (mortality rate ratio [RR] 0·91 [95% CI 0·82–1·02], p=0·12). Of those already ventilated, 151 (42·1%) of 359 assigned to remdesivir died versus 134 (38·6%) of 347 assigned to control (RR 1·13 [0·89–1·42], p=0·32). Of those not ventilated but on oxygen, 14·6% assigned to remdesivir died versus 16·3% assigned to control (RR 0·87 [0·76–0·99], p=0·03). Of 1730 not on oxygen initially, 2·9% assigned to remdesivir died versus 3·8% assigned to control (RR 0·76 [0·46–1·28], p=0·30). Combining all those not ventilated initially, 11·9% assigned to remdesivir died versus 13·5% assigned to control (RR 0·86 [0·76–0·98], p=0·02) and 14·1% versus 15·7% progressed to ventilation (RR 0·88 [0·77–1·00], p=0·04). The non-prespecified composite outcome of death or progression to ventilation occurred in 19·6% assigned to remdesivir versus 22·5% assigned to control (RR 0·84 [0·75–0·93], p=0·001). Allocation to daily remdesivir infusions (vs open-label control) delayed discharge by about 1 day during the 10-day treatment period. A meta-analysis of mortality in all randomised trials of remdesivir versus no remdesivir yielded similar findings.

Interpretation. Remdesivir has no significant effect on patients with COVID-19 who are already being ventilated. Among other hospitalised patients, it has a small effect against death or progression to ventilation (or both).

Development Assistance for Health, Global Health Policies & North-South partnerships

16. Health Policy and Planning, June 2022, Vol.37 (6): 779-790

EDITOR'S CHOICE: Power across the global health landscape: a network analysis of development assistance 1990–2015

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Power distribution across the global health landscape has undergone a fundamental shift over the past three decades. What was once a system comprised largely of bilateral and multilateral institutional arrangements between nation-states evolved into a varied landscape where these traditional actors were joined by a vast assemblage of private firms, philanthropies, non-governmental organizations and public–private partnerships. Financial resources are an explicit power source within global health that direct how, where and to whom health interventions are delivered, which health issues are (de)prioritized, how and by whom evidence to support policies and interventions is developed and how we account for progress. Financial resource allocations are not isolated decisions but rather outputs of negotiation processes and dynamics between actors who derive power from a multiplicity of sources. The aims of this paper are to examine the changes in the global health actor landscape and the shifts in power using data on disbursements of development assistance for health (DAH). A typology of actors was developed from previous literature and refined through an empirical analysis of DAH. The emergent network structure of DAH flows between global health actors and positionality of actors within the network were analysed between 1990 and 2015. The results reflect the dramatic shift in the numbers of actors, relationships between actors, and funding dispersal over this time period. Through a combination of the massive influx of new funding sources and a decrease in public spending, the majority control of financial resources in the DAH network receded from public entities to a vast array of civil society organizations and public–private partnerships. The most prominent of these was the Bill and Melinda Gates Foundation and the Global Fund for AIDS, TB and malaria, which rose to the third and fourth most central positions within the DAH network by 2015.

17. Lancet 2022;399(10339):1977–90

Series: Political Science and Health

Framing and the formation of global health priorities
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This is the first in a Series of three papers on Political Science and Health.

Health issues vary in the amount of attention and resources they receive from global health organisations and national governments. How issues are framed could shape differences in levels of priority. We reviewed scholarship on global health policy making to examine the role of framing in shaping global health priorities. The review provides evidence of the influence of three framing processes—securitisation, moralisation, and technification. Securitisation refers to an issue's framing as an existential threat, moralisation as an ethical imperative, and technification as a wise investment that science can solve. These framing processes concern more than how issues are portrayed publicly. They are socio-political processes, characterised by contestation among actors in civil society, government, international organisations, foundations, and research institutions. These actors deploy various forms of power to advance particular frames as a means of securing attention and resources for the issues that concern them. The ascription of an issue as a security concern, an ethical imperative, or a wise investment is historically contingent: it is not inevitable that any given issue will be framed in one or more of these ways. A health issue's inherent characteristics—such as the lethality of a pathogen that causes it—also shape these ascriptions, but do not fully determine them. Although commonly facing resistance, global health elites often determine which frames prevail, raising questions about the legitimacy of priority-setting processes. We draw on the review to offer ideas on how to make these processes fairer than they are at present, including a call for democratic representation even as necessary space is preserved for elite expertise.

Health systems, Health Systems Financing & Health Policy

18. Health Policy and Planning, June 2022, Vol.37 (6): 747-759

Assessing the long-term effects of Basic Medical Insurance on catastrophic health spending in China
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Many developing countries have implemented social health insurance programmes to protect their citizens against the financial risks of seeking healthcare. While many studies have explored how individual insurance enrolments affect catastrophic health spending (CHS) in the short term, there is a lack of evidence on the long-term macro-level effects of social health insurance on CHS in low- and middle-income countries. This study examines the long-term effects of Basic Medical Insurance (BMI) on individual CHS in China, a middle-income country that has witnessed one of the highest worldwide increases in CHS rates despite its remarkable achievement of universal health insurance coverage. Specifically, we used existing longitudinal data from 1989 to 2015, therein assessing BMI policy effects by constructing two macro-level indicators, including the year of BMI presence at the prefectural level and number of years relative to BMI introduction. We employed a three-level difference-in-differences approach for the estimation. There were two main findings. First, BMI policy did not significantly reduce the probability of incurring CHS for BMI enrollees over time. Years after BMI was introduced, the policy even predicted a significant increase in the probability of incurring CHS for individuals who shifted their enrolments from traditional insurance to BMI. Second, BMI policy had spillover effects on the increase in the probability of incurring CHS for non-BMI individuals a few years after its inception. We believe there are three possible explanations for these findings: (1) shrinking BMI service coverage compared to pre-existing government-funded insurance schemes, (2) a profit-driven hospital reform that induces the overuse of expensive medicines and diagnostic tests and (3) the absence of strategic purchasing among

local BMI agencies. We also discuss how relevant policy interventions may alleviate insurance-driven financial risks.

19. Health Policy and Planning, August 2022, Vol.7 (7): 928-931

Characterizing key misconceptions of equity in health financing for universal health coverage

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Fairness or equity in health financing is critical to ensuring universal health coverage (UHC). While equity in health financing is generally about financing health services according to ability-to-pay, misconceptions exist among policymakers, decision-makers and some researchers about what constitutes financing health services according to ability-to-pay or an equitably financed health system. This commentary characterizes three misconceptions of equitable health financing—(1) the misconception of fair contribution, (2) the pro-poor misconception and (3) the misconception of cross-subsidization. The paper also uses these misconceptions to clearly illustrate what constitutes equity in health financing, highlighting the importance of income distribution. The misconceptions come from the authors' extensive engagements with policymakers and practitioners, especially in Africa. A clear understanding of equity in health financing provides an avenue to significant progress towards UHC and improving a country's income distribution.

HIV

20. Health Policy and Planning, May 2022, Vol. 37 (5): 587–596

Sexuality-based stigma and access to care: intersecting perspectives between healthcare providers and men who have sex with men in HIV care centres in Senegal

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Men who have sex with men (MSM) in Senegal face a challenging socio-legal context, marked by homophobia and the illegality of homosexuality. In addition, human immunodeficiency virus (HIV) prevalence among MSM is 27.6%, 46 times greater than the one in the general population (0.5%). Nevertheless, access to healthcare by MSM may be hampered by stigmatizing attitudes from health facility staff (medical and non-medical). This article describes the health facility staff/MSM relationship and analyses its effects on access to healthcare by MSM. The data used were collected through a field survey based on observations and qualitative interviews conducted in 2019 and 2020 with 16 MSM, 1 non-governmental organization (NGO) staff and 9 healthcare providers in Dakar (the capital city) and Mbour (secondary city on the West Coast) hospitals. The data were subject to a thematic analysis assisted by the ATLAS software. The relationship between MSM and healthcare providers is ambiguous. On the one hand, healthcare providers are torn between their professional duty to treat MSM and the cost of being stigmatized by other colleagues. Therefore, they often limit their empathy with MSM within the hospital context. On the other hand, MSM, trusting in the confidentiality of healthcare providers, feel safe in the care pathway. However, we identify the following stigmatizing factors limiting access to care include (1) fear of meeting a relative, (2) difficult relationships with non-medical support staff (mainly security guards), (3) HIV status disclosure and (4) potential conflicts with other MSM. This study is unique as it includes non-medical staff in its respondents. It shows that hospitals are divided into several areas, based on the stigma perceived by MSM. It is important to map out MSM's care trajectories and spaces and to identify all types of staff working within them, including non-medical staff, and enrol them in stigma reduction interventions.

21. Lancet 2022 Sep 17;400(10356): 887-895

The clinical effect of point-of-care HIV diagnosis in infants: a systematic review and meta-analysis

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Background: Timely diagnosis and treatment of HIV is crucial in HIV-exposed infants to prevent the high rates of mortality seen during the first 2 years of life if HIV is untreated. However, challenges with sample transportation, testing, and result delivery to caregivers have led to long delays in treatment initiation. We aimed to compare the clinical effect of point-of-care HIV testing versus laboratory-based testing (standard of care) in HIV-exposed infants.

Methods: We did a systematic review and meta-analysis and searched PubMed, MEDLINE, Cochrane Central Register of Controlled Trials, Embase, Conference Proceedings Citation Index-Science, and WHO Global Index Medicus, from Jan 1, 2014, to Aug 31, 2020. Studies were included if they pertained to the use of point-of-care nucleic acid testing for infant HIV diagnosis, had a laboratory-based nucleic acid test as the comparator or standard of care against the index test (same-day point-of-care testing), evaluated clinical outcomes when point-of-care testing was used, and included HIV-exposed infants aged younger than 2 years. Studies were excluded if they did not use a laboratory-based comparator, a nucleic acid test that had been approved by a stringent regulatory authority, or diagnostic-accuracy or performance evaluations (eg, no clinical outcomes included). Reviews, non-research letters, commentaries, and editorials were also excluded. The risk of bias was evaluated using the ROBINS-I framework. Data were extracted from published reports. Data from all studies were analysed using frequency statistics to describe the overall populations evaluated and their results. Key outcomes were time to result delivery and antiretroviral therapy initiation, and proportion of HIV-positive infants initiated on antiretroviral therapy within 60 days after sample collection.

Findings: 164 studies were identified by the search and seven were included in the analysis, comprising 37 377 infants in total across 15 countries, including 25 170 (67%) who had point-of-care HIV testing and 12 207 (33%) who had standard-of-care testing. The certainty of evidence was high. Same-day point-of-care testing led to a significantly shorter time between sample collection and result delivery to caregivers compared with standard-of-care testing (median 0 days [95% CI 0-0] vs 35 days [35-37]). Time from sample collection to antiretroviral therapy initiation in infants found to be HIV-positive was significantly lower with point-of-care testing compared with standard of care (median 0 days [95% CI 0-1] vs 40 days [36-44]). When each study's result was weighted equally, 90·3% (95% CI 76·7-96·5) of HIV-positive infants diagnosed using point-of-care testing had started antiretroviral therapy within 60 days of sample collection, compared with only 51·6% (27·1-75·7) who had standard-of-care testing (odds ratio 8·74 [95% CI 6·6-11·6]; p<0·0001).

Interpretation: Overall, the certainty of the evidence in this analysis was rated as high for the primary outcomes related to result delivery and treatment initiation, with no serious risk of bias, inconsistency, indirectness, or imprecision. In HIV-exposed infants, same-day point-of-care HIV testing was associated with significantly improved time to result delivery, time to antiretroviral therapy initiation, and proportion of HIV-positive infants starting antiretroviral therapy within 60 days compared with standard of care.

22. Lancet 2022;400(10351):480-1
World Report
Botswana’s HIV/AIDS success
Thornton J

(Abbreviated)

Botswana has become only the third country to surpass the UN’s 95-95-95 goals on HIV and says it is on target to end AIDS as a public health threat.

Botswana had achieved and exceeded the UNAIDS 95-95-95 targets: with 95% of the population being aware of their HIV status, 98% of those on treatment, and 98% virally supressed. Only Switzerland and Eswatini have also met the triple 95 goal, both in December, 2020.

Commentators explain the success was due to sustained political will; strong domestic investment; joint working between political and scientific leaders; creative partnerships; and evidence-based, inclusive, guideline setting with an openness to learn from international experts. Great credit, according to Mine (the former Senior Consultant Virologist, and Head of the National Health Laboratory in the Ministry of Health and Wellness), should go to former President of Botswana, Festus Mogae, who pledged to make tackling HIV a national priority. By 2000, the prevalence of HIV infection in Botswana had reached 35·8%. In 2002, Mogae announced an HIV/AIDS programme called Masa, translated as New Dawn.

Despite the President taking the initiative, HIV was never politicised. Botswana, which has 2·3 m people in a country the size of France, became the first African country to offer ART to citizens for free. The programme resulted from a private-public collaboration called The African Comprehensive HIV/AIDS Partnerships (ACHAP), between the Government and the Bill & Melinda Gates Foundation, and Merck, which donated the drugs. Funding and support also came from the United States President's Emergency Plan for AIDS Relief (PEPFAR), and the Global Fund.

In 2003, the Government launched a 6-year National Strategic Framework to provide clear guidance for ministries, districts, non-governmental organisations, and the private sector to enable them to work collaboratively. In an attempt to increase the uptake of HIV testing and ART, in January, 2004, Botswana introduced routine testing for HIV, in which nearly all patients would be tested during medical visits unless they explicitly refused. Crucially, Botswana invested in a laboratory system with good quality assurance to monitor viral load and resistance to treatment, and brought in international experts from the Harvard AIDS Institute, such as Max Essex and others, to learn from and to assist in setting up the national ART programme.

During the second framework, in 2013, Botswana became one of the first countries in the world to implement the so-called Option B+, a plan for treating all pregnant and breastfeeding women diagnosed with HIV with lifelong ART, to prevent mother-to-child transmission. In 2016 the Ministry of Health developed a Treat All strategy, ensuring that all who test positive for HIV get free treatment no matter their viral load or CD4 cell count. In the current framework, National Strategic Framework III 2018–23, there has been a rapid uptake of innovations, including use of self-testing and the introduction of pre-exposure prophylaxis, and the impressive decision in 2019 to give foreign non-residents free HIV treatment.

All of these interventions cost money. UNAIDS estimates that around 60% of investment into HIV came from then national Government, 30% from PEPFAR, and 10% from the Global Fund. Overall, AIDS-related deaths fell by 72% between 2002 and 2020, while new HIV infections reduced by 61% over the same period. In December, 2021, Botswana became the first high-burden country to receive the WHO's silver tier award for its groundbreaking efforts to cut child transmission rates to less than 5%. In fact, the vertical transmission rate was only 2·2%, down from 9% a decade earlier.

Despite all these measures, prevalence in 2022 is still high. Botswana is one of the top four countries in terms of HIV burden, after Eswatini, Lesotho, and South Africa. The 5th Impact Survey, presented as a poster by Mine in Montreal, was a nationally representative sample of 14 763 adults (aged 15–64 years) who filled in questionnaires at home and were tested for HIV, viral load, and the presence of antiretrovirals. It indicated a prevalence of 20·8%, heavily weighted towards women (26·2%). The data showed significant gaps in awareness in 25–44-year-old men (88·7%) and 15–24-year-old women (82·3%). Of people with HIV aged 15–24 years, only 84·5% were aware of their status compared with 91% in all age groups.

Now the challenge is for Botswana to sustain these achievements at a time of international economic uncertainty post-COVID-19 and with the war in Ukraine, by increasing efficiency, and to make prevention an immediate priority.

Human Resources for Health

23. Lancet 2022;399(10341):2129–54

Measuring the availability of human resources for health and its relationship to universal health coverage for 204 countries and territories from 1990 to 2019: a systematic analysis for the Global Burden of Disease Study 2019

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Background. Human resources for health (HRH) include a range of occupations that aim to promote or improve human health. The UN Sustainable Development Goals (SDGs) and the WHO Health Workforce 2030 strategy have drawn attention to the importance of HRH for achieving policy priorities such as universal health coverage (UHC). Although previous research has found substantial global disparities in HRH, the absence of comparable cross- national estimates of existing workforces has hindered efforts to quantify workforce requirements to meet health system goals. We aimed to use comparable and standardised data sources to estimate HRH densities globally, and to examine the relationship between a subset of HRH cadres and UHC effective coverage performance.

Methods. Through the International Labour Organization and Global Health Data Exchange databases, we identified 1404 country-years of data from labour force surveys and 69 country-years of census data, with detailed microdata on health-related employment. From the WHO National Health Workforce Accounts, we identified 2950 country-years of data. We mapped data from all occupational coding systems to the International Standard Classification of Occupations 1988 (ISCO-88), allowing for standardised estimation of densities for 16 categories of health workers across the full time series. Using data from 1990 to 2019 for 196 of 204 countries and territories, covering seven Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) super-regions and 21 regions, we applied spatiotemporal Gaussian process regression (ST-GPR) to model HRH densities from 1990 to 2019 for all countries and territories. We used stochastic frontier meta-regression to model the relationship between the UHC effective coverage index and densities for the four categories of health workers enumerated in SDG indicator 3.c.1 pertaining to HRH: physicians, nurses and midwives, dentistry personnel, and pharmaceutical personnel. We identified minimum workforce density thresholds required to meet a specified target of 80 out of 100 on the UHC effective coverage index, and quantified national shortages with respect to those minimum thresholds.

Findings. We estimated that, in 2019, the world had 104·0 million (95% uncertainty interval 83·5–128·0) health workers, including 12·8 million (9·7–16·6) physicians, 29·8 million (23·3–37·7) nurses and midwives, 4·6 million (3·6–6·0) dentistry personnel, and 5·2 million (4·0–6·7) pharmaceutical personnel. We calculated a global physician density of 16·7 (12·6–21·6) per 10000 population, and a nurse and midwife density of 38·6 (30·1–48·8) per 10000 population. We found the GBD super-regions of sub-Saharan Africa, south Asia, and north Africa and the Middle East had the lowest HRH densities. To reach 80 out of 100 on the UHC effective coverage index, we estimated that, per 10000 population, at least 20·7 physicians, 70·6 nurses and midwives, 8·2 dentistry personnel, and 9·4 pharmaceutical personnel would be needed. In total, the 2019 national health workforces fell short of these minimum thresholds by 6·4 million physicians, 30·6 million nurses and midwives, 3·3 million dentistry personnel, and 2·9 million pharmaceutical personnel.

Interpretation. Considerable expansion of the world's health workforce is needed to achieve high levels of UHC effective coverage. The largest shortages are in low-income settings, highlighting the need for

increased financing and coordination to train, employ, and retain human resources in the health sector. Actual HRH shortages might be larger than estimated because minimum thresholds for each cadre of health workers are benchmarked on health systems that most efficiently translate human resources into UHC attainment.

Mental Health

24. Global Mental Health 2022 DOI:10.1017/gmh.2022.29

Prevalence of mental disorders in refugees and asylum seekers: a systematic review and meta-analysis
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Background Studies have identified high rates of mental disorders in refugees, but most used self-report measures of psychiatric symptoms. In this study, we examined the percentages of adult refugees and asylum seekers meeting diagnostic criteria for major depressive disorder (MDD), post-traumatic stress disorder, bipolar disorder (BPD), and psychosis.

Methods A systematic literature search in three databases was conducted. We included studies examining the prevalence of MDD, post-traumatic stress disorder, BPD, and psychosis in adult refugees according to a clinical diagnosis. To estimate the pooled prevalence rates, we performed a meta-analysis using the Meta-prop package in Stata (PROSPERO: CRD42018111778).

Results We identified 7048 records and 40 studies (11 053 participants) were included. The estimated pooled prevalence rates were 32% (95% CI 26–39%; I^2 = 99%) for MDD, 31% (95% CI 25–38%; I^2 = 99.5%) for post-traumatic stress disorder, 5% (95% CI 2–9%; I^2 = 97.7%) for BPD, and 1% (95% CI 1–2%; I^2 = 0.00%) for psychosis. Subgroup analyses showed significantly higher prevalence rates of MDD in studies conducted in low-middle income countries (47%; 95% CI 38–57%, p = 0.001) than high-income countries studies (28%; 95% CI 22–33%), and in studies which used the Mini-International Neuropsychiatric Interview (37%; 95% CI 28–46% p = 0.05) compared to other diagnostic interviews (26%; 95% CI 20–33%). Studies among convenience samples reported significant (p = 0.001) higher prevalence rates of MDD (35%; 95% CI 23–46%) and PTSD (34%; 95% CI 22–47%) than studies among probability-based samples (MDD: 30%; 95% CI 21–39%; PTSD: 28%; 95% 19–37%). Conclusions This meta-analysis has shown a markedly high prevalence of mental disorders among refugees. Our results underline the devastating effects of war and violence, and the necessity to provide mental health intervention to address mental disorders among refugees. The results should be cautiously interpreted due to the high heterogeneity.

25. Lancet Psychiatry 2022;9(7):555-64

Trajectories and predictors of perinatal depressive symptoms among Kenyan women: a prospective cohort study
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(Abstract in English, Swahili (macrolanguage)

Background: There are gaps in understanding longitudinal patterns and predictors of perinatal depressive symptoms in sub-Saharan Africa. This study aimed to explore trajectories of depressive symptoms and associated factors from pregnancy to 9 months post partum among Kenyan women.

Methods: In this prospective cohort study, we analysed data from the PrEP Implementation for Mothers in Antenatal Care (PrIMA) study in which HIV-negative women were enrolled in pregnancy and followed

up to 9 months post partum in 20 public sector maternal-child health clinics in western Kenya. Pregnant women were eligible for enrolment if they were not infected with HIV, aged 15 years or older, and were able to provide consent. Eligible participants were screened and enrolled between Jan 15, 2018, and July 31, 2019, and followed up to 9 months post partum, with the last participant study visit conducted on Jan 15, 2021. Study nurses serially assessed depressive symptoms using the Center for Epidemiologic Studies Depression Scale (CESD-10), intimate partner violence with the Hurt, Insult, Threaten, Scream scale, and social support with the Medical Outcomes Study scale. Generalised estimating equations were used to identify correlates of moderate-to-severe depressive symptoms (CESD-10 score ≥10) and group-based trajectory modelling identified discrete trajectories of perinatal depressive symptoms.

Findings: Among 4447 participants in the main PrIMA study, 3555 had complete depressive symptom data in pregnancy and depressive symptom data post partum and were included in the primary analysis. Median age was 24·0 years (IQR 21·0-28·7), 1330 (38%) participants had low social support, and 278 (8%) reported intimate partner violence in pregnancy. All participants (100%) were female and all (100%) were of African Kenyan ethnicity. Prevalence of moderate-to-severe depressive symptoms was higher in pregnancy than post partum (870 [24·5%; 95% CI 23·1-25·9] vs 597 [6·8%; 15·6-18·1]; p<0·0001). Five patterns of depressive symptoms were identified; persistent moderate-to-severe depressive symptoms in pregnancy and post partum (295 [8·3%]), moderate-to-severe depressive symptoms in pregnancy that resolved post partum (139 [3·9%]), moderate-to-severe depressive symptoms that emerged post partum (40 [1·1%]), chronically mild symptoms (2709 [76·2%]), and no depressive symptoms (372 [10·5%]). Emergent moderate-to-severe depressive symptoms were associated with older age. Emergent, persistent, and resolving moderate-to-severe depressive symptoms were associated with intimate partner violence during pregnancy; and persistent and resolving moderate-to-severe depressive symptoms were associated with low social support and high HIV risk (all p<0·05). Moderate-to-severe depressive symptom risk was significantly increased with intimate partner violence (adjusted odds ratio 2·07 [95% CI 1·81-2·31]; p<0·0001), low social support (1·74 [1·56-1·95]; p<0·0001), and partner HIV-positive status (1·48 [1·22-1·78]; p<0·0001). 23·34% (95% CI 18·77-27·65) of cases of perinatal moderate-to-severe depressive symptoms were attributable to low social support.

Interpretation: One third of women had perinatal moderate-to-severe depressive symptoms; nearly half of these had higher severity phenotypes of resolving, persistent, and emerging moderate-to-severe depressive symptoms that might require tailored interventions. Perinatal women with comorbid psychosocial stressors such as intimate partner violence and previous pregnancy loss should be prioritised for mental health services that augment social support within routine maternal-child health care.

26. Lancet Psychiatry 2022;9(7):595-600

Review

Global mental health research and practice: a decolonial approach

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The global health movement is having a paradigm crisis-a period characterised by a questioning of one's values, goals, and sense of identity. Despite important advances in population health worldwide, global health and global mental health often produce and reproduce power imbalances and patterns of oppression and exploitation that perpetuate the current modern world system (ie, Eurocentric, capitalist, and patriarchal) and its entangled global hierarchies (eg, gender, economic, epistemic, and linguistic). A consensus is emerging to decolonise global mental health, but it is not clear how to move from rhetoric to action. In this Personal View, we aim to share our experiences and the practices developed in the

context of the COVID-19 health care workers (HEROES) Study. To do so, we present our HEROES decolonial team approach, which comprises three underlying principles: epistemic justice, pragmatic solidarity, and sovereign acts. We have developed decolonial team practices such as co-creating communication spaces to foster horizontal and equitable dialogue, locating and managing the study database in Chile, and ensuring local teams' rights and access to the data without barriers.

27. Psychol Med 2022;52(8):1509-16.

Comparing psychotic experiences in low-and-middle-income-countries and high-income-countries with a focus on measurement invariance

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Background: The prevalence of psychotic experiences (PEs) is higher in low-and-middle-income-countries (LAMIC) than in high-income countries (HIC). Here, we examine whether this effect is explicable by measurement bias.

Methods: A community sample from 13 countries (N = 7141) was used to examine the measurement invariance (MI) of a frequently used self-report measure of PEs, the Community Assessment of Psychic Experiences (CAPE), in LAMIC (n = 2472) and HIC (n = 4669). The CAPE measures positive (e.g. hallucinations), negative (e.g. avolition) and depressive symptoms. MI analyses were conducted with multiple-group confirmatory factor analyses.

Results: MI analyses showed similarities in the structure and understanding of the CAPE factors between LAMIC and HIC. Partial scalar invariance was found, allowing for latent score comparisons. Residual invariance was not found, indicating that sum score comparisons are biased. A comparison of latent scores before and after MI adjustment showed both overestimation (e.g. avolition, d = 0.03 into d = -0.42) and underestimation (e.g. magical thinking, d = -0.03 into d = 0.33) of PE in LAMIC relative to HIC. After adjusting the CAPE for MI, participants from LAMIC reported significantly higher levels on most CAPE factors but a significantly lower level of avolition.

Conclusion: Previous studies using sum scores to compare differences across countries are likely to be biased. The direction of the bias involves both over- and underestimation of PEs in LAMIC compared to HIC. Nevertheless, the study confirms the basic finding that PEs are more frequent in LAMIC than in HIC.

Non Communicable Diseases (NCD's)

28. BMJ 2022;378:e069679

Burden of chronic obstructive pulmonary disease and its attributable risk factors in 204 countries and territories, 1990-2019: results from the Global Burden of Disease Study 2019.

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Objective To report the global, regional, and national burden of chronic obstructive pulmonary disease (COPD) and its attributable risk factors between 1990 and 2019, by age, sex, and sociodemographic index.

Design Systematic analysis.

Data source Global Burden of Disease Study 2019.

Main outcome measures Data on the prevalence, deaths, and disability adjusted life years (DALYs) of COPD, and its attributable risk factors, were retrieved from the Global Burden of Disease 2019 project for 204 countries and territories, between 1990 and 2019. The counts and rates per 100 000 population, along with 95% uncertainty intervals, were presented for each estimate.
Results In 2019, 212.3 million prevalent cases of COPD were reported globally, with COPD accounting for 3.3 million deaths and 74.4 million DALYs. The global age standardised point prevalence, death, and DALY rates for COPD were 2638.2 (95% uncertainty intervals 2492.2 to 2796.1), 42.5 (37.6 to 46.3), and 926.1 (848.8 to 997.7) per 100 000 population, which were 8.7%, 41.7%, and 39.8% lower than in 1990, respectively. In 2019, Denmark (4299.5), Myanmar (3963.7), and Belgium (3927.7) had the highest age standardised point prevalence of COPD. Egypt (62.0%), Georgia (54.9%), and Nicaragua (51.6%) showed the largest increases in age standardised point prevalence across the study period. In 2019, Nepal (182.5) and Japan (7.4) had the highest and lowest age standardised death rates per 100 000, respectively, and Nepal (3318.4) and Barbados (177.7) had the highest and lowest age standardised DALY rates per 100 000, respectively. In men, the global DALY rate of COPD increased up to age 85-89 years and then decreased with advancing age, whereas for women the rate increased up to the oldest age group (≥95 years). Regionally, an overall reversed V shaped association was found between sociodemographic index and the age standardised DALY rate of COPD. Factors contributing most to the DALYs rates for COPD were smoking (46.0%), pollution from ambient particulate matter (20.7%), and occupational exposure to particulate matter, gases, and fumes (15.6%).
Conclusions Despite the decreasing burden of COPD, this disease remains a major public health problem, especially in countries with a low sociodemographic index. Preventive programmes should focus on smoking cessation, improving air quality, and reducing occupational exposures to further reduce the burden of COPD.

29. BMJ 2022;378:e067582

Patterns of tobacco use in low and middle income countries by tobacco product and sociodemographic characteristics: nationally representative survey data from 82 countries.
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Objectives To determine the prevalence and frequency of using any tobacco product and each of a detailed set of tobacco products, how tobacco use and frequency of use vary across countries, world regions, and World Bank country income groups, and the socioeconomic and demographic gradients of tobacco use and frequency of use within countries.
Design Secondary analysis of nationally representative, cross-sectional, household survey data from 82 low and middle income countries collected between 1 January 2015 and 31 December 2020.
Setting Population based survey data.
Participants 1 231 068 individuals aged 15 years and older.
Main outcome measures Self-reported current smoking, current daily smoking, current smokeless tobacco use, current daily smokeless tobacco use, pack years, and current use and use frequencies of each tobacco product. Products were any type of cigarette, manufactured cigarette, hand rolled cigarette, water pipe, cigar, oral snuff, nasal snuff, chewing tobacco, and betel nut (with and without tobacco).
Results The smoking prevalence in the study sample was 16.5% (95% confidence interval 16.1% to 16.9%) and ranged from 1.1% (0.9% to 1.3%) in Ghana to 50.6% (45.2% to 56.1%) in Kiribati. The user prevalence of smokeless tobacco was 7.7% (7.5% to 8.0%) and prevalence was highest in Papua New Guinea (daily user prevalence of 65.4% (63.3% to 67.5%)). Although variation was wide between countries and by tobacco product, for many low and middle income countries, the highest prevalence and cigarette smoking frequency was reported in men, those with lower education, less household wealth, living in rural areas, and higher age.

Conclusions Both smoked and smokeless tobacco use and frequency of use vary widely across tobacco products in low and middle income countries. This study can inform the design and targeting of efforts to reduce tobacco use in low and middle income countries and serve as a benchmark for monitoring progress towards national and international goals.

30. PLoS Med 19(8): e1004079.

Urban-rural differences in hypertension prevalence in low-income and middle-income countries, 1990–2020: A systematic review and meta-analysis

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Background
The influence of urbanicity on hypertension prevalence remains poorly understood. We conducted a systematic review and meta-analysis to assess the difference in hypertension prevalence between urban and rural areas in low-income and middle-income countries (LMICs), where the most pronounced urbanisation is underway.
Methods and findings
We searched PubMed, Web of Science, Scopus, and Embase, from 01/01/1990 to 10/03/2022. We included population-based studies with ≥400 participants 15 years and older, selected by using a valid sampling technique, from LMICs that reported the urban-rural difference in hypertension prevalence using similar blood pressure measurements. We excluded abstracts, reviews, non-English studies, and those with exclusively self-reported hypertension prevalence. Study selection, quality assessment, and data extraction were performed by 2 independent reviewers following a standardised protocol. Our primary outcome was the urban minus rural prevalence of hypertension. Hypertension was defined as systolic blood pressure ≥140 mm Hg and/or diastolic blood pressure as ≥90 mm Hg and could include use of antihypertensive medication, self-reported diagnosis, or both. We investigated heterogeneity using study-level and socioeconomic country-level indicators. We conducted meta-analysis and meta-regression using random-effects models. This systematic review and meta-analysis has been registered with PROSPERO (CRD42018091671).
We included 299 surveys from 66 LMICs, including 19,770,946 participants (mean age 45.4 ± SD = 9 years, 53.0% females and 63.1% from rural areas). The pooled prevalence of hypertension was 30.5% (95% CI, 28.9, 32.0) in urban areas and 27.9% (95% CI, 26.3, 29.6) in rural areas, resulting in a pooled urban-rural difference of 2.45% (95% CI, 1.57, 3.33, I-square: 99.71%, tau-square: 0.00524, P(heterogeneity) < 0.001). Hypertension prevalence increased over time and the rate of change was greater in rural compared to urban areas, resulting in a pooled urban-rural difference of 5.75% (95% CI, 4.02, 7.48) in the period 1990 to 2004 and 1.38% (95% CI, 0.40, 2.37) in the period 2005 to 2020, $p <$ 0.001 for time period. We observed substantial heterogeneity in the urban-rural difference of hypertension, which was partially explained by urban-rural definition, probably high risk of bias in sampling, country income status, region, and socioeconomic indicators. The urban-rural difference was 5.67% (95% CI, 4.22, 7.13) in low, 2.74% (95% CI, 1.41, 4.07) in lower-middle and −1.22% (95% CI, −2.73, 0.28) in upper-middle-income countries in the period 1990 to 2020, $p < 0.001$ for country income. The urban-rural difference was highest for South Asia (7.50%, 95% CI, 5.73, 9.26), followed by sub-Saharan Africa (4.24%, 95% CI, 2.62, 5.86) and reversed for Europe and Central Asia (−6.04%, 95% CI, −9.06, −3.01), in the period 1990 to 2020, $p < 0.001$ for region. Finally, the urban-rural difference in hypertension prevalence decreased nonlinearly with improvements in Human Development Index and infant mortality rate. Limitations included lack of data available from all LMICs and variability in urban and rural definitions in the literature.
Conclusions
The prevalence of hypertension in LMICs increased between 1990 and 2020 in both urban and rural areas, but with a stronger trend in rural areas. The urban minus rural hypertension difference decreased

with time, and with country-level socioeconomic development. Focused action, particularly in rural areas, is needed to tackle the burden of hypertension in LMICs.

Road Safety and Traffic Injuries

31. Lancet. 2022 Jul 9;400(10346):127-136.

The political and social contexts of global road safety: challenges for the next decade

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The goal of this Series paper is to show how road safety has evolved as a global public health issue over the past two decades and to discuss the political and economic dynamics that led to this change. Specifically, the key stakeholders, influences, networks, issue framing, actor power, and synergistic interactions that have contributed to how road safety has evolved as a global public health issue will be discussed. In doing so, we capture the important chronology of events and discuss a set of challenges that highlight the complexity of road safety. We posit that the global road safety community needs to re-evaluate its role and strategy for the next decade and focus more on implementation and country action to achieve reductions in road traffic injuries. We call for an open and inclusive process to ensure that such a reflection occurs before the end of the current decade.

32. Lancet. 2022 Jul 23;400(10348):329-336.

Improvement in trauma care for road traffic injuries: an assessment of the effect on mortality in low-income and middle-income countries

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Over 90% of the annual 1·35 million worldwide deaths due to road traffic injuries (RTIs) occur in low-income and middle-income countries (LMICs). For this Series paper, our aim was two-fold. Firstly, to review evidence on effective interventions for victims of RTIs; and secondly, to estimate the potential number of lives saved by effective trauma care systems and clinical interventions in LMICs. We reviewed all the literature on trauma-related health systems and clinical interventions published during the past 20 years using MEDLINE, Embase, and Web of Science. We included studies in which mortality was the primary outcome and excluded studies in which trauma other than RTIs was the predominant injury. We used data from the Global Status Report on Road Safety 2018 and a Monte Carlo simulation technique to estimate the potential annual attributable number of lives saved in LMICs. Of the 1921 studies identified for our review of the literature, 62 (3·2%) met the inclusion criteria. Only 28 (1·5%) had data to calculate relative risk. We found that more than 200 000 lives per year can be saved globally with the implementation of a complete trauma system with 100% coverage in LMICs. Partial system improvements such as establishing trauma centres (>145 000 lives saved) and instituting and improving trauma teams (>115 000) were also effective. Emergency medical services had a wide range of effects on mortality, from increasing mortality to saving lives (>200 000 excess deaths to >200 000 lives saved per year). For clinical interventions, damage control resuscitation (>60 000 lives saved per year) and institution of interventional radiology (>50 000 lives saved per year) were the most effective interventions. On the basis of the scarce evidence available, a few key interventions have been identified to provide guidance to policy makers and clinicians on evidence-based interventions that can reduce deaths due to RTIs in LMICs. We also highlight important gaps in knowledge on the effects of other interventions.

Sexual and Reproductive Health; Maternal and Child health services

33. BMJ Global Health 2022;7:e009465.

Maternal mortality decline in Zimbabwe, 2007/2008 to 2018/2019: findings from mortality surveys using civil registration, vital statistics and health system data.

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Background Sustainable Development Goal (SDG) 3.1 target is to reduce the global maternal mortality ratio (MMR) to less than 70 maternal deaths per 100 000 live births by 2030. In the Ending Preventable Maternal Mortality strategy, a supplementary target was added, that no country has an MMR above 140 by 2030. We conducted two cross-sectional reproductive age mortality surveys to analyse changes in Zimbabwe's MMR between 2007–2008 and 2018–2019 towards the SDG target.

Methods We collected data from civil registration, vital statistics and medical records on deaths of women of reproductive ages (WRAs), including maternal deaths from 11 districts, randomly selected from each province (n=10) using cluster sampling. We calculated weighted mortality rates and MMRs using negative binomial models, with 95% CIs, performed a one-way analysis of variance of the MMRs and calculated the annual average reduction rate (ARR) for the MMR.

Results In 2007–2008 we identified 6188 deaths of WRAs, 325 pregnancy-related deaths and 296 maternal deaths, and in 2018–2019, 1856, 137 and 130, respectively. The reproductive age mortality rate, weighted by district, declined from 11 to 3 deaths per 1000 women. The MMR (95% CI) declined from 657 (485 to 829) to 217 (164 to 269) deaths per 100 000 live births at an annual ARR of 10.1%.

Conclusions Zimbabwe's MMR declined by an annual ARR of 10.1%, against a target of 10.2%, alongside declining reproductive age mortality. Zimbabwe should continue scaling up interventions against direct maternal mortality causes to achieve the SDG 3.1 target by 2030.

34. Health Policy and Planning, May 2022, Vol. 37 (5): 565–574

Zooming in and out: a holistic framework for research on maternal, late foetal and newborn survival and health

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Research is needed to understand why some countries succeed in greater improvements in maternal, late foetal and newborn health (MNH) and reducing mortality than others. Pathways towards these health outcomes operate at many levels, making it difficult to understand which factors contribute most to these health improvements. Conceptual frameworks provide a cognitive means of rendering order to these factors and how they interrelate to positively influence MNH. We developed a conceptual framework by integrating theories and frameworks from different disciplines to encapsulate the range of factors that explain reductions in maternal, late foetal and neonatal mortality and improvements in health. We developed our framework iteratively, combining our interdisciplinary research team's knowledge, experience and review of the literature. We present a framework that includes health policy and system levers (or intentional actions that policy-makers can implement) to improve MNH; service delivery and coverage of interventions across the continuum of care; and epidemiological and behavioural risk factors. The framework also considers the role of context in influencing for whom and where health and non-health efforts have the most impact, to recognize 'the causes of the causes' at play at the individual/household, community, national and transnational levels. Our framework holistically reflects the range of interrelated factors influencing improved MNH and survival. The framework lends itself to studying how different factors work together to influence these outcomes using an array of methods. Such research should inform future efforts to improve MNH and survival in different contexts. By re-orienting research in this way, we hope to equip policy-makers and practitioners alike with the insight necessary to make the world a safer and fairer place for mothers and their babies.

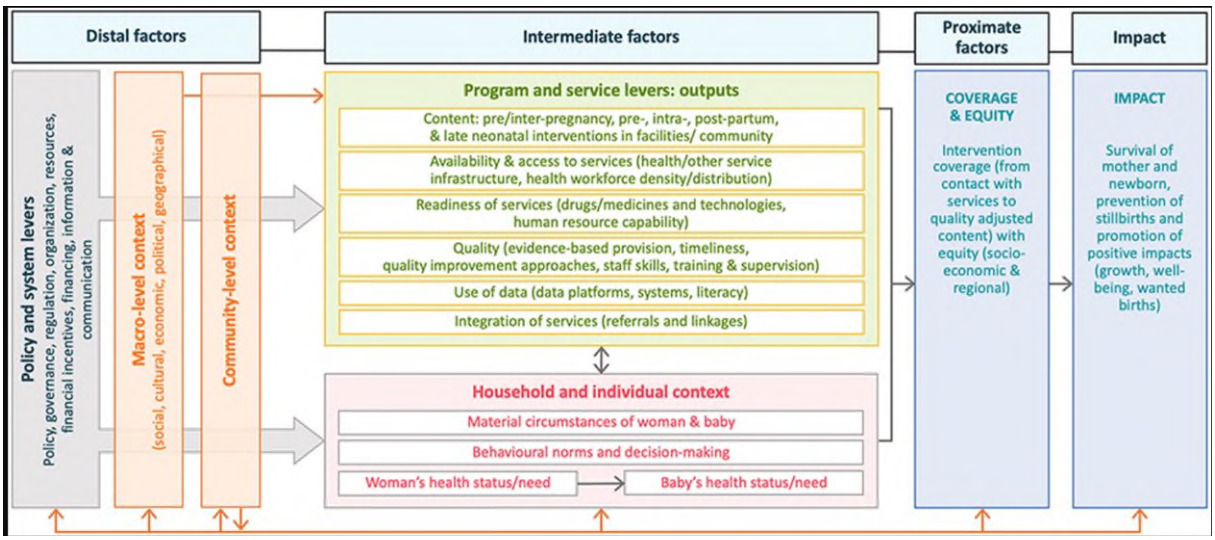

Fig.2: Holistic conceptual framework for maternal, late foetal and newborn survival and health

35. Health Policy and Planning, August 2022, Vol.7 (7): 895–914

Evaluations of effective coverage of maternal and child health services: A systematic review

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Conventionally used coverage measures do not reflect the quality of care. Effective coverage (EC) assesses the extent to which health care services deliver potential health gains to the population by integrating concepts of utilization, need and quality. We aimed to conduct a systematic review of studies evaluating EC of maternal and child health services, quality measurement strategies and disparities across wealth quantiles. A systematic search was performed in six electronic databases [MEDLINE, EMBASE, Cumulative Index of Nursing and Allied Health (CINAHL), Scopus, Web of Science and Maternity and Infant Care] and grey literature. We also undertook a hand search of references. We developed search terms having no restrictions based on publication period, country or language. We included studies which reported EC estimates based on the World Health Organization framework of measuring EC. Twenty-seven studies, all from low- and middle-income settings (49 countries), met the criteria and were included in the narrative synthesis of the results. Maternal and child health intervention(s) and programme(s) were assessed either at an individual level or as an aggregated measure of health system performance or both. The EC ranged from 0% for post-partum care to 95% for breastfeeding. When crude coverage measures were adjusted to account for the quality of care, the EC values turned lower. The gap between crude coverage and EC was as high as 86%, and it signified a low quality of care. The assessment of the quality of care addressed structural, process and outcome domains individually or combined. The wealthiest 20% had higher EC of services than the poorest 20%, an inequitable distribution of coverage. More efforts are needed to improve the quality of maternal and child health services and to eliminate the disparities. Moreover, considering multiple dimensions of quality and the use of standard measurements are recommended to monitor coverage effectively.

36. Lancet. 2022 Jul 23;400(10348):295-327.

Measuring contraceptive method mix, prevalence, and demand satisfied by age and marital status in 204 countries and territories, 1970-2019: a systematic analysis for the Global Burden of Disease Study 2019

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Background: Meeting the contraceptive needs of women of reproductive age is beneficial for the health of women and children, and the economic and social empowerment of women. Higher rates of

contraceptive coverage have been linked to the availability of a more diverse range of contraceptive methods. We present estimates of the contraceptive prevalence rate (CPR), modern contraceptive prevalence rate (mCPR), demand satisfied, and the method of contraception used for both partnered and unpartnered women for 5-year age groups in 204 countries and territories between 1970 and 2019.

Methods: We used 1162 population-based surveys capturing contraceptive use among women between 1970 and 2019, in which women of reproductive age (15-49 years) self-reported their, or their partner's, current use of contraception for family planning purposes. Spatiotemporal Gaussian process regression was used to generate estimates of the CPR, mCPR, demand satisfied, and method mix by age and marital status. We assessed how age-specific mCPR and demand satisfied changed with the Socio-demographic Index (SDI), a measure of social and economic development, using the meta-regression Bayesian, regularised, trimmed method from the Global Burden of Diseases, Injuries, and Risk Factors Study.

Findings: In 2019, 162·9 million (95% uncertainty interval [UI] 155·6-170·2) women had unmet need for contraception, of whom 29·3% (27·9-30·6) resided in sub-Saharan Africa and 27·2% (24·4-30·3) resided in south Asia. Women aged 15-19 years (64·8% [62·9-66·7]) and 20-24 years (71·9% [68·9-74·2]) had the lowest rates of demand satisfied, with 43·2 million (95% UI 39·3-48·0) women aged 15-24 years with unmet need in 2019. The mCPR and demand satisfied among women aged 15-19 years were substantially lower than among women aged 20-49 years at SDI values below 60 (on a 0-100 scale), but began to equalise as SDI increased above 60. Between 1970 and 2019, the global mCPR increased by 20·1 percentage points (95% UI 18·7-21·6). During this time, traditional methods declined as a proportion of all contraceptive methods, whereas the use of implants, injections, female sterilisation, and condoms increased. Method mix differs substantially depending on age and geography, with the share of female sterilisation increasing with age and comprising more than 50% of methods in use in south Asia. In 28 countries, one method was used by more than 50% of users in 2019.

Interpretation: The dominance of one contraceptive method in some locations raises the question of whether family planning policies should aim to expand method mix or invest in making existing methods more accessible. Lower rates of demand satisfied among women aged 15-24 years are also concerning because unintended pregnancies before age 25 years can forestall or eliminate education and employment opportunities that lead to social and economic empowerment. Policy makers should strive to tailor family planning programmes to the preferences of the groups with the most need, while maintaining the programmes used by existing users.

37. Lancet 2022;399(10341):2103–12

Intrauterine device-related uterine perforation incidence and risk (APEX-IUD): a large multisite cohort study

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Background. Reports of perforation risk related to intrauterine devices (IUDs) inserted immediately post partum and among non-post-partum individuals are scarce, and previous studies with only 12-month follow-ups underestimate the risk. Breastfeeding at IUD insertion and insertion within 36 weeks post partum have been associated with increased risk of uterine perforation. The aim of these analyses was to compare the incidence and risks of IUD- related uterine perforations by non-post-partum and post-partum intervals at IUD insertion, and among post-partum individuals, to assess the impact of breastfeeding on these outcomes.

Methods. We did a multisite cohort study in the USA, using electronic health records (EHR). Study sites were three health-care systems and a site that used data from a health-care information exchange. The

study population included individuals who were aged 50 years or younger and had an IUD insertion between Jan 1, 2001, and April 30, 2018. Individuals were excluded if they had not been in the health-care system for at least 12 months before IUD insertion. The primary outcome for this analysis was any IUD-related uterine perforation diagnosis for the first IUD insertion in this time period. Both complete and partial IUD-related perforations were identified. Chart abstraction was done to validate EHR-based algorithms or confirm perforations. The crude rate and cumulative incidence of uterine perforation were evaluated by non-post-partum and post-partum intervals at IUD insertion in the full cohort, and by breastfeeding status in a subcohort of post-partum individuals. Cox models estimated crude and adjusted hazard ratios (aHRs).

Findings. Data from 326 658 individuals in the full cohort and 94 817 individuals in the post-partum subcohort were analysed. In the full cohort, we identified 1008 uterine perforations (51·2% complete), with the 5-year cumulative incidence being the lowest in the non-post-partum group (0·29%, 95% CI 0·26–0·34). The aHR for the post-partum interval relative to non-post partum ranged from 2·73 (95% CI 1·33–5·63; 0 to 3 days post partum) to 6·71 (4·80–9·38; 4 days to ≤6 weeks post partum). The post-partum subcohort of individuals with breastfeeding information had 673 uterine perforations (62% complete), with a 5-year cumulative incidence of 1·37% (95% CI 1·24–1·52) and an increased risk with breastfeeding (aHR 1·37, 95% CI 1·12–1·66).

Interpretation. Although the risk for uterine perforation with IUD insertion 4 days to 6 weeks or less post partum is nearly seven times that of insertion non-post partum, perforation remains an incredibly rare event for all clinical time points. Despite a slight increased risk of perforation with breastfeeding at IUD insertion, the benefits of breastfeeding and effective contraception generally outweigh risks and should have little clinical impact. Therefore, IUD insertion timing should be based on individual desire for IUD contraception and patient convenience to assure an IUD insertion can occur. Careful follow-up of individuals at higher risk of uterine perforation is warranted.

38. Lancet 2022;400(10353):670-9

A telemedicine model for abortion in South Africa: a randomised, controlled, non-inferiority trial

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Background: Telemedicine for medical abortion increases access to safe abortion but its use has not been described in a controlled trial. We aimed to investigate the effectiveness, adherence, safety, and acceptability of a modified telemedicine protocol for abortion compared with standard care in a low-resource setting.

Methods: In this randomised, controlled, non-inferiority trial we recruited women seeking medical abortion at or before 9 gestational weeks at four public health clinics in South Africa. Participants were randomly allocated (1:1) by computer-generated blocks of varying sizes to telemedicine or standard care. The telemedicine group received asynchronous online abortion consultation and instruction, self-assessed gestational duration, and had a uterine palpation as a safety measure. Participants in this group took 200 mg mifepristone and 800 µg misoprostol at home. The standard care group received in-person consultation and instruction together with an ultrasound, took 200 mg mifepristone in clinic and 800 µg misoprostol at home. Our primary outcome was complete abortion after initial treatment, assessed at a 6-week interview. Our non-inferiority margin was 4%. Group differences were assessed by modified intention-to-treat (mITT) analysis and per protocol. The trial is registered at ClinicalTrials.gov, NCT04336358, and the Pan African Clinical Trials Registry, PACTR202004661941593.

Findings: Between Feb 28, 2020, and Oct 5, 2021, we enrolled 900 women, 153 (17·0%) of whom were discontinued before the abortion and were not included in the analysis. By mITT analysis, 355 (95·4%) of 372 women in the telemedicine group had a complete abortion compared with 338 (96·6%) of 350 in the standard care group (odds ratio 0·74 [95% CI 0·35 to 1·57]). The risk difference was -1·1% (-4·0 to 1·7). Among women who completed treatment as allocated (per protocol), 327 (95·6%) of 342 women in telemedicine group had complete abortion, compared with 338 (96·6%) of 350 in the standard care group (0·77 [0·36 to 1·68]), with a risk difference of -1·0% (-3·8 to 1·9). One participant (in the telemedicine group) had a ruptured ectopic pregnancy, and a further four participants were admitted to hospital (two in each group), of whom two had blood transfusions (one in each group).

Interpretation: Asynchronous online consultation and instruction for medical abortion and home self-medication, with uterine palpation as the only in-person component, was non-inferior to standard care with respect to rates of complete abortion, and did not affect safety, adherence, or satisfaction.

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Healthcare utilization and maternal and child mortality during the COVID-19 pandemic in 18 low- and middle-income countries: An interrupted time-series analysis with mathematical modeling of administrative data.

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Background

The Coronavirus Disease 2019 (COVID-19) pandemic has had wide-reaching direct and indirect impacts on population health. In low- and middle-income countries, these impacts can halt progress toward reducing maternal and child mortality. This study estimates changes in health services utilization during the pandemic and the associated consequences for maternal, neonatal, and child mortality.

Methods and findings

Data on service utilization from January 2018 to June 2021 were extracted from health management information systems of 18 low- and lower-middle-income countries (Afghanistan, Bangladesh, Cameroon, Democratic Republic of the Congo (DRC), Ethiopia, Ghana, Guinea, Haiti, Kenya, Liberia, Madagascar, Malawi, Mali, Nigeria, Senegal, Sierra Leone, Somalia, and Uganda). An interrupted time-series design was used to estimate the percent change in the volumes of outpatient consultations and maternal and child health services delivered during the pandemic compared to projected volumes based on prepandemic trends. The Lives Saved Tool mathematical model was used to project the impact of the service utilization disruptions on child and maternal mortality. In addition, the estimated monthly disruptions were also correlated to the monthly number of COVID-19 deaths officially reported, time since the start of the pandemic, and relative severity of mobility restrictions. Across the 18 countries, we estimate an average decline in OPD volume of 13.1% and average declines of 2.6% to 4.6% for maternal and child services. We projected that decreases in essential health service utilization between March 2020 and June 2021 were associated with 113,962 excess deaths (110,686 children under 5, and 3,276 mothers), representing 3.6% and 1.5% increases in child and maternal mortality, respectively. This excess mortality is associated with the decline in utilization of the essential health services included in the analysis, but the utilization shortfalls vary substantially between countries, health services, and over time. The largest disruptions, associated with 27.5% of the excess deaths, occurred during the second quarter of 2020, regardless of whether countries reported the highest rate of COVID-19-related mortality during the same months. There is a significant relationship between the magnitude of service disruptions and the stringency of mobility restrictions. The study is limited by the extent to which administrative data, which varies in quality across countries, can accurately capture the changes in service coverage in the population.

Conclusions

Declines in healthcare utilization during the COVID-19 pandemic amplified the pandemic's harmful impacts on health outcomes and threaten to reverse gains in reducing maternal and child mortality. As efforts and resource allocation toward prevention and treatment of COVID-19 continue, essential health services must be maintained, particularly in low- and middle-income countries.