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Global incidence, prevalence, years lived with disability (YLDs), disability-adjusted life-years (DALYs), and healthy life expectancy (HALE) for 371 diseases and injuries in 204 countries and territories and 811 subnational locations, 1990-2021: a systematic analysis for the Global Burden of Disease Study 2021

18b. Lancet 2024;403(10440):2162-2203
Global burden and strength of evidence for 88 risk factors in 204 countries and 811 subnational locations, 1990-2021: a systematic analysis for the Global Burden of Disease Study 2021

18c. Lancet 2024;403(10440):2204-56
Burden of disease scenarios for 204 countries and territories, 2022-2050: a forecasting analysis for the Global Burden of Disease Study 2021

18d. Lancet Glob Health.2024;12(6):e960-e982
The burden of neurological conditions in north Africa and the Middle East, 1990-2019: a systematic analysis of the Global Burden of Disease Study 2019

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International Health Alerts 2024-2 Abstracts

Child Health

1. BMJ 2024;385:q1077
Editorials
Global child mortality falls to historic low
Irimu G et al., <grace.irimu@uonbi.ac.ke>

Target to end preventable deaths among under 5s is within reach, UN data show.
The 2023 report of the United Nations Interagency Group for Child Mortality Estimation shows a remarkable 51% fall in global mortality for children aged under 5 years between 2000 and 2022, from 76 deaths/1000 live births to 37/1000. This is a historic low: millions more children are surviving as low and middle income countries advance towards reducing under 5 mortality to ≤25 deaths/1000 live births by 2030, one of the targets set out in the UN sustainable development goal on good health and wellbeing.
The fall is encouraging, but 4.9 million children under 5 years still died in 2022. Although 134 out of 200 countries achieved the under 5 mortality target, the rest, most in sub-Saharan Africa and southern Asia, are still struggling. Prevention and treatment of leading causes of deaths in children under 5, including infectious diseases (pneumonia, diarrhoea, and malaria), prematurity, and birth asphyxia or trauma remain inadequate in many countries. Further, glaring inequity in child survival rates was observed across regions and countries.

2. BMJ Glob Health 2024;9:e015917
Editorial
Making the best interests of the child a primary consideration during pandemic preparedness and response
Chaiban T et al. Correspondence to DJ Noble <djnoble@unicef.org>

Since the onset of the COVID-19 pandemic, awareness has grown of the need for strengthening the global health architecture for pandemic preparedness and response and public health emergencies more generally.
Public health emergency efforts must take into consideration impacts at the local level, including socio-economic consequences. As pandemics begin and end in communities, prioritising community preparedness and response, and protection of children, is therefore essential. Communities, including children, need to be protected not only from the public health threat itself but also from the negative consequences of control measures. This includes preserving the continuity of essential public services during an emergency, such as schools, routine healthcare and child protection services. For example, school closures during the COVID-19 pandemic affected the majority of countries, leading to learning losses and inequalities. A lesson learnt is that effects on the wider determinants of health have to be considered when implementing public health and social measures for infectious disease control.
Summary box
Pandemics have shown that children face specific vulnerabilities that require child-focussed measures to be taken as part of comprehensive preparedness and response, including continuity of essential public services such as schools.
Direct and indirect multisectoral interventions are needed for protecting children from public health threats.

The Pandemic Agreement is a unique opportunity to ensure that the best interests of the child are of primary consideration during pandemic preparedness and response. This requires:
The Convention on the Rights of the Child being upheld in pandemic prevention and response efforts.
Medical countermeasures, including vaccines, being sustainably and equitably available to all children and their communities.
Independent monitoring mechanisms for compliance with the agreement.

3. HPP 2024;39(6):613-35
Linking communities and health facilities to improve child health in low-resource settings: a systematic review
Iuliano A et al., Institute for Global Health, University College London, UK <a.iuliano@ucl.ac.uk>

Community–facility linkage interventions are gaining popularity as a way to improve community health in low-income settings. Their aim is to create/strengthen a relationship between community members and local healthcare providers. Representatives from both groups can address health issues together, overcome trust problems, potentially leading to participants' empowerment to be responsible for their own health. This can be achieved via different approaches. We conducted a systematic literature review to explore how this type of intervention has been implemented in rural and low or lower-middle-income countries, its various features and how/if it has helped to improve child health in these settings. Publications from three electronic databases (Web of Science, PubMed and Embase) up to 03 February 2022 were screened, with 14 papers meeting the inclusion criteria (rural setting in low/lower-middle-income countries, presence of a community–facility linkage component, outcomes of interest related to under-5 children's health, peer-reviewed articles containing original data written in English). We used Rosato's integrated conceptual framework for community participation to assess the transformative and community-empowering capacities of the interventions, and realist principles to synthesize the outcomes. The results of this analysis highlight which conditions can lead to the success of this type of intervention: active inclusion of hard-to-reach groups, involvement of community members in implementation's decisions, activities tailored to the actual needs of interventions' contexts and usage of mixed methods for a comprehensive evaluation. These lessons informed the design of a community–facility linkage intervention and offer a framework to inform the development of monitoring and evaluation plans for future implementations.
Key Messages
- Community–facility linkage interventions can improve community health in low-income settings by creating/strengthening a relationship between community members and local healthcare providers. However, there is no definitive evidence in the literature on the effectiveness of community–facility linkage interventions, and we aimed to fill this gap.
- We tried to understand which features are associated with better child health outcomes and which characteristics are linked with improved community participation when implemented in rural areas of low/lower-middle-income countries. Key lessons for success are: (1) the active inclusion of hard-to-reach groups, (2) the involvement of community members in programmatic decisions, (3) the focus on the actual context of the intervention and (4) the use of mixed methods for evaluation.
- We built an evaluation framework that can be used to assess the impact of community-based and facility link interventions.
- We provided an angle to analyse community–facility linkage interventions, trying to shed light on key features for success. We hope this will influence potential new implementations and that our framework will serve as a guide for future evaluation plans.

4. Lancet 2024;403(10435):1482-92
Outcomes after surgery for children in Africa (ASOS-Paeds): a 14-day prospective observational cohort study
ASOS-Paeds Investigators. Correspondence to A Torborg <alexandra@iafrica.com>

Background: Safe anaesthesia and surgery are a public health imperative. There are few data describing outcomes for children undergoing anaesthesia and surgery in Africa. We aimed to get robust epidemiological data to describe patient care and outcomes for children undergoing anaesthesia and surgery in hospitals in Africa.
Methods: This study was a 14-day, international, prospective, observational cohort study of children (aged <18 years) undergoing surgery in Africa. We recruited as many hospitals as possible across all levels of care (first, second, and third) providing surgical treatment. Each hospital recruited all eligible children for a 14-day period commencing on the date chosen by each participating hospital within the study recruitment period from Jan 15 to Dec 23, 2022. Data were collected prospectively for consecutive patients on paper case record forms. The primary outcome was in-hospital postoperative complications within 30 days of surgery and the secondary outcome was in-hospital mortality within 30 days after surgery. We also collected hospital-level data describing equipment, facilities, and protocols available. This study is registered with ClinicalTrials.gov, NCT05061407.
Findings: We recruited 8625 children from 249 hospitals in 31 African countries. The mean age was 6·1 (SD 4·9) years, with 5675 (66·0%) of 8600 children being male. Most children (6110 [71·2%] of 8579 patients) were from category 1 of the American Society of Anesthesiologists Physical Status score undergoing elective surgery (5325 [61·9%] of 8604 patients). Postoperative complications occurred in 1532 (18·0%) of 8515 children, predominated by infections (971 [11·4%] of 8538 children). Deaths occurred in 199 (2·3%) of 8596 patients, 169 (84·9%) of 199 patients following emergency surgeries. Deaths following postoperative complications occurred in 166 (10·8%) of 1530 complications. Operating rooms were reported as safe for anaesthesia and surgery for neonates (121 [54·3%] of 223 hospitals), infants (147 [65·9%] of 223 hospitals), and children younger than 6 years (188 [84·3%] of 223 hospitals).
Interpretation: Outcomes following anaesthesia and surgery for children in Africa are poor, with complication rates up to four-fold higher (18% vs 4·4-14%) and mortality rates 11-fold higher than high-income countries in a crude, unadjusted comparison (23·15 deaths vs 2·18 deaths per 1000 children). To improve surgical outcomes for children in Africa, we need health system strengthening, provision of safe environments for anaesthesia and surgery, and strategies to address the high rate of failure to rescue.

5. Lancet 2024;403(10441):2307-16
Contribution of vaccination to improved survival and health: modelling 50 years of the Expanded Programme on Immunization
Shattock AJ et al., Swiss Tropical and Public Health Institute, Basel, Switzerland. Correspondence to N Bar-Zeev <barzeevn@who.int>

Background: WHO, as requested by its member states, launched the Expanded Programme on Immunization (EPI) in 1974 to make life-saving vaccines available to all globally. To mark the 50-year anniversary of EPI, we sought to quantify the public health impact of vaccination globally since the programme's inception.
Methods: In this modelling study, we used a suite of mathematical and statistical models to estimate the global and regional public health impact of 50 years of vaccination against 14 pathogens in EPI. For the modelled pathogens, we considered coverage of all routine and supplementary vaccines delivered since 1974 and estimated the mortality and morbidity averted for each age cohort relative to a hypothetical scenario of no historical vaccination. We then used these modelled outcomes to estimate the contribution of vaccination to globally declining infant and child mortality rates over this period.
Findings: Since 1974, vaccination has averted 154 million deaths, including 146 million among children younger than 5 years of whom 101 million were infants younger than 1 year. For every death averted, 66 years of full health were gained on average, translating to 10·2 billion years of full health gained. We estimate that vaccination has accounted for 40% of the observed decline in global infant mortality, 52% in the African region. In 2024, a child younger than 10 years is 40% more likely to survive to their

next birthday relative to a hypothetical scenario of no historical vaccination. Increased survival probability is observed even well into late adulthood.
Interpretation: Since 1974 substantial gains in childhood survival have occurred in every global region. We estimate that EPI has provided the single greatest contribution to improved infant survival over the past 50 years. In the context of strengthening primary health care, our results show that equitable universal access to immunisation remains crucial to sustain health gains and continue to save future lives from preventable infectious mortality.

6. Lancet Glob Health 2024;12(5):e744-e755
Progress towards universal health coverage and inequalities in infant mortality: an analysis of 4·1 million births from 60 low-income and middle-income countries between 2000 and 2019
Hone T et al., Public Health Policy Evaluation Unit, Imperial College London, UK <thomas.hone12@imperial.ac.uk>

Background: Expanding universal health coverage (UHC) might not be inherently beneficial to poorer populations without the explicit targeting and prioritising of low-income populations. This study examines whether the expansion of UHC between 2000 and 2019 is associated with reduced socioeconomic inequalities in infant mortality in low-income and middle-income countries (LMICs).
Methods: We did a retrospective analysis of birth data compiled from Demographic and Health Surveys (DHSs). We analysed all births between 2000 and 2019 from all DHSs available for this period. The primary outcome was infant mortality, defined as death within 1 year of birth. Logistic regression models with country and year fixed effects assessed associations between country-level progress to UHC (using WHO's UHC service coverage index) and infant mortality (overall and by wealth quintile), adjusting for infant-level, mother-level, and country-level variables.
Findings: A total of 4 065 868 births to 1 833 011 mothers were analysed from 177 DHSs covering 60 LMICs between 2000 and 2019. A one unit increase in the UHC index was associated with a 1·2% reduction in the risk of infant death (AOR 0·988, 95% CI 0·981-0·995; absolute measure of association, 0·57 deaths per 1000 livebirths). An estimated 15·5 million infant deaths were averted between 2000 and 2019 because of increases in UHC. However, richer wealth quintiles had larger associated reductions in infant mortality from UHC (quintile 5 AOR 0·983, 95% CI 0·973-0·993) than poorer quintiles (quintile 1 0·991, 0·985-0·998). In the early stages of UHC, UHC expansion was generally beneficial to poorer populations (ie, larger reductions in infant mortality for poorer households [infant deaths per 1000 per one unit increase in UHC coverage: quintile 1 0·84 vs quintile 5 0·59]), but became less so as overall coverage increased (quintile 1 0·64 vs quintile 5 0·57).
Interpretation: Since UHC expansion in LMICs appears to become less beneficial to poorer populations as coverage increases, UHC policies should be explicitly designed to ensure lower income groups continue to benefit as coverage expands.

7. TMIH 2024;29(6):499-506
An intervention to improve lumbar puncture rates for meningitis surveillance in children at four secondary health facilities in Malawi: A before/after analysis
Zulu MD et al., University of North Carolina Project Malawi (UNCPM), Lilongwe, Malawi

Objectives: A lumbar puncture (LP) procedure plays a key role in meningitis diagnosis. In Malawi and other sub-Saharan African countries, LP completion rates are sometimes poor, making meningitis surveillance challenging. Our objective was to measure LP rates following an intervention to improve these during a sentinel hospital meningitis surveillance exercise in Malawi.
Methods: We conducted a before/after intervention analysis among under-five children admitted to paediatric wards at four secondary health facilities in Malawi. We used local and World Health Organization (WHO) guidelines to determine indications for LP, as these are widely used in low- and middle-income countries (LMIC). The intervention comprised of refresher trainings for facility staff on LP indications and procedure, use of automated reminders to perform LP in real time in the wards, with

an electronic data management system, and addition of surveillance-specific clinical officers to support existing health facility staff with performing LPs. Due to the low numbers in the before/after analysis, we also performed a during/after analysis to supplement the findings.
Results: A total of 13,375 under-five children were hospitalised over the 21 months window for this analysis. The LP rate was 10.4% (12/115) and 60.4% (32/53) in the before/after analysis, respectively, and 43.8% (441/1006) and 72.5% (424/599) in the supplemental during/after analysis, respectively. In our intervention-specific analysis among the three individual components, there were improvements in the LP rate by 48% ($p < 0.001$) following the introduction of surveillance-specific clinical officers, 10% ($p < 0.001$) following the introduction of automated reminders to perform an LP and 13% following refresher training.
Conclusions: This analysis demonstrated a rise in LP rates following our intervention. This intervention package may be considered for planning future facility-based meningitis surveillances in similar low-resource settings.

Communicable diseases

8. Am J TMH 2024;110(6):1080-8
Treatment Outcome in Patients with Disseminated Cysticercosis: A Systematic Review of Case Reports and Case Series
Garg RK et al., Department of Neurology, King George's Medical University, Lucknow, India

Disseminated cysticercosis is defined by multiple brain lesions and involvement of other body sites. Cysticidal treatment in disseminated cysticercosis is considered life-threatening. We conducted a systematic review of all published cases and case series to assess the safety and efficacy of cysticidal treatment. We conducted a systematic review in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (PROSPERO CRD42022331895) to assess the safety and efficacy of cysticidal treatment. Using the search term "disseminated neurocysticercosis OR disseminated cysticercosis," databases like PubMed, Scopus, Embase, and Google Scholar were searched. Outcomes included death and secondary measures like clinical improvement and lesion reduction. We calculated the predictors of primary outcome (death) using the binary logistic regression analysis. We reviewed 222 published cases from 101 publications. Approximately 87% cases were reported from India. Of 222 cases, 134 (60%) received cysticidal treatment. Follow-up information was available from 180 patients, 11 of them died, and 169 showed clinical improvement. The death rate was 4% (5 out of 114) in patients treated with cysticidal drugs plus corticosteroids, in comparison with 13% (5 out of 38) in patients who were treated with corticosteroids alone. All patients using only praziquantel faced fatality. Death predictors identified were altered sensorium and lack of treatment with albendazole. We noted that the risk of death after cysticidal treatment is not as we expected, and a multicentric randomized controlled trial is needed to resolve this issue.

9. BMJ 2024;385:q645
Practice
WHO Guidelines. Summary of WHO infection prevention and control guideline for covid-19: striving for evidence based practice in infection prevention and control
Dunn K et al., on behalf of the WHO Health Emergencies Programme COVID-19 Infection Prevention and Control Guideline Development Group. Correspondence to A Baller <ballera@who.int>

The World Health Organization (WHO) published the seventh version of the infection prevention and control guideline for coronavirus disease 2019 (covid-19) in December 2023. The revision and development process undertaken for this guideline consolidates and updates technical guidance developed and published at the height of the covid-19 pandemic (2020-21) into a single guideline, following WHO guideline development processes.

The updated guideline considered the current context of covid-19, the latest evidence supporting infection prevention and control (IPC) interventions, epidemiological trends, the emergence of variants of concern, population immunity, availability and uptake of vaccines, and indoor environmental conditions.
This article provides an overview of the guideline development process and summarises the current recommendations from WHO for IPC measures when caring for people with or managing covid-19 outbreaks.
What you need to know
WHO has published an updated guideline for infection prevention and control in the context of covid-19
In the healthcare facility, WHO recommends consistent application of standard and transmission based precautions to prevent SARS-CoV-2 transmission
In community settings, WHO recommends mitigation measures to reduce the risk of SARS-CoV-2 transmission and its impact.

10. BMJ Glob Health 2024;9:e014367
Original research
Long-term healthcare utilisation, costs and quality of life after invasive group B Streptococcus disease: a cohort study in five low-income and middle-income countries
Seedat F et al., <fseedat@sgul.ac.uk>

Introduction There are no published data on the long-term impact of invasive group B Streptococcus disease (iGBS) on economic costs or health-related quality of life (HRQoL) in low-income and middle-income countries. We assessed the impact of iGBS on healthcare utilisation, costs and HRQoL in Argentina, India, Kenya, Mozambique and South Africa.
Methods Inpatient and outpatient visits, out-of-pocket (OOP) healthcare payments in the 12 months before study enrolment, and health-state utility of children and caregivers (using the EuroQol 5-Dimensions-3-Level) were collected from iGBS survivors and an unexposed cohort matched on site, age at recruitment and sex. We used logistic or Poisson regression for analysing healthcare utilisation and zero-inflated gamma regression models for family and health system costs. For HRQoL, we used a zero-inflated beta model of disutility pooled data.
Results 161 iGBS-exposed and 439 unexposed children and young adults (age 1–20) were included in the analysis. Compared with unexposed participants, iGBS was associated with increased odds of any healthcare utilisation in India (adjusted OR 11.2, 95% CI 2.9 to 43.1) and Mozambique (6.8, 95% CI 2.2 to 21.1) and more frequent healthcare visits (adjusted incidence rate ratio (IRR) for India 1.7 (95% CI 1.4 to 2.2) and for Mozambique 6.0 (95% CI 3.2 to 11.2)). iGBS was also associated with more frequent days in inpatient care in India (adjusted IRR 4.0 (95% CI 2.3 to 6.8) and Kenya 6.4 (95% CI 2.9 to 14.3)). OOP payments were higher in the iGBS cohort in India (adjusted mean: Int$682.22 (95% CI Int$364.28 to Int$1000.16) vs Int$133.95 (95% CI Int$72.83 to Int$195.06)) and Argentina (Int$244.86 (95% CI Int$47.38 to Int$442.33) vs Int$52.38 (95% CI Int$−1.39 to Int$106.1)). For all remaining sites, differences were in the same direction but not statistically significant for almost all outcomes. Health-state disutility was higher in iGBS survivors (0.08, 0.04–0.13 vs 0.06, 0.02–0.10).
Conclusion The iGBS health and economic burden may persist for years after acute disease. Larger studies are needed for more robust estimates to inform the cost-effectiveness of iGBS prevention.

11. EID 2024;30(5):854-63
Review
Crimean-Congo Hemorrhagic Fever Virus for Clinicians-Epidemiology, Clinical Manifestations, and Prevention
Frank MG et al., State of the Clinical Science Working Group of the National Emerging Pathogens Training

Crimean-Congo hemorrhagic fever (CCHF) is a tickborne infection that can range from asymptomatic to fatal and has been described in >30 countries. Early identification and isolation of patients with suspected or confirmed CCHF and the use of appropriate prevention and control measures are essential for preventing human-to-human transmission. Here, we provide an overview of the epidemiology, clinical features, and prevention and control of CCHF. CCHF poses a continued public health threat given its wide geographic distribution, potential to spread to new regions, propensity for genetic variability, and potential for severe and fatal illness, in addition to the limited medical countermeasures for prophylaxis and treatment. A high index of suspicion, comprehensive travel and epidemiologic history, and clinical evaluation are essential for prompt diagnosis. Infection control measures can be effective in reducing the risk for transmission but require correct and consistent application.

Other reviews about Crimean-Congo Hemorrhagic Fever Virus:
11a. EID 2024;30(5):847-53
Crimean Congo Hemorrhagic Fever Virus for Clinicians-Virology, Pathogenesis, and Pathology

11b. EID 2024;30(5):864-73
Crimean-Congo Hemorrhagic Fever Virus for Clinicians-Diagnosis, Clinical Management, and Therapeutics

12. HPP 2024;39(3):307-17
The quality of telemedicine consultations for sexually transmitted infections in China
Si Y et al., Centre for International Studies on Development and Governance, Zhejiang University, Hangzhou, China. Correspondence to W Tang <weiming_tang@web.unc.edu>

The burden of sexually transmitted infections (STIs) continues to increase in developing countries like China, but the access to STI care is often limited. The emergence of direct-to-consumer (DTC) telemedicine offers unique opportunities for patients to directly access health services when needed. However, the quality of STI care provided by telemedicine platforms remains unknown. After systemically identifying the universe of DTC telemedicine platforms providing on-demand consultations in China in 2019, we evaluated their quality using the method of unannounced standardized patients (SPs). SPs presented routine cases of syphilis and herpes. Of the 110 SP visits conducted, physicians made a correct diagnosis in 44.5% (95% CI: 35.1% to 54.0%) of SP visits, and correctly managed 10.9% (95% CI: 5.0% to 16.8%). Low rates of correct management were primarily attributable to the failure of physicians to refer patients for STI testing. Controlling for other factors, videoconference (vs SMS-based) consultation mode and the availability of public physician ratings were associated with higher-quality care. Our findings suggest a need for further research on the causal determinants of care quality on DTC telemedicine platforms and effective policy approaches to promote their potential to expand access to STI care in developing countries while limiting potential unintended consequences for patients.

13. Lancet Glob Health 2024;12(4):e589-e598
Meta-Analysis
Efficacy of typhoid vaccines against culture-confirmed Salmonella Typhi in typhoid endemic countries: a systematic review and meta-analysis
Batool R et al.,[1][SEP]Department of Epidemiology and Biostatistics, Aga Khan University Hospital, Karachi, Pakistan

Background: Typhoid is a serious public health threat in many low-income and middle-income countries. Several vaccines for typhoid have been recommended by WHO for typhoid prevention in endemic countries. This study aimed to review the efficacy of typhoid vaccines against culture-confirmed Salmonella enterica serovar Typhi.

Methods: We searched the Cochrane Central Register of Controlled Trials, MEDLINE, and Embase for studies published in English between Jan 1, 1986 and Nov 2, 2023. We included randomised controlled trials (RCTs) comparing typhoid vaccines with a placebo or another vaccine. This meta-analysis evaluated the efficacy and safety of several typhoid vaccines, including live attenuated oral Ty21a vaccine, Vi capsular polysaccharide (Vi-PS), Vi polysaccharide conjugated to recombinant Pseudomonas aeruginosa exotoxin A vaccine (Vi-rEPA), and Vi-tetanus toxoid conjugate vaccine (TCV). The certainty of evidence for key outcomes was evaluated using Grading of Recommendations, Assessment, Development, and Evaluations methodology. The outcome of interest was typhoid fever confirmed by the isolation of Salmonella enterica serovar Typhi in blood and adverse events following immunisation. This study is registered with PROSPERO (CRD42021241043).
Findings: We included 14 RCTs assessing four different vaccines (Ty21a: four trials; Vi-PS: five trials; Vi-rEPA: one trial; TCV: four trials) involving 585 253 participants. All trials were conducted in typhoid endemic countries and the age of participants ranged from 6 months to 50 years. The pooled efficacy against typhoid fever was 45% (95% CI 33-55%; four trials; 247 649 participants; I2 59%; moderate certainty) for Ty21a and 58% (44-69%; five trials; 214 456 participants; I2 34%; moderate certainty) for polysaccharide Vi-PS. The cumulative efficacy of two doses of Vi-rEPA vaccine at 2 years was 91% (88-96%; one trial; 12 008 participants; moderate certainty). The pooled efficacy of a single shot of TCV at 2 years post-immunisation was 83% (77-87%; four trials; 111 130 participants; I2 0%; moderate certainty). All vaccines were safe, with no serious adverse effects reported in the trials.
Interpretation: The existing data from included trials provide promising results regarding the efficacy and safety of the four recommended typhoid vaccines. TCV and Vi-rEPA were found to have the highest efficacy at 2 years post-immunisation. However, follow-up data for Vi-rEPA are scarce and only TCV is pre-qualified by WHO. Therefore, roll-out of TCV into routine immunisation programmes in typhoid endemic settings is highly recommended.

14. Lancet Glob Health 2024;12(4):e572-e588
Meta-Analysis
Paediatric, maternal, and congenital mpox: a systematic review and meta-analysis
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Background: Although mpox has been detected in paediatric populations in central and west Africa for decades, evidence synthesis on paediatric, maternal, and congenital mpox, and the use of vaccines and therapeutics in these groups, is lacking. A systematic review is therefore indicated to set the research agenda.
Methods: We conducted a systematic review and meta-analysis, searching articles in Embase, Global Health, MEDLINE, CINAHL, Web of Science, Scopus, SciELO, and WHO databases from inception to April 17, 2023. We included studies reporting primary data on at least one case of confirmed, suspected, or probable paediatric, maternal, or congenital mpox in humans or the use of third-generation smallpox or mpox vaccines, targeted antivirals, or immune therapies in at least one case in our population of interest. We included clinical trials and observational studies in humans and excluded reviews, commentaries, and grey literature. A pooled estimate of the paediatric case fatality ratio was obtained using random-effects meta-analysis. This study is registered with PROSPERO (CRD420223336648).
Findings: Of the 61 studies, 53 reported paediatric outcomes (n=2123 cases), seven reported maternal or congenital outcomes (n=32 cases), two reported vaccine safety (n=28 recipients), and three reported transmission during breastfeeding (n=4 cases). While a subset of seven observational studies (21 children and 12 pregnant individuals) reported uneventful treatment with tecovirimat, there were no randomised trials reporting safety or efficacy for any therapeutic agent. Among children, the commonest clinical features included rash (86 [100%] of 86), fever (63 [73%] of 86), and lymphadenopathy (40 [47%] of 86). Among pregnant individuals, rash was reported in 23 (100%) of 23; fever and lymphadenopathy were less common (six [26%] and three [13%] of 23, respectively). Most

paediatric complications (12 [60%] of 20) arose from secondary bacterial infections. The pooled paediatric case fatality ratio was 11% (95% CI 4-20), I2=75%. Data from 12 pregnancies showed half resulted in fetal death. Research on vaccine and immune globulin safety remains scarce for children and absent for pregnant individuals.
Interpretation: Our review highlights critical knowledge gaps in the epidemiology, prevention, and treatment of mpox in children and pregnant individuals, especially those residing in endemic countries. Increased funding, international collaboration, and equitable research is needed to inform mpox control strategies tailored for at-risk communities in endemic countries.

15. Lancet Glob Health 2024;12(4):e599-e610
Incidence of typhoid fever in Burkina Faso, Democratic Republic of the Congo, Ethiopia, Ghana, Madagascar, and Nigeria (the Severe Typhoid in Africa programme): a population-based study
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Background: Typhoid Fever remains a major cause of morbidity and mortality in low-income settings. The Severe Typhoid in Africa programme was designed to address regional gaps in typhoid burden data and identify populations eligible for interventions using novel typhoid conjugate vaccines.
Methods: A hybrid design, hospital-based prospective surveillance with population-based health-care utilisation surveys, was implemented in six countries in sub-Saharan Africa. Patients presenting with fever (≥37·5°C axillary or ≥38·0°C tympanic) or reporting fever for three consecutive days within the previous 7 days were invited to participate. Typhoid fever was ascertained by culture of blood collected upon enrolment. Disease incidence at the population level was estimated using a Bayesian mixture model.
Findings: 27 866 (33·8%) of 82 491 participants who met inclusion criteria were recruited. Blood cultures were performed for 27 544 (98·8%) of enrolled participants. Clinically significant organisms were detected in 2136 (7·7%) of these cultures, and 346 (16·2%) Salmonella enterica serovar Typhi were isolated. The overall adjusted incidence per 100 000 person-years of observation was highest in Kavuaya and Nkandu 1, Democratic Republic of the Congo (315, 95% credible interval 254-390). Overall, 46 (16·4%) of 280 tested isolates showed ciprofloxacin non-susceptibility.
Interpretation: High disease incidence (ie, >100 per 100 000 person-years of observation) recorded in four countries, the prevalence of typhoid hospitalisations and complicated disease, and the threat of resistant typhoid strains strengthen the need for rapid dispatch and implementation of effective typhoid conjugate vaccines along with measures designed to improve clean water, sanitation, and hygiene practices.

16. NJEM 2024 May 30;390(20):1925-31
Global Health Law for a Safer and Fairer World
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Once considered defeated by modern medicine, infectious diseases continue to devastate populations worldwide. The Covid-19 and mpox pandemics recently joined the HIV pandemic and outbreaks ranging from Zika and Ebola to wild polio. Advances in synthetic biology may create opportunities for cutting-edge interventions, but they also introduce risks from accidental or intentional releases of pathogens.
Recent health emergencies have revealed major gaps in the rules of global cooperation and the institutions overseeing them. In May 2024, the World Health Assembly will consider adopting a historic pandemic treaty and revised International Health Regulations (IHR) that could transform global health governance for a post-Covid era. It's important to understand the major gaps in global preparedness, the critical capacities needed to create a safer and fairer world, and the international instruments required for realizing them.
In 6 paragraphs, the authors discuss these major gaps:

- "Deeper" prevention of zoonotic spillovers and biohazards
- Information sharing for detection, notification, and response
- Access to pathogen and genomic sequencing data
- Financing for pandemic response
- Equitable access to medical countermeasures
- Implementation, compliance, and accountability

Deep prevention, transparent information sharing, and synergistic research collaborations shaped by regard for equity can all be achieved with thoughtful revision of international rules and negotiation of a new pandemic agreement. Undergirded by robust financial commitments and compliance measures, the world can be made safer and more resilient to pandemics. Working together, the world's governments can meet these daunting challenges; they require only the political will and foresight to do so.

17. TMIH 2024;29(4):303-8
Management of very severe tungiasis cases through repeated community-based treatment with a dimeticone oil formula: A longitudinal study in a hyperendemic region in Uganda
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Tungiasis (sand flea disease) is a neglected tropical disease that is endemic in Sub-Saharan Africa and Latin America. Tungiasis causes pain, mobility restrictions, stigmatisation and reduced quality of life. Very severe cases with hundreds of sand fleas have been described, but treatment of such cases has never been studied systematically. During a larger community-based tungiasis control programme in a hyperendemic region in Karamoja, northeastern Uganda, 96 very severe tungiasis cases were identified and treated with the dimeticone formula NYDA®. They were repeatedly followed-up and treated again when necessary. The present study traces tungiasis frequency, intensity and morbidity among these 96 individuals over 2 years. At baseline, very severe tungiasis occurred in all age groups, including young children. Throughout the intervention, tungiasis frequency decreased from 100% to 25.8% among the 96 individuals. The overall number of embedded sand fleas in this group dropped from 15,648 to 158, and the median number of embedded sand fleas among the tungiasis cases decreased from 141 to four. Walking difficulties were reported in 96.9% at the beginning and in 4.5% at the end of the intervention. Repeated treatment with the dimeticone formula over 2 years was a successful strategy to manage very severe cases in a hyperendemic community. Treatment of very severe cases is essential to control the spread and burden of tungiasis in endemic communities.

Global Burden of Disease Study

18. Lancet 2024;403(10440):2100-32
Global burden of 288 causes of death and life expectancy decomposition in 204 countries and territories and 811 subnational locations, 1990-2021: a systematic analysis for the Global Burden of Disease Study 2021
GBD 2021 Causes of Death Collaborators
Erratum in Department of Error. [No authors listed]1 SEP Lancet. 2024;403(10440):1988

Background: Regular, detailed reporting on population health by underlying cause of death is fundamental for public health decision making. Cause-specific estimates of mortality and the subsequent effects on life expectancy worldwide are valuable metrics to gauge progress in reducing mortality rates. These estimates are particularly important following large-scale mortality spikes, such as the COVID-19 pandemic. When systematically analysed, mortality rates and life expectancy allow comparisons of the consequences of causes of death globally and over time, providing a nuanced understanding of the effect of these causes on global populations.

Interpretation: Long-standing gains in life expectancy and reductions in many of the leading causes of death have been disrupted by the COVID-19 pandemic, the adverse effects of which were spread unevenly among populations. Despite the pandemic, there has been continued progress in combatting several notable causes of death, leading to improved global life expectancy over the study period. Each of the seven GBD super-regions showed an overall improvement from 1990 and 2021, obscuring the negative effect in the years of the pandemic. Additionally, our findings regarding regional variation in causes of death driving increases in life expectancy hold clear policy utility. Analyses of shifting mortality trends reveal that several causes, once widespread globally, are now increasingly concentrated geographically. These changes in mortality concentration, alongside further investigation of changing risks, interventions, and relevant policy, present an important opportunity to deepen our understanding of mortality-reduction strategies. Examining patterns in mortality concentration might reveal areas where successful public health interventions have been implemented. Translating these successes to locations where certain causes of death remain entrenched can inform policies that work to improve life expectancy for people everywhere.

Other articles about The Global Burden of Diseases Study:
18a. Lancet 2024;403(10440):2133-61
Global incidence, prevalence, years lived with disability (YLDs), disability-adjusted life-years (DALYs), and healthy life expectancy (HALE) for 371 diseases and injuries in 204 countries and territories and 811 subnational locations, 1990-2021: a systematic analysis for the Global Burden of Disease Study 2021

18b. Lancet 2024;403(10440):2162-2203
Global burden and strength of evidence for 88 risk factors in 204 countries and 811 subnational locations, 1990-2021: a systematic analysis for the Global Burden of Disease Study 2021

18c. Lancet 2024;403(10440):2204-56
Burden of disease scenarios for 204 countries and territories, 2022-2050: a forecasting analysis for the Global Burden of Disease Study 2021

18d. Lancet Glob Health.2024;12(6):e960-e982
The burden of neurological conditions in north Africa and the Middle East, 1990-2019: a systematic analysis of the Global Burden of Disease Study 2019

Health Policy

19. Bull WHO 2024;102(5):298-298A
Editorial: Building an economy for health and well-being
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The coronavirus disease 2019 (COVID-19) pandemic laid bare the vulnerabilities and inequities engrained in economic and social systems in many countries. This pandemic exposed significant inequalities in access to life-saving vaccines and other medical countermeasures because of insufficient and geographically limited production capacity, economic imbalances and export restrictions, among other factors. High-risk populations in lower-income countries – including older people, health workers and people with comorbidities – received vaccines long after lower-risk populations in higher-income countries.
In this context, the World Health Organization (WHO) set up the WHO Council on the Economics of Health for All, comprised of 10 leading economists, public health, finance and development professionals. Supported by the Government of Finland, the council issued its final report in May 2023. This landmark report challenged existing perceptions, debunked old myths, and laid out a roadmap for a world where the health and well-being of people and the planet takes precedence. The report

reimagines measures of economic development; highlights the need for improving both the quality and quantity of financing for health and well-being, and equity-focused governance for new vaccines and treatments; and stresses building the necessary capacities in government and society to deliver health for all.

This thematic issue of the *Bulletin of the World Health Organization* is inspired by the council's work. This collection of articles is an important contribution to informing creative, collaborative and courageous actions, to reorient economies to value health as an investment in a better future for all.

The council argued, citing World Bank and WHO estimates, that the cost of inaction is higher than the cost of action: it would cost 1.30 United States dollars per person on the planet to build an effective global system of pandemic prevention and response that could avoid repeating the experience of COVID-19, whereas the costs of the pandemic were many times higher, including a contraction of global gross domestic product (GDP) by 3.1% between 2019 and 2020. We need to see health not as a cost, but a key driver of sustainable growth.

These actions require a whole-of-government approach to create the conditions in which health can thrive, by addressing the determinants of health and the interlinked challenges we face today. The government of Finland has a long history of cross-sectoral collaboration, and a whole-of-government approach is part of everyday practice. One example is the cross-administrative programme Get Finland Moving, to increase physical activity and functional ability, improve well-being and reduce the costs incurred by society of sedentary lifestyles. The government implements the programme's action plan in collaboration with businesses, labour market organizations, civil society and the media.

We recognize that the world needs better mechanisms to facilitate dialogue between ministries of finance, economy and health. Sharing know-how and benchmarking good practices nationally and internationally are important. For this to happen we need structures and operating models that support cooperation, such as health in all policies. An example is WHO's accelerated efforts to address the commercial determinants of health, in the marketing of products such as tobacco, ultra-processed foods, fossil fuel and alcohol, which are estimated to account for at least one third of global deaths.

This reorientation also requires radical action to restore the delicate relationship between planet, people, prosperity and equity, based on the recognition that a sustainable economy can be a solid foundation for health and well-being, and in turn, that health and well-being are central factors for sustainable economic growth, social stability and resilience. For Finland, sustainable well-being is based on education and culture, knowledge and competence, respect for work and entrepreneurship, social protection, and non-discrimination and gender equality.

Investments must protect the health and well-being of young people and future generations, and foster healthy ageing. This goal requires empowering and enabling individuals, families and communities to make healthy choices, where governments put in place participatory processes and ensure credible health information reaches all communities, especially marginalized and vulnerable populations.

Long-term investments in health and well-being can make an important contribution to sustainable economies. An alignment across economic, ecological and social dimensions enables sustainable development, and forms solid and sustainable ways to respond to interlinked crises.

In a world driven by overlapping crises including conflict, climate change and searing inequality, the status quo will not do. We need new models to help us reimagine the future. The work of the council, and of researchers in this issue, helps us to do that and can inform active dialogue between the finance, economic and health sectors.

20. HPP 2024;39(3):281-98

The effectiveness of a government-sponsored health protection scheme in reducing financial risks for the below-poverty-line population in Bangladesh

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The Government of Bangladesh is piloting a non-contributory health protection scheme called Shasthyo Surokhsha Karmasuchi (SSK) to increase access to quality essential healthcare services for

the below-poverty-line (BPL) population. This paper assesses the effect of the SSK scheme on out-of-pocket expenditure (OOPE) for healthcare, catastrophic health expenditure (CHE) and economic impoverishment of the enrolled population. A comparative cross-sectional study was conducted in Tangail District, where the SSK was implemented. From August 2019 to March 2020, a total of 2315 BPL households (HHs) (1170 intervention and 1145 comparison) that had at least one individual with inpatient care experience in the last 12 months were surveyed. A household is said to have incurred CHE if their OOPE for healthcare exceeds the total (or non-food) HH's expenditure threshold. Multiple regression analysis was performed using OOPE, incidence of CHE and impoverishment as dependent variables and SSK membership status, actual BPL status and benefits use status as the main explanatory variables. Overall, the OOPE was significantly lower ($P < 0.01$) in the intervention areas (Bangladeshi Taka (BDT) 23 366) compared with the comparison areas (BDT 24 757). Regression analysis revealed that the OOPE, CHE incidence at threshold of 10% of total expenditure and 40% of non-food expenditure and impoverishment were 33% ($P < 0.01$), 46% ($P < 0.01$), 42% ($P < 0.01$) and 30% ($P < 0.01$) lower, respectively, in the intervention areas than in the comparison areas. Additionally, HHs that utilized SSK benefits experienced even lower OOPE by 92% ($P < 0.01$), CHE incidence at 10% and 40% threshold levels by 72% ($P < 0.01$) and 59% ($P < 0.01$), respectively, and impoverishment by 27% at 10% level of significance. These findings demonstrated the significant positive effect of the SSK in reducing financial burdens associated with healthcare utilization among the enrolled HHs. This illustrates the importance of the nationwide scaling up of the scheme in Bangladesh to reduce the undue financial risk of healthcare utilization for those in poverty.

21. HPP 2024;39(6):636-50
Unfair knowledge practices in global health: a realist synthesis
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Unfair knowledge practices easily beset our efforts to achieve health equity within and between countries. Enacted by people from a distance and from a position of power ('the centre') on behalf of and alongside people with less power ('the periphery'), these unfair practices have generated a complex literature of complaints across various axes of inequity. We identified a sample of this literature from 12 journals and systematized it using the realist approach to explanation. We framed the outcome to be explained as 'manifestations of unfair knowledge practices'; their generative mechanisms as 'the reasoning of individuals or rationale of institutions'; and context that enable them as 'conditions that give knowledge practices their structure'. We identified four categories of unfair knowledge practices, each triggered by three mechanisms: (1) credibility deficit related to pose (mechanisms: 'the periphery's cultural knowledge, technical knowledge and "articulation" of knowledge do not matter'), (2) credibility deficit related to gaze (mechanisms: 'the centre's learning needs, knowledge platforms and scholarly standards must drive collective knowledge-making'), (3) interpretive marginalization related to pose (mechanisms: 'the periphery's sensemaking of partnerships, problems and social reality do not matter') and (4) interpretive marginalization related to gaze (mechanisms: 'the centre's learning needs, social sensitivities and status preservation must drive collective sensemaking'). Together, six mutually overlapping, reinforcing and dependent categories of context influence all 12 mechanisms: 'mislabelling' (the periphery as inferior), 'miseducation' (on structural origins of disadvantage), 'under-representation' (of the periphery on knowledge platforms), 'compounded spoils' (enjoyed by the centre), 'under-governance' (in making, changing, monitoring, enforcing and applying rules for fair engagement) and 'colonial mentality' (of/at the periphery). These context–mechanism–outcome linkages can inform efforts to redress unfair knowledge practices, investigations of unfair knowledge practices across disciplines and axes of inequity and ethics guidelines for health system research and practice when working at a social or physical distance.

HIV/AIDS

22. BMJ Glob Health 2024;9:e014709
Original research
Lessons learnt from daily oral PrEP delivery to inform national planning for PrEP ring introduction for women in low-income and middle-income countries: a qualitative inquiry of international stakeholders
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Introduction Some African countries plan to introduce and scale-up new long-acting pre-exposure prophylaxis methods (LA-PrEP), like the monthly dapivirine vaginal ring (PrEP ring) and injectable cabotegravir. National costed implementation plans, roadmaps for successful product implementation, are often overlooked. International stakeholders engaged in oral PrEP planning, introduction and scale-up are an information resource of lessons learned to advise LA-PrEP planning. We consulted such international stakeholders and synthesised oral PrEP lessons to inform the development of a costed rollout plan template for LA-PrEP.
Methods From selected global health organisations (five international nongovernmental, four donor, four university/research and two multilateral), we interviewed 27 representatives based in America, Europe, Asia and Africa about strategic content and approaches for LA-PrEP policy, programming and implementation. We conducted a thematic analysis of the interview data for implementation considerations.
Results From the consultations, we identified six implementation themes for LA-PrEP introduction and scale-up: (1) ethically increasing choice and avoiding coercion; (2) de-stigmatising PrEP by focusing on preference rather than risk-based eligibility; (3) integrating LA-PrEP into services that are more woman-oriented, couple-oriented and family-oriented, and providing private spaces for LA-PrEP delivery; (4) de-medicalising delivery of relatively safe products (eg, PrEP ring); (5) constructing multilevel, nuanced communication strategies to address measured and perceived product efficacy and effectiveness; and (6) devising product-agnostic, modular approaches to service delivery. Despite the widespread emphasis on integration, few stakeholders offered empirical examples of successful integration approaches and frameworks.
Conclusions Lessons learnt from stakeholder participants suggest standardised and modular processes can improve efficiencies in LA-PrEP planning and implementation. Tiered communication strategies addressing product efficacy and effectiveness will improve clients' and providers' efficacy in making informed decisions. Integration is important for LA-PrEP delivery, but data on empirical integration approaches and frameworks is minimal: further research in this discipline is needed.

23. Plos Med 2024;21(3):e1004367
Long-term HIV care outcomes under universal HIV treatment guidelines: A retrospective cohort study in 25 countries
Brazier E et al., on behalf of the International epidemiology Databases to Evaluate AIDS (IeDEA), City University of New York, Institute for Implementation Science in Population Health (ISPH), New York, US <ellen.brazier@sph.cuny.edu>

Background. While national adoption of universal HIV treatment guidelines has led to improved, timely uptake of antiretroviral therapy (ART), longer-term care outcomes are understudied. There is little data from real-world service delivery settings on patient attrition, viral load (VL) monitoring, and viral suppression (VS) at 24 and 36 months after HIV treatment initiation.
Methods and findings. For this retrospective cohort analysis, we used observational data from 25 countries in the International epidemiology Databases to Evaluate AIDS (IeDEA) consortium's Asia-Pacific, Central Africa, East Africa, Central/South America, and North America regions for patients who were ART naïve and aged ≥15 years at care enrollment between 24 months before and 12 months after national adoption of universal treatment guidelines, occurring 2012 to 2018. We estimated crude cumulative incidence of loss-to-clinic (CI-LTC) at 12, 24, and 36 months after enrollment among patients enrolling in care before and after guideline adoption using competing risks regression.

Guideline change–associated hazard ratios of LTC at each time point after enrollment were estimated via cause-specific Cox proportional hazards regression models. Modified Poisson regression was used to estimate relative risks of retention, VL monitoring, and VS at 12, 24, and 36 months after ART initiation. There were 66,963 patients enrolling in HIV care at 109 clinics with ≥12 months of follow-up time after enrollment (46,484 [69.4%] enrolling before guideline adoption and 20,479 [30.6%] enrolling afterwards). More than half (54.9%) were females, and median age was 34 years (interquartile range [IQR]: 27 to 43). Mean follow-up time was 51 months (standard deviation: 17 months; range: 12, 110 months). Among patients enrolling before guideline adoption, crude CI-LTC was 23.8% (95% confidence interval [95% CI] 23.4, 24.2) at 12 months, 31.0% (95% CI [30.6, 31.5]) at 24 months, and 37.2% (95% [CI 36.8, 37.7]) at 36 months after enrollment. Adjusting for sex, age group, enrollment CD4, clinic location and type, and country income level, enrolling in care and initiating ART after guideline adoption was associated with increased hazard of LTC at 12 months (adjusted hazard ratio [aHR] 1.25 [95% CI 1.08, 1.44]; p = 0.003); 24 months (aHR 1.38 [95% CI 1.19, 1.59]; p < .001); and 36 months (aHR 1.34 [95% CI 1.18, 1.53], p < .001) compared with enrollment before guideline adoption, with no before–after differences among patients with no record of ART initiation by end of follow-up. Among patients retained after ART initiation, VL monitoring was low, with marginal improvements associated with guideline adoption only at 12 months after ART initiation. Among those with VL monitoring, VS was high at each time point among patients enrolling before guideline adoption (86.0% to 88.8%) and afterwards (86.2% to 90.3%), with no substantive difference associated with guideline adoption. Study limitations include lags in and potential underascertainment of care outcomes in real-world service delivery data and potential lack of generalizability beyond IeDEA sites and regions included in this analysis.
Conclusions. In this study, adoption of universal HIV treatment guidelines was associated with lower retention after ART initiation out to 36 months of follow-up, with little change in VL monitoring or VS among retained patients. Monitoring long-term HIV care outcomes remains critical to identify and address causes of attrition and gaps in HIV care quality.

24. TMIH 2024;29(4):309-18
Stability in care and risk of loss to follow-up among clients receiving community health worker-led differentiated HIV care: Results from a prospective cohort study in northern Tanzania
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Background: HIV services in Tanzania are facility-based but facilities are often overcrowded. Differentiated care models (DCM) have been introduced into the National Guidelines. We piloted a Community Health Worker (CHW)-led HIV treatment club model (CHW-DCM) in an urban region, and assessed its effectiveness in comparison to the standard of care (SoC, facility-based model), in terms of stability in care, loss to follow-up (LTFU) and treatment adherence.
Methods: In two clinics in the Shinyanga region, clients established on ART (defined as stable clients by national guidelines as on first-line ART >6 months, undetectable viral load, no opportunistic infections or pregnancy, and good adherence) were offered CHW-DCM. This prospective cohort study included all stable clients who enrolled in CHW-DCM between July 2018 and March 2020 (CHW-DCM) and compared them to stable clients who remained in SoC during that period. Multivariable Cox regression models were used to analyse factors associated with continued stability in care and the risk of LTFU during 18 months of follow-up; treatment adherence was assessed by pill count and compared using Chi-square tests.
Results: Of 2472 stable clients, 24.5% received CHW-DCM and 75.5% SoC. CHW-DCM clients were slightly older (mean 42.8 vs. 37.9 years) and more likely to be female (36.2% vs. 32.2%). Treatment adherence was better among CHW-DCM than SoC: 96.6% versus 91.9% and 98.5% versus 92.2%, respectively (both p = 0.001). SoC clients were more likely to not remain stable over time than CHW-DCM (adjusted Hazard ratio [AHR] = 2.68; 95% CI: 1.86-3.90). There was no difference in LTFU (adjusted hazard ratio [AHR] = 1.54; 95%CI: 0.82-2.93).

Conclusion: Clients attending CHW-DCM demonstrated better stability in care and treatment adherence than SoC, and the risk of LTFU was not increased. These findings demonstrate the potential of CHW in delivering community-based HIV services in the local Tanzanian context. These results could be used to extend this CHW-DCM model to similar settings.

Malaria

25. Lancet 2024;403(10437):1660-70
Randomized Controlled Trial
Feasibility, safety, and impact of the RTS,S/AS01E malaria vaccine when implemented through national immunisation programmes: evaluation of cluster-randomised introduction of the vaccine in Ghana, Kenya, and Malawi
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Background: The RTS,S/AS01E malaria vaccine (RTS,S) was introduced by national immunisation programmes in Ghana, Kenya, and Malawi in 2019 in large-scale pilot schemes. We aimed to address questions about feasibility and impact, and to assess safety signals that had been observed in the phase 3 trial that included an excess of meningitis and cerebral malaria cases in RTS,S recipients, and the possibility of an excess of deaths among girls who received RTS,S than in controls, to inform decisions about wider use.
Methods: In this prospective evaluation, 158 geographical clusters (66 districts in Ghana; 46 sub-counties in Kenya; and 46 groups of immunisation clinic catchment areas in Malawi) were randomly assigned to early or delayed introduction of RTS,S, with three doses to be administered between the ages of 5 months and 9 months and a fourth dose at the age of approximately 2 years. Primary outcomes of the evaluation, planned over 4 years, were mortality from all causes except injury (impact), hospital admission with severe malaria (impact), hospital admission with meningitis or cerebral malaria (safety), deaths in girls compared with boys (safety), and vaccination coverage (feasibility). Mortality was monitored in children aged 1-59 months throughout the pilot areas. Surveillance for meningitis and severe malaria was established in eight sentinel hospitals in Ghana, six in Kenya, and four in Malawi. Vaccine uptake was measured in surveys of children aged 12-23 months about 18 months after vaccine introduction. We estimated that sufficient data would have accrued after 24 months to evaluate each of the safety signals and the impact on severe malaria in a pooled analysis of the data from the three countries. We estimated incidence rate ratios (IRRs) by comparing the ratio of the number of events in children age-eligible to have received at least one dose of the vaccine (for safety outcomes), or age-eligible to have received three doses (for impact outcomes), to that in non-eligible age groups in implementation areas with the equivalent ratio in comparison areas. To establish whether there was evidence of a difference between girls and boys in the vaccine's impact on mortality, the female-to-male mortality ratio in age groups eligible to receive the vaccine (relative to the ratio in non-eligible children) was compared between implementation and comparison areas. Preliminary findings contributed to WHO's recommendation in 2021 for widespread use of RTS,S in areas of moderate-to-high malaria transmission.
Findings: By April 30, 2021, 652 673 children had received at least one dose of RTS,S and 494 745 children had received three doses. Coverage of the first dose was 76% in Ghana, 79% in Kenya, and 73% in Malawi, and coverage of the third dose was 66% in Ghana, 62% in Kenya, and 62% in Malawi. 26 285 children aged 1-59 months were admitted to sentinel hospitals and 13 198 deaths were reported through mortality surveillance. Among children eligible to have received at least one dose of RTS,S, there was no evidence of an excess of meningitis or cerebral malaria cases in implementation areas compared with comparison areas (hospital admission with meningitis: IRR 0·63 [95% CI 0·22-1·79]; hospital admission with cerebral malaria: IRR 1·03 [95% CI 0·61-1·74]). The impact of RTS,S introduction on mortality was similar for girls and boys (relative mortality ratio 1·03 [95% CI 0·88-1·21]). Among children eligible for three vaccine doses, RTS,S introduction was associated with a 32%

reduction (95% CI 5-51%) in hospital admission with severe malaria, and a 9% reduction (95% CI 0-18%) in all-cause mortality (excluding injury).
Interpretation: In the first 2 years of implementation of RTS,S, the three primary doses were effectively deployed through national immunisation programmes. There was no evidence of the safety signals that had been observed in the phase 3 trial, and introduction of the vaccine was associated with substantial reductions in hospital admission with severe malaria. Evaluation continues to assess the impact of four doses of RTS,S.

26. Lancet Glob Health 2024;12(4):e672-e684
Integration of the RTS,S/AS01 malaria vaccine into the Essential Programme on Immunisation in western Kenya: a qualitative longitudinal study from the health system perspective
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Background: Malaria accounts for over half a million child deaths annually. WHO recommends RTS,S/AS01 to prevent malaria in children living in moderate-to-high malaria transmission regions. We conducted a qualitative longitudinal study to investigate the contextual and dynamic factors shaping vaccine delivery and uptake during a pilot introduction in western Kenya.
Methods: The study was conducted between Oct 3, 2019, and Mar 24, 2022. We conducted participant and non-participant observations and in-depth interviews with health-care providers, health managers, and national policymakers at three timepoints using an iterative approach and observations of practices and processes of malaria vaccine delivery. Transcripts were coded by content analysis using the consolidated framework for implementation research, to which emerging themes were added deductively and categorised into challenges and opportunities.
Findings: We conducted 112 in-depth interviews with 60 participants (25 health-care providers, 27 managers, and eight policy makers). Health-care providers highlighted limitations in RTS,S/AS01 integration into routine immunisation services due to the concurrent pilot evaluation and temporary adaptations for health reporting. Initial challenges related to the complexity of the four-dose schedule (up to 24-months); however, self-efficacy increased over time as the health-care providers gained experience in vaccine delivery. Low uptake of the fourth dose remained a challenge. Health managers cited insufficient trained immunisation staff and inadequate funding for supervision. Confidence in the vaccine increased among all participant groups owing to reductions in malaria frequency and severity.
Interpretation: Integration of RTS,S/AS01 into immunisation services in western Kenya presented substantial operational challenges most of which were overcome in the first 2 years, providing important lessons for other countries. Programme expansion is feasible with intensive staff training and retention, enhanced supervision, and defaulter-tracing to ensure uptake of all doses.

27. NEJM 2024;390:1620-1
Editorial
The Quest for Transformative Tools to Eradicate Malaria
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We in the global malaria community are at a critical juncture in our journey toward malaria eradication. Decades of experience in deploying our existing interventions have made it clear that there is no single “silver bullet.” Rather, driving down morbidity and mortality requires that we use combinations of interventions across a range of product classes and also that these combinations be uniquely tailored to local epidemiologic, demographic, environmental, and socioeconomic contexts. Although our existing tools remain effective for now, we know that the threat of drug and insecticide resistance necessitates a robust research-and-development pipeline capable of delivering not only improved versions of existing product classes but also transformative tools that represent entirely new paradigms for the treatment and prevention of malaria. Furthermore, the intervention-delivery challenges that are inherent in accessing at-risk populations mean that these new tools — and the

systems supporting them — must be amenable to widespread use and scale in some of the most challenging, hard-to-reach corners of the world.

Innovation in the areas of monoclonal antibodies, long-acting injectable small-molecule drugs, and next-generation vaccines would give the world such potential tools. Monoclonal antibodies, the newest product class for the prevention of malaria and one that the Bill and Melinda Gates Foundation is investing in, are molecules that are identified in and cloned from persons who have been exposed to malaria by means of natural infection or vaccination. The three monoclonal antibodies in clinical development each target the highly conserved repeat region in the circumsporozoite protein that is expressed during the preerythrocytic stage of the parasite. These monoclonal antibodies block plasmodium sporozoites from establishing early infection in the liver, effectively preventing blood-stage infection, clinical disease, and onward transmission. Circumsporozoite protein is the dominant surface antigen on the transmitted sporozoite form of the parasite, and although a certain amount of amino acid–level diversity has been observed across circumsporozoite protein sequences worldwide, there are multiple broadly conserved sequence motifs in the repeat region, and the tertiary structure is consistent across parasite strains, honed by evolutionary forces over millennia.

Current drug-based prevention strategies, such as seasonal malaria chemoprevention in children with the use of sulfadoxine–pyrimethamine and amodiaquine, are operationally challenging to administer, given that they require both multiple interactions with the health care system and patient adherence to a multidose oral drug regimen. In addition, these strategies have a limited duration of protection. Each of the vaccines for the prevention of malaria (RTS,S/AS01 and R21/Matrix-M) that are recommended by the World Health Organization (WHO) require multiple injected doses and health care touchpoints for seasonal protection during the first 2 years of life, and neither vaccine is included in the WHO Essential Programme on Immunization.

A monoclonal antibody or long-acting injectable drug that can deliver safe and cost-effective preventive efficacy from a single dose with a long duration of protection, as outlined in the WHO Preferred Product Characteristics, would address these limitations. These new product classes not only represent potentially highly effective, scalable, easy to implement, and durable tools for the prevention of malaria but also could conceivably be more feasible and effective prophylactic measures than either seasonal malaria chemoprevention or the currently recommended malaria vaccines — both in seasonal and perennial malaria-transmission settings, depending on the duration of protection.

Kayentao et al. previously found that intravenous administration of a half-life–extended monoclonal antibody (CIS43LS) targeting Plasmodium falciparum sporozoites in Malian adults protected them from P. falciparum infection over the 6-month malaria transmission season. In their current trial, now published in the Journal these researchers evaluated the subcutaneous administration of a second half-life–extended monoclonal antibody (L9LS) in children 6 to 10 years of age in the same, highly seasonal Malian setting — a trial design that is better aligned with the WHO Preferred Product Characteristics for monoclonal antibodies.

This phase 2 trial showed that a single subcutaneous dose of L9LS at the highest dose tested (300 mg) provided protective efficacy of 69.9% against P. falciparum infection and 77.4% against clinical malaria (both point estimates) among children 6 to 10 years of age over a 6-month malaria season. These figures come very close to the WHO Preferred Product Characteristics targets of at least 80% preventive efficacy against clinical disease at 3 to 4 months of follow-up. It will be important to understand the apparent differences in outcomes between this trial and the previous one as they relate to mode of administration (intravenous vs. subcutaneous) and trial-design characteristics (e.g., target population and timing in relation to the malaria season) with a view toward the conduct of future trials.

The results of the current trial are encouraging, but much remains to be learned about half-life–extended monoclonal antibodies in terms of pharmacokinetic and pharmacodynamic properties, especially in children, in whom the relationship between dose and serum half-life is poorly studied. Geographic and age-dependent variations in the efficacy of monoclonal antibodies against malaria are currently being explored in ongoing trials (ClinicalTrials.gov numbers, NCT05400655, NCT05816330, and NCT05304611). In addition to spatial heterogeneity, population heterogeneity — for example,

nutritional status or the presence of coinfection — must also be considered when the potential real-world effectiveness of these products is evaluated.
Although the results in this trial are promising, further improvements in both potency and pharmacokinetics are likely to be needed in order for monoclonal antibodies to have a broad effect in reducing the malaria burden. The success of monoclonal antibodies will also be highly dependent on innovation that brings us beyond the status quo of costs of manufacturing goods, cold-chain requirements, and the delivery needs of health care systems. Trials that not only provide clinical insight but also show operational feasibility and the potential for cost-effective scale would provide a compelling argument for the acceleration of development and prequalification of this new class of product.

Mental Health

28. Glob Ment Health (Camb) 2024;11:e43
Review
A systematic review of reviews on the advantages of mHealth utilization in mental health services: A viable option for large populations in low-resource settings
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Global mental health services face challenges such as stigma and a shortage of trained professionals, particularly in low- and middle-income countries, which hinder access to high-quality care. Mobile health interventions, commonly referred to as mHealth, have shown to have the capacity to confront and solve most of the challenges within mental health services. This paper conducted a comprehensive investigation in 2024 to identify all review studies published between 2000 and 2024 that investigate the advantages of mHealth in mental health services. The databases searched included PubMed, Scopus, Cochrane and ProQuest. The quality of the final papers was assessed and a thematic analysis was performed to categorize the obtained data. 11 papers were selected as final studies. The final studies were considered to be of good quality. The risk of bias within the final studies was shown to be in a convincing level. The main advantages of mHealth interventions were categorized into four major themes: 'accessibility, convenience and adaptability', 'patient-centeredness', 'data insights' and 'efficiency and effectiveness'. The findings of the study suggested that mHealth interventions can be a viable and promising option for delivering mental health services to large and diverse populations, particularly in vulnerable groups and low-resource settings.

29. Glob Ment Health (Camb) 2024;11:e55
Review
A scoping review of the implementation and cultural adaptation of school-based mental health promotion and prevention interventions in low-and middle-income countries
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Effective school-based mental health promotion and prevention interventions in low-and middle-income countries (LMICs) can positively impact the mental health and well-being of large numbers of young people. This scoping review aimed to investigate the implementation of effective mental health promotion and prevention interventions in LMIC schools. A scoping review of the international literature was conducted and followed the Preferred Reporting Items for Systematic reviews and Meta-Analysis extension for Scoping Reviews guidelines. Medline, PsycInfo, Scopus, Embase, CINAHL and Cochrane were searched for peer-reviewed literature published from 2014 to 2022. PsycExtra, Google Scholar and the websites of key organisations were searched for relevant grey literature. Study selection focussed on mental health promotion interventions, including the development of social and emotional skills and mental health literacy, and prevention interventions, including anti-bullying and

skill-based interventions for "at-risk" students. Twenty-seven studies evaluating 25 school-based interventions in 17 LMICs were included in the review. Fifteen interventions were developed in the implementing country and 10 were adapted from high-income countries (HICs) or other settings. Findings from the studies reviewed were generally positive, especially when interventions were implemented to a high quality. Universal life-skills interventions were found to increase social and emotional skills, decrease problem behaviours and positively impact students' mental health and well-being. Mental health literacy interventions increased mental health knowledge and decreased stigma among students and school staff. Outcomes for externally facilitated anti-bullying interventions were less positive. All 19 effective studies reported on some aspects of programme implementation, and 15 monitored implementation fidelity. Eleven studies outlined the programme's underpinning theoretical model. Only four studies reported on the cultural adaptation of programmes in detail. Including young people in the adaptation process was reported to facilitate natural cultural adaptation of programmes, while input from programme developers was considered key to ensuring that the core components of interventions were retained. The review findings indicate increasing evidence of effective mental health interventions in LMIC schools. To facilitate the sustainability, replication and scaling-up of these interventions, greater attention is needed to reporting on intervention core components, and the processes of implementation and cultural adaptation in the local setting.

30. Lancet 2024;403(10437):1671-80
Prevalence of adolescent mental disorders in Kenya, Indonesia, and Viet Nam measured by the National Adolescent Mental Health Surveys (NAMHS): a multi-national cross-sectional study
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Background: Mental disorders are the leading global cause of health burden among adolescents. However, prevalence data for mental disorders among adolescents in low-income and middle-income countries are scarce with often limited generalisability. This study aimed to generate nationally representative prevalence estimates for mental disorders in adolescents in Kenya, Indonesia, and Viet Nam.
Methods: As part of the National Adolescent Mental Health Surveys (NAMHS), a multinational cross-sectional study, nationally representative household surveys were conducted in Kenya, Indonesia, and Viet Nam between March and December, 2021. Adolescents aged 10-17 years and their primary caregiver were interviewed from households selected randomly according to sampling frames specifically designed to elicit nationally representative results. Six mental disorders (social phobia, generalised anxiety disorder, major depressive disorder, post-traumatic stress disorder, conduct disorder, and attention-deficit hyperactivity disorder) were assessed with the Diagnostic Interview Schedule for Children, Version 5. Suicidal behaviours and self-harm in the past 12 months were also assessed. Prevalence in the past 12 months and past 4 weeks was calculated for each mental disorder and collectively for any mental disorder (ie, of the six mental disorders assessed). Prevalence of suicidal behaviours (ie, ideation, planning, and attempt) and self-harm in the past 12 months was calculated, along with adjusted odds ratios (aORs) to show the association with prevalence of any mental disorder in the past 12 months. Inverse probability weighting was applied to generate national estimates with corresponding 95% CIs.
Findings: Final samples consisted of 5155 households (ie, adolescent and primary caregiver pairs) from Kenya, 5664 households from Indonesia, and 5996 households from Viet Nam. In Kenya, 2416 (46·9%) adolescents were male and 2739 (53·1%) were female; in Indonesia, 2803 (49·5%) adolescents were male and 2861 (50·5%) were female; and in Viet Nam, 3151 (52·5%) were male and 2845 (47·4%) were female. Prevalence of any mental disorder in the past 12 months was 12·1% (95% CI 10·9-13·5) in Kenya, 5·5% (4·3-6·9) in Indonesia, and 3·3% (2·7-4·1) in Viet Nam. Prevalence in the past 4 weeks was 9·4% (8·3-10·6) in Kenya, 4·4% (3·4-5·6) in Indonesia, and 2·7% (2·2-3·3) in Viet Nam. The prevalence of suicidal behaviours in the past 12 months was low in all three countries, with suicide ideation ranging from 1·4% in Indonesia (1·0-2·0) and Viet Nam (1·0-1·9) to 4·6% (3·9-5·3) in

Kenya, suicide planning ranging from 0·4% in Indonesia (0·3-0·8) and Viet Nam (0·2-0·6) to 2·4% (1·9-2·9) in Kenya, and suicide attempts ranging from 0·2% in Indonesia (0·1-0·4) and Viet Nam (0·1-0·3) to 1·0% (0·7-1·4) in Kenya. The prevalence of self-harm in the past 12 months was also low in all three countries, ranging from 0·9% (0·6-1·3) in Indonesia to 1·2% (0·9-1·7) in Kenya. However, the prevalence of suicidal behaviours and self-harm in the past 12 months was significantly higher among those with any mental disorder in the past 12 months than those without (eg, aORs for suicidal ideation ranged from 7·1 [3·1-15·9] in Indonesia to 14·7 [7·5-28·6] in Viet Nam).
Interpretation: NAMHS provides the first national adolescent mental disorders prevalence estimates for Kenya, Indonesia, and Viet Nam. These data can inform mental health and broader health policies in low-income and middle-income countries.

31. Lancet Glob Health 2024;12(4):e652-e661
Randomized Controlled Trial
Two implementation strategies to support the integration of depression screening and treatment into hypertension and diabetes care in Malawi (SHARP): parallel, cluster-randomised, controlled, implementation trial
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Background: Although evidence-based treatments for depression in low-resource settings are established, implementation strategies to scale up these treatments remain poorly defined. We aimed to compare two implementation strategies in achieving high-quality integration of depression care into chronic medical care and improving mental health outcomes in patients with hypertension and diabetes.
Methods: We conducted a parallel, cluster-randomised, controlled, implementation trial in ten health facilities across Malawi. Facilities were randomised (1:1) by covariate-constrained randomisation to either an internal champion alone (ie, basic strategy group) or an internal champion plus external supervision with audit and feedback (ie, enhanced strategy group). Champions integrated a three-element, evidence-based intervention into clinical care: universal depression screening; peer-delivered psychosocial counselling; and algorithm-guided, non-specialist antidepressant management. External supervision involved structured facility visits by Ministry officials and clinical experts to assess quality of care and provide supportive feedback approximately every 4 months. Eligible participants were adults (aged 18-65 years) seeking hypertension and diabetes care with signs of depression (Patient Health Questionnaire-9 score ≥5). Primary implementation outcomes were depression screening fidelity, treatment initiation fidelity, and follow-up treatment fidelity over the first 3 months of treatment, analysed by intention to treat. This trial is registered with ClinicalTrials.gov, NCT03711786, and is complete.
Findings: Five (50%) facilities were randomised to the basic strategy and five (50%) to the enhanced strategy. Between Oct 1, 2019, and Nov 30, 2021, in the basic group, 587 patients were assessed for eligibility, of whom 301 were enrolled; in the enhanced group, 539 patients were assessed, of whom 288 were enrolled. All clinics integrated the evidence-based intervention and were included in the analyses. Of 60 774 screening-eligible visits, screening fidelity was moderate (58% in the enhanced group vs 53% in the basic group; probability difference 5% [95% CI -38% to 47%]; p=0·84) and treatment initiation fidelity was high (99% vs 98%; 0% [-3% to 3%]; p=0·89) in both groups. However, treatment follow-up fidelity was substantially higher in the enhanced group than in the basic group (82% vs 20%; 62% [36% to 89%]; p=0·0020). Depression remission was higher in the enhanced group than in the basic group (55% vs 36%; 19% [3% to 34%]; p=0·045). Serious adverse events were nine deaths (five in the basic group and four in the enhanced group) and 26 hospitalisations (20 in the basic group and six in the enhanced group); none were treatment-related.
Interpretation: The enhanced implementation strategy led to an increase in fidelity in providers' follow-up treatment actions and in rates of depression remission, consistent with the literature that follow-up decisions are crucial to improving depression outcomes in integrated care models. These findings

suggest that external supervision combined with an internal champion could offer an important advance in integrating depression treatment into general medical care in low-resource settings.

Another article about this subject in the same journal:
31a. Lancet Glob Health 2024;12(4):e662-e671
Implementation strategies to build mental health-care capacity in Malawi: a health-economic evaluation

Neurology

32. TMIH 2024;29(3):214-25
Very high epilepsy prevalence in rural Southern Rwanda: The underestimated burden of epilepsy in sub-Saharan Africa
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Objectives: Up to 85% of people living with epilepsy (PwE) reside in low-and middle-income countries. In sub-Saharan Africa, the lifetime prevalence of epilepsy is 16 per 1000 persons. In Northern rural Rwanda, a 47.7 per 1000 prevalence has been reported. As variations in prevalence across geographical areas have been observed, we studied the prevalence in Southern rural Rwanda using the same robust methodology as applied in the North.
Methods: We conducted a three-stage, cross-sectional, door-to-door survey in two rural villages in Southern Rwanda from June 2022 to April 2023. First, trained enumerators administered the validated Limoges questionnaire for epilepsy screening. Second, neurologists examined the persons who had screened positively to confirm the epilepsy diagnosis. Third, cases with an inconclusive assessment were separately reexamined by two neurologists to reevaluate the diagnosis.
Results: Enumerators screened 1745 persons (54.4% female, mean age: 24 ± 19.3 years), of whom 304 (17.4%) screened positive. Epilepsy diagnosis was confirmed in 133 (52.6% female, mean age: 30 ± 18.2 years) and active epilepsy in 130 persons. Lifetime epilepsy prevalence was 76.2 per 1000 (95% CI: 64.2-89.7‰). The highest age-specific rate occurred in the 29-49 age group. No gender-specific differences were noted. In 22.6% of the PwE, only non-convulsive seizures occurred. The treatment gap was 92.2%, including a diagnosis gap of 79.4%.
Conclusion: We demonstrated a very high epilepsy prevalence in Southern rural Rwanda, with over 20% of cases having only non-convulsive seizures, which are often underdiagnosed in rural Africa. In line with previous Rwandan reports, we reiterate the high burden of the disease in the country. Geographic variation in prevalence throughout Africa may result from differences in risk and aetiological factors. Case-control studies are underway to understand such differences and propose adapted health policies for epilepsy prevention.

Non-communicable diseases

33. BMJ 2024;385:e078432
Research
Global burden of type 1 diabetes in adults aged 65 years and older, 1990-2019: population based study
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Objectives To estimate the burden, trends, and inequalities of type 1 diabetes mellitus (T1DM) among older adults at global, regional, and national level from 1990 to 2019.
Design Population based study.
Population Adults aged ≥65 years from 21 regions and 204 countries and territories (Global Burden of Disease and Risk Factors Study 2019)from 1990 to 2019.

Main outcome measures Primary outcomes were T1DM related age standardised prevalence, mortality, disability adjusted life years (DALYs), and average annual percentage change.
Results The global age standardised prevalence of T1DM among adults aged ≥65 years increased from 400 (95% uncertainty interval (UI) 332 to 476) per 100 000 population in 1990 to 514 (417 to 624) per 100 000 population in 2019, with an average annual trend of 0.86% (95% confidence interval (CI) 0.79% to 0.93%); while mortality decreased from 4.74 (95% UI 3.44 to 5.9) per 100 000 population to 3.54 (2.91 to 4.59) per 100 000 population, with an average annual trend of −1.00% (95% CI −1.09% to −0.91%), and age standardised DALYs decreased from 113 (95% UI 89 to 137) per 100 000 population to 103 (85 to 127) per 100 000 population, with an average annual trend of −0.33% (95% CI −0.41% to −0.25%). The most significant decrease in DALYs was observed among those aged <79 years: 65-69 (−0.44% per year (95% CI −0.53% to −0.34%)), 70-74 (−0.34% per year (−0.41% to −0.27%)), and 75-79 years (−0.42% per year (−0.58% to −0.26%)). Mortality fell 13 times faster in countries with a high sociodemographic index versus countries with a low-middle sociodemographic index (−2.17% per year (95% CI −2.31% to −2.02%) v −0.16% per year (−0.45% to 0.12%)). While the highest prevalence remained in high income North America, Australasia, and western Europe, the highest DALY rates were found in southern sub-Saharan Africa, Oceania, and the Caribbean. A high fasting plasma glucose level remained the highest risk factor for DALYs among older adults during 1990-2019.
Conclusions The life expectancy of older people with T1DM has increased since the 1990s along with a considerable decrease in associated mortality and DALYs. T1DM related mortality and DALYs were lower in women aged ≥65 years, those living in regions with a high sociodemographic index, and those aged <79 years. Management of high fasting plasma glucose remains a major challenge for older people with T1DM, and targeted clinical guidelines are needed.

34. TMIH 2024;29(3):233-42
Pattern and predictors of non-adherence to diabetes self-management recommendations among patients in peripheral district of Bangladesh
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Objectives: This study was designed to determine the extent of non-adherence to the different dimensions of diabetes self-management and to identify the factors influencing non-adherence among peripheral patients in Banglad.
Methods: A cross-sectional study was conducted among 990 adult diabetic patients residing in Thakurgaon district, Bangladesh. Data were collected through face-to-face interviews including socio-demographic information, disease and therapeutic, health services, knowledge and adherence to self-management components.
Results: The proportion of non-adherence to drug prescription was 66.7%, dietary regimen (68.9%), physical exercise (58.0%), follow-up visit/blood glucose test (88.2%), stopping tobacco (50.6%), and regular foot care (93.9%). Significant predictors for non-adherence to drug were poorest socio-economic status (OR = 2.47), absence of diabetic complications (OR = 1.43), using non-clinical therapy (OR = 5.61), and moderate level of knowledge (OR = 1.87). Non-adherence to dietary recommendations was higher for women (OR = 1.72), poorest socio-economic status (OR = 3.17), and poor technical knowledge (OR = 4.68). Non-adherence to physical exercise was lower for women (OR = 0.62), combined family (OR = 0.63), middle socio-economic status (OR = 0.54), and moderate knowledge on physical exercise (OR = 0.55). Non-adherence to follow-up visits/blood glucose test was higher among patients who did not have diabetic complications (OR = 1.81) and with own transport (OR = 2.57), and respondents from high-income group (OR = 0.23) were less likely to be non-adherent. Non-adherence to stopping tobacco was higher for older individuals (OR = 1.86); but lower for women (OR = 0.48), individuals with higher education level (OR = 0.17) and patients sick for a longer time (OR = 0.52). Non-adherence to foot care was higher for patients who needed longer time to go to hospital (OR = 4.07) and had poor basic knowledge on diabetes (OR = 17.80).

Conclusion: An alarmingly high proportion of diabetic patients did not adhere to diabetes self-management. Major predictors for non-adherence were related to patient's demographic characteristics and their experience with disease, treatment and health care services.

Sexual Reproductive Health and Rights

35. BMJ Glob Health 2024;9:e013651
Original research
Association between women's empowerment and demand for family planning satisfied among Christians and Muslims in multireligious African countries
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Background Although the levels of demand for family planning satisfied (DFPS) have increased in many countries, cultural norms remain a significant barrier in low- and middle-income countries. In the context of multireligious African countries, our objective was to investigate intersectional inequalities in DFPS by modern or traditional contraceptives according to religion and women's empowerment.
Methods Analyses were based on Demographic and Health Surveys carried out between 2010 and 2021 in African countries. Countries with at least 10% of Muslims and Christians were selected to analyse inequalities in family planning. The religious groups were characterised by wealth, area of residence, women's age and women's empowerment. The mean level of empowerment was estimated for each religious group, and multilevel Poisson regression was used to assess whether DFPS varied based on the level of women's empowerment among Muslims and Christians.
Results Our study sample of 14 countries comprised 35% of Muslim and 61% of Christian women. Christians had higher levels of empowerment across all three domains compared with Muslims and women with no/other religion. DFPS was also higher among Christians (57%) than among Muslims (36%). Pooled analysis indicated a consistent association between DFPS and women's empowerment, with higher prevalence ratios among Muslims than Christians, especially in the decision-making domain.
Conclusions The gap between Muslims and Christians in DFPS significantly reduced as the level of empowerment increased. It highlights the importance of understanding and addressing cultural factors sensibly and respectfully to satisfy the demand for family planning services.

36. Lancet 2024;403(10433):1219
World Report
The Gambia seeks to overturn FGM ban
Devi, S.

(Abbreviated)
The Gambia could become the first country to reverse a ban on female genital mutilation (FGM) after the National Assembly voted on March 18, 2024, to send a decriminalisation bill to committee, which might take about 3 months to report before a final vote.
Up to 73% of Gambian women aged between 15 and 49 years have undergone FGM, with 65% being subjected to it when younger than 5 years, according to data from the 2020 Gambia Demographic and Health Survey used by the UN.
Globally, there has been a 15% increase in the number of girls and women who are FGM survivors over the past 8 years, UNICEF said in a report released on March 8, 2024. Of the total 230 million cases of FGM, 144 million were in Africa, 80 million in Asia, and 6 million in the Middle East, it said.
FGM has no health benefits and it can cause serious haemorrhage, tetanus, sepsis, or death and life-long complications include the need for subsequent surgery and threats to childbirth, such as obstetric tearing and bleeding that can cause maternal and infant death. WHO classifies FGM into four categories that range from the partial removal of the clitoral glans to infibulation or narrowing of the

vaginal opening through cutting and repositioning the labia minora or labia majora with stitching and sometimes removal of the clitoral prepuce or clitoral hood and glans.
Gambian campaigners are concerned about a push towards the “medicalisation” of FGM, in which it is performed by a health-care provider.

37. Lancet 2024;403(10443):2520-32
Randomized Controlled Trial
Effectiveness of kangaroo mother care before clinical stabilisation versus standard care among neonates at five hospitals in Uganda (OMWaNA): a parallel-group, individually randomised controlled trial and economic evaluation
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Background: Preterm birth is the leading cause of death in children younger than 5 years worldwide. WHO recommends kangaroo mother care (KMC); however, its effects on mortality in sub-Saharan Africa and its relative costs remain unclear. We aimed to compare the effectiveness, safety, costs, and cost-effectiveness of KMC initiated before clinical stabilisation versus standard care in neonates weighing up to 2000 g.
Methods: We conducted a parallel-group, individually randomised controlled trial in five hospitals across Uganda. Singleton or twin neonates aged younger than 48 h weighing 700-2000 g without life-threatening clinical instability were eligible for inclusion. We randomly assigned (1:1) neonates to either KMC initiated before stabilisation (intervention group) or standard care (control group) via a computer-generated random allocation sequence with permuted blocks of varying sizes, stratified by birthweight and recruitment site. Parents, caregivers, and health-care workers were unmasked to treatment allocation; however, the independent statistician who conducted the analyses was masked. After randomisation, neonates in the intervention group were placed prone and skin-to-skin on the caregiver's chest, secured with a KMC wrap. Neonates in the control group were cared for in an incubator or radiant heater, as per hospital practice; KMC was not initiated until stability criteria were met. The primary outcome was all-cause neonatal mortality at 7 days, analysed by intention to treat. The economic evaluation assessed incremental costs and cost-effectiveness from a disaggregated societal perspective. This trial is registered with ClinicalTrials.gov, NCT02811432.
Findings: Between Oct 9, 2019, and July 31, 2022, 2221 neonates were randomly assigned: 1110 (50·0%) neonates to the intervention group and 1111 (50·0%) neonates to the control group. From randomisation to age 7 days, 81 (7·5%) of 1083 neonates in the intervention group and 83 (7·5%) of 1102 neonates in the control group died (adjusted relative risk [RR] 0·97 [95% CI 0·74-1·28]; p=0·85). From randomisation to 28 days, 119 (11·3%) of 1051 neonates in the intervention group and 134 (12·8%) of 1049 neonates in the control group died (RR 0·88 [0·71-1·09]; p=0·23). Even if policy makers place no value on averting neonatal deaths, the intervention would have 97% probability from the provider perspective and 84% probability from the societal perspective of being more cost-effective than standard care.
Interpretation: KMC initiated before stabilisation did not reduce early neonatal mortality; however, it was cost-effective from the societal and provider perspectives compared with standard care. Additional investment in neonatal care is needed for increased impact, particularly in sub-Saharan Africa.

38. Lancet Glob Health 2024;12(7):e1209-e1213
Review
When sex is demanded as payment for health-care services
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Sexual corruption or sextortion has gained recent attention in the anti-corruption space. It occurs when a sexual favour is used as the currency for a bribe. Sexual corruption is a manifestation of gender-based violence, is inherently a human rights violation, and is a grave public health concern because of its effects on the physical, emotional, and mental wellbeing of the person who has experienced sexual corruption. It impacts health systems' abilities to achieve universal health coverage and deliver services in the most effective, high-quality manner. Despite the health consequences, limited evidence exists on sexual corruption occurring in the health sector. This Viewpoint briefly reviews the literature on sexual corruption occurring within health systems focusing mainly on low-income to middle-income countries, with a concentration on its prevalence, the driving forces associated with it, and recommendations to address it.

39. TMIH 2024;29(4):266-72
Epidemiological, anatomoclinical, and therapeutic profile of obstetric fistula in the Democratic Republic of the Congo: About 1267 patients
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Objective: Our aim is to describe the epidemiological, anatomoclinical and therapeutic profile of obstetric fistula (OF) in the Democratic Republic of the Congo (DRC).
Methodology: This was a descriptive retrospective study that collected 1416 obstetric fistulas in 1267 patients in seven provinces of the DRC, treated between January 2017 and December 2022. The variables studied were epidemiological, anatomoclinical and therapeutic.
Results: The mean age of patients at the time of surgical repair was 33.2 years (range: 15 and 77 years) and 32.8% of patients were aged between 20 and 29 years. The mean age of the fistula at repair was 10 years (range: 3.5 months and 56 years). At the time of fistula, 61.7% of patients had delivered vaginally and 28.7% by caesarean section and 8.2% of patients had a haemostasis hysterectomy. Labour lasted at least 3 days in 47.3% of these patients for the fistula birth. Deliveries took place either at home (27.4%) or in a health facility (72.6%); 83.6% of newborns resulting from these births had died. Taken as a whole, urogenital fistulas are more common than genito-digestive fistulas. Urethro-vaginal (26.2%) and vesico-uterine (24.7%) anatomoclinical entities were predominant among urogenital fistulas. A total of 1416 fistulas were surgically repaired in 1267 patients. These repairs were successful for 1226 (86.6%) fistulas. The main surgical route used was transvaginal (68.8%).
Conclusion: In the DRC, obstetric fistula is common in young adult women. It often results from vaginal delivery, after prolonged labour. Fistula births often result in the death of newborns. Uro-genital obstetric fistulas are the most frequent with predominance of urethro-vaginal and vesico-uterine anatomoclinical entities. Fistulas remain untreated for a long time. Mostly done transvaginally, surgical repair gives a good result.

Tuberculosis

40. Am J TMH 2024;110(6):1253-60
Mycobacterium tuberculosis Infection in School Contacts of Tuberculosis Cases: A Systematic Review and Meta-Analysis
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Substantial tuberculosis transmission occurs outside of households, and tuberculosis surveillance in schools has recently been proposed. However, the yield of tuberculosis outcomes from school contacts is not well characterized. We assessed the prevalence of Mycobacterium tuberculosis infection among close school contacts by performing a systematic review. We searched PubMed, Elsevier, China National Knowledge Infrastructure, and Wanfang databases. Studies reporting the number of children who were tested overall and who tested positive were included. Subgroup analyses

were performed by study location, index case bacteriological status, type of school, and other relevant factors. In total, 28 studies including 54,707 school contacts screened for M. tuberculosis infection were eligible and included in the analysis. Overall, the prevalence of M. tuberculosis infection determined by the QuantiFERON Gold in-tube test was 33.2% (95% CI, 0.0-73.0%). The prevalences of M. tuberculosis infection based on the tuberculin skin test (TST) using 5 mm, 10 mm, and 15 mm as cutoffs were 27.2% (95% CI, 15.1-39.3%), 24.3% (95% CI, 15.3-33.4%), and 12.7% (95% CI, 6.3-19.0%), respectively. The pooled prevalence of M. tuberculosis infection (using a TST ≥5-mm cutoff) was lower in studies from China (22.8%; 95% CI, 16.8-28.8%) than other regions (36.7%; 95% CI, 18.1-55.2%). The pooled prevalence of M. tuberculosis infection was higher when the index was bacteriologically positive (43.6% [95% CI, 16.5-70.8%] versus 23.8% [95% CI, 16.2-31.4%]). These results suggest that contact investigation and general surveillance in schools from high-burden settings merit consideration as means to improve early case detection in children.

41. TMIH 2024;29(3):192-205
Sustained high fatality during TB therapy amid rapid decline in TB mortality at population level: A retrospective cohort and ecological analysis from Shiselweni, Eswatini
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Objectives: Despite declining TB notifications in Southern Africa, TB-related deaths remain high. We describe patient- and population-level trends in TB-related deaths in Eswatini over a period of 11 years.
Methods: Patient-level (retrospective cohort, from 2009 to 2019) and population-level (ecological analysis, 2009-2017) predictors and rates of TB-related deaths were analysed in HIV-negative and HIV-coinfected first-line TB treatment cases and the population of the Shiselweni region. Patient-level TB treatment data, and population and HIV prevalence estimates were combined to obtain stratified annual mortality rates. Multivariable Poisson regressions models were fitted to identify patient-level and population-level predictors of deaths.
Results: Of 11,883 TB treatment cases, 1302 (11.0%) patients died during treatment: 210/2798 (7.5%) HIV-negative patients, 984/8443 (11.7%) people living with HIV (PLHIV), and 108/642 (16.8%) patients with unknown HIV-status. The treatment case fatality ratio remained above 10% in most years. At patient-level, fatality risk was higher in PLHIV (aRR 1.74, 1.51-2.02), and for older age and extra-pulmonary TB irrespective of HIV-status. For PLHIV, fatality risk was higher for TB retreatment cases (aRR 1.38, 1.18-1.61) and patients without antiretroviral therapy (aRR 1.70, 1.47-1.97). It decreases with increasing higher CD4 strata and the programmatic availability of TB-LAM testing (aRR 0.65, 0.35-0.90). At population-level, mortality rates decreased 6.4-fold (-147/100,000 population) between 2009 (174/100,000) and 2017 (27/100,000), coinciding with a decline in TB treatment cases (2785 in 2009 to 497 in 2017). Although the absolute decline in mortality rates was most pronounced in PLHIV (-826/100,000 vs. HIV-negative: -23/100,000), the relative population-level mortality risk remained higher in PLHIV (aRR 4.68, 3.25-6.72) compared to the HIV-negative population.
Conclusions: TB-related mortality rapidly decreased at population-level and most pronounced in PLHIV. However, case fatality among TB treatment cases remained high. Further strategies to reduce active TB disease and introduce improved TB therapies are warranted.

42. TMIH 2024;29(4):257-65
Review
Prevalence of extra-pulmonary tuberculosis in Africa: A systematic review and meta-analysis
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Objective: The burden of extra-pulmonary tuberculosis (EPTB) is not well quantified in TB endemic countries such as those in sub-Saharan Africa. This study aimed to quantify that burden via a systematic review of the prevalence of EPTB in African countries.

Methods: Studies were retrieved by searching five databases; 105 studies published between 1990 and 2023 were included. The studies described the prevalence of EPTB among the general population (4 studies), TB patients (68) and patients with other conditions, including HIV (15), meningitis (3), renal failure (3) and other comorbidities, some of which are cancer (12). Due to the low number of studies reporting EPTB in patients with conditions other than TB, the meta-analysis was performed on studies reporting on EPTB among TB patients (68 studies). Meta-analysis was performed on the 68 studies (271,073 participants) using a random-effects model to estimate the pooled prevalence of EPTB. Meta-regression was used to explore possible explanations for heterogeneity according to regions and time periods.
Results: The pooled prevalence of EPTB among TB patients was 26% (95% CI 23-29%). There was substantial heterogeneity of prevalence for the five African regions. The Eastern region had the highest prevalence of 32% (95% CI 28-37%) and the lowest in Western Africa, 16% (95% CI 10-24%). There was no significant difference in the prevalence of EPTB between the 3 eleven-year time periods.
Conclusions: Our systematic review and meta-analysis give insight into the burden of EPTB in Africa. This review could inform clinical and programmatic practices-a higher suspicion index for clinicians and more effort for better services. This could contribute to efforts aiming to end TB, which have historically been focused on PTB. Coordinated efforts that target both EPTB and PTB are needed.

Miscellaneous

43. BMJ Glob Health 2024;9:e013754
Original research
Toward a more systematic understanding of water insecurity coping strategies: insights from 11 global sites
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Introduction Water insecurity–the inability to access and benefit from affordable, reliable and safe water for basic needs–is a considerable global health threat. With the urgent need to target interventions to the most vulnerable, accurate and meaningful measurement is a priority. Households use diverse strategies to cope with water insecurity; however, these have not been systematically characterised nor measured. The Food Insecurity Coping Strategies Index has been insightful for targeting nutrition interventions to the most vulnerable. As a first step towards creating an analogous scale for water, this study characterises the largest empirical data set on water insecurity coping strategies and proposes guidance on measuring it using a novel toolkit.
Methods Open-ended responses on water insecurity coping (n=2301) were collected across 11 sites in 10 low- and middle-income countries in the Household Water InSecurity Experiences (HWISE) Scale validation study. Responses were characterised and compared with behaviours identified in the literature to construct an instrument to systematically assess coping.
Results We identified 19 distinct strategies that households used when experiencing water insecurity. These findings, paired with prior literature, were used to develop a Water Insecurity Coping Strategies Assessment Toolkit with guidance on its piloting to assess coping prevalence, frequency and severity.
Conclusions The widespread occurrence of water insecurity coping strategies underscores the importance of understanding their prevalence and severity. The Water Insecurity Coping Strategies Assessment Toolkit offers a comprehensive approach to evaluate these strategies and inform the design and monitoring of interventions targeting those most vulnerable to water insecurity.

44. BMJ Glob Health 2024;9:e014749
Practice
The 12 dimensions of health impacts of war (the 12-D framework): a novel framework to conceptualise impacts of war on social and environmental determinants of health and public health
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Global rates of armed conflicts have shown an alarming increase since 2008. These conflicts have devastating and long-term cumulative impacts on health. The overriding aim in these conflicts is to achieve military or political goals by harming human life, which is the antithesis of the moral underpinnings of the health professions. However, the profession has rarely taken on a global advocacy role to prevent and eliminate conflicts and wars. To assume such a role, the health profession needs to be aware of the extensive and multiple impacts that wars have on population health. To facilitate this discourse, the author proposes a novel framework called 'The Twelve Dimensions of Health Impacts of War' (or the 12-D framework). The framework is based on the concepts of social and environmental determinants of population health. It has 12 interconnected 'dimensions' beginning with the letter D, capturing the adverse impacts on health (n=5), its social (n=4) and environmental determinants (n=3). For health, the indices are Deaths, Disabilities, Diseases, Dependency and Deformities. For social determinants of health, there are Disparities in socioeconomic status, Displacements of populations, Disruptions to the social fabric and Development reversals. For environmental determinants, there is Destruction of infrastructure, Devastation of the environment and Depletion of natural resources. A relatively simple framework could help researchers and lay public to understand the magnitude and quantify the widespread health, social and environmental impacts of war, comprehensively. Further validation and development of this framework are necessary to establish it as a universal metric for quantifying the horrific impacts of war on the planet and garner support for initiatives to promote global peace.

45. Lancet 2024;403(10433):1304-8
Viewpoint
The Lancet and colonialism: past, present, and future
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The historical and contemporary alignment of medical and health journals with colonial practices needs elucidation. Colonialism, which sought to exploit colonised people and places, was justified by the prejudice that colonised people's ways of knowing and being are inferior to those of the colonisers. Institutions for knowledge production and dissemination, including academic journals, were therefore central to sustaining colonialism and its legacies today. This invited Viewpoint focuses on The Lancet, following its 200th anniversary, and is especially important given the extent of The Lancet's global influence. We illuminate links between The Lancet and colonialism, with examples from the past and present, showing how the journal legitimised and continues to promote specific types of knowers, knowledge, perspectives, and interpretations in health and medicine. The Lancet's role in colonialism is not unique; other institutions and publications across the British empire cooperated with empire-building through colonisation. We therefore propose investigations and raise questions to encourage broader contestation on the practices, audience, positionality, and ownership of journals claiming leadership in global knowledge production.

46. Plos Med 2024;21(4):e1004392
Perspectives: Mixed progress in global tobacco control
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Progress has been made in reducing the global burden of tobacco-related disease and disability but the implementation of tobacco control measures recommended by the World Health Organization has been mixed, even in high-income countries.

The ninth report by the World Health Organization (WHO) on the global implementation of its MPOWER policy package over the last 15 years suggests that progress has been mixed with regard to implementing policies to reduce the massive global burden of tobacco-related disease.

MPOWER consists of measures recommended in the WHO Framework Convention on Tobacco Control to reduce consumer demand for tobacco cigarettes. There is good epidemiological and economic evidence (summarised in the report) that these measures reduce the prevalence of smoking and achieve their effects at an affordable price in low-, middle-, and high-income countries.

By the end of 2022, more than 5.6 billion people—71% of the global population—lived in countries that had implemented at least one of the MPOWER measures. The number of countries that had adopted 2 or more measures increased from 11 in 2007 to 101 in 2022, with 48 countries (with combined populations of 1.5 billion people) having adopted at least 3 MPOWER policies.

Smokefree policies—policies that prohibit smoking in workplaces and public spaces—now nominally apply to 2.1 billion people in 74 countries, a 7-fold increase since 2007. These policies are relatively inexpensive to implement and protect people in a variety of ways, including reducing second-hand smoke exposure and increasing motivation to stop smoking. As WHO noted in their report, however, the effectiveness of these policies may be undermined if they are only partially implemented and/or compliance is poorly enforced. For example, 71 of the 74 countries that report adopting smokefree policies still allow smoking in "designated smoking areas" in restaurants, bars, and cafés. Designated smoking areas do not protect people from second-hand smoke, and WHO recommends against their use. Less than a third of countries with smokefree policies provide the necessary funding to enforce the policy, undermining their effectiveness. For example, in Ethiopia, which has nominally achieved the highest level of smokefree policy according to the WHO Report, compliance is low; according to one observational study, only 12.3% of sites visited were fully compliant with the smokefree law.

The measure on which most progress was made in 2022 was a ban on tobacco advertising, promotion, and sponsorship. These bans have been implemented in 66 countries, in which nearly 2 billion people reside. It is surprising and disappointing that only 15 (25%) of 60 high-income countries have implemented such bans, as compared with 38 (36%) of 106 middle-income countries and 13 (46%) of 28 low-income countries. This may reflect the continued influence of the tobacco and advertising industries on public policy in many high-income countries. Graphic health warnings on cigarette packs have been implemented in 103 countries that include 57% of the world's population, and 22 countries have mandated plain packaging for tobacco products. These measures use graphics to warn consumers of the serious harms of smoking and prevent the use of cigarette packaging to promote cigarette smoking.

Only 32 countries provided smoking cessation services that include counselling support, nicotine replacement therapy (NRT), and other pharmacological treatments, covering almost 2.8 billion people (roughly one-third of the global population). Much more needs to be done to assist people who find quitting difficult if the burden of tobacco-related disease is to be reduced.

The COVID-19 pandemic unsurprisingly hampered efforts to monitor tobacco use in many countries during the period 2020 to 2022. Accordingly, fewer countries achieved the highest level of monitoring tobacco use in 2022 than in 2014 (74 in 2022 compared with 82 in 2014). Better monitoring is essential to assess the impact of the COVID pandemic and associated restrictions on smoking prevalence and to re-energise global efforts to reduce tobacco-related disease burden.

The most disappointing finding was how few countries have used their taxation policies to raise cigarette prices, the single most effective way to reduce tobacco smoking. Between 2016 and 2018, the population covered by this measure at the highest level of implementation increased from 8% to 13%; however, in 2022, the proportion of the world's population protected by taxes at best-practice level (≥75% of the retail price) dropped slightly to 12% (from 13% in 2018). Four countries that had previously met the best practice tax level lost this status. In one of these countries (Ukraine), this might have been due to a change in the brand of cigarettes that was used for the calculation, whereas in Egypt, Georgia, and Sri Lanka, the loss of status was due to an increase in retail prices without a corresponding change in the tax.

Tobacco product regulation (Article 9) and measures beyond the minimum requirements of the WHO Framework Convention on Tobacco Control (FCTC; Article 2.1) were a key focus at the 10th Conference of the Parties of the WHO FCTC (COP10), which was held on February 5–10, 2024. In view of this, an especially discouraging development was the decision by the newly elected centre-right government of New Zealand (also known as Aotearoa) has repealed the country's laws that would have reduced the nicotine content of all smoked tobacco products to minimal levels, and reduced the retail availability of tobacco and ended cigarette sales to anyone born after 2008. The package of measures was expected to save 594 000 health-adjusted life years over the current population's lifespan, improve health equity, and increase the income for citizens by US$31 billion by 2050. This decision sets back achievement toward the country's goal of reducing smoking to less than 5% for all New Zealanders by 2025. The law would have also produced valuable evidence to inform development of FCTC guidelines on reducing the addictiveness of tobacco products. Due to lack of consensus among the Parties on the next steps regarding Article 9, no decision was made at COP10. However, the Parties agreed to establish an expert group to examine forward-looking measures to be considered within scope of Article 2.1.

WHO's assessment indicates that tobacco smoking remains the leading preventable cause of premature mortality globally despite progress in reducing its global prevalence by implementing MPOWER measures. More countries urgently need to increase their use of the most cost-effective measures, such as increased tobacco taxation. Some of this tax revenue could be used to fund better monitoring and enforcement of smokefree public policies, to enact advertising bans and to advance new policies, such as those now at risk in New Zealand.