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International Health Alerts 2025-1 Abstracts

Child Health

1. BMJ Global Health 2025;10:e017786
The 'Health-2-Go' programme's impact on all-cause mortality and clinic utilisation for children 5 and under: a retrospective cohort analysis of an iCCM intervention in Ghana's Barekese Subdistrict
Isabella Guynn et al., Department of Community Health, Ensign Global University, Kpong, Eastern Region, Ghana <isabella.guynn@gmail.com>

Introduction. The 'Health-2-Go' programme, which incorporates the integrated community case management strategy, aims to enhance healthcare access in rural Ghana by deploying trained and equipped community-based agents to manage the diagnosis and treatment of basic illness for children aged 5 and under. This study evaluates the intervention's impact on all-cause mortality and clinical healthcare utilisation among children 5 and under in the Barekese Subdistrict in the Atwima Nwabiagya North District of the Ashanti Region of Ghana.
Methods. A retrospective cohort study was conducted using data from 2530 children across nine communities exposed to Health-2-Go and six comparison communities with no Health-2-Go exposure. Child mortality data were collected via a verbally administered household census, and clinical healthcare utilisation data were extracted from clinic records. We used Cox proportional hazards regression models to estimate the impact of exposure to Health-2-Go on child mortality and negative binomial regression models to assess exposure to Health-2-Go on changes in 5 and under clinic visits resulting in a malaria diagnosis.
Results. Exposure to Health-2-Go was significantly associated with a 67.7% reduction in the hazard of death (HR=0.323; p=0.015; 95% CI 0.130, 0.803). The programme's impact on healthcare utilisation showed a significant 83% reduction in unnecessary clinic visits for uncomplicated malaria among children 5 and under (IRR=0.17; p=0.027; 95% CI 0.04, 0.82). No significant association was found between programme exposure and the expected number of clinic visits for severe malaria among children 5 and under.
Conclusions. The Health-2-Go programme demonstrates substantial potential in reducing child mortality and improving healthcare access in low-resource and 'hard-to-reach' settings in rural Ghana. Further prospective research is recommended to confirm these findings and explore the long-term sustainability of the programme.

2. BMJ Global Health 2025;10:e018333
Regional, subregional and country-level full vaccination coverage in children aged 12–23 months for 34 countries in sub-Saharan Africa: a global analysis using Demographic and Health Survey data
Simon DJ et al., Bureau d'Etudes et de Recherche en Statistiques Appliquées, Port-au-Prince, Haiti <jeansimon.david90@gmail.com>

Objective This study estimated the proportion of children aged 12–23 months who were fully vaccinated in sub-Saharan Africa (SSA), explored geographical disparities across subregions and countries, and identified country-level factors associated with full vaccination (FV).
Design Cross-sectional study. Setting SSA. Participants Children aged 12–23 months. Primary outcome FV.
Methods Data for this study were extracted from the most recent Demographic and Health Survey (DHS) conducted in 34 SSA countries between 2012 and 2023. The study included a total weighted

sample of 69 218 children. Univariate analyses were performed to describe the socio-demographic profile of the participants and estimate the proportion of FV and the proportion for each of the eight vaccines (BCG, DTP1, DTP2, DPT3, Polio1, Polio2, Polio3, Measles1) at regional level. Bivariate and spatial analyses were produced to examine existing disparities at regional, subregional and countries' income levels. A multivariate logistic regression analysis was fitted for identifying country-level factors associated with FV.
Results 54.1% (95% CI 53.7% to 54.5%) children aged 12–23 months in SSA were fully vaccinated. In addition, substantial inequalities emerged in FV coverage across countries ranging from 23.9% in Guinea to a high of 95.5% in Rwanda. The same pattern was observed for the eight vaccines. Findings also showed that children of birth order 3 and above, who were delivered at home, had received less than four antenatal visits, from poor households and households with more than 5 members, whose mothers were under 25, had primary education level and below, and had no income-generating activities were less likely to be fully vaccinated.
Conclusion To achieve WHO's global vaccination coverage target of 90% by 2030 in SSA, vaccination programmes must take account of regional, subregional and national inequities. Our findings also underline the need for interventions tailored to each SSA country's socio-cultural context.

3. Lancet 2015;405(10473):105-7
Comment
Racism and health inequity: a global syndemic for children— the Lancet Commission on racism and child health
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(Abbreviated)
Despite reductions in child mortality over recent decades, the deaths each year of 7 million children and youth and 1·9 million stillbirths pass by almost unnoticed. But death is only part of the picture. Annually, 1 billion children aged 2–17 years experience physical, sexual, and emotional violence or neglect and one in six children live in a conflict zone. Malnutrition is prevalent across the world: 148 million children younger than 5 years are stunted, 45 million have wasting, and 37 million are overweight. 160 million people aged 5–17 years are subject to child labour and 3·3 million children are trafficked. An extreme form of inequity lies beneath these statistics. Patterns of discrimination show us that certain children are likely to become unwell and die, whereas others prosper.
The health impacts of racism can take many forms, and can result from racialised acts of violence between people or institutional and structural racism. Minoritised children disproportionately experience violent attacks and racist bullying, impacting their health. Within communities, children and adolescents are affected not only by their own experiences, but also vicariously by discrimination faced by their families. For example, racial discrimination against their mothers increases risk of asthma symptoms and non-atopic asthma in Brazilian children. Further, the institutions that shape children's lives, such as schools, housing, and health systems, are built in ways that exclude and devalue minoritised people. This leads to minoritised children's heightened exposure to harmful environmental stressors, decreased access to quality health care, and limited access to fundamental resources for wellbeing across the life course, such as education and healthy foods. Addressing this gap is vital not only for children themselves but also for the adults they will become, because racism can have a lasting impact through the life course and intergenerationally.
In response to the glaring problem of racism in childhood, we are launching the Lancet Commission on racism and child health.
Panel: Commission priorities
• Study how racism, xenophobia, and discrimination impact child health, including through interaction with other systems
• Assess interventions to improve child health at the structural, institutional, spatial, and individual levels to combat racism, xenophobia, and discrimination

• Take an intersectional, child-centred, and rights-based approach
• Involve and empower children throughout the work of the Commission
• Provide pathways for advocacy and action to eliminate health inequities for minoritised children

Communicable Diseases

4. Am J TMH 2025;tpmd240420 Online ahead of print
A Review of the Recent Epidemiology of Zika Virus Infection
Rabe IB et al., Department of Epidemic and Pandemic Preparedness and Prevention, WHO, Geneva, Switzerland

Zika virus (ZIKV) is a flavivirus transmitted primarily by the bite of infected Aedes species mosquitoes. Although typically asymptomatic or causing mild symptoms and infrequent neurological disease in older children and adults, infection during pregnancy can result in severe congenital malformations and neurodevelopmental deficits. We conducted a review of published literature and official data sources to describe recent Zika epidemiological trends, building on WHO updates posted in 2019 and 2022. Globally, cases declined after the height of ZIKV transmission in the Americas in 2015-2016; however, transmission continues across multiple regions, with intermittent outbreaks reported. As of December 2023, there is documented evidence of current or prior autochthonous mosquito-borne ZIKV transmission in 92 countries and territories; most recently, Guinea, Mali, and Sri Lanka were included on the basis of recent or retrospective testing of specimens collected during surveillance activities or studies. The abundance of asymptomatic and mild infections and limited diagnostic testing suggest that transmission in many locations likely remains underrecognized. Public health authorities, clinicians, communities at risk, and travelers should remain alert to the possibility of ZIKV transmission and implement measures to limit the risk of infection with ZIKV and other Aedes-borne arboviruses. To strengthen surveillance for ZIKV infections and congenital disease, targeted surveillance using clear case definitions and epidemiologically appropriate laboratory testing algorithms should be applied.

5. Am J TMH 2025;tpmd240489 Online ahead of print
Identification of Anthrax as the Cause of a Cluster of Unexplained Deaths, Uganda, 2023: The Role of Metagenomic Next-Generation Sequencing and Postmortem Specimens
Bbosa N et al., MRC/UVRI & LSHTM Uganda Research Unit, Entebbe, Uganda

Between April and November 2023, 27 unexplained human deaths that presented with swelling of the arms, skin sores with black centers, difficulty in breathing, obstructed swallowing, headaches, and other body aches were reported in Kyotera District, Uganda by the Public Health Emergency Operations Center. Subsequently, the death of cattle on farms and the consumption of carcass meat by some residents were also reported. Field response teams collected clinical/epidemiological data and autopsy samples to determine the cause of deaths. Metagenomic next-generation sequencing (mNGS) and target enrichment sequencing conducted on postmortem samples confirmed Bacillus anthracis, the etiological agent of anthrax disease, as the cause of the deaths. Applying mNGS to autopsy specimens is useful as a retrospective tool for identifying high-consequence pathogens during suspected outbreaks of unknown etiology.

6. Am J TMH 2025;tpmd240702 Online ahead of print
Significant Reduction in Seroprevalence of Antibodies Against Hepatitis A across Thailand, 2024
Inma P et al., Centers of Excellence in Clinical Virology, Chulalongkorn University, Bangkok, Thailand

Hepatitis A virus (HAV) is an RNA virus that causes acute hepatitis and is transmitted via the fecal-oral route. It has historically been highly endemic in Thailand, where most children develop lifelong immunity after infection. Economic development and improved sanitation have reduced HAV

transmission, but immunity levels have declined, raising concerns about potential future outbreaks. This study aims to assess the seroprevalence of HAV antibodies in Thailand in 2024, 10 years after the last national survey in 2014, and to evaluate current immunity levels to inform public health strategies. A cross-sectional study was conducted in a population aged 6 months to 80 years across Thailand's geographic regions. A total of 4,312 serum samples were tested for anti-HAV antibodies using the chemiluminescent microparticle immunoassay. The seroprevalence data were compared with findings from previous surveys in 2004 and 2014. The study showed a significant decline in population immunity to HAV, with the age at which 50% of individuals had antibodies increasing from 36 in 2004 to 42 in 2014, and to 47 years in 2024. A majority of the population remained susceptible to HAV, particularly among younger age groups. Thailand has transitioned to low HAV endemicity, with a large proportion of the population lacking immunity. Despite the absence of significant outbreaks in recent decades, the risk of future outbreaks remains, particularly from imported cases. Enhanced surveillance and vaccination strategies are necessary to prevent future HAV transmission and manage public health risks.

7. BMJ Global Health 2025;10:e017538
The influence of fluid resuscitation strategy on outcomes from dengue shock syndrome: a review of the management of 691 children in 7 Southeast Asian hospitals
Trieu HT et al., Hospital for Tropical Diseases, Ho Chi Minh City, Viet Nam <trieuht@oucru.org>

Introduction The pathognomonic feature of dengue shock syndrome (DSS) is a transient capillary leak syndrome resulting in profound intravascular volume depletion. WHO management guidelines recommend particular parenteral fluid regimens during the critical leakage phase, including synthetic colloid solutions in certain circumstances. We set out to describe the actual fluid management strategies employed in different settings and to investigate relationships with clinical outcomes.
Methods We performed a retrospective review of paediatric DSS cases managed at seven hospitals across Malaysia, Myanmar and Vietnam. We explored the effects of both initial resuscitation (crystalloid alone or mixed crystalloid/colloid in the first 2 hours) and general management: group 1 (conservative-colloid, crystalloid only), group 2 (intermediate-colloid, colloid for 1–4 hours) or group 3 (liberal-colloid, continuous colloid for more than 4 hours) categorised according to the fluid given over the first 6 hours in clinically stable patients. We incorporated an inverse probability weighting score to adjust for potential differences in baseline severity.
Results Among all 691 patients, respiratory compromise (HR 2.08, p=0.022), requirement for nasal continuous positive airway pressure (NCPAP)/ventilation (OR 2.34, p<0.045) and days in hospital after DSS onset (risk ratio, RR 1.33, p=0.032) were significantly worse for mixed crystalloid/colloid versus crystalloid-only initial resuscitation regimens, after adjusting for baseline severity. Among the 547/691 children who stabilised within 2 hours, although a liberal-colloid general management strategy (group 3) was associated with a reduction in recurrent shock episodes (RR 0.13, p=0.043) when compared with a conservative-colloid strategy (group 1), the risks for respiratory compromise (OR 8.84, p<0.001) and requirement for NCPAP/ventilation (OR 8.16, p<0.001) were markedly increased. Additionally, the respective costs for group 3 vs group 1 were significantly higher.
Conclusions The study highlights the potential benefits and risks of using colloid solutions in children with DSS. Formal randomised trials could help determine the most effective and safe parenteral fluid regimens for paediatric DSS. In the meantime, prolonged use of colloid solutions may be inappropriate, especially in settings without access to respiratory support.

8. JAMA 2025;Mar 7 PMID: 40053339 doi: 10.1001/jama.2025.1347 [Online ahead of print]
Sudan Virus Disease Outbreak in Uganda Spurs First-Ever Ebola Vaccine Trial
Anderer S.

The World Health Organization (WHO) reported an outbreak of Sudan virus disease (SVD) in Uganda following confirmation in late January that an adult male nurse had contracted the illness. The health

care worker presented with fever-like symptoms and died from multiorgan failure about a week later. As of February 20, 9 confirmed cases of SVD have been reported in the current outbreak.
The viral hemorrhagic fever disease, which belongs to the same family as the Ebola virus disease, has had a high case fatality rate between 41% and 70%. SVD is characterized by acute onset of fever and nonspecific symptoms, with severe illness including unexplained bleeding, brain dysfunction, hypotension, and organ failure. In the absence of licensed vaccines and therapeutics for prevention and treatment, the risk of serious public health impact is high, WHO warned.
Within 4 days of the first confirmed case, the Ministry of Health of Uganda, WHO, and other partners launched the first-ever clinical efficacy trial for a vaccine against Ebola disease due to Sudan virus. Distribution of the recombinant vesicular stomatitis candidate vaccine will begin with close contacts of the reported case, following a ring vaccination strategy of prevention.
As a precaution, the US Centers for Disease Control and Prevention has issued a level 2 travel advisory for Uganda, encouraging visitors to exercise enhanced precautions and monitor themselves for SVD symptoms while in the country and for up to 3 weeks after departure.

9. Lancet 2025;405(10479):658-70
Review
Human schistosomiasis
Buonfrate D et al., Department of Infectious, Tropical Diseases and Microbiology, IRCCS Sacro Cuore Don Calabria Hospital, Verona, Italy. Correspondence to FG Gobbi <federico.gobbi@sacrocuore.it>

Schistosomiasis is a neglected tropical disease caused by infection with blood flukes of the genus Schistosoma. Widely distributed in the Middle East, southeast Asia, Latin America, and (mostly) sub-Saharan Africa, schistosomiasis is acquired upon skin penetration of infective larvae released by freshwater snails. Acute infection might present with self-limiting hypersensitivity reactions (known as Katayama fever). Chronic infection typically leads to two main clinical patterns: intestinal or urogenital schistosomiasis, depending on the infecting species. Impairment of other body sites (eg, the CNS or respiratory tract) can occur. The intestinal form is characterised by abdominal pain and diarrhoea, with or without blood; complications are hepatic fibrosis, portal hypertension, splenomegaly, and variceal bleeding. The urogenital form is characterised by dysuria and haematuria; complications are renal failure and squamous-cell carcinoma of the bladder. Conventional diagnosis is based on egg detection in faeces or urine, although sensitivity might be low. Praziquantel is the first-line treatment, and it is also provided in preventive chemotherapy campaigns by mass drug administration to afflicted communities.

10. Lancet Glob Health 2025;13(3):e447-e458
Vertical transmission of hepatitis B virus in the WHO African region: a systematic review and meta-analysis
Riches N et al., Malawi Epidemiology and Intervention Research Unit, Lilongwe, Malawi
Correspondence to A J Stockdale <a.stockdale@liverpool.ac.uk>

Background: More new infections with hepatitis B virus (HBV) occur annually in the WHO African region than in the rest of the world combined. We did a systematic review and meta-analysis to estimate the prevalence of hepatitis B surface antigen (HBsAg) in pregnant women and vertical transmission events in the region.
Methods: In this systematic review and meta-analysis, we searched PubMed, Embase, Scopus, Africa Index Medicus, and Africa Journals Online for publications between Jan 1, 1992, and Jan 7, 2024, with no language restrictions. HBsAg prevalence and vertical transmission (HBsAg positivity in children aged 6-12 months) were estimated with the use of binomial mixed models with logit links, stratified by infant vaccination status. We estimated HBsAg prevalence for subregions of Africa and for the WHO African region by weighting by estimated livebirths for each subregion. We estimated transmission events using WHO and UNICEF vaccine coverage data and UN population estimates.

Findings: We included 113 studies reporting on HBsAg prevalence from 190 983 pregnant women and 11 studies reporting on vertical transmission. HBsAg prevalence in women receiving antenatal care in the WHO African region (based on 2014-23 data) was 6·2% (95% CI 5·3-7·2). No relationship between risk of bias and HBsAg prevalence was observed. In 2022, an estimated 172 000 vertical transmission events (95% CI 82 000-383 000) occurred (0·4% of livebirths), a fall from a peak of 339 000 (149 000-634 000; 1·2% of all livebirths) in 2001. Increasing birth dose vaccination coverage to the WHO target of 90% could reduce vertical transmission by 43·7% (95% CI 11·6-78·0) to 97 000 events per year (95% CI 58 000-160 000). Adding maternal antiviral prophylaxis with 90% coverage could reduce transmission by 86·3% (95% CI 78·4-94·6) to 24 000 events per year (95% CI 14 000-39 000; 0·06% of livebirths) and achieve WHO elimination targets.
Interpretation: Vertical transmission is an important contributor to HBV transmission in the WHO African region. Scaling up of hepatitis B birth dose vaccination and antiviral prophylaxis is urgently needed, which could achieve elimination of vertical transmission.

11. NEJM 2025;392(8):788-97
Low-Dose Yellow Fever Vaccine in Adults in Africa
Kimathi D, NIFTY Investigators, et al., Medical Research Institute–Wellcome Trust Research Programme, Kilifi 80108, Kenya. Correspondence to G Warimwe < gwarimwe@kemri-wellcome.org>

Background: Yellow fever vaccine is highly effective with a single dose, but vaccine supply is limited. The minimum dose requirements for seroconversion remain unknown.
Methods: In this double-blind, randomized, noninferiority trial in Uganda and Kenya, we assigned adults with no history of yellow fever vaccination or infection to receive vaccination with the Institut Pasteur de Dakar 17D-204 yellow fever vaccine at a standard dose (13,803 IU) or at a fractional dose of 1000 IU, 500 IU, or 250 IU. The primary outcome was seroconversion at 28 days after vaccination with each fractional dose as compared with the standard dose, evaluated in a noninferiority analysis. Seroconversion was defined as an antibody titer at day 28 that was at least four times as high as the antibody titer before vaccination, as measured by a plaque reduction neutralization test. We conducted noninferiority analyses in the per-protocol and intention-to-treat populations. Noninferiority was shown if the lower boundary of the 95% confidence interval for the difference in the incidence of seroconversion between the fractional dose and the standard dose was higher than −10 percentage points.
Results: A total of 480 participants underwent randomization (120 participants in each group). The incidence of seroconversion was 98% (95% confidence interval [CI], 94 to 100) with the standard dose. The difference in the incidence of seroconversion between the 1000-IU dose and the standard dose was 0.01 percentage points (95% CI, −5.0 to 5.1) in the intention-to-treat population and −1.9 percentage points (95% CI, −7.0 to 3.2) in the per-protocol population; the corresponding differences between the 500-IU dose and the standard dose were 0.01 percentage points (95% CI, −5.0 to 5.1) and −1.8 percentage points (95% CI, −6.7 to 3.2), and those between the 250-IU dose and the standard dose were −4.4 percentage points (95% CI, −9.4 to 0.7) and −6.7 percentage points (95% CI, −11.7 to 1.6). A total of 111 vaccine-related adverse events were reported: 103 were mild in severity, 7 were moderate, and 1 was severe. The incidence of adverse events was similar in the four groups.
Conclusions: A yellow fever vaccination dose as low as 500 IU was noninferior to the standard dose of 13,803 IU for producing seroconversion within 28 days.

Communicable Diseases - HIV/AIDS

12. Am J TMH 2024;112(1):45-55 Print 2025 Jan 8
The Transformative Impact of the African Cohort Study (AFRICOS) Toward Reaching HIV 95-95-95 Goals in Sub-Saharan Africa
Shah N et al., U.S. Military HIV Research Program, Center of Infectious Disease Research, Walter Reed Army Institute of Research, Silver Spring, Maryland

Over the last 20 years, the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) has rapidly expanded and made remarkable progress toward the UNAIDS 95-95-95 targets to end the HIV epidemic. Nevertheless, HIV continues to pose a significant health challenge globally, with a particular impact on the African continent. Funded by PEPFAR, the African Cohort Study (AFRICOS) has served as a monitoring and evaluation tool for PEPFAR to help guide HIV policy and PEPFAR programming for the last 10 years since its inception and offers a compelling example of how PEPFAR's investment in science continues to reap dividends. This paper details and critically reviews the transformative research AFRICOS has had on helping to end the HIV epidemic as a public health threat by 2030.

Communicable Diseases - Malaria

13. BMJ Global Health 2025;10:e017106
Evaluating the impact of two next-generation long-lasting insecticidal nets on malaria incidence in Uganda: an interrupted time-series analysis using routine health facility data
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Introduction. Malaria remains a significant public health challenge globally, particularly in sub-Saharan Africa, where progress has stalled in recent years. Long-lasting insecticidal nets (LLINs) are a critical preventive tool against malaria. This study investigated the effectiveness of newer-generation LLINs following a universal coverage campaign in Uganda.
Methods. Health facility data collected 36 months prior to LLIN distribution and 24 months after LLIN distribution were used from 64 sites that took part in a cluster-randomised trial comparing two newer-generation LLINs (pyrethroid-piperonyl butoxide and pyrethroid-pyriproxyfen). Using an interrupted time-series approach, we compared observed malaria incidence with counterfactual scenarios if no LLINs were distributed, adjusting for precipitation, vegetation, seasonality and care-seeking behaviour. Analyses were also stratified by LLIN type and study-site level estimates of transmission intensity.
Results. Overall, malaria incidence decreased from 827 cases per 1000 person-years in the predistribution period to 538 per 1000 person-years in the postdistribution period. Interrupted time-series analyses estimated a 23% reduction in malaria incidence (incidence rate ratio [IRR]=0.77, 95% CI 0.65 to 0.91) in the first 12 months following distribution relative to what would be expected had no distribution occurred, which was not sustained in the 13–24 month post-distribution period (IRR=0.97, 95% CI 0.75 to 1.28). Findings were similar when stratified by LLIN type. In the first 12 months following distribution, LLIN effectiveness was greater in the high-transmission sites (IRR=0.67, 95% CI 0.54 to 0.86) compared with the medium- (IRR=0.74, 95% CI 0.59 to 0.92) and low-transmission sites (IRR=0.87, 95% CI 0.56 to 1.32).
Conclusion. This study demonstrated a modest reduction in malaria incidence following the distribution of newer-generation LLINs that was sustained for only 12 months, highlighting the need for improved strategies to maintain net effectiveness. Adjusting the frequency of universal coverage campaigns based on local malaria transmission intensity may enhance control efforts.

14. HPP 2025;40(1):52-65
Who pays to treat malaria and how much? Analysis of the cost of illness, equity and economic burden of malaria in Uganda
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Case management of malaria in Africa has evolved markedly over the past 20 years and updated cost estimates are needed to guide malaria control policies. We estimated the cost of malaria illness to households and the public health service and assessed the equity of these costs in Uganda. From December 2021 to May 2022, we conducted a costing exercise in eight government-run health centres

covering seven sub-regions, collecting health service costs from patient observations, records review and a time-and-motion study. From November 2021 to January 2022, we gathered data on households' cost of illness from randomly selected households for 614 residents with suspected malaria. Societal costs of illness were estimated and combined with secondary data sources to estimate the total economic burden of malaria in Uganda. We used regression analyses and concentration curves to assess the equity of household costs across age, geographic location and socio-economic status. The mean societal economic cost of treating suspected malaria was $15.12 [95% confidence interval (CI): 12.83–17.14] per outpatient and $27.21 (95% CI: 20.43–33.99) per inpatient case. Households incurred 81% of outpatient and 72% of inpatient costs. Households bore nearly equal costs of illness, regardless of socio-economic status. A case of malaria cost households in the lowest quintile 26% of per capita monthly consumption, while a malaria case only cost households in the highest quintile 8%. We estimated the societal cost of malaria treatment in Uganda was $577 million (range: $302 million–1.09 billion) in 2021. The cost of malaria remains high in Uganda. Households bear the major burden of these costs. Poorer and richer households incur the same costs per case; this distribution is equal, but not equitable. These results can be applied to parameterize future economic evaluations of malaria control interventions and to evaluate the impact of malaria on Ugandan society, informing resource allocations in malaria prevention.

15. Lancet 2025;405(10473):147-56
Effect of a spatial repellent on malaria incidence in an area of western Kenya characterised by high malaria transmission, insecticide resistance, and universal coverage of insecticide treated nets (part of the AEGIS Consortium): a cluster-randomised, controlled trial
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Background: Spatial repellent products are used for prevention of insect bites, and a body of evidence exists on spatial repellent entomological efficacy. A new option for vector control, spatial repellent products are designed to release active ingredient into the air for disruption of human-vector contact thereby reducing human exposure to mosquito-borne pathogens. Clinical trials have shown spatial repellent epidemiological efficacy against Aedes-borne viruses but inconclusive outcomes against malaria. We aimed to show and quantify the protective efficacy of spatial repellents in reducing malaria infection incidence in Busia County, Kenya.
Methods: A prospective, cluster-randomised, controlled trial in Busia County, western Kenya was done to quantify the efficacy of a transfluthrin-based spatial repellent against human malaria infection following mass distribution of insecticide treated nets. Investigators, staff, and study participants were masked to cluster allocation. Infection incidence was measured by microscopy in children aged 6 months to younger than 10 years during a 4-month baseline (March-July 2021) and 24-month follow-up period with intervention (October, 2021-October, 2023). From 58 clusters (29 intervention, 29 placebo), a total of 1526 and 1546 participants from two consecutive, 12-month cohorts were assessed for first-time malaria infection (primary endpoint) by survival analysis at interim and end-of-trial timepoints, respectively. This trial is registered with ClinicalTrials.gov, NCT04766879 and is complete.
Findings: The outcome of the primary endpoint indicated that spatial repellents significantly reduced the hazard rate of first-time malaria infection by 33·4% (95% CI 11·1-50·1; p=0·0058) and the hazard rate of overall new malaria infections by 32·1% (15·9-45·2; p=0·0004). No reported adverse events and serious adverse events were deemed to be associated with the spatial repellent.
Interpretation: Our trial provides the first evidence of a demonstrative spatial repellent protective efficacy in reducing risk of malaria infection in an African setting characterised by high malaria transmission, pyrethroid resistant malaria vectors, and high coverage of insecticide treated nets. Results support spatial repellent products as a beneficial component of malaria prevention.

16. Plos Med 2025;22(1):e1004515
Perspective: Roll out and prospects of the malaria vaccine R21/Matrix-M
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More than a century passed between the discovery of Plasmodium, the pathogen causing malaria, and the invention of the first robust malaria vaccine, RTS,S, in the 1980s. RTS,S consists of the circumsporozoite protein (CSP) of the sporozoite stage of Plasmodium falciparum antigen on a Hepatitis B virus surface antigen (HbsAg) backbone and is given as a course of 3 monthly doses with a booster 12 months after the third dose. It took another 30 years until RTS,S, with the adjuvant AS01, was licensed and prequalified by the World Health Organization (WHO). RTS,S/AS01 is currently owned and produced by the multinational pharmaceutical company Glaxo Smith Kline (GSK).
The second malaria vaccine, R21/Matrix-M, was first described in 2017 and was licensed and WHO-prequalified within 6 years. The regulatory pathway opened by RTS,S/AS01 helped hasten the time to approval. R21 was conceived as an advancement on RTS,S by increasing the ratio of the antigen CSP to the backbone HbsAg. R21 is adjuvanted by Matrix-M, which is owned by Novavax, Inc. R21/Matrix-M is also given as a 4-dose regimen. It is produced by Serum Institute of India PVT LTD (SIIPL).
Both vaccines are based on the circumsporozoite protein (CSP) of the sporozoite stage of Plasmodium falciparum and protect exclusively against the sporozoite life stage. Both vaccines afford no cross-protection against the blood or sexual stages of P. falciparum, or against other Plasmodium species such as P. vivax.
With 2 safe and well-tolerated malaria vaccines licensed, the question comes up which vaccine is "better." // However, a direct comparison of the reported vaccine efficacies of 56% for RTS,S/AS01 and 78% for R21/Matrix-M may not be appropriate since the 2 trial methodologies were not identical and conducted more than a decade apart. For example, there were differences in the timing of the vaccinations in relation to the peak of the malaria season, which could impact the measured vaccine efficacy due to waning vaccine-induced immunity. The objective way to compare the 2 vaccines would be a head-to-head trial. Such a trial would depend on cooperation from GSK and SIIPL.
// After decades of waiting, 2 malaria vaccines are now registered and licensed, adding a promising tool for the control and ultimately the elimination of malaria. This development could not have come at a better time. The global malaria burden is again on the increase. Resistance against the first line treatment, artemisinin combination therapy (ACTs), is now also increasingly reported from eastern Africa. There is by now a well-established record how pre-erythrocytic vaccines can be used in childhood vaccination programmes in Africa. There remain knowledge gaps how these vaccines are best implemented in populations other than African children. Now is the time to explore how malaria vaccines can be scaled up and rolled out to benefit most people, to reduce malaria burden, and to contribute to the elimination of malaria.

Communicable Diseases - Mpox

17. Lancet 2025;405(10472):86-96
Review
Concurrent outbreaks of mpox in Africa-an update
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In this Review, we examine the concurrent outbreaks of mpox in Africa, focusing on clade 1a, the newly emerged clade 1b, and clade 2b lineage A, and how they differ from the 2022 global outbreak caused by clade 2b lineage B.1. Historically, clades 1a and 2a have caused sporadic, small outbreaks in central and west Africa, respectively, primarily through zoonotic transmission. Clade 2b first caused an outbreak in Nigeria in 2017, and later spread globally via sexual contact in 2022. In August, 2024, WHO

declared a global health emergency due to the newly identified clade 1b outbreak in eastern Democratic Republic of the Congo. This outbreak has now expanded to several other countries and is spreading through direct and sexual contact in urban centres and refugee camps. Clades, route of exposure, infectious dose, and host immune response are the main factors influencing clinical presentation of mpox. For clades 1a and 2a, zoonotic transmission plays an important role, whereas for clades 1b and 2b, the spread occurs through sustained human-to-human transmission without zoonotic exposure. For both clades 1a and 2a, lesions have a generalised centrifugal distribution, whereas for clade 2b they are mainly localised to the anogenital area. For clade 1b, data are still emerging, but current cases show a mix of localised lesions and centrifugal distribution. The severity of the disease is higher for clade 1a (case fatality rate up to 12%) compared with other clades (case fatality rates 0-3·6%). Diagnostic challenges include false negative results for clade 1b with existing PCR assays and poor testing access in remote areas. Tecovirimat, the primary antiviral during the 2022 outbreak, has shown reduced effectiveness against clade 1a in preliminary study results, whereas its efficacy against other clades is still under investigation. The modified vaccinia Ankara-Bavarian Nordic vaccine has been shown to be up to 90% effective against clade 2b after two doses and is safe for children, although its effectiveness drops to 20% when used as post-exposure prophylaxis. Given the evolving nature of the monkeypox virus, ongoing research and strong public health responses are key to managing potential future outbreaks.
Conclusions
Since 2022, we have witnessed large-scale outbreaks of both clade 1 and clade 2 of monkeypox virus, with different transmission patterns and clinical characteristics between viral variants. Evaluation and deployment of public health measures to control the simultaneous outbreaks occurring worldwide are urgently needed. Sustained long-term investment in outbreak preparedness and increasing access to mpox vaccination in Africa are urgently required to provide lasting protection to the affected and at-risk populations. Future research should investigate the contribution of viral characteristics and external factors (eg, population characteristics and access to health-care resources) to the different outcomes observed between viral variants.

18. NEJM 2025;392(7):714-6
Editorial
Evolving Epidemiology of Mpox in Africa in 2024
Ghebreyesus TA, WHO, Geneva

Mpox has been endemic in remote, rural areas of Africa for decades but has attracted relatively little attention until the global outbreak that began in 2022. In July of that year, I declared a public health emergency of international concern (PHEIC) under the International Health Regulations. That outbreak — which was spread predominantly through networks of men who have sex with men — demonstrated at least two things: first, that mpox is capable of sparking global outbreaks; and second, that those outbreaks can be controlled with the engagement and actions of affected communities, the use of public health measures (including enhanced surveillance, contact tracing, risk communication, and behavior change among at-risk groups), and access to medical countermeasures, including vaccines. The combination of these strategies enabled countries to control their outbreaks, and I declared an end to the PHEIC in May 2023.
Although one mpox emergency had subsided, another was brewing. In September 2023, clade Ib — a new offshoot of the virus that causes mpox — was detected in the Democratic Republic of Congo (DRC), prompting another declaration of PHEIC in August 2024, a day after the African Centers for Disease Control and Prevention (CDC) declared a public health emergency of continental security (PHECS). Since then, clade Ib has spread rapidly in areas of the DRC in which mpox was not previously endemic. Sustained transmission has also been reported in four neighboring countries, and travel-related cases have been reported in 17 other countries. In addition, there are concomitant outbreaks of clade Ia, primarily affecting areas in which mpox is endemic in the DRC, along with clade II in Nigeria and other countries in West and Central Africa and continued cases of clade IIb worldwide.

Understanding the dynamics and peculiarities of each outbreak is essential for stopping them. As in the global outbreak of clade IIb, there is evidence of transmission and geographic spread of clade Ib through sexual contact, including with sex workers, a factor that has required the development of tailored approaches in key populations, including risk communication and community engagement. Evidence from the DRC, Burundi, and Uganda has shown that once epidemics take hold in communities, mpox also spreads through nonsexual close contact, affecting adults and children, particularly young children. This situation increases the risk of community epidemics, particularly in contexts with overcrowded living conditions and poor hygiene, and requires multipronged approaches to surveillance and control.

As Ndembi and colleagues rightly highlight now in the Journal a key challenge in the control of mpox is the serious underreporting of cases, owing in part to disparities in access to health services, mild clinical courses in some patients, and limitations in access to testing. Although most suspected cases in Burundi, Uganda, Kenya, and Rwanda have been confirmed or ruled out by testing, in the DRC, less than half the suspected cases have been tested, and of these cases only approximately half have been positive.

Limitations in surveillance, testing, and laboratory capacity may also be clouding the picture when it comes to mortality. Ndembi et al. report a case fatality ratio of 2.7% in the DRC for clinically diagnosed cases but a case fatality ratio of 0.5% for confirmed cases. Higher mortality and most deaths are reported from endemic areas where clade Ia is known to circulate and where surveillance is mostly syndromic in the absence of testing. Fewer deaths are reported from areas recently affected by clade Ib. As of January 9, 2025, 14 deaths from mpox out of 4687 confirmed cases (case fatality rate, 0.3%) have been reported from Burundi, Uganda, Rwanda, and Kenya combined.

It remains unclear the extent to which these differences are driven by clade-specific properties, variations in surveillance and capacity for laboratory confirmation, and differences in factors that are known to increase mpox severity and mortality (including malnutrition and uncontrolled human immunodeficiency virus infection). It is therefore urgent to strengthen surveillance not only to detect new cases and clusters early but also to better understand what drives severity and mortality and to better adapt and tailor interventions.

The World Health Organization (WHO) has been working closely with the Africa CDC through a joint continental response plan and incident management approach. Vaccination is a key element of the response, especially for those at highest risk for infection. To date, approximately 5.9 million doses of vaccine have been pledged, both bilaterally by donor countries and organizations and through a multilateral Access and Allocation Mechanism established by the WHO, Africa CDC, Coalition for Epidemic Preparedness Innovations (CEPI), Gavi Alliance, and UNICEF, which together allocated 900,000 doses to nine priority countries in Africa in October 2024.

Since completion of national regulatory requirements, approximately 500,000 doses have been delivered, and an additional 1.7 million doses will soon be available. As of early this year, almost 70,000 persons have been vaccinated, mainly in the DRC. Resource limitations in the affected countries, which face multiple competing health priorities, have limited the speed and scale of vaccination. Maximizing the effect of vaccination requires prioritizing the most at-risk groups, including infants, children, and adolescents. The WHO also recommends the use of one dose and fractionating doses where the vaccine supply is limited.

We still face many challenges to bring these outbreaks under control. To meet them, we need stronger political commitment to scale up response activities, fully resourced preparedness and response plans, further contributions of medical countermeasures (including diagnostics and vaccines), continued transparency and collaboration between affected countries and partners, and political commitment to the use of the available tools.

Above all, the ongoing mpox outbreaks highlight the need for a shared global response to shared global threats. To that end, WHO member states need to conclude negotiations on the WHO Pandemic Agreement in time for the World Health Assembly in May 2025, because no one is safe until everyone is safe.

Other articles about Mpox:
* Lancet 2025;405(10476):408-19
Suspected and confirmed mpox cases in DR Congo: a retrospective analysis of national epidemiological and laboratory surveillance data, 2010-23
Bangwen E et al., Department of Clinical Sciences, Institute of Tropical Medicine, Antwerp, Belgium; Department of Microbiology, Immunology and Transplantation, KU Leuven, Leuven, Belgium. Correspondence to L Liesenborghs < lliesenborghs@itg.be>

* Lancet 2025;405(10478):547-59
Observational Study
Epidemiological and clinical features of mpox during the clade Ib outbreak in South Kivu, Democratic Republic of the Congo: a prospective cohort study
Brosius I et al., Department of Clinical Sciences, Institute of Tropical Medicine, Antwerp, Belgium Correspondence to L Liesenborghs < lliesenborghs@itg.be>

* TMIH 2025;30(1):1-3
Mpox as an emerging health threat for survivors of sex trafficking
Ekerin O et al., Department of Child, Youth & Family Studies, College of Education and Human Sciences, University of Nebraska-Lincoln, Lincoln, Nebraska, USA

Communicable Diseases - Tuberculosis

19. EID 2025;31(3):1-9
Lessons Learned from Early Implementation and Scale-up of Stool-Based Xpert Testing to Diagnose Tuberculosis in Children
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In 2020, fecal (stool) testing was recommended for diagnosing Mycobacterium tuberculosis complex (MTBC) infection in children by using the Cepheid Xpert MTB/RIF assay; since then, countries have begun implementing stool-based testing, often as part of a comprehensive strategy to enhance TB case finding among children. On the basis of an experience-sharing workshop in November 2023, we determined insights of 9 early-adopter countries. Across those countries, 71,757 children underwent stool testing over a combined period of 121 months, October 2020-September 2023. A total of 2,892 children were positive for MTBC, and rifampin resistance was confirmed for 43 stool samples. The overall yield of MTBC detection across the countries was 4.1% (range 1.1%-17.3%). Stool collection for Xpert testing was considered noninvasive and as easy as sputum testing. Stool-based testing can be integrated into peripheral healthcare levels as a routine test to increase bacteriologic confirmation among children with presumptive TB.

20. Lancet 2025;405(10481):850-66
Review
Tuberculosis
Trajman A et al., Department of Internal Medicine, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil; McGill International TB Centre, Montreal, QC, Canada. Correspondence to D Menzies <dick.menzies@mcgill.ca>

Tuberculosis is a leading cause of death globally. Given the airborne transmission of tuberculosis, anybody can be infected, but people in high-incidence settings are more exposed. Risk of progression to disease is higher in the first years after infection, and in people with undernourishment, immunosuppression, or who smoke, drink alcohol, or have diabetes. Although cough, fever, and weight loss are hallmark symptoms, people with tuberculosis can be asymptomatic, so a high index of

suspicion is required. Prompt diagnosis can be made by sputum examination (ideally with rapid molecular tests), but chest radiography can be helpful. Most people with disease can be treated with regimens of 6 months or less; longer regimens may be necessary for those with drug resistance. Central to successful treatment is comprehensive, person-centred care including addressing key determinants, such as undernourishment, smoking, and alcohol use, and optimising management of comorbidities, such as diabetes and HIV. Care should continue after treatment ends, as long-term sequelae are common. Prevention relies mostly on treatment with rifamycin-based regimens; current vaccines have limited efficacy. Ongoing research on shorter and safer regimens for infection and disease treatment, and simpler and more accurate diagnostic methods will be key for tuberculosis elimination.

Gender

21. Am J TMH 2024;112(1):13-16 Print 2025 Jan 8
Recruitment Strategies To Improve Gender Equity in Clinical and Translational Research Training in Ethiopia
Hoover AT et al., Emory University School of Medicine, Atlanta, Georgia

Women from sub-Saharan Africa, including Ethiopia, are underrepresented in biomedical research due in part to limited access to high-quality research training and mentorship. Tuberculosis (TB) is a major public health problem in Ethiopia, with a limited number of female Ethiopian scientists engaged in TB-related research. To improve access to TB-related research training among junior women scientists, our NIH Fogarty International Center-funded D43 program released an all-women request for applications (RFA), which substantially increased the number of women applying for research training and the number of women trained in our program. The impact of the all-women cohort was also bolstered by prominent female representation in mentor teams, program leadership, and program alumnae. Sustained increases in applications from women were seen in subsequent RFAs that included both women and men. Targeted leadership, mentorship, and recruitment efforts were effective in promoting improved gender equity in biomedical research training.

22. BMJ 2025;388:r190
Editorial
The case for women's leadership in global health
Clark J, The BMJ, London, UK

A new global evidence review on leadership outcomes bolsters advocacy for gender equality in the current context of backlash against rights and equity, diversity, and inclusion efforts.
There remains a vital need for more health leadership by women around the world. That healthcare globally is "delivered by women but led by men" encapsulates the stark inequalities. Women comprise 70% of health workers but hold just 20% of decision making roles. Leadership roles are associated with the power to shape agendas and drive outcomes, with higher status and remuneration. Senior leaders provide a model for their followers and should reflect the communities they serve, so diverse representation in leadership matters.
Despite institutional commitments to gender equality, progress on improving representation is poor. In 2024 only 36% of global health non-profit organisations and 25% of for-profits had gender parity in their senior management teams; a mere 2% of board chairs were women from low income countries. Just 15 of the world's 54 multilateral organisations have ever been led by women. At the World Health Assembly, currently less than 25% of chief delegates are women.
Advocacy for more female leaders in global health tends to fall into three categories: an ethical case (it's the right and fair thing to do), a case of social justice (women's right to participate fully in decision making systems is protected by international law and treaties), and a business case (women's leadership is good for an organisation's bottom line, work culture, and customer and patient

satisfaction). These are all legitimate and have been used, usually in combination, in global health advocacy.
Inclusion of women, especially those of intersectional identities, provides the gender parity and diversity promised by international health organisations and realises women's rights, creativity, and productivity. The counterargument that there are not enough qualified women to fill health leadership roles and the prejudicial stereotype that men deliver better leadership especially in times of crisis, have both been debunked. These outdated views persist in part because they maintain the status quo of men's dominance in science, medicine, and global health.

Global Health

23. BMJ 2025;388:r139
Editorials
Neglected tropical diseases in China
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Global estimations differ from local realities.
Neglected tropical diseases are a diverse group of diseases that have proliferated in tropical and subtropical regions, especially in marginalised populations, where they cause illness, suffering, and stigmatisation. The World Health Organization (WHO) estimates that about 1.6 billion people require interventions and treatment for at least one of these diseases and that 19 million disability adjusted life years (DALYs) are lost each year, affecting the development of individuals, families, and communities.
The Global Burden of the Disease (GBD) study is the biggest effort that has been made to estimate the global burden of diseases, injuries, and risk factors. Information about morbidity and premature mortality is combined to calculate DALYs, in which global health priorities and health interventions can be identified. In 1992, the World Bank commissioned its first iteration, which identified neglected problems and shaped health policies. In 2021, the Institute for Health Metrics and Evaluation conducted its latest iteration, in which 12 000 researchers from 160 countries participated. Since then, the results have been used by health professionals, policy makers, and researchers worldwide.
In a linked study, Guo-Jing Y and colleagues (doi:10.1136/bmj-2024-080969) compared the DALYs estimated from the database of Chinese Center for Disease Control and Prevention and the DALYs estimated from the database of the GBD 2021 for six neglected tropical diseases (dengue, echinococcosis, leishmaniasis, leprosy, rabies, and schistosomiasis). They found substantial discrepancies between DALY estimates, which they attributed to four reasons: the GBD data do not include some forms of diseases that have higher burdens; the GBD uses standardised methods for life expectancy that lead to discrepancies; the GBD does not consider customised health interventions that reduce the burden of diseases; and the GBD does not factor in disease dynamics that affect local responses.
Other authors have highlighted limitations in the GBD's previous iterations. For example, some have commented on the importance of closing data gaps to avoid estimates and to increase measurements of real-world data. One argument was that the GBD is not intended to be the definitive source of global disease burden for neglected tropical diseases. The lack of accurate and comprehensive data for specific countries and diseases was highlighted by one group. Another pointed out that the GBD does not capture disease dynamics and patterns of transmission with precision. Additionally, disease estimates and countries' health priorities have low correlations, which means that decision makers do not completely consider its results when developing health strategies and releasing resources.
The GBD findings are undoubtedly a relevant resource for decision making, but they must not be used as the sole source of information for neglected tropical diseases. These complex diseases often remain underdiagnosed and frequently go under-reported, especially in low and low-to-middle income countries, where disrupted healthcare and political systems can lead to worse health outcomes. Since 2008, WHO acknowledged the importance of assessing the burden of neglected tropical diseases and

developed a global plan to tackle them. Then, in 2012, a roadmap was enabled to guide its implementation worldwide. Countries require precise data to allocate resources and assess the effectiveness of their interventions. Although the GBD has played its role, other models have been proposed, and some studies have proved that China has advanced consistently and relentlessly towards meeting the targets.
Guo-Jing Y and colleagues propose four solutions to make the GBD model more suitable for neglected tropical diseases: adapt the model to enable local settings that lead to more accurate country estimations; improve modelling techniques to account for disease dynamics; establish a global platform for sharing data interactively and transparently; and validate the suitability of using global health data before conducting local studies to have accurate assessments. Implementation of these solutions could enhance the GBD model to broaden its use in the field of neglected tropical diseases while acknowledging that healthcare professionals, policy makers, and researchers should be aware of its limitations. Global estimates must be interpreted with caution and real-world data should be considered when assessing the effectiveness of local health interventions. The case of neglected tropical diseases in China can be taken as an exemplar for advancing towards their control, elimination, and eradication.

24. BMJ 2025;388:e080969
Research
Discrepancies in neglected tropical diseases burden estimates in China: comparative study of real-world data and Global Burden of Disease 2021 data (2004-2020)
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Objectives To assess the discrepancies between real-world data and the Global Burden of Disease (GBD) 2021 estimates for six neglected tropical diseases in China. Additionally, to evaluate the applicability of the GBD model within the Chinese context and to assess the effectiveness of China's historical prevention and control policies for neglected tropical diseases.
Design Comparative study of real-world data and GBD 2021 (2004-2020).
Main outcome measures Disability adjusted life years (DALYs).
Methods DALYs based on reported data for leprosy, echinococcosis, schistosomiasis, visceral leishmaniasis, dengue, and rabies from 2004 to 2020 were compared with the estimated DALYs from the GBD 2021 database. Additionally, we combined and analysed China's historical policies on prevention and control of neglected tropical diseases with real-world DALYs.
Data sources Reported data were sourced from the Chinese Center for Disease Control and Prevention’s China Public Health Science data centre and related reports. Data for GBD 2021 and GBD 2019 were obtained from GBD databases. These data included all of China’s 31 provinces (including autonomous regions and municipalities) and the Xinjiang Production and Construction Corps.
Results The total real-world DALYs based on reported data of six neglected tropical diseases decreased from 260 000 person years in 2004 to 19 000 person years in 2020, with a 93% (241 000/260 000 person years) reduction. The 17 year average real-world DALYs from 2004 to 2020 versus the GBD 2021 estimates for the same period were 42 v 500 for leprosy, 960 v 11 000 for echinococcosis, 64 000 v 98 000 for schistosomiasis, 56 v 16 000 for visceral leishmaniasis, 190 v 780 for dengue, and 47 000 v 67 000 for rabies. The ratios of the GBD estimates to the real-world DALYs for the six neglected tropical diseases were 17 for leprosy, 11 for echinococcosis, 1.5 for schistosomiasis, 280 for visceral leishmaniasis, 4.2 for dengue, and 1.4 for rabies.
Conclusions The findings indicate that reliance solely on global estimates, such as those of the GBD, may not sufficiently capture the dynamics of neglected tropical diseases in China. Integrating local epidemiological data into global health assessments is crucial to develop accurate and effective public health policies. This study highlights the importance of continuously updating and improving data collection and surveillance methods to adapt public health strategies to evolving disease patterns.

25. EID 2025;31(1):1-7

Global Health's Evolution and Search for Identity
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Despite earlier attempts to define global health, the discipline's boundaries are unclear, its priorities defined more by funding from high-income countries from the Global North than by global health trends. Governance and resource allocation are challenged by movements such as decolonizing global health. Inherent contradictions within global health derive from its historical evolution from tropical medicine and international health, as well as recent trends in infectious diseases. Demographic, socioeconomic, and epidemiologic transitions, including the rise in noncommunicable diseases, have eroded the concept of a binary world of developed and developing countries. Competitive tension has emerged between aspirations for global health security and health equity. Dominant principles should focus on vulnerable populations, transnational challenges such as migration and climate change, appropriate prevention and care, and epidemic preparedness and response capacity. As the 2030 target date for the United Nations Sustainable Development Goals approaches, reconceptualization of global health is required, or the discipline risks losing identity and relevance.

26. Lancet 2024;404(10470):2437-46
Halving premature death and improving quality of life at all ages: cross-country analyses of past trends and future directions
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Background: Although death in old age is unavoidable, premature death-defined here as death before age 70 years-is not. To assess whether halving premature mortality by 2050 is feasible, we examined the large variation in premature death rates before age 70 years and trends over the past 50 years (1970-2019), covering ten world regions and the 30 most-populous nations. This analysis was undertaken in conjunction with the third report of The Lancet Commission on Investing in Health: Global Health 2050: the path to halving premature death by mid-century.
Methods: In this cross-country analysis of past mortality trends and future directions, all analyses on the probability of premature death (PPD) were conducted using life tables from the UN World Population Prospects 2024. For each sex, country, and year, probability of death was calculated from these life tables with 1-year age-specific mortality rates.
Findings: Globally, PPD decreased from 56% in 1970 to 31% in 2019, although some countries saw reversals because of conflict, social instability, or HIV and AIDS. Child mortality has decreased faster than adult mortality. Among all countries, 34 halved their PPD over three decades between 1970 and 2019. Among the 30 most-populous countries, seven countries, with varying levels of baseline PPD and income, halved their PPD in the past half century. Seven of the most-populous countries had average annual rates of improvement in the period 2010-19 that, if sustained, could lead to a halving of PPD by 2050, including Korea (3·9%), Bangladesh (2·8%), Russia (2·7%), Ethiopia (2·4%), Iran (2·4%), South Africa (2·4%), and Türkiye (2·3%).
Interpretation: Halving premature death by 2050 is feasible, although substantial investments in child and adult health are needed to sustain or accelerate the rate of improvement for high-performing and medium-performing countries. Particular attention must be paid to countries with very low or a worsening rate of improvement in PPD. By reducing premature mortality, more people will live longer and more healthy lives. However, as people live longer, the absolute number of years lived with chronic disease will increase and investments in services reducing chronic disease morbidity are needed.

27. Lancet 2024;404(10470):2447-59
Global, regional, and national mortality burden attributable to air pollution from landscape fires: a health impact assessment study
Xu R et al., on behalf of the Multi-Country Multi-City Collaborative Research Network. Correspondence to Y Guo < yuming.guo@monash.edu.>

Background: Landscape fire-sourced (LFS) air pollution is an increasing public health concern in the context of climate change. However, little is known about the attributable global, regional, and national mortality burden related to LFS air pollution.
Methods: We calculated country-specific population-weighted average daily and annual LFS fine particulate matter (PM2·5) and surface ozone (O3) during 2000-19 from a validated dataset. We obtained the relative risks (RRs) for both short-term and long-term impact of LFS PM2·5 and O3 on all-cause, cardiovascular, and respiratory mortality. The short-term RRs were pooled from community-specific standard time-series regressions in 2267 communities across 59 countries or territories. The long-term RRs were obtained from published meta-analyses of cohort studies on all-source PM2·5 and O3. Annual mortality, population, and socio-demographic data for each country or territory were extracted from the Global Burden of Diseases Study 2019. These data were used to estimate country-specific annual deaths attributable to LFS air pollution using standard algorithms.
Findings: Globally, 1·53 million all-cause deaths per year (95% empirical confidence interval [eCI] 1·24-1·82) were attributable to LFS air pollution during 2000-19, including 0·45 million (0·32-0·57) cardiovascular deaths and 0·22 million respiratory deaths (0·08-0·35). LFS PM2·5 and O3 contributed to 77·6% and 22·4% of the total attributable deaths, respectively. Over 90% of all attributable deaths were in low-income and middle-income countries, particularly in sub-Saharan Africa (606 769 deaths per year), southeast Asia (206 817 deaths), south Asia (170 762 deaths), and east Asia (147 291 deaths). The global cardiovascular attributable deaths saw an average 1·67% increase per year (ptrend <0·001), although the trends for all-cause and respiratory attributable deaths were not statistically significant. The five countries with the largest all-cause attributable deaths were China, the Democratic Republic of the Congo, India, Indonesia, and Nigeria, although the order changed in the second decade. The leading countries with the greatest attributable mortality rates (AMRs) were all in sub-Saharan Africa, despite decreasing trends from 2000 to 2019. North and central America, and countries surrounding the Mediterranean, showed increasing trends of all-cause, cardiovascular, and respiratory AMRs. Increasing cardiovascular AMR was also observed in southeast Asia, south Asia, and east Asia. In 2019, the AMRs in low-income countries remained four times those in high-income countries, though this had reduced from nine times in 2000. AMRs negatively correlated with a country-specific socio-demographic index (Spearman correlation coefficients r around -0·60).
Interpretation: LFS air pollution induced a substantial global mortality burden, with notable geographical and socioeconomic disparities. Urgent actions are required to address such substantial health impact and the associated environmental injustice in a warming climate.

28. Lancet 2025;404(10471):2543-83
Global, regional, and national progress towards the 2030 global nutrition targets and forecasts to 2050: a systematic analysis for the Global Burden of Disease Study 2021
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Background: The six global nutrition targets (GNTs) related to low birthweight, exclusive breastfeeding, child growth (ie, wasting, stunting, and overweight), and anaemia among females of reproductive age were chosen by the World Health Assembly in 2012 as key indicators of maternal and child health, but there has yet to be a comprehensive report on progress for the period 2012 to 2021. We aimed to evaluate levels, trends, and observed-to-expected progress in prevalence and attributable burden from 2012 to 2021, with prevalence projections to 2050, in 204 countries and territories.
Methods: The prevalence and attributable burden of each target indicator were estimated by age group, sex, and year in 204 countries and territories from 2012 to 2021 in the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) 2021, the most comprehensive assessment of causes of death, disability, and risk factors to date. Country-specific relative performance to date was evaluated with a Bayesian meta-regression model that compares prevalence to expected values based on Socio-demographic Index (SDI), a composite indicator of societal development status. Target progress was

forecasted from 2021 up to 2050 by modelling past trends with meta-regression using a combination of key quantities and then extrapolating future projections of those quantities.
Findings: In 2021, a few countries had already met some of the GNTs: five for exclusive breastfeeding, four for stunting, 96 for child wasting, and three for child overweight, and none met the target for low birthweight or anaemia in females of reproductive age. Since 2012, the annualised rates of change (ARC) in the prevalence of child overweight increased in 201 countries and territories and ARC in the prevalence of anaemia in females of reproductive age decreased considerably in 26 countries. Between 2012 and 2021, SDI was strongly associated with indicator prevalence, apart from exclusive breastfeeding (|r-|=0·46-0·86). Many countries in sub-Saharan Africa had a decrease in the prevalence of multiple indicators that was more rapid than expected on the basis of SDI (the differences between observed and expected ARCs for child stunting and wasting were -0·5% and -1·3%, respectively). The ARC in the attributable burden of low birthweight, child stunting, and child wasting decreased faster than the ARC of the prevalence for each in most low-income and middle-income countries. In 2030, we project that 94 countries will meet one of the six targets, 21 countries will meet two targets, and 89 countries will not meet any targets. We project that seven countries will meet the target for exclusive breastfeeding, 28 for child stunting, and 101 for child wasting, and no countries will meet the targets for low birthweight, child overweight, and anaemia. In 2050, we project that seven additional countries will meet the target for exclusive breastfeeding, five for low birthweight, 96 for child stunting, nine for child wasting, and one for child overweight, and no countries are projected to meet the anaemia target.
Interpretation: Based on current levels and past trends, few GNTs will be met by 2030. Major reductions in attributable burden for exclusive breastfeeding and anthropometric indicators should be recognised as huge scientific and policy successes, but the comparative lack of progress in reducing the prevalence of each, along with stagnant anaemia in women of reproductive age and widespread increases in child overweight, suggests a tenuous status quo. Continued investment in preventive and treatment efforts for acute childhood illness is crucial to prevent backsliding. Parallel development of effective treatments, along with commitment to multisectoral, long-term policies to address the determinants and causes of suboptimal nutrition, are sorely needed to gain ground.

29. Lancet 2025;405(10481):785-812
Global, regional, and national prevalence of child and adolescent overweight and obesity, 1990-2021, with forecasts to 2050: a forecasting study for the Global Burden of Disease Study 2021
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Background: Despite the well documented consequences of obesity during childhood and adolescence and future risks of excess body mass on non-communicable diseases in adulthood, coordinated global action on excess body mass in early life is still insufficient. Inconsistent measurement and reporting are a barrier to specific targets, resource allocation, and interventions. In this Article we report current estimates of overweight and obesity across childhood and adolescence, progress over time, and forecasts to inform specific actions.
Methods: Using established methodology from the Global Burden of Diseases, Injuries, and Risk Factors Study 2021, we modelled overweight and obesity across childhood and adolescence from 1990 to 2021, and then forecasted to 2050. Primary data for our models included 1321 unique measured and self-reported anthropometric data sources from 180 countries and territories from survey microdata, reports, and published literature. These data were used to estimate age-standardised global, regional, and national overweight prevalence and obesity prevalence (separately) for children and young adolescents (aged 5-14 years, typically in school and cared for by child health services) and older adolescents (aged 15-24 years, increasingly out of school and cared for by adult services) by sex for 204 countries and territories from 1990 to 2021. Prevalence estimates from 1990 to 2021 were generated using spatiotemporal Gaussian process regression models, which leveraged temporal and spatial correlation in epidemiological trends to ensure comparability of results across time and geography. Prevalence forecasts from 2022 to 2050 were generated using a generalised ensemble modelling approach assuming continuation of current trends. For every age-sex-location

population across time (1990-2050), we estimated obesity (vs overweight) predominance using the log ratio of obesity percentage to overweight percentage.
Findings: Between 1990 and 2021, the combined prevalence of overweight and obesity in children and adolescents doubled, and that of obesity alone tripled. By 2021, 93·1 million (95% uncertainty interval 89·6-96·6) individuals aged 5-14 years and 80·6 million (78·2-83·3) aged 15-24 years had obesity. At the super-region level in 2021, the prevalence of overweight and of obesity was highest in north Africa and the Middle East (eg, United Arab Emirates and Kuwait), and the greatest increase from 1990 to 2021 was seen in southeast Asia, east Asia, and Oceania (eg, Taiwan [province of China], Maldives, and China). By 2021, for females in both age groups, many countries in Australasia (eg, Australia) and in high-income North America (eg, Canada) had already transitioned to obesity predominance, as had males and females in a number of countries in north Africa and the Middle East (eg, United Arab Emirates and Qatar) and Oceania (eg, Cook Islands and American Samoa). From 2022 to 2050, global increases in overweight (not obesity) prevalence are forecasted to stabilise, yet the increase in the absolute proportion of the global population with obesity is forecasted to be greater than between 1990 and 2021, with substantial increases forecast between 2022 and 2030, which continue between 2031 and 2050. By 2050, super-region obesity prevalence is forecasted to remain highest in north Africa and the Middle East (eg, United Arab Emirates and Kuwait), and forecasted increases in obesity are still expected to be largest across southeast Asia, east Asia, and Oceania (eg, Timor-Leste and North Korea), but also in south Asia (eg, Nepal and Bangladesh). Compared with those aged 15-24 years, in most super-regions (except Latin America and the Caribbean and the high-income super-region) a greater proportion of those aged 5-14 years are forecasted to have obesity than overweight by 2050. Globally, 15·6% (12·7-17·2) of those aged 5-14 years are forecasted to have obesity by 2050 (186 million [141-221]), compared with 14·2% (11·4-15·7) of those aged 15-24 years (175 million [136-203]). We forecasted that by 2050, there will be more young males (aged 5-14 years) living with obesity (16·5% [13·3-18·3]) than overweight (12·9% [12·2-13·6]); while for females (aged 5-24 years) and older males (aged 15-24 years), overweight will remain more prevalent than obesity. At a regional level, the following populations are forecast to have transitioned to obesity (vs overweight) predominance before 2041-50: children and adolescents (males and females aged 5-24 years) in north Africa and the Middle East and Tropical Latin America; males aged 5-14 years in east Asia, central and southern sub-Saharan Africa, and central Latin America; females aged 5-14 years in Australasia; females aged 15-24 years in Australasia, high-income North America, and southern sub-Saharan Africa; and males aged 15-24 years in high-income North America.
Interpretation: Both overweight and obesity increased substantially in every world region between 1990 and 2021, suggesting that current approaches to curbing increases in overweight and obesity have failed a generation of children and adolescents. Beyond 2021, overweight during childhood and adolescence is forecast to stabilise due to further increases in the population who have obesity. Increases in obesity are expected to continue for all populations in all world regions. Because substantial change is forecasted to occur between 2022 and 2030, immediate actions are needed to address this public health crisis.

Another article about this subject:
* Lancet 2025;405(10481):813-38
Global, regional, and national prevalence of adult overweight and obesity, 1990-2021, with forecasts to 2050: a forecasting study for the Global Burden of Disease Study 2021
GBD 2021 Adult BMI Collaborators. Correspondence to SI Hay <sihay@uw.edu>

Health Financing

30. Lancet 2025,405(10477):514-6
Viewpoint
Global health partnerships for a post-2030 agenda

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(Abbreviated)

Partnership is essential for solving complex global challenges. In global health, however, partnership has become associated with a specific model: public–private partnerships (PPPs), in which the key actors are governments, philanthropic foundations, and the private firms that produce drugs and vaccines. In the early 2000s, PPP became the go-to model for new global health institutions, exemplified by The Global Fund to Fight AIDS, Tuberculosis and Malaria, and Gavi, the Vaccine Alliance. Yet today, concerns around the legitimacy, transparency, and accountability of PPPs remain unresolved and the leading PPPs are facing tough replenishment rounds. Aside from the threat to US aid spending posed by the election of Donald Trump, other major donors have also made massive cuts in their 2024 official development assistance budgets, including France (–US$808 million), Germany (–$2·2 billion), and the UK (–$1·9 billion; all information taken from Donor Tracker).

The current context brings real dangers in terms of the sustainability of current global health initiatives. To address these challenges, we argue that reform proposals put forth after the COVID-19 pandemic not only need to be implemented, but also need to herald the start, not the end, of a conversation to rethink the models of partnership needed to drive an ambitious post-2030 global health agenda.

Gavi and The Global Fund are the largest and most influential PPPs in global health. Over two decades, they have become increasingly powerful players in global health, channelling US$8 billion, or 12·4% of the total official development assistance budget for health worldwide.

The success of the PPP model, however, has had unintended consequences for the wider global health landscape. Although successful at reducing deaths from some infectious diseases, the vertical focus of PPPs has fragmented and weakened recipient countries' health systems. They have, perhaps inadvertently, diverted limited resources and staff to support their own priorities, imposed substantial administrative burdens due to complex and overlapping reporting requirements, and potentially disincentivised domestic health financing.

The PPP model has also led to profound problems of accountability and competing interests. PPPs provide public subsidies to commercial companies to address so-called market failures, creating demand for commodities that are otherwise unaffordable for those who need them and promoting pro-poor innovation.

The expansion of the PPP model has also further entrenched the hierarchical relationship between donors and recipients.

Although some PPPs have attracted significant funding from private foundations, most notably the Bill & Melinda Gates Foundation, the original promise that they would tap into new sources of private sector financing has remained unfulfilled; in the case of The Global Fund, for example, 94% of its funding comes from taxpayers in donor countries. This unfulfilled promise leaves partnerships as vulnerable to the unpredictability of donors as non-PPP models and undermines one of their key claimed advantages when compared with purely public institutions.

The PPP model is now so ingrained that none of the current proposals for incremental reform question whether these are the right kinds of partnership for global health. It is possible that incremental efforts might constrain our ability to think creatively by limiting the conversation to the partnerships we have, rather than discussing what partnerships we need to pursue an ambitious post-2030 agenda.

We need to recognise that the existing global health partnerships have had a tremendous effect by normalising and legitimising the role of private actors in global governance, including philanthropic foundations and multinational corporations.

One response to the current challenges global health institutions face would be to double down on the PPP model: to trumpet its successes and downplay the more difficult questions in a desperate attempt to keep the money rolling in. Falling into this replenishment trap, however, would be a mistake. Instead, we should rebuild our current understanding of partnership from the bottom up to deliver the global health partnerships we need, not just those we have.

31. Lancet 2025;405(10478):517
Editorial
Philanthropy for health: past, present, and future

(Abbreviated)
Private philanthropists and organisations have a long history of working to improve health and bringing about positive change in other areas such as education, the environment, and the promotion of civil rights. (Aga Kahn Development Network; the Rockefeller Foundation - closely linked to the development of WHO the foundation endowed the Johns Hopkins School of Public Health and Harvard School of Public Health -; the Bill & Melinda Gates Foundation – a central pillar of much in global health, from supporting organisations such as Gavi, the Vaccine Alliance through to spending billions of dollars to combat HIV/AIDS, tuberculosis, and malaria, and funding huge amounts of research.)
Philanthropic organisations have many strengths: they can operate with independence, are able to speak freely, and are unencumbered by the bureaucracy and short-termism of public money. They have tremendous convening power and can provide a platform for voices who might not otherwise be heard.
There is an alternative view of philanthropy and global health. That leaving philanthropists to set their own agendas introduces bias and favouritism as to which projects are funded. That decision making often takes place behind closed doors, without transparency or accountability. That many philanthropists wield disproportionate and undeserved power and have made their wealth through the exploitation of others, whom they now propose to help. That philanthropy presents itself as a system to help alleviate inequalities, but is fundamentally built on inequalities.
A world in which philanthropy is not needed may be the ideal, but we live in a far from ideal world. Nearly four people per week became billionaires in 2024. Many will have sincere wishes to put that money to good use for society and health. The Giving Pledge, established by Warren Buffett, Bill Gates, and Melinda French Gates, is a commitment to give the majority of an individual's wealth to address some of society's most pressing problems. The number of signatories has grown from the initial 40, in 2010, to more than 240 from 30 countries. They promise to “hold conversations around legacy, governance and approaches for involving family in giving”. These conversations must be translated into ethical responsible practices.

Health Policy

32. Am J TMH 2025;112(1_Suppl):1-2 doi: 10.4269/ajtmh.24-0817 Print 2025 Jan 7
Surveillance Data for Decision-Making in Global Health: Enhancing Analysis, Integration, and Action.
Editorial
Harnessing Malaria Surveillance Data for Transformative Malaria Control and Elimination
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The momentum for data-driven decision-making, particularly for disease surveillance, including for malaria, is greater than ever. Surveillance data that is appropriately collected, analyzed, visualized, and used can effectively guide context-specific and responsive efforts for disease burden reduction and elimination. This journal supplement which follows the prior supplement, “Malaria Surveillance as a Core Intervention,”1 published in 2023, focuses on “Surveillance Data for Decision-Making in Global Health: Enhancing Analysis, Integration, and Action.” The eight articles in this supplement highlight the importance of ensuring high-quality and comprehensive data and explore the use of vector control, molecular, and genomic information to optimize malaria interventions for reduction of the disease burden.

33. Bull WHO 2025;103(1):32–6
What justifies public engagement in health financing decisions?

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The World Bank's report, *Open and inclusive: fair processes for financing universal health coverage,* represents an important effort to specify the benefits and criteria of fair processes in health financing decisions. Here we argue that the report's justification for increasing public engagement in health financing decisions, one of its most novel contributions, rests on a widely shared but flawed assumption that public engagement will produce more equitable outcomes. Examining evidence from national-level public engagement initiatives cited in the report, we argue that there is no reason to assume that engaged publics will prioritize equity over other relevant values such as the maximization of population health. We conclude that instead of seeing public engagement as a tool for advancing particular values, policy-makers should view it as a neutral way of assessing what the public values and gathering insights that can inform the design of health benefits packages. If policy-makers wish to prioritize equity, they should do so directly through substantive policy choices regarding the design and financing of coverage schemes.

34. Bull WHO 2025;103(2):82–82A
Editorial
Harnessing digital health to achieve equitable and efficient health systems
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This theme issue of the Bulletin of the World Health Organization explores how digitalization shapes health systems, highlighting opportunities for innovation while addressing the challenges of inequity. Progress towards achieving the sustainable development goals (SDGs) is off track, with only five years remaining until 2030. Bold actions are needed for countries to achieve the SDG targets. One promising avenue is the application of digital technologies in the implementation of the SDGs, which could directly support more than two thirds of the targets.

Digital health technologies can redefine and re-engineer the tools needed to create a better future for all; they can, for example, drive earlier diagnoses and interventions, improve outcomes, and support and engage patients.

Health determinants are no longer static; they have evolved alongside the digital ecosystems, interacting in ways that are reshaping individual and population health. A scoping review in this issue proposes a conceptual framework that captures this complexity, placing health at its core and illustrating how traditional determinants – social, political, economic and commercial – blend with emerging digital determinants and together influence health outcomes and equity. For policy-makers, this framework is a tool to navigate these changes, offering pathways to mitigate harms and provide opportunities to enhance health equity. Policy-makers must also proactively respond to the emergence of generative artificial intelligence to harness its benefits while mitigating its risks, such as job displacement, which negatively affect health.

The transformative potential of digital health innovations is most evident in how they overcome service delivery challenges in low-resource settings. In Guangzhou, China, a mobile health application has improved access to voluntary human immunodeficiency virus testing and counselling. The success of the application lies in its thoughtful design, informed by the needs of both providers and users, and its integration into existing health systems.

India's Scan and Share initiative shows another successful lesson from the field. By leveraging mobile technology and quick response codes, the initiative reduced outpatient waiting times from hours to minutes across nearly 17 000 health-care facilities across 35 states and territories. Digital solutions, grounded in simplicity and scalability, can transform health-care delivery at a national level.

A perspective introduces digital health diplomacy to minimize digital health gaps, emphasizing the need for multilateral cross-border collaborations for data sharing, capacity-building and strengthening digital public infrastructure in underserved regions. Such efforts enable innovations such as Aga Khan

University's telemedicine model, which connects critical care doctors with rural and remote health-care teams in Afghanistan, Kenya, Pakistan and United Republic of Tanzania. Using basic technologies such as instant messaging technologies and videotelephony, the model provided over 6000 consultations, improving survival rates for critically ill patients.

Despite these successes, the adoption of digital health technologies by health workers, particularly in low- and middle-income countries, remains uneven. A systematic review highlights both facilitators and barriers to adoption – with trust, incentives and robust infrastructure playing critical positive roles. Conversely, concerns about usability, performance and lack of self-efficacy hinder uptake. Addressing these gaps requires investment in training, organizational support and participatory and inclusive design.

To scale digital health responsibly, an article suggests that low- and middle-income countries need to focus on three key enablers. First, governance needs to prioritize local autonomy and accountability. Second, infrastructure must be agile and adaptable. Finally, human security must remain the guiding principle, ensuring that digitalization enhances health equity rather than exacerbating disparities.

The challenge of this era is not simply about adopting digital technologies but doing so in a way that aligns with the principles of equity, inclusivity and sustainability. A systematic review highlights the effectiveness and cost–effectiveness of digital health interventions for managing rheumatic diseases, demonstrating their potential to improve disease control, patient adherence and self-efficacy. However, the review also underscores a stark digital divide: while high-income countries employ advanced tools like telemedicine platforms, low- and middle-income countries rely on simpler, more accessible technologies like mobile messaging, reflecting infrastructure and resource gaps. As explained in the perspective on inclusive digital health, each decision – whether designing a platform, implementing a policy or fostering a partnership – must aim towards a healthier, more equitable future.

35. Bull WHO 2025;103(2):83–83A
Editorial
From infrastructure to impact: why foundations matter in digital health
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Global health crises, such as the coronavirus disease 2019 (COVID-19) pandemic, antimicrobial resistance and the effects of climate change have underscored the transformative potential of digital health technologies as well as the negative consequences of underinvestment in foundational digital public infrastructure, such as digital identity, payment systems and data exchanges. Such infrastructure constitutes necessary building blocks for digital health systems. Two decades of digital health pilot projects have bolstered confidence that digital investments could be as transformative to health as they have been in other sectors – from banking to transport. Over 120 countries have a national digital health strategy or action plan. However, achieving digital transformation through robust, interconnected and equitable digital health systems requires political will, appropriate local governance and considerable, sustained investment.

Investments in digital public infrastructure complement national health priorities, often determining whether health systems can respond effectively to crises and deliver equitable care. The COVID-19 pandemic exposed critical gaps, revealing that even the best technologies fall short in agility and responsiveness to public health shocks when local decision-making, technical capacity and public trust are inadequate. Local capacity to adapt systems must exist, as should the policy architecture that enables people to entrust their health information and quality of care to digital systems. Recent studies have shown that technology use and adoption increases with perceived improvements in personal empowerment or agency and with evidence of efficacy.

During the COVID-19 pandemic, countries with established digital health systems supported by strong policies and governance adapted swiftly – tracking infections, enabling remote consultations and supporting vaccination roll-outs. However, countries with fragmented systems, weakened by non-interoperable platforms and fragile data governance, struggled. Theirs was not a failure of technology but of policy, infrastructure and investment. Systemic digital transformation, as seen in other sectors,

happens when countries invest in digital foundations that foster real-time data sharing, coordinated service delivery and patient-centred care.
The World Health Organization (WHO) has been promoting digital health for over two decades, serving as the Secretariat for the Member State *Global strategy on digital health (2020–2025)*. In 2023, WHO launched the Global Initiative on Digital Health, a platform designed to transition digital health strategies into impactful systems. This initiative emphasizes political leadership, public infrastructure and sustainable funding to help countries build accountable, data-driven digital health systems. However, for the strategy to succeed, strong legal frameworks, dedicated agencies and consistent investment are needed. India's Ayushman Bharat Digital Mission and Kenya's Digital Health Bill exemplify such leadership by embedding digital health governance into national policy. Brazil, Estonia, Indonesia, Malaysia and Rwanda have developed strong digital foundations that simultaneously invest in public trust and public infrastructure to present the benefits of digital health for both developers and users. These government-led initiatives often took years, if not decades, to plan and systematically implement, outlasting multiple political cycles.
Furthermore, digital transformation goes beyond digitizing outdated processes; it is also about reimagining how care is delivered. Saudi Arabia's Seha Virtual Hospital connects patients with specialists through telemedicine, highlighting how digital models can expand care access in even the most remote areas, prioritizing patient satisfaction and quality-of-care outcomes.
Despite progress, financing for digital health remains insufficient. The World Bank has invested nearly 4 billion United States dollars (US$) in digital health over the past decade, but analyses suggest that US$ 12.5 billion more are needed over the next five years to support 78 low- and middle-income countries. Funding must enable countries to develop robust digital and data governance, and launch and maintain foundational and health-specific digital health public infrastructure, while ensuring universal connectivity and digital inclusion.
Digital health transformation is a complex, long-term process requiring political resolve, dedicated investment and an unwavering commitment to equity. As countries shift from strategy to implementation, WHO and its partners remain committed to supporting this journey.

36. HPP 2025;40(2):259-71
A critical review of literature and a conceptual framework for organizing and researching urban health and community health services in low- and middle-income countries
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Low- and middle-income countries (LMICs) are rapidly urbanizing, and in response to this, there is an expansion in the body of scholarship and significant policy interest in urban healthcare provision. The idea and the reality of 'urban advantage' have meant that health research in LMICs has disproportionately focused on health and healthcare provision in rural contexts and is yet to sufficiently engage with urban health as actively. We contend that this research and practice can benefit from a more explicit engagement with the rich conceptual understandings that have emerged in other disciplines around the urban condition. Our critical review included publications from four databases (MEDLINE, EMBASE, CINAHL, and Social Sciences Citation Index) and two Community Health Worker (CHW) resource hubs. We draw upon scholarship anchored in sociology to unpack the nature and features of the urban condition; we use these theoretical insights to critically review the literature on urban community health worker programs as a case to reflect on community health practice and urban health research in LMIC contexts. Through this analysis, we delineate key features of the urban, such as heterogeneity, secondary spaces and ties, size and density, visibility and anonymity, precarious work and living conditions, crime, and insecurity, and specifically the social location of the urban CHWs and present their implications for community health practice. We propose a conceptual framework for a distinct imagination of the urban to guide health research and practice in urban health and community health programs in the LMIC context. The framework will enable researchers and

practitioners to better engage with what entails a ‘community’ and a ‘community health program’ in urban contexts.

37. HPP 2025;40(3):318-30
Indonesian medical interns’ intention to practice in rural areas
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The maldistribution of physicians, especially in rural areas, remains a global public health challenge. The internship programme for medical doctors is one of the efforts undertaken to address this issue. However, evidence aiming to disentangle this persistent challenge in the Indonesian context has been scant. This study aims to identify factors influencing medical doctors’ intentions to practise in rural areas and how these factors affect their decisions. We adopted a sequential explanatory mixed-method design using a validated questionnaire. Then, focus group discussions were conducted with medical doctors from three different regions (West, Central, and East) to gain in-depth understanding of motivations, intentions, and barriers to practicing in rural areas. Participants were intern doctors who had been practising for at least 6 months in their internship locations. Quantitative analysis was based on a questionnaire addressing each factor, rated using five-point Likert scales, with bivariate and multivariate logistic regression analyses. The qualitative results were analysed using thematic analysis. In total, 498 respondents completed the questionnaire where 9.6%, 49%, and 40.9% intend to practise in rural, suburban, and urban areas, respectively. Three factors were positively associated with a preference for rural practice: prior living experience in rural areas, accessibility to cultural centres and events, and personal savings as funding resources during medical school. However, the importance of ‘internet accessibility’ was negatively associated with a preference for rural practice. Furthermore, the qualitative study involving 18 participants resulted in four main themes: the role of the internship programme in enhancing motivation as medical doctors, factors generally influencing the intention to practise, factors influencing the intention to practise in rural areas, and policy recommendations to increase the intention to practise in rural areas. Addressing the challenge of attracting and retaining medical doctors in rural areas requires multisectoral approaches involving both personal and professional factors.

38. HPP 2025;40(3):409-21
What is the relationship between hospital management practices and quality of care? A systematic review of the global evidence
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There is a widely held view that good management improves organizational performance. However, hospitals are complex organizations, and the relationship between management practices and health service delivery is not straightforward. We conducted a global, systematic literature review of the quantitative evidence on the link between the adoption of management practices and quality of care in hospitals. We searched in PubMed, EMBASE, EconLit, Global Health, and Web of Science on 16 October 2024, without language or country restrictions. We included empirical studies from 1 January 2000 onwards, examining the quantitative association between hospital management practices and quality of care. Outcomes included structural quality (availability of resources such as drugs and equipment), clinical quality (adherence to guidelines), health outcomes, and patient satisfaction or experience with care. In every study, each tested association was categorized as significantly positive (at the 5% level), null, or significantly negative. The study was registered with PROSPERO (CRD42022301462). Of 11 731 articles, 25 studies met the inclusion criteria and had an acceptable risk of bias. Studies were equally distributed between high-income and low- and middle-income countries, with 22 cross-sectional and three intervention studies. Of 111 associations, 55 (49.5%) were significantly positive, one (1%) was significantly negative, and 55 (49.5%) were null. Among the

associations tested, the majority were significantly positive for structural quality (79%), clinical quality (60%), and health outcomes (57%), while most associations between hospital management and patient satisfaction (80%) were null. The findings are mixed, with a similar proportion of positive and null associations between management practices and quality of care across studies. The evidence is limited by the risk of bias introduced by nonrandomized study designs. Evidence of positive associations in some settings warrants further investigation of the association through intervention studies or natural experiments. This could leverage methodological developments in quantitatively measuring management, highlighted by this review.

39. NEJM 2025;392(4):313-15
Perspective: Ebola and a Decade of Disparities — Forging a Future for Global Health Equity
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Ten years ago, I was in the hospital battling Ebola. My fever rarely relented. I felt so weak that getting up was a herculean task, attempted only a few times a day. Having treated patients with Ebola in Guinea, I knew these symptoms well. I also knew that the worst of my illness was yet to come — if I even survived.

Those 19 days in the hospital were the hardest of my life. Yet my experience was easier than that of my Guinean patients. They waited days for test results to confirm their diagnosis; mine were available within hours at the New York hospital where I was treated. In Guinea, I had too many patients and too little time to spend with them, which forced tough decisions about whose care to prioritize; during my hospitalization, dozens of clinicians were constantly available. The profound injustice weighed heavily on my mind, even as my body was failing.

During the 2014–2016 West African Ebola outbreak, which was concentrated in Guinea, Liberia, and Sierra Leone, nearly half of patients died. Nine of the 11 patients treated for Ebola virus disease (EVD) in the United States survived. The 2 who died weren't American citizens. Delayed access to critical care probably contributed to their deaths, reflecting a global health truism: life-and-death questions are often decided by the color of your passport. //

Expanding access to existing products could have immediate effects. Despite the FDA's approval of new treatments for Orthoebolavirus zairense (also known as Ebola virus [EBOV]), the species responsible for the 2014–2016 outbreak, survival hasn't dramatically improved in subsequent outbreaks. Two monoclonal antibody treatments — Inmazeb (atoltivimab, maftivimab, and odesivimab) and Ebanga (ansuvimab) — have been shown to reduce mortality, but patients lack reliable access to them. The manufacturers have licenses and patents giving them exclusive control over these drugs, and nearly the entire supply is in the U.S. Strategic National Stockpile. When EBOV outbreaks occur, communities must depend on the goodwill of foreign governments and corporations to send doses. During the four EBOV outbreaks that have occurred since the FDA approved these medications, only 41% of patients with confirmed or probable disease received either treatment.

An allocation program could promote access to treatments earlier in outbreaks. The International Coordinating Group on Vaccine Provision's emergency Ebola vaccine stockpile offers a model. The United States contributed more than $750 million to the development of EVD treatments and could have conditioned funding on guarantees of greater access, such as their inclusion in a global stockpile. Additional avenues exist for leveraging influence earlier in research-and-development processes to promote increased downstream access to medical countermeasures. There are no approved treatments for Sudan virus or Marburg virus, which cause symptoms similar to those of EBOV. To promote future access to new therapies, countries at risk for outbreaks could establish a research consortium to expedite clinical trials when cases are first reported and incorporate post-trial access agreements as a condition of hosting studies of potential countermeasures.

The development of lenacapavir underscores both the potential for and the importance of leveraging such opportunities to improve access. The PURPOSE 1 trial, conducted in South Africa and Uganda, and the PURPOSE 2 trial, conducted in seven countries, showed that the drug prevents HIV infection. Lenacapavir is priced at about $44,000 per patient per year in the United States; the manufacturer's

licensing agreements with six generics manufacturers to produce the drug and sell it to 120 countries at a lower cost is therefore important. But this arrangement doesn't ensure comprehensive access: some countries with high HIV rates — including many in South America, where the drug was studied in PURPOSE 2 — aren't included. Moreover, none of the manufacturers are based in sub-Saharan Africa — a missed opportunity to support emerging manufacturers in that region.
The Covid-19 pandemic demonstrated that bolstering local manufacturing capacity is crucial for supporting global health equity. During the pandemic, there was a sharp division in access to personal protective equipment, diagnostics, and vaccines between high-income countries and low- and middle-income countries (LMICs). When vaccines were developed, LMICs often paid higher prices and still found themselves at the back of the distribution line. Despite efforts in the Covid-19 Vaccines Global Access (COVAX) initiative to ensure equitable access, inequities persisted. A 2023 analysis of access to Covid-19 medical products summarized the biggest hurdle: "The political economy is structured to improve and lengthen the lives of those in the Global North while neglecting and shortening the lives of those in the Global South."
Mpox responses highlighted similar challenges but also showed what can be achieved with sufficient political will. In 2022, when cases surged in cities such as New York, Montreal, and Berlin, immunization campaigns were promptly rolled out. Meanwhile, as outbreaks intensified in Central and East Africa, diplomatic delays and sluggish vaccine-donation efforts hampered the global response. Of the 5.3 million mpox vaccine doses pledged globally, only a fraction have been delivered.
// Global health inequities persist because the systems intended to address them don't always deliver.
In December 2021, the WHO established an intergovernmental negotiating body to develop a global pandemic agreement aimed at rectifying problems revealed during the Covid-19 pandemic. Negotiators have reportedly reached a consensus on important proposals and report making progress on previous sticking points, including strengthening regulatory systems and geographically diversified production of health products. But discussions regarding equitable vaccine access and the transfer of technology and information for countermeasure production have reached a stalemate. Strong commitments and compliance mechanisms are essential for addressing entrenched inequities.
In the face of current and looming global health threats — including antimicrobial resistance, climate change, and new pandemics — action is urgently needed. Governments and multilateral global health organizations must improve access to existing countermeasures, leverage conditions on public funding and trial agreements to enhance access to new tools, and support local manufacturing in LMICs. The world has the tools to prevent suffering and death in places made vulnerable by a long history of global health inequity. The question is whether we will take the necessary steps to ensure that everyone has access to them.

Mental Health

40. Global Mental Health (Cambridge Prisms) 2025;12:e32
Effectiveness of psychological crisis interventions during infectious disease outbreaks in low- and middle-income countries: a systematic review of Randomized Control Trials
Yirdaw BA et al. < Biksegn.yirdaw@lshtm.ac.uk>

The huge mental health treatment gap in low- and middle-income countries (LMICs) is further exacerbated when infectious disease outbreaks occur. To address the increasing mental health needs during outbreaks, the availability of flexible and efficient mental health interventions is paramount, especially in low-resource settings where outbreaks are more common. Psychological interventions may help to address these mental health needs with efficient implementation costs. However, there is a huge paucity of quality evidence to inform psychosocial interventions during outbreaks. This systematic review sought to update the existing evidence to inform the effectiveness of psychological interventions that addresses mental health issues during outbreaks in LMICs.
Six electronic databases were searched – Scopus, PubMed, PsycINFO, Embase, Cochrane library and CINAHL. We included randomised controlled trials of psychological interventions aimed to address

common mental health conditions among adults affected by infectious disease outbreaks in LMICs. Studies were excluded if they were done among all age groups, used mixed interventions with pharmacotherapies, addressed severe mental health conditions and were published other than in English. The quality of evidence in the included trials was assessed using the Cochrane Collaboration risk of bias tool.
We included 17 trials that examined the effectiveness of psychological interventions among outbreak-affected adults in LMICs. The quality of studies was generally average but tended to provide evidence that brief psychoeducational interventions based on cognitive restructuring, mindfulness, relaxation and stress management techniques were effective in reducing perceived stress and anxiety symptoms, and in improving resilience and self-efficacy. Similarly, mindfulness-based interventions and mindfulness stress reduction treatments were effective in addressing depression, anxiety and generalised anxiety disorder.
Brief psychological interventions that can be delivered by non-specialists could have value in addressing the huge mental health needs in outbreak contexts.

41. Glob Ment Health (Camb) 2025;12:e31 doi: 10.1017/gmh.2025.19
Addressing the mental health needs of healthcare professionals in Africa: a scoping review of workplace interventions
Harri BI et al., Department of Psychiatry Dalhousie University, Halifax, NS, Canada

Healthcare workers in Africa face considerable stress due to factors like long working hours, heavy workloads and limited resources, leading to psychological distress. Generally, countries in the global north have well-established policies and employee wellness programs for mental health compared to countries in the global south. This scoping review aimed to synthesize evidence from published and grey literature on workplace mental health promotion interventions targeting African healthcare workers using Social Ecological Model (SEM) and the Job Demands-Resources (JD-R) model as an underlying theoretical framework for analysis. Arksey and O'Malley framework for scoping reviews was used. The search was conducted across multiple databases. A total of 5590 results were retrieved from Ovid MEDLINE, Ovid Embase, Ovid PsycINFO, Cochrane Library, CINAHL, Scopus and Web of Science. Seventeen (17) studies from ten (10) African countries were included after title, abstract and full text screening. Thematic analysis identified 5 key themes namely training programs, counselling services, peer support programs, relaxation techniques and informational resources. In conclusion, even though limited workplace mental health interventions for healthcare professionals were identified in Africa, individual-level interventions have been notably substantial in comparison to organizational and policy-level initiatives. Moving forward, a multi-faceted approach unique to the African context is essential.

42. Glob Ment Health (Camb) 2025;12:e29 doi: 10.1017/gmh.2025.18
Perspectives of traditional healers, faith healers, and biomedical providers about mental illness treatment: qualitative study from rural Uganda
Lee YJ et al., Department of Psychiatry, Yale University, New Haven, CT, USA

Most people with mental illness in low and middle-income countries (LMICs) do not receive biomedical treatment, though many seek care from traditional healers and faith healers. We conducted a qualitative study in Buyende District, Uganda, using framework analysis. Data collection included interviews with 24 traditional healers, 20 faith healers, and 23 biomedical providers, plus 4 focus group discussions. Interviews explored treatment approaches, provider relationships, and collaboration potential until theoretical saturation was reached. Three main themes emerged: (1) Biomedical providers' perspectives on traditional and faith healers; (2) Traditional and faith healers' views on biomedical providers; and (3) Collaboration opportunities and barriers. Biomedical providers viewed faith healers positively but traditional healers as potentially harmful. Traditional and faith healers valued biomedical approaches while feeling variably accepted. Interest in collaboration existed

across groups but was complicated by power dynamics, economic concerns, and differing mental illness conceptualizations. Traditional healers and faith healers routinely referred patients to biomedical providers, though reciprocal referrals were rare. The study reveals distinct dynamics among providers in rural Uganda, with historical colonial influences continuing to shape relationships and highlighting the need for integrated, contextually appropriate mental healthcare systems.

Non-Communicable Diseases

43. Lancet 2025;405(10479):609-10
World Report
"Silent but deadly": NCDs in sub-Saharan Africa
Thornton J.

(Abbreviated)
Ahead of the fourth UN High-Level Meeting on NCDs, the focus is shifting to Africa, with the Global NCD Alliance Forum held in the region for the first time.
For its first three editions, the Global NCD Alliance Forum—a meeting of civil society, policy makers, philanthropists, and academics—was held in Sharjah in the United Arab Emirates. The latest Forum, the largest so far with around 700 delegates from 89 countries, was intentionally organised in Kigali, Rwanda, to reflect the growing burden of non-communicable diseases (NCDs) in sub-Saharan Africa, and Rwanda's championing of public health reforms to reduce them. Organisers of the NCD Alliance (NCDA) said that the region was at the epicentre of the global epidemic of the four key NCDs: cardiovascular disease, diabetes, chronic respiratory conditions, and cancer.
NCDs now account for 37% of deaths in sub-Saharan Africa, an increase of 24% since 2000, and they are expected to surpass deaths due to HIV and AIDS, tuberculosis, and maternal mortality combined as the leading cause of mortality by 2030, making NCDs a "burning issue" for the region, NCDA Chief Executive Officer Katie Dain said. She added "the reason we're holding this forum in sub-Saharan Africa is with the intention of building momentum at the regional level, showcasing what's working across the continent and leaving a lasting legacy".
The Forum is timely because the first global target to reduce premature mortality from NCDs, adopted by the World Health Assembly in 2012 and known as 25 by 25 (ie, 25% reduction in mortality by 2025), runs out this year. However, this target was superseded by Sustainable Development Goal (SDG) 3.4, which introduced a goal of a one-third reduction in deaths between 30 years and 70 years of age from the four key NCDs by 2030.
In sub-Saharan Africa, policy makers are faced with a quadruple burden of communicable diseases, NCDs, maternal and child mortality, and injury-related conditions, compounded by unhealthy diets, tobacco use, air pollution, physical inactivity, urbanisation, and poverty. NCDs have not attracted the same global funding as communicable diseases, such as HIV. In 2022, less than 3% of development assistance was given to NCDs.
The Ministry of Health of Rwanda followed the WHO Package of Essential Noncommunicable Disease Interventions (PEN), which details a minimum set of interventions for less complex NCDs, such as type 2 diabetes and hypertension in primary care. But policy makers went further and pioneered decentralised services for type 1 diabetes, childhood heart disease, and sickle cell disease to district hospital level, initially in conjunction with non-governmental organisation, Partners In Health, now in a scheme known as PEN-Plus, a complementary programme to PEN in low-resource settings. Implementation is supported by the NCDI Poverty Network.
At the Forum's close, Alison Cox, Director of Policy and Advocacy at the NCD Alliance, told The Lancet it had provided a focus to show solidarity among the global health community and work out a rapid response. "It seems there is an opportunity for Global Health 2.0. Integrated health systems are going to be an important part of how we rebuild from here."

Ophthalmology

44. PLoS One 2024;19(12):e0315263 doi: 10.1371/journal.pone.0315263. eCollection 2024
Meta-Analysis
Through the fog: Systematic review and meta-analysis of the prevalence and associated factors of poor post-operative visual outcome of cataract surgery in Sub-Saharan Africa
Asmare AZ et al., Department of Ophthalmology, School of Medicine and Health Science, Debre Tabor University, Debre Tabor, Ethiopia

Background: Cataract, despite being treatable, persists to have a devastating impact on people's health and livelihoods all over the world. In Sub-Saharan Africa (SSA), 1.7 million people are blind and 6.94 million are visually impaired due to cataract. Also, Cataract surgery outcomes remain below the World Health Organization (WHO) recommendations in SSA. Hence, this review aimed to estimate the pooled prevalence and associated factors of poor post-operative visual outcome in SSA.
Method: An intensive literature search was performed from PubMed, Google Scholar, EMBASE, HINARI, Scopus, and Web of Sciences. Data were extracted by using a pre-tested and standardized data extraction format and analyzed by using STATA 17 statistical software. I2 tests to appraise the heterogeneity across the included studies, a random-effect model to estimate the pooled prevalence, and a sub-group analysis to discern the viable source of heterogeneity were executed. Potential publication bias was also assessed by funnel plot, Egger's weighted correlation, and Begg's regression. The odds ratio with its 95% confidence was used to reckon the association between the prevalence and factors.
Result: From 201 identified studies, 25 articles were included. The pooled prevalence of poor post-operative visual outcome of cataract surgery in SSA was 14.56% (95% CI 11.31, 17.81). The presence of intra-operative complications (AOR = 2.99, 95% CI: 1.79, 4.98) and the presence of post-operative complications (AOR = 3.56, 95% CI: 2.86, 4.43) were statistically significant with the pooled poor post-operative visual outcome. According to the subgroup analysis, the pooled prevalence of poor post-operative visual outcome was found lower in phacoemulsification, with a sub-pooled prevalence of 12.32% (95% CI 7.89, 16.74) compared to incisional with a sub-pooled prevalence of 16.28% (95% CI 10.98, 21.59).
Conclusion: This meta-analysis revealed that a substantial proportion of cataract-operated patients had poor post-operative visual outcome. The presence of intra-operative complications and post-operative complications were independent predictors of poor post-operative visual outcome. Therefore, improvement of post-operative visual outcome through decreasing intra-operative complications, managing post-operative complications, and investing in specialized training and equipment for ophthalmic surgeons are pivotal and need significant emphasis.

Sexual Reproductive Health and Rights

45. Am J TMH 2024;112(2):253-265 Print 2025 Feb
Effect of Indoor Residual Spraying on Malaria in Pregnancy and Pregnancy Outcomes: A Systematic Review
Oberlin A et al., Department of Obstetrics and Gynecology, Columbia University Irving Medical Center, New York, New York

Malaria in pregnancy increases maternal and perinatal morbidity and mortality. Indoor residual spraying (IRS) is a core vector control strategy used to reduce transmission in endemic areas; however, its efficacy in reducing the sequelae of malaria in pregnancy is not well described. PubMed, Embase, Cochrane, and Web of Science were searched for all studies assessing IRS exposure during pregnancy. Abstracts and full texts were reviewed independently by two researchers, with discrepancies adjudicated by a third. Of 3,319 studies that met the search criteria, 17 met the inclusion criteria. Thirteen studies reported on the effect of IRS on malaria endpoints during pregnancy, five on birth outcomes, and one on a fetal anomaly. Twelve of the 13 studies exploring maternal malaria and 3 of 3

studies reporting on placental malaria demonstrated a reduction among those exposed to IRS during pregnancy. Results were more mixed for obstetric outcomes. Two of the best-quality studies showed reductions in preterm birth, low birthweight, and fetal/neonatal mortality; a third high-quality study did not demonstrate a reduction in perinatal mortality but did not evaluate preterm birth. One study found a significantly increased risk of preterm birth in those exposed to IRS, although the study was of lower quality. A final study demonstrated a small, although statistically significant, association between IRS and male urogenital birth defects. In malaria-endemic areas, the published literature suggests that IRS during pregnancy reduces the incidence of malaria parasitemia. However, without high-quality prospective studies directly examining IRS in pregnancy, the impact on birth outcomes is less clear.

46. Am J TMH 2024;112(3):692-698 Print 2025 Mar 5
Prenatal Hemoglobin Concentration and Long-Term Child Neurocognitive Development
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Anemia in pregnancy, defined by a hemoglobin level (Hb) of less than 110 g/L, contributes to infant mortality and morbidity in sub-Saharan Africa. Maternal Hb changes physiologically and pathologically during pregnancy. However, the impact of these changes on long-term child neurocognitive function is unknown. This study therefore investigates the association between Hb at specific antenatal care visits and prenatal Hb trajectories during pregnancy and long-term child neurocognitive function. We analyzed data from a prospective cohort study that included 6-year-old singleton children born to women enrolled before 29 weeks of gestation into an antimalarial drug clinical trial. Hemoglobin level was analyzed from venous blood collected at least twice during pregnancy and at delivery. We used group-based trajectory modeling to identify distinct prenatal Hb trajectories. In total, 478 children (75.1% of eligible children) had assessment of cognitive and motor functions at 6 years of age. Three distinct Hb trajectories were identified: persistently anemic (Hb <110 g/L throughout the second and third trimesters), anemic to nonanemic (Hb <110 g/L at second trimester with increasing Hb toward the third trimester to Hb ≥110 g/L), and persistently nonanemic (Hb ≥110 g/L throughout the second and third trimesters). Children of women in the persistently anemic and anemic-to-nonanemic groups had significantly lower neurocognitive scores than children of women in the persistently nonanemic group (β = -6.8, 95% CI: -11.7 to -1.8; and β = -6.3, 95% CI: -10.4 to -2.2, respectively). The study shows that maintaining an elevation of Hb at or above 110 g/L from the second to third trimester of pregnancy may be associated with optimal long-term child neurocognitive function.

47. BMJ Global Health 2025;10:e017337
Levels and determinants of person-centred maternity care among women living in urban informal settlements: evidence from client exit surveys in Nairobi, Lusaka and Ouagadougou
Jiwani SS et al., Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA <sjiwani1@jhu.edu>

Background Sub-Saharan Africa's rapid urbanisation has led to the sprawling of urban informal settlements. The urban poorest women are more likely to experience worse health outcomes and poor treatment during childbirth. This study measures levels of person-centred maternity care (PCMC) and identifies determinants of PCMC among women living in urban informal settlements in Nairobi, Lusaka and Ouagadougou.
Methods We conducted phone, home-based or facility-based exit surveys of women discharged from childbirth care in facilities serving urban informal settlements. We estimated overall and domain-specific PCMC scores covering dignity and respect, communication and autonomy, and supportive care. We ran multilevel linear regression models to identify structural, intermediary and health systems factors associated with PCMC.
Results We included 1249 women discharged from childbirth care: the majority were aged 20–34 years and were unemployed. In Lusaka and Nairobi, over 65% of women had secondary education, and over half gave birth in a hospital, whereas in Ouagadougou one-third had secondary education and

30.4% gave birth in a hospital. The mean PCMC score ranged from 57.1% in Lusaka to 73.8% in Ouagadougou. Across cities, women reported high dignity and respect mean scores (73.5%–84.3%), whereas communication and autonomy mean scores were consistently poor (47.6%–63.2%). In Ouagadougou, women with formal employment, those who delivered in a private for-profit facility, and whose newborn received postnatal care before discharge reported significantly higher PCMC. In Nairobi and Lusaka, women who were attended by a physician during childbirth, and those whose newborn was checked before discharge reported significantly higher PCMC.
Conclusions Women living in urban informal settlements experience inadequate PCMC and report poor communication with health providers. Select health systems and provision of care factors are associated with PCMC in this context. Quality improvement efforts are needed to enhance PCMC and ensure women's continuity in care seeking.

48. Lancet Glob Health 2025;13(2):e285-e297
Epidemiology of menstrual-related absenteeism in 44 low-income and middle-income countries: a cross-sectional analysis of Multiple Indicator Cluster Surveys
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Background: Menstrual-related absenteeism from work, school, or social activities is an important functional indicator of poor menstrual health that disrupts women's and girls' daily lives and exacerbates gender inequality. We sought to estimate the prevalence of and factors contributing to menstrual-related absenteeism across low-income and middle-income countries.
Methods: We analysed cross-sectional data from 47 nationally or subnationally representative Multiple Indicator Cluster Surveys from 2017 to 2023, which comprised 3 193 042 individuals from 555 869 households across 44 countries; those with available information on the outcome of interest were included in our analysis. The outcome of interest was menstrual-related absenteeism from work, school, or social activities during the respondent's last menstrual period. Independent factors included age, household wealth index, use (vs no use) of menstrual materials (eg, pads, tampons, or cloth), availability of a private place to wash at home during menstruation, and contraceptive use (hormonal and other). Univariable and multivariable associations between each factor and menstrual-related absenteeism were analysed using log-binomial models. Prevalence ratios, estimated from the log-binomial models, represent the relative prevalence of menstrual-related absenteeism across different levels of the independent variables. Prevalences and associations were pooled by geographical region and overall across all surveys using a random-effects meta-analysis. Heterogeneity was assessed using the I2 statistic, and prediction intervals generated to reflect the variation in associations.
Findings: We included 673 380 women and girls aged 15-49 years in this analysis. The overall pooled prevalence of menstrual-related absenteeism was 15·0% (95% CI 12·7-17·3), with prevalence being highest in south Asia (19·7% [11·6-27·8]) and west and central Africa (18·5% [13·5-23·5]). After pooling data across surveys, girls aged 15-19 years were found to have a higher prevalence of menstrual-related absenteeism than those in older age groups, with overall pooled prevalence ratios ranging from 0·75 (0·68-0·82) in those aged 35-39 years to 0·92 (0·87-0·97) in those aged 20-24 years relative to the 15-19 years age group, with adjustment for area type (urban or rural). There was no association between menstrual-related absenteeism and household wealth or the use of menstrual materials. By contrast, having a private place to wash at home was associated with an increased prevalence of menstrual-related absenteeism (overall pooled prevalence ratio 1·25 [1·05-1·48], adjusted for wealth and area type). Menstrual-related absenteeism was less prevalent in women and girls using any contraceptives compared with those not using contraceptives (0·92 [0·87-0·96]), and for those using hormonal contraceptives compared with those using non-hormonal or no contraceptives (0·91 [0·84-0·99]), after adjusting for age, wealth, education level, parity, and area type.
Interpretation: Menstrual-related absenteeism is prevalent, especially in Asia and Africa and among adolescent girls. The age-independent protective effect of hormonal contraceptive use suggests that

symptoms such as heavy menstrual bleeding or pain contribute to absenteeism. Future studies are urgently needed to better characterise these findings to inform relevant public health interventions.

49. Lancet Glob Health 2025;13(2):e298-e308
The effects of prenatal multiple micronutrient supplementation and small-quantity lipid-based nutrient supplementation on small vulnerable newborn types in low-income and middle-income countries: a meta-analysis of individual participant data
Wang D et al., Department of Global and Community Health, College of Public Health, George Mason University, Fairfax, VA, USA and Gestational Weight Gain Pooling Project Consortium <dwang25@gmu.edu>

Background: Small vulnerable newborn types, defined by combinations of being born too soon or too small, have distinct determinants and health consequences. We aimed to assess the effects of prenatal multiple micronutrient supplementation (MMS) and small-quantity lipid-based nutrient supplementation (SQ-LNS) on small vulnerable newborn types, which are currently unknown.
Methods: In this meta-analysis, individual participant data from randomised controlled trials of MMS and randomised controlled trials of SQ-LNS in low-income and middle-income countries were used. We systematically searched the literature using PubMed, Embase, and Web of Science to identify randomised controlled trials of prenatal nutritional supplementation using MMS or SQ-LNS among pregnant people published between Jan 1, 2000, and Dec 31, 2021. Studies were excluded if they were conducted exclusively among participants selected by pre-existing health conditions, such as anaemia status, HIV infection, or diabetes. We contacted the corresponding authors of all identified studies to seek data contribution. As individual participant data became available, we mapped relevant variables and harmonised the data across studies. Iron and folic acid supplementation was the control group in most studies. Newborns were classified into ten groups through the combinations of preterm or term birth, small, appropriate, and large for gestational age, and low birthweight (LBW) or non-LBW. Newborns were also analysed using a four-group categorisation of preterm or term and LBW or non-LBW. Log-binomial models were used to estimate study-specific risk ratios (RRs), which were pooled using meta-analyses.
Findings: 14 randomised controlled trials of MMS (n=42 618; the mean maternal age at study enrolment was 24·3 years [SD 5.6]; 22 086 [51·8%] male neonates and 20 532 [48·2%] female neonates) and four randomised controlled trials of SQ-LNS (n=6246; the mean maternal age at study enrolment was 23·3 years [SD 5·3]; 3137 [50·2%] male neonates and 3109 [49·8%] female neonates) were used. In the ten-group categorisation of small vulnerable newborns, prenatal MMS reduced the risk of preterm-small for gestational age (SGA)-LBW (RR 0·73, 95% CI 0·64-0·84; p=0·0003); preterm-appropriate for gestational age (AGA)-LBW (0·82, 0·74-0·91; p=0·0010); preterm-AGA-non-LBW (0·89, 0·80-0·98; p=0·019); term-SGA-LBW (0·91, 0·85-0·96; p=0·0046); and term-SGA-non-LBW (0·95, 0·90-1·00; p=0·050). In the four-group categorisation, prenatal MMS reduced the risk of preterm-SGA (0·71, 0·62-0·82; p=0·0002) and term-SGA (0·93, 0·89-0·98; p=0·0066). Prenatal SQ-LNS had no significant effects on the risk of giving birth to small vulnerable newborns except for preterm-large for gestational age-non-LBW in the ten-group categorisation (0·78, 0·65-0·94; p=0·023).
Interpretation: Prenatal MMS and SQ-LNS reduce the risk of giving birth to small vulnerable newborns to varying extents, with the greatest magnitude of effects observed for small vulnerable newborn types that confer the greatest neonatal mortality risk. This study underscores the importance of nutritional supplements in prenatal care.

50. Lancet Glob Health 2025;13(4):e626-e634 doi:10.1016/S2214-109X(24)00560-6 Epub 2025 Mar 8
Global and regional causes of maternal deaths 2009-20: a WHO systematic analysis
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Background: Maternal mortality is not on track to meet Sustainable Development Goal (SDG) target 3.1 of a global maternal mortality ratio below 70 per 100 000 livebirths by 2030. Updated evidence on causes of death is needed to accelerate progress.
Methods: We conducted a multi-strategy systematic review to identify causes of maternal deaths occurring in 2009-20. Data sources included civil registration and vital statistics systems data from the WHO Mortality Database, reports published by Member States, and national and subnational journal articles identified via bibliographic databases. We used a Bayesian hierarchical model to estimate the maternal cause of death distribution by SDG regions and worldwide. Given the paucity of data on maternal suicide and late maternal deaths occurring beyond 42 days postpartum, additional analyses were conducted to estimate the proportion of maternal deaths from suicide and the ratio of maternal to late maternal deaths (all cause).
Findings: Globally, the most common cause of maternal death was haemorrhage (27%; 80% uncertainty interval 22-32), followed by indirect obstetric deaths (23%, 18-30), and hypertensive disorders (16%, 14-19). The proportion of haemorrhage deaths varied substantially by region and was highest in sub-Saharan Africa and Western Asia and Northern Africa. The proportion of maternal deaths from hypertensive disorders was highest in Latin America and the Caribbean. Most maternal deaths from haemorrhage and sepsis occurred during the postpartum period. Only 12 countries recorded one or more maternal suicides; of those countries, the proportion of deaths from suicide ranged from below 1% to 26% of maternal deaths. For countries reporting at least one late maternal death (ie, deaths that occur more than 42 days but less than 1 year after the termination of pregnancy), the ratio of late maternal deaths to maternal deaths up to 42 days ranged from <0·01 to 0·07.
Interpretation: Haemorrhage remains the leading cause of death, despite the existence of effective clinical interventions, emphasising the need for improved access to quality health care. The timing of most deaths in the postpartum period demands renewed commitment to improving the provision of postpartum care in addition to intrapartum care. Indirect causes of death require health system approaches to integrate obstetric and non-obstetric care.

51. NEJM 2025;392(11):1100-10
Outcomes of a Program to Reduce Birth-Related Mortality in Tanzania
Kamala BA et al., for the Safer Births Bundle of Care Study Group, Department of Simulation-Based Learning, Stavanger University Hospital, Norway. Correspondence to H Ersdal <hege.ersdal@safer.net>

Background:Birth-related mortality is a major contributor to the burden of deaths worldwide, especially in low-income countries. The Safer Births Bundle of Care program is a combination of interventions developed to improve the quality of care for mother and baby with the goal of reducing birth-related mortality.
Methods: We performed a 3-year stepped-wedge cluster-randomized study of the Safer Births program at 30 high-burden facilities in five regions in Tanzania. The bundle of interventions in the program was aimed at continuous quality improvement through regular onsite simulation-based training, the collection and use of local clinical data, the assistance of trained local facilitators, and the use of innovative tools for perinatal care. The primary outcome was perinatal death, which included intrapartum stillbirth (suspected death during labor) and neonatal death within the first 24 hours after birth.
Results: A total of 281,165 mothers and 277,734 babies were included in the final analysis. The estimated incidence of perinatal death decreased from 15.3 deaths per 1000 births in the baseline period of the program to 12.5 deaths per 1000 births after implementation (adjusted relative risk, 0.82; 95% confidence interval [CI], 0.73 to 0.92; P=0.001), with substantial heterogeneity among regions. The incidence of intrapartum stillbirths was 8.6 deaths per 1000 births in the baseline period and 8.7 deaths per 1000 births after implementation (adjusted relative risk, 1.01; 95% CI, 0.87 to 1.17), and the incidence of neonatal deaths within the first 24 hours after birth was 6.4 and 3.9 deaths per 1000

births, respectively (adjusted relative risk, 0.61; 95% CI, 0.49 to 0.77). No serious adverse events were reported.
Conclusions: Implementation of the Safer Births Bundle of Care program showed the feasibility of integrating quality-improvement efforts targeting birth-related emergencies in resource-limited settings and was associated with a significant reduction in perinatal mortality.

52. Plos Med 2024;21(12):e1004497
Cervical cesarean damage as a growing clinical problem: The association between in-labour cesarean section and recurrent preterm birth in subsequent pregnancies
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The rate of cesarean section has been increasing globally over several decades. Between 1990 and 2014, there was an absolute increase in cesarean section rate of 12.4%, translating to 1 in 5 women delivering by cesarean section worldwide. In England, over 1 in 3 women deliver by cesarean section, and 24% of all deliveries are by emergency cesarean section, of which 5% are performed on women at full cervical dilatation. Overall, the rates of full dilatation cesarean section are on the rise, with an increase of 44% in 10 years reported in North America. It is considered that changes in professional training and practice, increasing fear of litigation, as well as social, and cultural expectations are all contributory factors to the rise in in-labour and full dilatation cesarean section.
Cesarean section is a necessary and life-saving procedure when complications arise during pregnancy and labour, but it can have important implications for future pregnancies. Emergency cesarean section, particularly when performed late in labour, is associated with preterm birth in subsequent pregnancies. There is a body of evidence, primarily from observational studies, which has shown an association between delivery by in-labour cesarean section and an increased risk of subsequent mid-trimester loss (defined in the United Kingdom as delivery after 13 weeks and before 24 weeks gestation), and spontaneous preterm birth (sPTB) (delivery before 37 completed weeks gestation). Risks appear to be greater with increasing dilatation and are highest when the cervix is fully dilated. For most women who have had an in-labour cesarean section, the risk of preterm birth in subsequent pregnancies remains low (<5%). However, in the small number of women who have a subsequent preterm birth following an in-labour cesarean section, this is more likely to recur in a future pregnancy.
// The association between mid-trimester loss and sPTB following an in-labour cesarean section indicates a growing clinical problem. The increasing number of in-labour cesarean section needs to be addressed through supporting professional training in the management of labour and instrumental delivery. Further research is required to determine the exact underlying mechanisms of cervical damage during in-labour cesarean sections and methods to minimise injury to the cervix intra-operatively. There is a need to identify optimum management strategies for this cohort of women who may be at higher risk of mid-trimester loss and sPTB, particularly as standard treatments appear to have a high failure rate. Optimal imaging protocols need to be established and the value of interventions once risk has been established needs to be evaluated. Cesarean sections are the most common surgery in the world, affecting nearly one quarter of women. Cervical cesarean damage and its potential implications for future pregnancies need to be recognised and considered in management plans and shared decision-making between women and clinicians.

Miscellaneous

53. BMJ Global Health 2025;10:e016607
Design, implementation and outcomes of a national oxygen distribution network in Lesotho
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Background. Despite its essential and life-saving role in the treatment of many medical conditions, access to medical oxygen remains limited in many countries. In 2021, Partners In Health established an oxygen distribution network in Lesotho to increase medical oxygen access.
Methods. We conducted an observational study reporting on the design, implementation, and outcomes of a national oxygen distribution network in Lesotho from November 2022 through January 2024. Oxygen delivery data were abstracted from tracking logs and analysed in Stata. Continuous and ordinal variables were summarised by medians and ranges. Categorical variables were described using frequencies and proportions.
Results. Over the 15 month study period, the network expanded from one oxygen production hub serving five recipients to four hubs and 21 recipients located across nine of Lesotho's 10 districts. The network delivered 1565 filled cylinders containing 9619.23 m3 oxygen, enough to treat 601 patients. For the 13 recipients with inpatient beds, the median monthly volume of oxygen delivered per bed was 1.43 m3 (IQR: 0.57 to 2.31).
Conclusion. This study demonstrates the feasibility of an oxygen distribution network in Lesotho, providing proof-of-concept for an intervention to improve oxygen access in low- and middle-income countries. By employing real-time monitoring and redundant sourcing, the network provided a reliable oxygen supply responsive to variations in demand and periods of oxygen plant downtime. This study also provides insights into facility-level oxygen consumption, which may help policymakers improve quantification and prediction of oxygen demand. Future efforts should focus on enhancing data collection, characterising oxygen usage and strengthening infrastructure to promote sustainable oxygen security.

54. JAMA 2025;Mar 5 PMID: 40042945 doi: 10.1001/jama.2025.1959 [Online ahead of print]
Pulse Oximetry and Skin Pigmentation-New Guidance From the FDA
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In January 2025, the US Food and Drug Administration (FDA) issued new draft regulatory guidance for pulse oximeters that aims to reduce disparities in device performance related to skin pigment.The updates have been anticipated for years, especially since multiple studies during the COVID-19 pandemic linked health and health care disparities with worse pulse oximeter performance in people who self-identified as Black. Although the new draft guidance is a great step forward, without refinement, it may have several unintended negative consequences.

55. Lancet 2025;405(10477):454
World Report
Health worker lay-offs in east Africa following US aid freeze
Nakweya G.

(Abbreviated)
HIV services have been hit particularly hard, as clinics close across Kenya, Tanzania, and Uganda.
East Africa is facing a surge in HIV infections following the US Government's freeze on international aid and stop-work orders on USAID programmes, according to advocates. Executive orders signed by President Donald Trump have caused confusion among health workers whose contracts under USAID projects have been terminated, while programmes for HIV testing, cervical cancer screening among women living with HIV, post- gender-based violence care services, and access to antiretroviral therapy have all been halted.
The pause on all work supported by the President's Emergency Plan for AIDS Relief (PEPFAR) for at least 90 days has put HIV projects in east Africa in disarray.
Uganda and Kenya largely depend on PEPFAR funding and the freeze means that close to 70% of HIV budgets in these countries has been cut. Kenya, Uganda, and Tanzania rely on PEPFAR grants to

support gender-based violence services including provision of rape kits, HIV testing, post-exposure prophylaxis, and counselling services.
Kisumu health committee Executive Secretary Gregory Ganda said the US Government had halted all its programmes in the county, with more than 20% of its health-care workforce, including doctors, clinical officers, nurses, pharmacists, and community health workers, laid off.
Last year, PEPFAR supported HIV tests for 228 010 people daily. About 65% of these tests were administered in Uganda, Tanzania, South Africa, Mozambique, and Nigeria.
"We have told patients that we will transfer them to the public facilities in the county so that they continue with medication", said Ganda "We have no option but to work with what we have…we now need to establish comprehensive HIV clinics in every public hospital", said Ganda. The Director General in Kenya's Ministry of Health, Dr Patrick Amoth, has assured Kenyans that the country will ensure sufficient supply of antiretroviral drugs so that patients do not miss treatment.
But Erick Okioma, who has HIV and is a leader at the Nelson Mandela TB/HIV community information and resource centre in Kisumu, said that public hospitals might limit patients' visits. "HIV is a social disease, with all the stigma…the closed clinics were our safe spaces", said Okioma. Okioma fears that people might stop taking medicine.

56. Lancet 2025;405(10480):715-24
Multicenter Study
The African Critical Illness Outcomes Study (ACIOS): a point prevalence study of critical illness in 22 nations in Africa
African Critical Illness Outcomes Study (ACIOS) Investigators. Correspondence to T Baker <tim.baker@ki.se>

Background: Critical illness represents a major global health-care burden and critical care is an essential component of hospital care. There are few data describing the prevalence, treatment, and outcomes of critically ill patients in African hospitals.
Methods: This was an international, prospective, point prevalence study in acute hospitals across Africa. Investigators examined all inpatients aged 18 years or older, regardless of location, to assess the coprimary outcomes of critical illness and 7-day mortality. Patients were classified as critically ill if at least one vital sign was severely deranged. Data were collected for the available resources at each hospital and care provided to patients.
Findings: We included 19 872 patients from 180 hospitals in 22 African countries or territories between September, 2023 and December, 2023. The median age was 40 (IQR 29-59) years, and 11 078/19 862 (55·8%) patients were women. There were 967/19 780 (4·9%) deaths. On census day, 2461/19 743 (12·5%) patients were critically ill, with 1688/2459 (68·6%) cared for in general wards. Among the critically ill, 507/2450 (20·7%) patients died in hospital. Mortality for non-critically ill patients was 458/17 205 (2·7%). Critical illness on census day was independently associated with subsequent in-hospital mortality (adjusted odds ratio 7·72 [6·65-8·95]). Of the critically ill patients with respiratory failure, 557/1151 (48·4%) were receiving oxygen; of the patients with circulatory failure, 521/965 (54·0%) were receiving intravenous fluids or vasopressors; and of patients with low conscious level, 387/784 (49·4%) were receiving an airway intervention or placed in the recovery position.
Interpretation: One in eight patients in hospitals in Africa are critically ill, of whom one in five dies within 7 days. Most critically ill patients are cared for in general wards, and most do not receive the essential emergency and critical care treatments they require. Our findings suggest a high burden of critical illness in Africa and that improving the care of critically ill patients would have the potential to save many lives.

57. Lancet Glob Health 2025;13(2):e222-e231
The prevalence of hypoxaemia in paediatric and adult patients in health-care facilities in low-income and middle-income countries: a systematic review and meta-analysis

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Background: Hypoxaemia (low oxygen saturation in blood) is a key predictor of in-hospital mortality, affecting people of all ages with many different conditions. Early detection and treatment of hypoxaemia are critical, but there are few data to quantify hypoxaemia burden outside the child pneumonia population. We aimed to estimate hypoxaemia prevalence for adults and children with acute illness attending health facilities in low-income and middle-income countries (LMICs).
Methods: We conducted a systematic review and meta-analysis, searching MEDLINE, PubMed, Embase, Cumulated Index in Nursing and Allied Health Literature, Index Medicus, and Google Scholar for studies reporting hypoxaemia prevalence among patients attending health facilities. We included articles with original data on peripheral blood oxygen saturation (SpO2), from an LMIC, published between Jan 1, 1998, and Jan 10, 2023. We included studies in acutely unwell people of any age and with any condition, but excluded those admitted to intensive care units, receiving perioperative care, or attending hospital for preventive or chronic care. We assessed study quality using Joanna Briggs Institute's Checklist for Prevalence Studies. Two reviewers independently conducted title and abstract screening, full-text review, data extraction, and quality assessment, requesting summary data from authors. We reported pooled prevalence of hypoxaemia (typically defined as SpO2 <90%) overall and by condition, using a random-effects meta-analysis model. This study is registered with PROSPERO, CRD42019136622.
Findings: We identified 9173 unique records from searches and included 213 in meta-analyses involving 601 757 participants. The majority of studies were from the World Bank regions of sub-Saharan Africa (108 [51%] of 213) or south Asia (58 [27%]). The pooled prevalence of hypoxaemia among admitted patients was 24·5% (95% CI 19·9-29·4) for neonates (aged 0-28 days), 12·1% (10·0-14·4) for children (aged 1 month-17 years), and 10·8% (4·9-18·7) for adults (aged ≥18 years). Hypoxaemia prevalence was highest in neonatal and primary respiratory conditions but still common in many other conditions. Hypoxaemia was associated with 4·84 (95% CI 4·11-5·69) times higher odds of death than no hypoxaemia.
Interpretation: Hypoxaemia is common across all age groups and a range of primary respiratory and other critical illnesses and is strongly associated with death. These estimates will inform oxygen-related strategies and programmes, and integration of pulse oximetry and oxygen into clinical guidelines, service structures, and strategies for maternal, neonatal, child, adolescent, and adult health.

58. TMIH 2025;30(2):84-92
Knowledge of local snakes, first-aid and prevention of snakebites among community health workers and community members in rural Malawi: A cross-sectional study
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Objective: Snakebite envenoming remains a public health threat in many tropical countries. While community knowledge of local snakes and snakebite first-aid and prevention are needed to reduce snakebite incidence and improve the outcomes for snakebite patients, it is poor in many communities. We assessed community health workers and community members regarding their knowledge on local snakes, snakebite first-aid and prevention in Neno district, Malawi.
Methods: In November 2022, we conducted a cross-sectional survey among 312 community health workers and 379 community members in the Neno District of Malawi to assess their knowledge of snake identification, snakebite first-aid, and prevention. Different questions were asked in these sections and summarised as linear scores ranging from 0% to 100%. Scores of 0%-49%, 50%-70%, and >70% were considered inadequate, fairly adequate, and adequate, respectively. Along with data collected during knowledge assessments, the socio-demographic characteristics of participants were collected. To assess knowledge differences between community health workers and community

members, Pearson's chi-square or Fisher's exact tests were used, and linear regression was calculated to investigate possible predictors of knowledge.
Results: Overall, 66.6% of participants were females with a median age of 39 (IQR = 30-48) years. Of the 89% (n = 615) who agreed to view snake pictures, only 1.3% had adequate snake identification knowledge. Less than 5% (n = 33) had adequate knowledge of first aid measures, and 14.3% (n = 99) had adequate knowledge of prevention practices. Overall, less than 1% (n = 3) had adequate knowledge across the three assessment sections, with no significant difference between community health workers (n = 1, 0.3%) and community members (n = 2, 0.5%) ($p > 0.949$).
Conclusion: Both community health workers and community members had inadequate knowledge regarding local snake species, first aid for snakebites and prevention measures. The effect of awareness campaigns and other education initiatives could be explored to help improve these gaps.