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Adolescent Health

1. World Health Organization 2014

Health for the World's Adolescents: A second chance in the second decade

What must we do to improve and maintain the health of the world's one billion adolescents? Health for the world's adolescents is a World Health Organization (WHO) report fully addressing that question across the broad range of health needs of people ages 10–19 years. It was presented to Member States at the 2014 World Health Assembly in follow-up to its 2011 Resolution 64.28, Youth and health risks. Health for the world's adolescents is a dynamic, multimedia, online report (who.int/adolescent/second-decade). It describes why adolescents need specific attention, distinct from children and adults. It presents a global overview of adolescents' health and health-related behaviours, including the latest data and trends, and discusses the determinants that influence their health and behaviours. It features adolescents' own perspectives on their health needs.

The report brings together all WHO guidance concerning adolescents across the full spectrum of health issues. It offers a state-of-the-art overview of four core areas for health sector action:

• providing health services
• collecting and using the data needed to advocate, plan and monitor health sector interventions
• developing and implementing health-promoting and health-protecting policies and
• mobilizing and supporting other sectors.

The report concludes with key actions for strengthening national health sector responses to adolescent health. The website will be the springboard for consultation with a wide range of stakeholders leading to a concerted action plan for adolescents. The report seeks to focus high-level attention on health in the crucial adolescent years and to provide the evidence for action across the range of adolescent health issues. Thus, it addresses primarily senior and mid-level staff of ministries of health and health sector partners, such as nongovernmental organizations, United Nations organizations and funders. It will likely interest many others, too – for example, advocates, service providers, educators and young people themselves.

The report has benefited from the contribution and inputs of WHO experts at country, regional and global levels and across health issues including use of alcohol and other psychoactive substances, HIV, injuries, mental health, nutrition, sexual and reproductive health, tobacco use and violence.

This document highlights key aspects of the report Health for the world's adolescents.

Child Health

2. IJE 2014;43(3):645-653

The non-specific effects of vaccines and other childhood interventions: the contribution of INDEPTH Health and Demographic Surveillance Systems

Sankoh O., et al. Corresponding author. INDEPTH Network, P.O. Box KD 213 Kanda, Accra, Ghana <osman.sankoh@indepth-network.org>

Most childhood interventions (vaccines, micronutrients) in low-income countries are justified by their assumed effect on child survival. However, usually the interventions have only been studied with respect to their disease/deficiency-specific effects and not for their overall effects on morbidity and mortality. In many situations, the population-based effects have been very different from the anticipated effects; for example, the measles-preventive high-titre measles vaccine was associated with 2-fold increased female mortality; BCG reduces neonatal mortality although children do not die of tuberculosis in the neonatal period; vitamin A may be associated with increased or reduced child mortality in different situations; effects of interventions may differ for boys and girls. The reasons for these and other contrasts between expectations and observations are likely to be that the immune system learns more than specific prevention from an intervention; such training may enhance or reduce susceptibility to unrelated infections. INDEPTH member centres have been in an ideal position to document such additional non-specific effects of interventions because they follow the total population long term. It is proposed that more INDEPTH member centres extend their routine data collection platform to better measure the use and effects of childhood interventions. In a longer perspective, INDEPTH may come to play a stronger role in defining health research issues of relevance to low-income countries.

Key Messages:

- Interventions with vaccines and vitamin A have non-specific effects on child survival, i.e. effects not explained by prevention of specific diseases or deficiency.

- Live vaccines have beneficial effects which are more important than the specific prevention. Inactivated vaccines may have negative effects particularly for girls.
- Non-specific effects often differ for girls and boys.

INDEPTH centres are in an ideal position to monitor non-specific effects of common childhood interventions.

3. IJE 2014;43(3):653-654

Commentary: Potential implications of non-specific effects of childhood vaccines

Sachdev HS, Department of Pediatrics and Clinical Epidemiology, Sitaram Bhartia Institute of Science and Research, New Delhi <hpssachdev@gmail.com>

The World Health Organization states that: 'A vaccine is a biological preparation that improves immunity to a particular disease. A vaccine typically contains an agent that resembles a disease-causing microorganism, and is often made from weakened or killed forms of the microbe, its toxins or one of its surface proteins. The agent stimulates the body's immune system to recognize the agent as foreign, destroy it, and 'remember' it, so that the immune system can more easily recognize and destroy any of these microorganisms that it later encounters'. This statement is in conformity with the usual scientific and lay perceptions that vaccines have only specific disease-protective effects. However, historically it has been suspected that Vaccinia and BCG vaccination confer protection against non-targeted infectious diseases. Emerging evidence suggests that vaccines can positively or negatively affect the resistance to other infectious diseases—the so-called non-specific effects of vaccines or non-specific immunomodulation by vaccines.The bulk of this evidence has been generated from Guinea-Bissau by researchers led by Peter Aaby. The current status of global evidence has been summarized by them in this issue of IJE and elsewhere. On this basis, they also suggest a new definition of vaccines: 'A vaccine is a biological preparation that improves immunity to a particular disease and at the same time, may alter the general level of resistance towards unrelated pathogens in the recipient'.

If this perception is indeed true, it may have important public health implications especially in relation to child survival in high-mortality settings. The relevant findings are: (i) BCG and measles vaccinations reduce mortality from non-targeted infectious diseases till the child receives an inactivated vaccine; (ii) whole cell DTP vaccine increases mortality from infections other than diphtheria, tetanus and pertussis until a live vaccine is given; the effect is stronger in females than in males; and (iii) live and killed vaccines may interact to produce good or bad non-specific effects when given simultaneously or when the sequence is changed, and the effect may be modified by Vitamin A. There may well be potential implications for high-income countries, if the following observations are confirmed: (i) in Danish children, rates of hospital admission for any infection were lower in children most recently vaccinated with live MMR vs those most recently receiving inactivated DTaP-IPV-Hib; and (ii) BCG vaccination had a small protective effect against development of asthma.

Given the current state of uncertain evidence, is any modification desirable in the Expanded Programme on Immunisation (EPI) schedule in high-mortality settings? If BCG and measles vaccinations result in additional non-targeted mortality reduction, this should provide impetus for maximizing coverage for BCG inoculation around birth and for two doses of measles vaccination at the recommended ages. Stopping DTP vaccination is not an option because of the risk of resurgence of these serious diseases. However, modifications in the sequencing and timing of the EPI schedule are worth exploring. Currently, DTP is the most recent vaccine for 50 of the first 60 months of life—the vulnerable period, according to the non-specific effect observations. This period can be reduced to 4 months by two additional doses of measles vaccine (at 18 weeks and 19 months) or to 3 months by advancing the measles immunization to 14 weeks and 13 months. It has been extrapolated that these minor modifications in the immunization schedule could reduce child mortality by at least 30%. However, there is insufficient justification to lower the age of first measles vaccination below 9 months until concerns about vaccine failure are addressed in different settings, particularly those with low measles transmission.

There is an immediate need to generate robust evidence to settle this continuing debate.Multi-centric randomized controlled trials in high-mortality settings should examine the benefits and safety of modifications in the sequence and timing of the EPI immunization schedule on a priority. In March 2013, WHO's Strategic Advisory Group of Experts (SAGE) constituted a Working Group to revisit the issue of non-specific effects of vaccines included in the routine immunization schedule. Their specific mandate was to determine if the current evidence is sufficient to lead to adjustments in policy recommendations or to warrant further scientific investigation, and if so, to define the path towards obtaining unequivocal evidence on these issues that would support future robust, evidence-based adjustments in immunization policies, if warranted.

Communicable Diseases

4. BMJ 2014;348

News: Novel drug combination for tuberculosis to be tested across 50 sites

Bagcchi S.

A new phase III clinical trial of a novel combination of three drugs for tuberculosis (TB) is set to be launched by the end of the year in 50 sites across Africa, Asia, eastern Europe, and Latin America, the charity TB Alliance has said.

The STAND (Shortening Treatments by Advancing Novel Drugs) trial will evaluate the drug combination known as PaMZ, which contains two candidate drugs that are not yet licensed for the treatment of tuberculosis, PA-824 (Pa) and moxifloxacin (M), and one existing antituberculosis drug, pyrazinamide (Z).

Study results have shown that PaMZ has the potential to treat patients with drug sensitive and drug resistant disease and to dramatically shorten treatment times for some patients. In July 2012, a two week study published in the Lancet showed that PaMZ seemed to kill bacteria more quickly than standard treatment. Findings from a subsequent two month study are expected to be published later this year.

Bill Gates, co-chair of the Bill & Melinda Gates Foundation, who announced the trial, committed extensive funding to determine the safety and efficacy of the new drug regimen. He called on other organisations to support the effort to develop new treatments for tuberculosis.

"The results from early phase research suggest that this new drug regimen could provide the breakthrough we need to accelerate progress against this deadly and dangerous disease," said Gates. "PaMZ could dramatically reduce the time required to cure drug-resistant TB from two years to just six months, and it could cut the cost of curing drug-resistant TB in low-income countries from thousands of dollars to just a fraction of that cost. Now we need funders to step forward to make next-generation TB drugs like PaMZ a reality."

5. BMJ 2014;348:g3730

Rapid diagnostic tests to improve treatment of malaria and other febrile illnesses: patient randomised effectiveness trial in primary care clinics in Afghanistan

Leslie T, et al., London School of Hygiene and Tropical Medicine <toby.leslie@lshtm.ac.uk>

Objective: To assess the impact of rapid diagnostic tests on the diagnostic accuracy and treatment of malaria and non-severe fever in an Asian setting.

Design: Patient randomised trial in primary level clinics.

Setting: Two areas of Afghanistan where Plasmodium vivax and Plasmodium falciparum are endemic; one area with moderate transmission (eastern region) and one with low transmission (northern region).

Participants: 5794 patients of all ages with suspected malaria enrolled by 80 clinicians in 22 clinics.

Interventions Malaria rapid diagnostic tests were compared with clinical diagnosis where no parasite diagnostic test was available, longer established field microscopy, and recently introduced microscopy.

Main outcome measures: Proportion of patients appropriately treated with an antimalarial, defined as patients with P vivax who received chloroquine, patients with P falciparum who received artemisinin based combination therapy, and patients with no malaria parasites who did not receive an antimalarial. Secondary outcomes included diagnostic test accuracy and the proportion of patients negative for malaria who received antibiotics and antimalarials.

Results: In the low transmission area, comparing rapid diagnostic tests with clinical diagnosis, 65% (212/325) versus 12% (40/321) of febrile patients were appropriately treated for malaria (adjusted odds ratio 92.7, 95% confidence interval 12.4 to 694.1, P<0.001). The proportion of patients who were negative for malaria and received an antibiotic was 57% (185/325) in the rapid diagnostic test arm compared with 14% (46/321) in the clinical diagnosis arm (16.9, 3.8 to 75.4, P<0.001). In the comparison of rapid diagnostic test with microscopy in the moderate transmission area, 83.6% (1696/2028) versus 76.3% (1512/1983) of patients were appropriately treated for malaria (1.70, 1.30 to 2.23, P<0.001). A higher proportion of P falciparum cases received appropriate treatment with artemisinin based combination therapy when malaria was diagnosed by rapid diagnostic test (82%, 58/71 v 32%, 24/76; 9.2, 3.88 to 21.66, P<0.001).

Conclusions: In South and central Asian regions of low to moderate malaria transmission where clinics lack capacity for diagnosis with rapid diagnostic tests or microscopy, the introduction of the tests should be considered to improve clinical care, reduce the overuse of antimalarials, and improve disease surveillance.

6. Lancet 2014;383:1572-1579

Incidence of multidrug-resistant tuberculosis disease in children: systematic review and global estimates

Jenkins HE et al., Division of Global Health Equity, Brigham and Women's Hospital, Boston, USA; Corresponding author <mbecerra@post.harvard.edu>

Background: Multidrug-resistant tuberculosis threatens to reverse recent reductions in global tuberculosis incidence. Although children younger than 15 years constitute more than 25% of the worldwide population, the global incidence of multidrug-resistant tuberculosis disease in children has never been quantified. We aimed to estimate the regional and global annual incidence of multidrug-resistant tuberculosis in children.
Methods: We developed two models: one to estimate the setting-specific risk of multidrug-resistant tuberculosis among child cases of tuberculosis, and a second to estimate the setting-specific incidence of tuberculosis disease in children. The model for risk of multidrug-resistant tuberculosis among children with tuberculosis needed a systematic literature review. We multiplied the setting-specific estimates of multidrug-resistant tuberculosis risk and tuberculosis incidence to estimate regional and global incidence of multidrug-resistant tuberculosis disease in children in 2010.
Findings: We identified 3403 papers, of which 97 studies met inclusion criteria for the systematic review of risk of multidrug-resistant tuberculosis. 31 studies reported the risk of multidrug-resistant tuberculosis in both children and treatment-naive adults with tuberculosis and were used for evaluation of the linear association between multidrug-resistant disease risk in these two patient groups. We identified that the setting-specific risk of multidrug-resistant tuberculosis was nearly identical in children and treatment-naive adults with tuberculosis, consistent with the assertion that multidrug-resistant disease in both groups reflects the local risk of transmitted multidrug-resistant tuberculosis. After application of these calculated risks, we estimated that around 999 792 (95% CI 937 877—1 055 414) children developed tuberculosis disease in 2010, of whom 31 948 (25 594—38 663) had multidrug-resistant disease.
Interpretation: Our estimates underscore that many cases of tuberculosis and multidrug-resistant tuberculosis disease are not being detected in children. Future estimates can be refined as more and better tuberculosis data and new diagnostic instruments become available.

7. Lancet 2014;383:1739-1747

The changing risk of Plasmodium falciparum malaria infection in Africa: 2000—2010: a spatial and temporal analysis of transmission intensity

Noor AM et al., Malaria Public Health Department, Kenya Medical Research Institute-Wellcome Trust Research Programme, Nairobi, Kenya <anoor@kemri-wellcome.org>

Background: Over a decade ago, the Roll Back Malaria Partnership was launched, and since then there has been unprecedented investment in malaria control. We examined the change in malaria transmission intensity during the period 2000—10 in Africa.
Methods: We assembled a geocoded and community Plasmodium falciparum parasite rate standardised to the age group 2—10 years (PfPR2—10) database from across 49 endemic countries and territories in Africa from surveys undertaken since 1980. The data were used within a Bayesian space—time geostatistical framework to predict PfPR2—10 in 2000 and 2010 at a 1 × 1 km spatial resolution. Population distribution maps at the same spatial resolution were used to compute populations at risk by endemicity class and estimate population-adjusted PfPR2—10 (PAPfPR2—10) for each of the 44 countries for which predictions were possible for each year.
Findings: Between 2000 and 2010, the population in hyperendemic (>50% to 75% PfPR2—10) or holoendemic (>75% PfPR2—10) areas decreased from 218·6 million (34·4%) of 635·7 million to 183·5 million (22·5%) of 815·7 million across 44 malaria-endemic countries. 280·1 million (34·3%) people lived in areas of mesoendemic transmission (>10% to 50% PfPR2—10) in 2010 compared with 178·6 million (28·1%) in 2000. Population in areas of unstable or very low transmission (<5% PfPR2—10) increased from 131·7 million people (20·7%) in 2000 to 219·0 million (26·8%) in 2010. An estimated 217·6 million people, or 26·7% of the 2010 population, lived in areas where transmission had reduced by at least one PfPR2—10 endemicity class. 40 countries showed a reduction in national mean PAPfPR2—10. Only ten countries contributed 87·1% of the population living in areas of hyperendemic or holoendemic transmission in 2010.
Interpretation: Substantial reductions in malaria transmission have been achieved in endemic countries in Africa over the period 2000—10. However, 57% of the population in 2010 continued to live in areas where transmission remains moderate to intense and global support to sustain and accelerate the reduction of transmission must remain a priority.

8. Lancet 2014;383:2073-2082

Hajj: infectious disease surveillance and control

Memish ZA et al., Global Center for Mass Gathering Medicine, Ministry of Health, Riyadh, Saudi Arabia <zmemish@yahoo.com>

Religious festivals attract a large number of pilgrims from worldwide and are a potential risk for the transmission of infectious diseases between pilgrims, and to the indigenous population. The gathering of a large number of pilgrims could compromise the health system of the host country. The threat to global health security posed by infectious diseases with epidemic potential shows the importance of advanced planning of public health surveillance and response at these religious events. Saudi Arabia has extensive experience of providing health care at mass gatherings acquired through decades of managing millions of pilgrims at the Hajj. In this report, we describe the extensive public health planning, surveillance systems used to monitor public health risks, and health services provided and accessed during Hajj 2012 and Hajj 2013 that together attracted more than 5 million pilgrims from 184 countries. We also describe the recent establishment of the Global Center for Mass Gathering Medicine, a Saudi Government partnership with the WHO Collaborating Centre for Mass Gatherings Medicine, Gulf Co-operation Council states, UK universities, and public health institutions globally.

9. Lancet 2014,383:2253-2264

Human schistosomiasis

Colley DG et al., Center for Tropical and Emerging Global Disease & Department of Microbiology, University of Georgia, Athens, GA, USA <dcolley@uga.edu>

Human schistosomiasis—or bilharzia—is a parasitic disease caused by trematode flukes of the genus Schistosoma. By conservative estimates, at least 230 million people worldwide are infected with Schistosoma spp. Adult schistosome worms colonise human blood vessels for years, successfully evading the immune system while excreting hundreds to thousands of eggs daily, which must either leave the body in excreta or become trapped in nearby tissues. Trapped eggs induce a distinct immune-mediated granulomatous response that causes local and systemic pathological effects ranging from anaemia, growth stunting, impaired cognition, and decreased physical fitness, to organ-specific effects such as severe hepatosplenism, periportal fibrosis with portal hypertension, and urogenital inflammation and scarring. At present, preventive public health measures in endemic regions consist of treatment once every 1 or 2 years with the isoquinolinone drug, praziquantel, to suppress morbidity. In some locations, elimination of transmission is now the goal; however, more sensitive diagnostics are needed in both the field and clinics, and integrated environmental and health-care management will be needed to ensure elimination.

10. PLoS Med 2014;11(4):e1001626

Geographical Inequalities in Use of Improved Drinking Water Supply and Sanitation across Sub-Saharan Africa: Mapping and Spatial Analysis of Cross-sectional Survey Data

Pullan RL, London School of Hygiene & Tropical Medicine <Rachel.pullan@lshtm.ac.uk>

Background: Access to a safe drinking-water supply (a water source that is protected from contamination) and to adequate sanitation facilities (toilets, improved latrines, and other facilities that prevent people coming into contact with human urine and feces) is essential for good health. Unimproved drinking-water sources and sanitation are responsible for 85% of deaths from diarrhea and 1% of the global burden of disease. They also increase the transmission of parasitic worms and other neglected tropical diseases. In 2000, world leaders set a target of reducing the proportion of the global population without access to safe drinking water and basic sanitation to half of the 1990 level by 2015 as part of Millennium Development Goal (MDG) 7 ("Ensure environmental sustainability"; the MDGs are designed to improve the social, economic, and health conditions in the world's poorest countries). Between 1990 and 2010, more than 2 billion people gained access to improved drinking-water sources and 1.8 billion gained access to improved sanitation. In 2011, 89% of the world's population had access to an improved drinking-water supply, 1% above the MDG target, and 64% had access to improved sanitation (the MDG target is 75%).

Why Was This Study Done?

Despite these encouraging figures, the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) estimates that, globally, 768 million people relied on unimproved drinking-water sources, 2.5 billion people did not use an improved sanitation facility, and more than 1 billion people (15% of the global population) were defecating in the open in 2011. The JMP estimates for 2011 also reveal national and sub-national inequalities in drinking-water supply and sanitation coverage but a better understanding of geographic

inequalities is needed to track progress towards universal coverage of access to improved water and sanitation and to identify the populations that need the most help to achieve this goal. Here, the researchers use cross-sectional household survey data and modern statistical approaches to produce a comprehensive map of the coverage of improved drinking-water supply and improved sanitation at high spatial resolution for sub-Saharan Africa and to investigate geographic inequalities in coverage. Cross-sectional household surveys collect health and other information from households at a single time-point, including data on use of safe water and improved sanitation.

What Do These Findings Mean?

These findings identify important geographic inequalities in the coverage of access to improved water sources and sanitation that were previously hidden within national statistics. The accuracy of these findings depends on the accuracy of the data on water supplies and sanitation provided by household surveys, on the researchers' definitions for improved water supplies and sanitation, and on their statistical methods. Nevertheless, these findings confirm that, to achieve universal coverage of access to improved drinking-water sources and sanitation, strategies that target the areas with the lowest coverage are essential. Moreover, the maps and the analytical approach presented here provide the means for monitoring future reductions in inequalities in the coverage of access to improved water sources and sanitation and thus reflect a major priority of the post-2015 development agenda.

11. PLoS Med 2014;11(4):e1001630

Indoor Residual Spraying in Combination with Insecticide-Treated Nets Compared to Insecticide-Treated Nets Alone for Protection against Malaria: A Cluster Randomised Trial in Tanzania

West PA et al. (2014) London School of Hygiene & Tropical Medicine <philippa.west@lshtm.ac.uk>

Background: Insecticide-treated nets (ITNs) and indoor residual spraying (IRS) of houses provide effective malaria transmission control. There is conflicting evidence about whether it is more beneficial to provide both interventions in combination. A cluster randomised controlled trial was conducted to investigate whether the combination provides added protection compared to ITNs alone.

Methods and Findings: In northwest Tanzania, 50 clusters (village areas) were randomly allocated to ITNs only or ITNs and IRS. Dwellings in the ITN+IRS arm were sprayed with two rounds of bendiocarb in 2012.Plasmodium falciparum prevalence rate (PfPR) in children 0.5–14 y old (primary outcome) and anaemia in children <5 y old (secondary outcome) were compared between study arms using three cross-sectional household surveys in 2012. Entomological inoculation rate (secondary outcome) was compared between study arms. IRS coverage was approximately 90%. ITN use ranged from 36% to 50%. In intention-to-treat analysis, mean PfPR was 13% in the ITN+IRS arm and 26% in the ITN only arm, odds ratio = 0.43 (95% CI 0.19–0.97, n = 13,146). The strongest effect was observed in the peak transmission season, 6 mo after the first IRS. Subgroup analysis showed that ITN users were additionally protected if their houses were sprayed. Mean monthly entomological inoculation rate was non-significantly lower in the ITN+IRS arm than in the ITN only arm, rate ratio = 0.17 (95% CI 0.03–1.08).

Conclusions: This is the first randomised trial to our knowledge that reports significant added protection from combining IRS and ITNs compared to ITNs alone. The effect is likely to be attributable to IRS providing added protection to ITN users as well as compensating for inadequate ITN use. Policy makers should consider deploying IRS in combination with ITNs to control transmission if local ITN strategies on their own are insufficiently effective. Given the uncertain generalisability of these findings, it would be prudent for malaria control programmes to evaluate the cost-effectiveness of deploying the combination.

12. PLoS Med 2014;11(5):e1001644

Fecal Contamination of Drinking-Water in Low- and Middle-Income Countries: A Systematic Review and Meta-Analysis

Bain R et al. (2014), The Water Institute, University of North Carolina at Chapel Hill <rbain@unicef.org>

Background: Access to safe drinking-water is a fundamental requirement for good health and is also a human right. Global access to safe drinking-water is monitored by WHO and UNICEF using as an indicator “use of an improved source,” which does not account for water quality measurements. Our objectives were to determine whether water from “improved” sources is less likely to contain fecal contamination than “unimproved” sources and to assess the extent to which contamination varies by source type and setting.

Methods and Findings: Studies in Chinese, English, French, Portuguese, and Spanish were identified from online databases, including PubMed and Web of Science, and grey literature. Studies in low- and middle-income countries published between 1990 and August 2013 that assessed drinking-water for the presence of Escherichia

coli or thermotolerant coliforms (TTC) were included provided they associated results with a particular source type. In total 319 studies were included, reporting on 96,737 water samples. The odds of contamination within a given study were considerably lower for "improved" sources than "unimproved" sources (odds ratio [OR] = 0.15 [0.10–0.21], I2 = 80.3% [72.9–85.6]). However over a quarter of samples from improved sources contained fecal contamination in 38% of 191 studies. Water sources in low-income countries (OR = 2.37 [1.52–3.71]; p<0.001) and rural areas (OR = 2.37 [1.47–3.81] p<0.001) were more likely to be contaminated. Studies rarely reported stored water quality or sanitary risks and few achieved robust random selection. Safety may be overestimated due to infrequent water sampling and deterioration in quality prior to consumption.
Conclusion: Access to an "improved source" provides a measure of sanitary protection but does not ensure water is free of fecal contamination nor is it consistent between source types or settings. International estimates therefore greatly overstate use of safe drinking-water and do not fully reflect disparities in access. An enhanced monitoring strategy would combine indicators of sanitary protection with measures of water quality.

Fragile States

13. PLoS Med 2014;11(4):e1001632
Optimal Evidence in Difficult Settings: Improving Health Interventions and Decision Making in Disasters
Gerdin M et al. Centre for Research on Health Care in Disasters, Health Systems and Policy, Department of Public Health Sciences, Karolinska Institutet, Stockholm, Sweden <martin.gerdin@ki.se >

Natural and man-made disasters are a global concern, with the potential to displace, kill, and injure large numbers of people, disrupt health systems, devastate food, water, and energy supplies, shatter economies, and cause massive destruction of infrastructure. Recent major disasters include the Haiti earthquake (2010), the tsunami and radiation leaks in Japan (2011), Superstorm Sandy affecting North America (2012), and typhoon Haiyan in the Philippines (2013). The chronic fragile situation in countries such as Afghanistan over the last few decades and, more recently, the conflict in Syria can be considered man-made disasters. There are many less high-profile disasters, such as landslides in Uganda, mudslides in Bolivia, and floods in Burkina Faso. Disasters pose serious threats to health, and the lack of evidence base in disaster health response has been internationally recognised, for example after the 2010 Haiti earthquake.
Even if it is not possible to predict the specifics of disasters, they happen regularly and can be prepared for. The level of evidence in the disaster health response should be the same as for other health settings. A needs assessment survey by Evidence Aid (Box 1) gathered information on the views and attitudes towards systematic reviews of people involved in planning for, and responding to, disasters. It showed that research evidence could play a central role in improving the effectiveness of international assistance in the planning, delivery, and recovery phases of a disaster . In this paper, we discuss how disaster health interventions and decision making can benefit from an evidence-based approach, similar to other healthcare settings, and outline how methodologically sound research can build a much-needed evidence base.

Box 1. Outline of the Evidence Aid initiative
Evidence Aid (www.evidenceaid.org) is an initiative that tries to improve the quality of evidence and seeks to identify which, if any, systematic reviews from the thousands available in *The Cochrane Database of Systematic Reviews* and elsewhere are relevant to the disaster context, and which unanswered questions should be tackled in new reviews. The aim of Evidence Aid is to improve access to evidence on how to intervene and the eventual effects before, during, and after natural disasters and other humanitarian emergencies, so as to improve health-related outcomes.

Strengthening the evidence base to improve health care in disasters entails work on several fronts. First, a continuous dialogue is needed with the international disaster health community about the role of evidence in disasters and how best to produce and provide it. In health care, systematic reviews of randomised trials are generally considered the highest level of evidence for investigating the effects of interventions , but such trials can rarely be implemented in disasters due to ethical, logistical, and practical challenges. Conducting research in the aftermath of disasters may be perceived as distracting from the primary objectives of saving lives and speeding recovery; however, this perception must be weighed against the need for proven and effective interventions that save the largest number of lives with the limited resources and capacities that are generally available in disasters. As research is the best way to determine which interventions are likely to be most effective, it can be argued that not conducting scientifically robust research following a disaster is unethical .
Second, existing systematic reviews need to be identified and made available in a free, easily accessible format. Third, effective knowledge transfer is needed to help the international disaster health community to identify, conduct, and use research, including systematic reviews. Fourth, better understanding is needed of how people

make decisions about interventions—how they combine the best available evidence with contextual, cultural, organisational, and stakeholder issues—and the optimal ways of doing this. Fifth, funding needs to be ensured through special grants, such as the Enhancing Learning and Research for Humanitarian Assistance (ELRHA) Rapid Response Grant .
In conclusion, there needs to be a paradigm shift in healthcare decision making in disaster preparedness and response, moving towards a reliable and robust evidence base for all interventions being considered in disaster risk reduction, planning, response, and recovery. Evidence Aid presents an opportunity for all those involved in disaster response to collaborate in developing and enacting the best available evidence, so as to ensure that they have the best knowledge needed to decide how to respond in the worst of times.

Health Policy

14. HPP 2014;29(4):475-482

Hospitalized for fever? Understanding hospitalization for common illnesses among insured women in a low-income setting

Sinha T et al. Corresponding author. SEWA Social Security; Indian Institute of Management, Vastrapur, Ahmedabad, India <tara.sinha.sewa@gmail.com>

Background: Health microinsurance is a financial tool that increases utilization of health care services among low-income persons. There is limited understanding of the illnesses for which insured persons are hospitalized. Analysis of health claims at VimoSEWA, an Indian microinsurance scheme, shows that a significant proportion of hospitalization among insured adult women is for common illnesses—fever, diarrhoea and malaria—that are amenable to outpatient treatment. This study aims to understand the factors that result in hospitalization for common illnesses.
Methods: The article uses a mixed methods approach. Quantitative data were collected from a household survey of 816 urban low-income households in Gujarat, India. The qualitative data are based on 10 in-depth case studies of insured women hospitalized for common illnesses and interviews with five providers. Quantitative and qualitative data were supplemented with data from the insurance scheme's administrative records.
Results: Socioeconomic characteristics and morbidity patterns among insured and uninsured women were similar with fever the most commonly reported illness. While fever was the leading cause for hospitalization among insured women, no uninsured women were hospitalized for fever. Qualitative investigation indicates that 9 of 10 hospitalized women first sought outpatient treatment. Precipitating factors for hospitalization were either the persistence or worsening of symptoms. Factors that facilitated hospitalization included having insurance and the perceptions of doctors regarding the need for hospitalization.
Conclusion: In the absence of quality primary care, health insurance can lead to hospitalization for non-serious illnesses. Deterrents to hospitalization point away from member moral hazard; provider moral hazard cannot be ruled out. This study underscores the need for quality primary health care and its better integration with health microinsurance schemes.

15. HPP 2014;29(4):506-516

Taking stock of monitoring and evaluation systems in the health sector: findings from Rwanda and Uganda

Holvoet N and Inberg L, Institute of Development Policy and Management, University of Antwerp <nathalie.holvoet@ua.ac.be>

In the context of sector-wide approaches and the considerable funding being put into the health sectors of low-income countries, the need to invest in well-functioning national health sector monitoring and evaluation (M&E) systems is widely acknowledged. Regardless of the approach adopted, an important first step in any strategy for capacity development is to diagnose the quality of existing systems or arrangements, taking into account both the supply and demand sides of M&E. As no standardized M&E diagnostic instrument currently exists, we first invested in the development of an assessment tool for sector M&E systems. To counter the criticism that M&E is often narrowed down to a focus on technicalities, our diagnostic tool assesses the quality of M&E systems according to six dimensions: (i) policy; (ii) quality of indicators and data (collection) and methodology; (iii) organization (further divided into iiia: structure and iiib: linkages); (iv) capacity; (v) participation of non-government actors and (vi) M&E outputs: quality and use. We subsequently applied the assessment tool to the health sector M&E systems of Rwanda and Uganda, and this article provides a comparative overview of the main research findings. Our research may have important implications for policy, as both countries receive health sector (budget) support in relation to which M&E system diagnosis and improvement are expected to be

high on the agenda. The findings of our assessments indicate that, thus far, the health sector M&E systems in Rwanda and Uganda can at best be diagnosed as 'fragmentary', with some stronger and weaker elements.

16. HPP 2014;29(4):456-465

Performance-based financing with GAVI health system strengthening funding in rural Cambodia: a brief assessment of the impact

Sadatoshi Matsuoka et al. TAC International Inc., Ginza, Chuo-ku, Tokyo <sada.matsuoka@gmail.com>

Introduction: Though Cambodia made impressive gains in immunization coverage between the years 2000 and 2005, it recognized several health system challenges to greater coverage of immunization and sustainability. The Global Alliance for Vaccines and Immunization (GAVI) opened a Health System Strengthening (HSS) funding window in 2006. To address the health system challenges, Cambodia has been receiving the GAVI HSS fund since October 2007. The major component of the support is performance-based financing (PBF) for maternal, neonatal and child health (MNCH) services.
Objective To examine the impact of the PBF scheme on MNCH services and administrative management in rural Cambodia.
Methods: Quantitative and qualitative studies were conducted in Kroch Chhmar Operational District (OD), Cambodia. Quantitative analyses were conducted on the trends of the numbers of MNCH services. A brief analysis was conducted using qualitative data.
Results: After the commencement of the PBF support, the volume of MNCH services was significantly boosted. In addition, strengthened financial and operational management was observed in the study area. However, the quality of the MNCH services was not ensured. Technical assistance, rather than the PBF scheme, was perceived by stakeholders to play a vital role in increasing the quality of the services.
Discussion: To improve the quality of the health services provided, it is better to include indicators on the quality of care in the PBF scheme. Mutual co-operation between PBF models and technical assistance may ensure better service quality while boosting the quantity. A robust but feasible data validation mechanism should be in place, as a PBF could incentivize inaccurate reporting. The capacity for financial management should be strengthened in PBF recipient ODs. To address the broader aspects of MNCH, a balanced input of resources and strengthening of all six building blocks of a health system are necessary.

17. HPP 2014;29(3):271-279

Sustainability of recurrent expenditure on public social welfare programmes: expenditure analysis of the free maternal care programme of the Ghana National Health Insurance Scheme

Ankrah Odame E et al. Public Health Unit, Ridge Regional Hospital, Ghana Health Service, Accra, Ghana <joeankra@yahoo.com>

Objective: Sustainability of public social welfare programmes has long been of concern in development circles. An important aspect of sustainability is the ability to sustain the recurrent financial costs of programmes. A free maternal care programme (FMCP) was launched under the Ghana National Health Insurance Scheme (NHIS) in 2008 with a start-up grant from the British Government. This article examines claims expenditure under the programme and the implications for the financial sustainability of the programme, and the lessons for donor and public financing of social welfare programmes.
Methods: Records of reimbursement claims for services and medicines by women benefitting from the policy in participating facilities in one sub-metropolis in Ghana were analysed to gain an understanding of the expenditure on this programme at facility level. National level financial inflow and outflow (expenditure) data of the NHIS, related to implementation of this policy for 2008 and 2009, were reviewed to put the facility-based data in the national perspective.
Findings: A total of US$936 450.94 was spent in 2009 by the scheme on FMCP in the sub-metropolis. The NHIS expenditure on the programme for the entire country in 2009 was US$49.25 million, exceeding the British grant of US$10.00 million given for that year. Subsequently, the programme has been entirely financed by the National Health Insurance Fund. The rapidly increasing, recurrent demands on this fund from the maternal delivery exemption programme—without a commensurate growth on the amounts generated annually—is an increasing threat to the sustainability of the fund.
Conclusions: Provision of donor start-up funding for programmes with high recurrent expenditures, under the expectation that government will take over and sustain the programme, must be accompanied by clear long-term analysis and planning as to how government will sustain the programme.

HIV

18. Lancet 2014; 384:241-248

Trends in underlying causes of death in people with HIV from 1999 to 2011 (D:A:D): a multicohort collaboration

Smith CJ et al., Research Department of Infection and Population Health, University College London <c.smith@ucl.ac.uk>

Background: With the advent of effective antiretroviral treatment, the life expectancy for people with HIV is now approaching that seen in the general population. Consequently, the relative importance of other traditionally non-AIDS-related morbidities has increased. We investigated trends over time in all-cause mortality and for specific causes of death in people with HIV from 1999 to 2011.
Methods: Individuals from the Data collection on Adverse events of anti-HIV Drugs (D:A:D) study were followed up from March, 1999, until death, loss to follow-up, or Feb 1, 2011, whichever occurred first. The D:A:D study is a collaboration of 11 cohort studies following HIV-1-positive individuals receiving care at 212 clinics in Europe, USA, and Australia. All fatal events were centrally validated at the D:A:D coordinating centre using coding causes of death in HIV (CoDe) methodology. We calculated relative rates using Poisson regression.
Findings: 3909 of the 49 731 D:A:D study participants died during the 308 719 person-years of follow-up (crude incidence mortality rate, 12·7 per 1000 person-years [95% CI 12·3—13·1]). Leading underlying causes were: AIDS-related (1123 [29%] deaths), non-AIDS-defining cancers (590 [15%] deaths), liver disease (515 [13%] deaths), and cardiovascular disease (436 [11%] deaths). Rates of all-cause death per 1000 person-years decreased from 17·5 in 1999—2000 to 9·1 in 2009—11; we saw similar decreases in death rates per 1000 person-years over the same period for AIDS-related deaths (5·9 to 2·0), deaths from liver disease (2·7 to 0·9), and cardiovascular disease deaths (1·8 to 0·9). However, non-AIDS cancers increased slightly from 1·6 per 1000 person-years in 1999—2000 to 2·1 in 2009—11 (p=0·58). After adjustment for factors that changed over time, including CD4 cell count, we detected no decreases in AIDS-related death rates (relative rate for 2009—11 vs 1999—2000: 0·92 [0·70—1·22]). However, all-cause (0·72 [0·61—0·83]), liver disease (0·48 [0·32—0·74]), and cardiovascular disease (0·33 [0·20—0·53]) death rates still decreased over time. The percentage of all deaths that were AIDS-related (87/256 [34%] in 1999—2000 and 141/627 [22%] in 2009—11) and liver-related (40/256 [16%] in 1999—2000 and 64/627 [10%] in 2009—11) decreased over time, whereas non-AIDS cancers increased (24/256 [9%] in 1999—2000 to 142/627 [23%] in 2009—11).
Interpretation: Recent reductions in rates of AIDS-related deaths are linked with continued improvement in CD4 cell count. We hypothesise that the substantially reduced rates of liver disease and cardiovascular disease deaths over time could be explained by improved use of non-HIV-specific preventive interventions. Non-AIDS cancer is now the leading non-AIDS cause and without any evidence of improvement.

19. Lancet 2014;384:249-256

Maximising the effect of combination HIV prevention through prioritisation of the people and places in greatest need: a modelling study

Anderson S-J et al., Department of Infectious Disease Epidemiology, Imperial College London <sarah-jane.anderson@imperial.ac.uk>

Background: Epidemiological data show substantial variation in the risk of HIV infection between communities within African countries. We hypothesised that focusing appropriate interventions on geographies and key populations at high risk of HIV infection could improve the effect of investments in the HIV response.
Methods: With use of Kenya as a case study, we developed a mathematical model that described the spatiotemporal evolution of the HIV epidemic and that incorporated the demographic, behavioural, and programmatic differences across subnational units. Modelled interventions (male circumcision, behaviour change communication, early antiretroviral therapy, and pre-exposure prophylaxis) could be provided to different population groups according to their risk behaviours or their location. For a given national budget, we compared the effect of a uniform intervention strategy, in which the same complement of interventions is provided across the country, with a focused strategy that tailors the set of interventions and amount of resources allocated to the local epidemiological conditions.
Findings: A uniformly distributed combination of HIV prevention interventions could reduce the total number of new HIV infections by 40% during a 15-year period. With no additional spending, this effect could be increased by 14% during the 15 years—almost 100 000 extra infections, and result in 33% fewer new HIV infections occurring every year by the end of the period if the focused approach is used to tailor resource allocation to reflect patterns in local epidemiology. The cumulative difference in new infections during the 15-

year projection period depends on total budget and costs of interventions, and could be as great as 150 000 (a cumulative difference as great as 22%) under different assumptions about the unit costs of intervention. Interpretation: The focused approach achieves greater effect than the uniform approach despite exactly the same investment. Through prioritisation of the people and locations at greatest risk of infection, and adaption of the interventions to reflect the local epidemiological context, the focused approach could substantially increase the efficiency and effectiveness of investments in HIV prevention.

20. Lancet 2014;384:258-271

HIV infection: epidemiology, pathogenesis, treatment, and prevention

Maartens G et al., Division of Clinical Pharmacology, Department of Medicine, University of Cape Town <gary.maartens@uct.ac.za>

HIV prevalence is increasing worldwide because people on antiretroviral therapy are living longer, although new infections decreased from 3·3 million in 2002, to 2·3 million in 2012. Global AIDS-related deaths peaked at 2·3 million in 2005, and decreased to 1·6 million by 2012. An estimated 9·7 million people in low-income and middle-income countries had started antiretroviral therapy by 2012. New insights into the mechanisms of latent infection and the importance of reservoirs of infection might eventually lead to a cure. The role of immune activation in the pathogenesis of non-AIDS clinical events (major causes of morbidity and mortality in people on antiretroviral therapy) is receiving increased recognition. Breakthroughs in the prevention of HIV important to public health include male medical circumcision, antiretrovirals to prevent mother-to-child transmission, antiretroviral therapy in people with HIV to prevent transmission, and antiretrovirals for pre-exposure prophylaxis. Research into other prevention interventions, notably vaccines and vaginal microbicides, is in progress.

21. Lancet 2014;384:272-279

Transformation of HIV from pandemic to low-endemic levels: a public health approach to combination prevention

Jones A et al., O'Neill, Georgetown University Law Center, Washington <mark.dybul@theglobalfund.org>

Large declines in HIV incidence have been reported since 2001, and scientific advances in HIV prevention provide strong hope to reduce incidence further. Now is the time to replace the quest for so-called silver bullets with a public health approach to combination prevention that understands that risk is not evenly distributed and that effective interventions can vary by risk profile. Different countries have different microepidemics, with very different levels of transmission and risk groups, changing over time. Therefore, focus should be on high-transmission geographies, people at highest risk for HIV, and the package of interventions that are most likely to have the largest effect in each different microepidemic. Building on the backbone of behaviour change, condom use, and medical male circumcision, as well as expanded use of antiretroviral drugs for infected people and pre-exposure prophylaxis for uninfected people at high risk of infection, it is now possible to consider the prospect of what would be one of the most remarkable achievements in the history of public health: reduction of HIV transmission from a pandemic to low-level endemicity.

22. PLoS Med 2014;11(5):e1001641

Achieving the HIV Prevention Impact of Voluntary Medical Male Circumcision: Lessons and Challenges for Managing Programs

Sgaier SK et al. Integrated Delivery, Global Development Program, Bill & Melinda Gates Foundation, Seattle, Washington <Sema.Sgaier@gatesfoundation.org>

Voluntary medical male circumcision (VMMC) is capable of reducing the risk of sexual transmission of HIV from females to males by approximately 60%. In 2007, the WHO and the Joint United Nations Programme on HIV/AIDS (UNAIDS) recommended making VMMC part of a comprehensive HIV prevention package in countries with a generalized HIV epidemic and low rates of male circumcision. Modeling studies undertaken in 2009–2011 estimated that circumcising 80% of adult males in 14 priority countries in Eastern and Southern Africa within five years, and sustaining coverage levels thereafter, could avert 3.4 million HIV infections within 15 years and save US$16.5 billion in treatment costs.
In response, WHO/UNAIDS launched the Joint Strategic Action Framework for accelerating the scale-up of VMMC for HIV prevention in Southern and Eastern Africa, calling for 80% coverage of adult male circumcision by 2016. While VMMC programs have grown dramatically since inception, they appear unlikely to reach this

goal. This review provides an overview of findings from the PLOS Collection "Voluntary Medical Male Circumcision for HIV Prevention: Improving Quality, Efficiency, Cost Effectiveness, and Demand for Services during an Accelerated Scale-up." The use of devices for VMMC is also explored. We propose emphasizing management solutions to help VMMC programs in the priority countries achieve the desired impact of averting the greatest possible number of HIV infections. Our recommendations include advocating for prioritization and funding of VMMC, increasing strategic targeting to achieve the goal of reducing HIV incidence, focusing on programmatic efficiency, exploring the role of new technologies, rethinking demand creation, strengthening data use for decision-making, improving governments' program management capacity, strategizing for sustainability, and maintaining a flexible scale-up strategy informed by a strong monitoring, learning, and evaluation platform.

Summary Points

- Large-scale implementation of voluntary medical male circumcision (VMMC) in 14 priority countries of Eastern and Southern Africa has the potential to significantly reduce heterosexual transmission of HIV to males, saving lives, averting suffering, and avoiding health care costs.
- Resource and capacity constraints pose a serious challenge to the ability of the priority countries to reach their goals for VMMC scale-up.
- The 13 papers in this collection examine issues of service quality, demand creation, cost, and efficiency faced by governments, donors, and programs.
- Systematic, evidence-based management of programs and a dynamic culture of learning are proposed to help meet the challenges of VMMC scale-up.
- Recommendations include greater prioritization and funding of VMMC, strategic targeting and demand creation, a focus on programmatic efficiencies, and exploration of new technologies.
- Further recommendations are for strengthened data use, improving governments' program management capacity, strategizing for sustainability, and maintaining a flexible scale-up strategy.

23. TMIH 2014;19(6):643-655

Pneumocystis jirovecii colonisation in HIV-positive and HIV-negative subjects in Cameroon

Riebold D et al. Division of Tropical Medicine and Infectious Diseases, University of Rostock Medical School, Rostock, Germany <christoph_hemmer@medizin.uni-rostock.de>

Objective: To determine the prevalence of Pneumocystis pneumonia (PCP), a major opportunistic infection in AIDS patients in Europe and the USA, in Cameroon.
Materials and methods: Induced sputum samples from 237 patients without pulmonary symptoms (126 HIV-positive and 111 HIV-negative outpatients) treated at a regional hospital in Cameroon were examined for the prevalence of Pneumocystis jirovecii by specific nested polymerase chain reaction (nPCR) and staining methods. CD4 counts and the history of antiretroviral therapy of the subjects were obtained through the ESOPE database system.
Results and conclusions: Seventy-five of 237 study participants (31.6%) were colonised with Pneumocystis, but none showed active PCP. The Pneumocystis colonisation rate in HIV-positive subjects was more than double that of HIV-negative subjects (42.9% vs. 18.9%, $P < 0.001$). In the HIV-positive group, the colonisation rate corresponds to the reduction in the CD4 lymphocyte counts. Subjects with CD4 counts >500 cells/µl were colonised at a rate of 20.0%, subjects with CD4 counts between 200 and 500 cells/µl of 42.5%, and subjects with CD4 counts <200 cells/µl of 57.1%. Colonisation with Pneumocystis in Cameroon seems to be comparable to rates found in Western Europe. Prophylactic and therapeutic measures against Pneumocystis should be taken into account in HIV care in western Africa.

24. TMIH 2014;19(6):656-663

Adjusting the HIV prevalence for non-respondents using mortality rates in an open cohort in northwest Tanzania

Tenu F et al. Amani Research Centre, Muheza, Tanzania; Kilimanjaro Christian Medical University College, Moshi, Tanzania. <filemonitenu@yahoo.co.uk>

Objective: To estimate HIV prevalence in adults who have not tested for HIV using age-specific mortality rates and to adjust the overall population HIV prevalence to include both tested and untested adults.
Methods: An open cohort study was established since 1994 with demographic surveillance system (DSS) and five serological surveys conducted. Deaths from Kisesa DSS were used to estimate mortality rates and 95% confidence intervals by HIV status for 3- 5-year periods (1995-1999, 2000-2004, and 2005-2009). Assuming that

mortality rates in individuals who did not test for HIV are similar to those in tested individuals, and dependent on age, sex and HIV status and HIV, prevalence was estimated.
Results: In 1995-1999, mortality rates (per 1000 person years) were 43.7 (95% CI 35.7-53.4) for HIV positive, 2.6 (95% CI 2.1-3.2) in HIV negative and 16.4 (95% CI 14.4-18.7) in untested. In 2000-2004, mortality rates were 43.3 (95% CI 36.2-51.9) in HIV positive, 3.3 (95% CI 2.8-4.0) in HIV negative and 11.9 (95% CI 10.5-13.6) in untested. In 2005-2009, mortality rates were 30.7 (95% CI 24.8-38.0) in HIV positive, 4.1 (95% CI 3.5-4.9) in HIV negative and 5.7 (95% CI 5.0-6.6) in untested residents. In the three survey periods (1995-1999, 2000-2004, 2005-2009), the adjusted period prevalences of HIV, including the untested, were 13.5%, 11.6% and 7.1%, compared with the observed prevalence in the tested of 6.0%, 6.8 and 8.0%. The estimated prevalence in the untested was 33.4%, 21.6% and 6.1% in the three survey periods.
Conclusion: The simple model was able to estimate HIV prevalence where a DSS provided mortality data for untested residents.

25. TMIH 2014;19(6):698-705
The interaction between malaria and human immunodeficiency virus infection in severely anaemic Malawian children: a prospective longitudinal study
Kyeyune FX et al. Child and Reproductive Health Group, Liverpool School of Tropical Medicine, Liverpool, UK <fxkyeyune@gmail.com>

Objective: Malaria and human immunodeficiency virus (HIV) infection are co-prevalent in sub-Saharan Africa and cause severe anaemia in children. Interactions between these infections occur in adults, although these are less clear in children. The aim of study was to determine their interaction in a cohort of severely anaemic children.
Methods: Severely anaemic Malawian children were enrolled, tested for HIV and malaria, transfused and followed for 18 months for malaria incidence. Antiretrovirals were not widely available in Malawi during the study period.
Results: Of 381 children (haemoglobin <5 g/dl), 357 consented for HIV testing, 12.6% were HIV-infected, and 59.5% had malaria parasitaemia. At enrolment, HIV-infected children had similar malaria parasitaemia prevalence (59.1% vs. 58.7%; P = 0.96) and parasite density (geometric mean [parasites/µl] 6903 vs. 12417; P = 0.18) as HIV-negative children. There were no differences in mean CD4%, or prevalence of severe immunosuppression, between those with and without malaria parasitaemia. Plasma viral load correlated negatively with log parasitaemia (r = -0.78; P = 0.01). During follow-up, HIV-infected children did not experience more frequent parasitaemias or symptomatic malaria episodes. Adjusted risk estimates (95% CI) for malaria parasitaemia in HIV-infected children at 6 and 18 months follow-up were 0.39 (0.13-1.14) and 0.40 (0.11-1.51), respectively.
Conclusions: Severely anaemic HIV-infected children showed no increased susceptibility to asymptomatic or symptomatic malaria during or following their anaemic episode, although all experienced lower parasite prevalence during follow-up. This contrasts with data in adults and may relate to the malaria immunity of young children which is insufficiently developed to be impaired by HIV. The negative correlation between viral load and malaria parasitaemia remains unexplained.

Human Resources for Health

26. TMIH 2014;19(5):514-21
Four-year retention and risk factors for attrition among members of community ART groups in Tete, Mozambique
Decroo T et al. Médecins Sans Frontières, Tete, Mozambique; Departement of Public Health, Institute of Tropical Medicine, Antwerp, Belgium <tomdecroo2@gmail.com>

Objective: Community ART groups (CAG), peer support groups involved in community ART distribution and mutual psychosocial support, were piloted to respond to staggering antiretroviral treatment (ART) attrition in Mozambique. To understand the impact of CAG on long-term retention, we estimated mortality and lost-to-follow-up (LTFU) rates and assessed predictors for attrition.
Methods: Retrospective cohort study. Kaplan-Meier techniques were used to estimate mortality and LTFU in CAG. Individual- and CAG-level predictors of attrition were assessed using a multivariable Cox proportional hazards model, adjusted for site-level clustering.
Results: Mortality and LTFU rates among 5729 CAG members were, respectively, 2.1 and 0.1 per 100 person-years. Retention was 97.7% at 12 months, 96.0% at 24 months, 93.4% at 36 months and 91.8% at 48 months. At

individual level, attrition in CAG was significantly associated with immunosuppression when joining a CAG, and being male. At CAG level, attrition was associated with lack of rotational representation at the clinic, lack of a regular CD4 count among fellow members and linkage to a rural or district clinic compared with linkage to a peri-urban clinic.
Conclusions: Long-term retention in this community-based ART model compares favourably with published data on stable ART patients. Nevertheless, to reduce attrition, further efforts need to be made to enroll patients earlier on ART, promote health-seeking behaviour, especially for men, promote a strong peer dynamic to assure rotational representation at the clinic and regular CD4 follow-up and reinforce referral of sick patients.

Mental Health

27. IJE 2014;43(2):283-286
Mental health, Transactions of the Epidemiological Society of London and Berkson's bias
Ebrahim S

The International Journal of Epidemiology publishes reviews and meta-analyses regularly, but this is the first issue to be composed primarily of reviews on a single theme—mental health. Others will follow in successive years. Mental disorders are neglected in discourses on global health and, although the recently published textbook Global Mental Health provides comprehensive coverage, more accessible reviews focusing on epidemiology of global mental health are needed. The rise of global mental health—No Health Without Mental Health—has been spectacular, and psychiatric epidemiology has made a singular contribution to its emergence through the demonstration of the high prevalence of mental disorders around the world. This issue of the IJE seeks to highlight the interconnectedness of these two disciplines through a series of articles on diverse themes (burden, aetiology, measurement, prevention and control) which are of relevance to both disciplines. Psychiatric epidemiology is a critically important tool to further the goals of global mental health and, conversely, global mental health provides a unique platform to extend the objectives of psychiatric epidemiology to understanding the global determinants of mental disorders. Ezra Susser and Vikram Patel, both eminent epidemiologists and mental health advocates, volunteered to commission and edit this series of reviews. They and their authors have done a remarkable job, providing a benchmark of our current understanding and insight into the paths for future research that will link psychiatric epidemiology with global mental health to achieve the shared goal of improving health. Commentaries by Michael Marmot, Harvey Whiteford and Global Burden of Disease colleagues, and Paulo Menezes provide illumination and contextualization.

28. IJE 2014;43(2):476-493
The global prevalence of common mental disorders: a systematic review and meta-analysis 1980–2013
Steel Z et al. Corresponding author. Centre for Population Mental Health Research, School of Psychiatry, University of New South Wales, Australia <z.steel@unsw.edu.au>

Background: Since the introduction of specified diagnostic criteria for mental disorders in the 1970s, there has been a rapid expansion in the number of large-scale mental health surveys providing population estimates of the combined prevalence of common mental disorders (most commonly involving mood, anxiety and substance use disorders). In this study we undertake a systematic review and meta-analysis of this literature.
Methods: We applied an optimized search strategy across the Medline, PsycINFO, EMBASE and PubMed databases, supplemented by hand searching to identify relevant surveys. We identified 174 surveys across 63 countries providing period prevalence estimates (155 surveys) and lifetime prevalence estimates (85 surveys). Random effects meta-analysis was undertaken on logit-transformed prevalence rates to calculate pooled prevalence estimates, stratified according to methodological and substantive groupings.
Results: Pooling across all studies, approximately 1 in 5 respondents (17.6%, 95% confidence interval:16.3–18.9%) were identified as meeting criteria for a common mental disorder during the 12-months preceding assessment; 29.2% (25.9–32.6%) of respondents were identified as having experienced a common mental disorder at some time during their lifetimes. A consistent gender effect in the prevalence of common mental disorder was evident; women having higher rates of mood (7.3%:4.0%) and anxiety (8.7%:4.3%) disorders during the previous 12 months and men having higher rates of substance use disorders (2.0%:7.5%), with a similar pattern for lifetime prevalence. There was also evidence of consistent regional variation in the prevalence of common mental disorder. Countries within North and South East Asia in particular displayed consistently lower one-year and lifetime prevalence estimates than other regions. One-year prevalence rates were also low among Sub-Saharan-Africa, whereas English speaking counties returned the highest lifetime prevalence estimates.

Conclusions: Despite a substantial degree of inter-survey heterogeneity in the meta-analysis, the findings confirm that common mental disorders are highly prevalent globally, affecting people across all regions of the world. This research provides an important resource for modelling population needs based on global regional estimates of mental disorder. The reasons for regional variation in mental disorder require further investigation.

Ophthalmology

29. TMIH 2014;19(5):600-9

Posterior segment eye disease in sub-Saharan Africa: review of recent population-based studies

Bastawrous A et al. International Centre for Eye Health, London School of Hygiene & Tropical Medicine, London, UK <Andrew.Bastawrous@lshtm.ac.uk>

Objective: To assess the burden of posterior segment eye diseases (PSEDs) in sub-Saharan Africa (SSA).
Methods: We reviewed published population-based data from SSA and other relevant populations on the leading PSED, specifically glaucoma, diabetic retinopathy and age-related macular degeneration, as causes of blindness and visual impairment in adults. Data were extracted from population-based studies conducted in SSA and elsewhere where relevant.
Results: PSEDs, when grouped or as individual diseases, are a major contributor to blindness and visual impairment in SSA. PSED, grouped together, was usually the second leading cause of blindness after cataract, ranging as a proportion of blindness from 13 to 37%.
Conclusions: PSEDs are likely to grow in importance as causes of visual impairment and blindness in SSA in the coming years as populations grow, age and become more urban in lifestyle. African-based cohort studies are required to help estimate present and future needs and plan services to prevent avoidable blindness.

Research Methods

30. BMJ 2014;349:g4254

Protections for clinical trials in low and middle income countries need strengthening not weakening

Dal-Ré R et al. Clinical Research, BUC (Biosciences UAM+CSIC) Program, International Campus of Excellence, Universidad Autónoma de Madrid <Rafael.dalre@fuam.uam.es>

The latest revision of the Declaration of Helsinki weakens protections for trial participants in low and middle income countries. Rafael Dal-Ré and colleagues argue that this is a step in the wrong direction

Debate over how to ethically balance the risks and benefits generated by clinical research has been ongoing for over 25 years. This is especially challenging for clinical research conducted by entities from high income countries in poorer countries. In particular, there is concern that funders and investigators from high income countries may exploit participants in low and middle income countries (LMICs). People living in impoverished communities with limited access to adequate healthcare may be more willing to accept the risks and burdens of trial participation than those with better access to resources, while their relative lack of power undermines their ability to claim a fair share of the benefits that result from the trials.

The World Medical Association's Declaration of Helsinki was established to guide the ethical conduct of medical research. Successive revisions to the declaration, which sees its 50th anniversary this year, have provided increasing protection for research participants in LMICs. The 2008 version specified that research participants are entitled to share in the benefits that result from the studies in which they participate, including access to interventions identified as beneficial in the study or to "other appropriate care or benefits." This change was made in recognition of the fact that many trials conducted in LMICS were failing to provide any benefits to trial participants in those countries. For example, a review of trials conducted between 2004 and 2007 in tuberculosis (n=23), malaria (n=67), and HIV/AIDS (n=222) in developed (58%) and developing countries (42%), found that only 1.3% mentioned post-trial provisions. Unfortunately, the 2013 version of the declaration omits reference to "other appropriate care or benefits" and limits the scope of possible benefits to interventions "identified as beneficial in the trial." This ignores the fact that many trials do not result in an effective intervention. We argue that the provisions need strengthening.

31. HPP 2014;29(3):323-327

10 best resources on … mixed methods research in health systems

Ozawa S and Pongpirul K. Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore <sozawa@jhsph.edu>

Mixed methods research has become increasingly popular in health systems. Qualitative approaches are often used to explain quantitative results and help to develop interventions or survey instruments. Mixed methods research is especially important in low- and middle-income country (LMIC) settings, where understanding social, economic and cultural contexts are essential to assess health systems performance. To provide researchers and programme managers with a guide to mixed methods research in health systems, we review the best resources with a focus on LMICs. We selected 10 best resources (eight peer-reviewed articles and two textbooks) based on their importance and frequency of use (number of citations), comprehensiveness of content, usefulness to readers and relevance to health systems research in resource-limited contexts. We start with an overview on mixed methods research and discuss resources that are useful for a better understanding of the design and conduct of mixed methods research. To illustrate its practical applications, we provide examples from various countries (China, Vietnam, Kenya, Tanzania, Zambia and India) across different health topics (tuberculosis, malaria, HIV testing and healthcare costs). We conclude with some toolkits which suggest what to do when mixed methods findings conflict and provide guidelines for evaluating the quality of mixed methods research.

10 Best Resources

1. Creswell JW, Plano Clark VL, . Designing and Conducting Mixed Methods Research. 2nd edn. Thousand Oaks: Sage Publications; 2011.
2. Migiro SO, Magangi BA; Mixed methods: a review of literature and the future of the new research paradigm. African Journal of Business Management2011;5:3757-64.
3. Tashakkori A, Teddlie C; Sage Handbook of Mixed Methods in Social & Behavioral Research. 2nd edn. Thousand Oaks: Sage Publications; 2010.
4. Teddlie C, Yu F; Mixed methods sampling: a typology with examples. Journal of Mixed Methods Research 2007;1:77-100.
5. Long Q, Li Y, Wang Y, et al.; Barriers to accessing TB diagnosis for rural-to-urban migrants with chronic cough in Chongqing, China: a mixed methods study. BMC Health Services Research 2008;8:202.
6. Morrow M, Nguyen QA, Caruana S, et al.; Pathways to malaria persistence in remote central Vietnam: a mixed-method study of health care and the community.BMC Public Health 2009;9:85.
7. Njeru MK, Blystad A, Shayo EH, Nyamongo IK, Fylkesnes K; Practicing provider-initiated HIV testing in high prevalence settings: consent concerns and missed preventive opportunities. BMC Health Services Research 2011;11:87.
8. Ranson MK, Jayaswal R, Mills AJ; Strategies for coping with the costs of inpatient care: a mixed methods study of urban and rural poor in Vadodara District, Gujarat, India. Health Policy and Planning 2012;27:326-38.
9. Moffatt S, White M, Mackintosh J, Howel D; Using quantitative and qualitative data in health services research—what happens when mixed method findings conflict? BMC Health Services Research 2006;6:28.
10. O'Cathain A, Murphy E, Nicholl J; The quality of mixed methods studies in health services research. Journal of Health Services Research & Policy 2008;13:92-8.

32. TMIH 2014;19(6):625-642

Informed consent comprehension in African research settings

Afolabi MO et al. Medical Research Council Unit, Fajara, The Gambia; London School of Hygiene and Tropical Medicine, London, UK <mafolabi@mrc.gm>

Objective: Previous reviews on participants' comprehension of informed consent information have focused on developed countries. Experience has shown that ethical standards developed on Western values may not be appropriate for African settings where research concepts are unfamiliar. We undertook this review to describe how informed consent comprehension is defined and measured in African research settings.

Methods: We conducted a comprehensive search involving five electronic databases: Medline, Embase, Global Health, EthxWeb and Bioethics Literature Database (BELIT). We also examined African Index Medicus and Google Scholar for relevant publications on informed consent comprehension in clinical studies conducted in sub-Saharan Africa. 29 studies satisfied the inclusion criteria; meta-analysis was possible in 21 studies. We further conducted a direct comparison of participants' comprehension on domains of informed consent in all eligible studies.

Results: Comprehension of key concepts of informed consent varies considerably from country to country and depends on the nature and complexity of the study. Meta-analysis showed that 47% of a total of 1633 participants across four studies demonstrated comprehension about randomisation (95% CI 13.9-80.9%). Similarly, 48% of 3946 participants in six studies had understanding about placebo (95% CI 19.0-77.5%), while only 30% of 753 participants in five studies understood the concept of therapeutic misconception (95% CI 4.6-

66.7%). Measurement tools for informed consent comprehension were developed with little or no validation. Assessment of comprehension was carried out at variable times after disclosure of study information. No uniform definition of informed consent comprehension exists to form the basis for development of an appropriate tool to measure comprehension in African participants.
Conclusions: Comprehension of key concepts of informed consent is poor among study participants across Africa. There is a vital need to develop a uniform definition for informed consent comprehension in low literacy research settings in Africa. This will be an essential step towards developing appropriate tools that can adequately measure informed consent comprehension. This may consequently suggest adequate measures to improve the informed consent procedure.

Sexual Reproductive Health

33. BMJ 2014;348:g3150
Worldwide maternal mortality rate falls by 45% in 13 years
Gulland A

The number of women dying in labour has nearly halved since 1990 but a lack of data is hampering efforts to reduce maternal mortality, a report from the World Health Organization has said.
An estimated 289 000 women died in labour in 2013, a fall of 45% since 1990 when there were 523 000 deaths. Nearly a third of deaths occurred in just two countries: India, at 17% (50 000 deaths in 2013), and Nigeria, at 14% (40 000 deaths).
Most maternal deaths occur in sub-Saharan Africa (62% of deaths or 179 000). Sierra Leone is estimated to have the highest maternal mortality rate in the world at 1100 deaths per 100 000 births, which is down from 2300 in 1990. Other countries with high maternal mortality rates include Chad (980), Central African Republic (880), Somalia (850), and Burundi (750).
Geeta Rao Gupta, deputy executive director of the United Nations Children's Fund, said that a 15 year old girl living in sub-Saharan Africa faces "about a 1 in 40 risk of dying during pregnancy and childbirth during her lifetime," compared with a girl of the same age living in Europe who has a lifetime risk of one in 3300. The figures underscore "how uneven progress has been around the world," she said.
However, WHO warned that a major challenge in reducing the number of maternal deaths is the lack of accurate data, with less than 40% of countries having a complete civil registration system with good attribution of cause of death. Only a third of all deaths worldwide are recorded and fewer than 100 countries use WHO's International Classification of Disease.
The UN Commission on Information and Accountability for Women's and Children's Health is urging that all countries take significant steps to establish a system for registration of births, deaths, and causes of death by next year.

34. BMJ 2014;348:g2913
Screening women for intimate partner violence in healthcare settings: abridged Cochrane systematic review and meta-analysis
O'Doherty LJ et al. ,Department of General Practice, University of Melbourne, Carlton, Vic 3010, Australia <lornajaneodoherty@hotmail.com>

Introduction: Intimate partner violence is a major cause of death and disability on a worldwide scale. The World Health Organization (WHO) highlights violence against women as a priority health issue, with one in three women globally experiencing physical and/or sexual violence from a partner. While the rates of intimate partner violence differ in low, middle, and high income regions, the health effects are similar across the globe. In all countries, women experiencing such violence often present in health settings and require wide ranging medical services. Since the late 1990s, many health professional associations have published clinician guidelines on how to identify and respond to women who have been abused, and health professionals are increasingly required to undertake screening in accordance with national health policies.
Objective: To examine the effectiveness of screening for intimate partner violence conducted within healthcare settings to determine whether or not screening increases identification and referral to support agencies, improves women's wellbeing, decreases further violence, or causes harm.
Design: Systematic review and meta-analysis of trials assessing effectiveness of screening.
Eligibility criteria for selecting studies Randomised or quasi-randomised trials of screening programmes for intimate partner violence involving all women aged ≥16 attending a healthcare setting. We included only studies in which clinicians in the intervention arm personally conducted the screening, or were informed of the

screening result at the time of the consultation, compared with usual care (or no screening). Studies of screening programmes that were followed by structured interventions such as advocacy or therapeutic intervention were excluded.
Results: 11 eligible trials (n=13 027) were identified. In six pooled studies (n=3564), screening increased the identification of intimate partner violence (risk ratio 2.33, 95% confidence interval 1.39 to 3.89), particularly in antenatal settings (4.26, 1.76 to 10.31). Based on three studies (n=1400), we detected no evidence that screening increases referrals to domestic violence support services (2.67, 0.99 to 7.20). Only two studies measured women's experience of violence after screening (three to 18 months after screening) and found no reduction in intimate partner violence. One study reported that screening does not cause harm.
Conclusions: Though screening is likely to increase identification of intimate partner violence in healthcare settings, rates of identification from screening interventions were low relative to best estimates of prevalence of such violence. It is uncertain whether screening increases effective referral to supportive agencies. Screening does not seem to cause harm in the short term, but harm was measured in only one study. As the primary studies did not detect improved outcomes for women screened for intimate partner violence, there is insufficient evidence for screening in healthcare settings. Studies comparing screening versus case finding, or screening in combination with therapeutic intervention for women's long term wellbeing, are needed to inform the implementation of identification policies in healthcare settings.

35. BMJ 2014;348:g3875
Safety in childbirth: can India maintain its momentum?
Krishnan V <vidyakrishnan13@gmail.com>

Will the huge improvements in maternal safety in recent years be enough for the country to meet the fifth millennium development goal? Vidya Krishnan considers the quality improvement projects that are transforming childbirth in India
Last month the United Nations released its latest report on maternal mortality worldwide. It found that despite impressive gains—a 65% reduction since 1990—India still had the most maternal deaths of any country in 2013. An estimated 50 000 women died in childbirth in the country last year, almost a fifth of the global burden.
With few public health accomplishments to brag about, achieving the fifth millennium development goal (MDG)—to reduce maternal mortality to 109 deaths for every 100 000 live births by 2015—is crucial for India. Despite economic progress and various interventions, however, at the current pace of decline the nation's maternal mortality ratio (MMR) in 2015 is expected to be 139 deaths per 100 000 live births. This falls short of the 2015 target by some 30 deaths per 100 000 live births.
India's MMR is currently 178 per 100 000 live births, considerably better than the current global average of 210, and its average annual drop is 4.5%. Sierra Leone is estimated to have the highest MMR at 1100 for every 100 000 live births.
India's decline in MMR is largely a result of huge improvements in maternal safety in the past decade. The district hospital in Ujjain, a small city in Madhya Pradesh, for example, has witnessed some of the simplest and most effective innovations in India's maternal safety programmes. These sporadic, innovative, yet poorly documented strategies have been at the core of India's improvements in maternal safety in the past decade and need to remain central if the country is to reduce its MMR by 2015 by three quarters from what it was in 1990.
In 2005, in an effort to increase institutional deliveries, the union government started paying to transport women in labour to hospitals and drop them back after they were discharged. The effect was immediate: in 2005 6938 babies were delivered in Ujjain's hospital. By 2011 the number was 10 867.
"India has seen a historical decline in MMR. Our maternal safety programmes have picked up momentum in the past two years, especially because of our focus on adolescent health, teenage pregnancies, an increase in contraceptive usage, and so on.

36. BMJ 2014;349:g4437
Rural HIV prevention programmes among India's sex workers can increase condom use, study finds
Bagcchi, S; Kolkata

Community based HIV prevention programmes among female sex workers in rural India can substantially increase the use of condoms, HIV counselling, and testing services, a new study has found.
The study was published in the July 2014 issue of the Asia-Pacific Journal of Public Health and was led by Reynold Washington, an adjunct professor at the St John's Research Institute in Karnataka. It noted that, in India, the HIV epidemic is concentrated in high risk groups, such as intravenous drug users, men who have sex with men, female sex workers, and people who attend sexually transmitted infection (STI) clinics.

“Almost 70% of India’s population resides in rural areas, and 57% of people living with HIV . . . in India also come from rural areas,” Washington and his colleagues noted, adding, “The state of Karnataka in south India accounts for 11% of the [people living with] HIV in the country.”
The researchers examined the changes in behavioural outcomes among 14 284 rural female sex workers who participated in a community based HIV prevention programme in eight districts of Karnataka that had high HIV prevalence.
Female sex workers in these villages received condoms and education on how to use them correctly, and their use of STI services and HIV counselling was also assessed. Two rounds of polling booth surveys (to collect sensitive behavioural information anonymously) were conducted in 2008 and 2011, to assess the behavioural changes in these sex workers.
Washington and his colleagues found that, in the community based programme, 95% of the female sex workers were reached at least once, 80.3% received condoms as they needed, and 71% received health services for STIs. Between the two rounds of polling booth surveys the researchers found a significant increase in condom use (from 60.4% to 72.4%; P=0.001) and in the use of HIV counselling and testing services (from 63.9% to 92.4%; P=0.000).

37. Lancet 2014;383:2019
Editorial: Ending sexual violence in conflict and beyond

Today's Lancet has a special focus on sexual violence in conflict to coincide with the first Global Summit to End Sexual Violence in Conflict in London, June 10—14. War zone sexual violence and other forms of gender-based violence inflict extreme suffering and represent serious violations of human rights. These crimes leave physical, psychological, social, and economic scars on individuals, families, and communities. And shamefully, most of the perpetrators are never brought to justice.
The summit will be chaired by the UK's Foreign Secretary, William Hague, and Special Envoy for the UN High Commissioner for Refugees, Angelina Jolie, who have both championed efforts to end war zone sexual violence globally for the past 2 years. It will bring together more than 1800 representatives from over 113 countries from health, legal, military, government, and academic sectors alongside non-governmental and multilateral organisations, civil society, and the public. As well as bringing attention and awareness to the issue, the summit's aims are to agree on practical steps that will drive change on the ground.
What the content in this issue emphasises is that sexual violence in conflict does not happen in isolation, but that it is one form in an ongoing broad spectrum of violence that is particularly pervasive against women and girls. Indeed, according to WHO, one in three women worldwide experience intimate partner violence or non-partner sexual violence in their lifetime. After very intense negotiations that went on all week, the 67th World Health Assembly (WHA) adopted a historic resolution driven by member states titled: Strengthening the role of the health system in addressing violence, in particular against women and girls, and against children. The resolution requests member states to ensure all people affected by violence have timely, effective, and affordable access to health services. In some ways the resolution is a victory—to tackle an issue that until recently has been marginalised and underfunded. But the draft does not go far enough. Notable omissions in the text are female genital mutilation and child marriage. Certain member states have cultural and societal sensitivities around these issues, so getting agreement is undoubtedly difficult, but this should not prevent continuing work in these areas. WHO will now develop and finalise its first global plan of action on implementing this resolution by the 68th WHA.
Gender inequality is at the root of all sexual violence in women and girls. As Charlotte Watts and colleagues say in their Comment, only by abolishing gender inequality and the adverse social structures, practices, and attitudes that support it, will there be meaningful progress. As part of this mission, The Lancet together with Watts and García-Moreno are preparing a Series on violence against women, which will aim to be evidence-based, forward looking, and grounded in the realities of women's lives. In addition to tackling violence, it will make a strong case for gender equality to be at the core of policies for sustainable development and the realisation of the post-2015 Millennium Development Goal agenda.

38. UNFPA 2014; 228 p
The State of the World’s Midwifery (SoWMy) 2014: A Universal Pathway

A Woman’s Right to Health takes its inspiration from the United Nations Secretary-General’s Every Woman Every Child initiative and his call to action in September 2013 to do everything possible to achieve the Millennium Development Goals (MDGs) by 2015 and work towards the development and adoption of a post-2015 agenda based on the principle of universality.

SoWMy 2014's main objective, agreed at the 2nd Global Midwifery Symposium held in Kuala Lumpur in May 2013, is to provide an evidence base on the state of the world's midwifery in2014 that will: support policy dialogue between governments and their partners; accelerate progress on the health MDGs; identify developments in the three years since the SoWMy 2011 report was published; and inform negotiations for and preparation of the post-2015 development agenda. The report shows that:

1 The 73 Countdown countries included in the report account for more than 92% of global maternal and newborn deaths and stillbirths but have only 42% of the world's medical, midwifery and nursing personnel. Within these countries, workforce deficits are often most acute in areas where maternal and newborn mortality rates are highest.

2 only 4 of the 73 countries have a midwifery workforce that is able to meet the universal need for the 46 essential interventions for sexual, reproductive, maternal and newborn health.

3 Countries are endeavouring to expand and deliver equitable midwifery services, but comprehensive, disaggregated data for determining the availability, accessibility, acceptability and quality of the midwifery workforce are not available.

4 Midwives who are educated and regulated to international standards can provide 87% of the essential care needed for women and newborns.

5 In order for midwives to work effectively, facilities need to be equipped to offer the appropriate services, including for emergencies (safe blood, caesarean sections, newborn resuscitation).

6 Accurate data on the midwifery workforce enable countries to plan effectively. This requires a minimum of 10 pieces of information that all countries should collect: headcount, percentage time spent on SRMNH, roles, age distribution, retirement age, length of education, enrolments into, attrition and graduation from education, and voluntary attrition from the workforce.

7 Legislation, regulation and licensing of midwifery allow midwives to provide the high-quality care they are educated to deliver and thus protects women's health. High-quality midwifery care for women and newborns saves lives and contributes to healthy families and more productive communities.

8 The returns on investment are a "best buy": • Investing in midwifery education, with deployment to community-based services, could yield a 16-fold return on investment in terms of lives saved and costs of caesarean sections avoided, and is a "best buy" in primary health care. • Investing in midwives frees doctors, nurses and other health cadres to focus on other health needs, and contributes to achieving a grand convergence: reducing infections, ending preventable maternal mortality and ending preventable newborn deaths.