International Health Alerts 2014 Contents

Communicable diseases

1. Am J TMH 2014;90(1):11-19. Epub 2013 Oct28

Intervention to promote patients' adherence to antimalarial medication: a systematic review

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Non-adherence as a major contributor to poor treatment outcomes. This study aimed to explore the effectiveness of existing interventions promoting adherence to antimalarial drugs by systematic review. The following databases were used to identify potential articles: MEDLINE, EMBASE, the Cochrane CENTRAL, and CINAHL (through March 2013). From 1,813 potential papers identified, 16studies met the selection criteria comprising 9,247 patients. Interventions were classified as packaging aids, visual media, combined visual media and verbal information, community education, medication supervision, and convenient regimen. These interventions were shown to increase adherence to antimalarial drugs(median relative risk = 1.4, interquartile range 1.2-2.0). Although a most effective intervention did not emerge, community education and visual media/verbal information combinations may well have most potential to improve adherence to antimalarial medication. These interventions should be implemented in combination to optimize their beneficial effects. The current understanding on improved adherence would facilitate to contain outbreaks of malaria coste ffectively.

2. Am J TMH 2013;89(5):819-23.

The economic case for combating malaria

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To date, existing studies focus largely on the economic detriments of malaria. However, if we are to create suitable incentives for larger-scale, more sustained anti-malaria efforts from a wider group of stakeholders, we need a much better understanding of the economic benefits of malaria reduction and elimination. Our report seeks to rectify this disjuncture by showing how attaining the funding needed to meet internationally agreed targets for malaria elimination would, on conservative assumptions, generate enormous economic improvements. We use a cost-benefit analysis anchored in Global Malaria Action Plan projections of malaria eradication based on fully met funding goals. By calculating the value of economic output accrued caused by work years saved and subtracting the costs of intervention, we find that malaria reduction and elimination during 2013-2035 has a 2013 net present value of US $208.6 billion.

3. Bull WHO 2014;92(1):68-74

Principles for designing future regimens for multidrug-resistant tuberculosis

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Fewer than 20% of patients with multidrug-resistant (MDR) tuberculosis are receiving treatment and there is an urgent need to scale up treatment programmes. One of the biggest barriers to scale-up is the treatment regimen, which is lengthy, complex, ineffective, poorly tolerated and expensive. For the first time in over 50 years, new drugs have been developed specifically to treat tuberculosis, with bedaquiline and potentially delamanid expected to be available soon for treatment of MDR cases. However, if the new drugs are merely added to the current treatment regimen, the new regimen will be at least as lengthy, cumbersome and toxic as the existing one. There is an urgent need for strategy and evidence on how to maximize the potential of the new drugs to improve outcomes and shorten treatment. We devised eight key principles for designing future treatment regimens to ensure that, once they are proven safe in clinical trials, they will be clinically effective and programmatically practicable. Regimens should contain at least one new class of drug; be broadly applicable for use against MDR and extensively drug-resistant Mycobacterium tuberculosis complex strains; contain three to five effective drugs, each from a different drug class; be delivered orally; have a simple dosing schedule; have a good side-effect profile that allows limited monitoring; last a maximum of 6 months; and have minimal interaction with antiretrovirals. Following these principles will maximize the potential of new compounds and help to overcome the clinical and programmatic disadvantages and scale-up constraints that plague the current regimen.

4. Bull WHO 2013;91(12):950-6

The ethics of feedback of HIV test results in population-based surveys of HIV infection

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Population-based disease prevalence surveys raise ethical questions, including whether participants should be routinely told their test results. Ethical guidelines call for informing survey participants of any clinically relevant finding to enable appropriate management. However, in anonymous surveys of human immunodeficiency virus (HIV) infection, participants can "opt out" of being given their test results or are offered the chance to undergo voluntary HIV testing in local counselling and testing services. This is aimed at minimizing survey participation bias. Those who opt out of being given their HIV test results and who do not seek their results miss the opportunity to receive life-saving antiretroviral therapy. The justification for HIV surveys without routine feedback of results to participants is based on a public health utility argument: that the benefits of more rigorous survey methods - reduced participation bias - outweigh the benefits to individuals of knowing their HIV status.

However, people with HIV infection have a strong immediate interest in knowing their HIV status. In consideration of the ethical value of showing respect for people and thereby alleviating suffering, an argument based on public health utility is not an appropriate justification. In anonymous HIV surveys as well as other prevalence surveys of treatable conditions in any setting, participation should be on the basis of routine individual feedback of results as an integral part of fully informed participation. Ensuring that surveys are ethically sound may stimulate participation, increase a broader uptake of HIV testing and reduce stigmatization of people who are HIV-positive.

5. Int J Epidemiol 2013;42(6):1537-1540

Editorial: A new era in the history of cholera: the road to elimination (abridged)

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One hundred and fifty years ago, Snow made the historic discovery that contaminated water transmitted cholera, but there were many other key discoveries and notable developments in the history of cholera. Koch cultured V. cholerae, the bacterium about which Snow could only speculate, and S.N. De discovered the enterotoxin produced by the bacterium resulting in massive outpouring of fluid. But these discoveries, by themselves, did not save the lives of cholera's victims; 50% of them died until intravenous hydration therapy began to be used by Rogers in the early 1900s. This hypertonic intravenous solution reduced the case fatality rate, but not until the late 1950s and early 1960s were consistently successful treatments implemented based on careful intake and output balance studies.

An especially important innovation, often taken for granted today, was the development of the 'Watten cot' which is now used routinely in cholera treatment centres worldwide. Watten first conceived this simple army cot with a hole in the middle onto which a cholera patient was placed. A plastic sheet funnelled the watery stool through the hole into a bucket under the bed, allowing for accurate measurement of stool output.

Other major developments in cholera's history include the perfection of the composition of the intravenous fluid using Ringer's lactate or, even better, the cholera solution used in Bangladesh, and the use of appropriate antibiotics to shorten the illness and lessen the purging rate. Critically important was the observation that glucose mediated sodium transport in the gut during cholera illness.

Unfortunately, cholera cases and cholera deaths did not stop. In fact, the seventh pandemic, El Tor cholera spread through Asia, then to Africa in 1970s and then on to Latin America in the 1990s. Cholera now persists in Sub-Saharan Africa leading to outbreaks which have become more frequent and more severe in recent years.

About 2.8 million people are estimated to become ill with cholera each year, and since asymptomatic infections are common, 5 to 10 times as many are infected. The world death toll is estimated to be over 100 000 annually, although only a fraction of these are reported.

If a country aspires to become an eliminating country, it will need to use all the tools available and be alert to the potential for other newer approaches. In the absence of a magic bullet, the tools will certainly need to include at least the following components: (i) improved case management to insure that no cholera patient dies: (ii) an epidemiologically valid surveillance system for all areas of the country, especially remote vulnerable areas; (iii) the intelligent use of oral cholera vaccine among high risk groups; (iv) short- and long-term strategies for safe water and improved sanitation; (v) monitoring, evaluation and research activities to continually improve the programme; and (vi) an effective communication programme stressing the coordination of these different components in the communities affected.

6. Lancet 2013;382(9907):1765-1767

WHO's 2013 global report on tuberculosis: successes, threats, and opportunities

Zumla A. et al

Tuberculosis has been a global public health emergency since 1993. In 2006 WHO launched the Stop TB strategy, which was linked to the Millennium Development Goal (MDG) 6 target of reversing the spread of tuberculosis by 2015. WHO's Global Tuberculosis Report 2013, published on Oct 23, provides a comprehensive assessment of the current tuberculosis pandemic, and assesses progress in implementing tuberculosis services and control measures at country, regional, and global levels. The report details some striking successes towards achieving MDG 6 and related 2015 targets for global tuberculosis control. It also identifies specific areas of concern for which urgent political and funder attention is required.
The report shows that the number of incident cases of tuberculosis worldwide continues to fall at a slow, steady rate of 2%.

WHO's report also shows that progress has been made in reducing the burden of tuberculosis.
Despite the overall decline in tuberculosis incidence and mortality, important concerns are raised in the report that require the urgent attention of political leaders and their governments, development agencies, and financing institutions. We highlight three major concerns. First, an estimated 3 million people with active tuberculosis were either not diagnosed or were diagnosed but not reported. Second, in most countries with high burdens of MDR tuberculosis the response is so far off-track that WHO's report describes it as a “crisis”. Third, many countries with the highest rates of tuberculosis and HIV co-infection have lagged behind global targets for achieving standard tuberculosis and HIV care, including provision of antiretroviral therapy and tuberculosis chemoprophylaxis.
These three critical issues are not insurmountable. Recent advances in new tuberculosis diagnostics, drugs, laboratory methods for detecting MDR tuberculosis, and strategies for proactive screening for tuberculosis, now present opportunities and fresh solutions.
The data from WHO's Global Tuberculosis Report 2013 highlight the crucial need for more aggressive and sustained tuberculosis control efforts through increased provision of resources to bridge large funding gaps. We now have the tools, knowledge, and expertise to achieve global tuberculosis control, and the time has come for swift and visionary action to step up tuberculosis control efforts and drive down tuberculosis incidence rates as rapidly as possible. Increased financial investment to achieve universal access to high-quality care for all people with tuberculosis, and to reduce the human suffering and socioeconomic burden associated with this disease, should be a priority for all governments and donors.

7. Lancet 2014;(383)9911:40-47

Effect of a serogroup A meningococcal conjugate vaccine (PsA—TT) on serogroup A meningococcal meningitis and carriage in Chad: a community study

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A serogroup A meningococcal polysaccharide—tetanus toxoid conjugate vaccine (PsA—TT, MenAfriVac) was licensed in India in 2009, and pre-qualified by WHO in 2010, on the basis of its safety and immunogenicity. This vaccine is now being deployed across the African meningitis belt. We studied the effect of PsA—TT on meningococcal meningitis and carriage in Chad during a serogroup A meningococcal meningitis epidemic.
Methods: We obtained data for the incidence of meningitis before and after vaccination from national records between January, 2009, and June, 2012. In 2012, surveillance was enhanced in regions where vaccination with PsA—TT had been undertaken in 2011, and in one district where a reactive vaccination campaign in response to an outbreak of meningitis was undertaken. Meningococcal carriage was studied in an age-stratified sample of residents aged 1—29 years of a rural area roughly 13—15 and 2—4 months before and 4—6 months after vaccination. Meningococci obtained from cerebrospinal fluid or oropharyngeal swabs were characterised by conventional microbiological and molecular methods.
Findings: Roughly 1·8 million individuals aged 1—29 years received one dose of PsA—TT during a vaccination campaign in three regions of Chad in and around the capital N'Djamena during 10 days in December, 2011. The incidence of meningitis during the 2012 meningitis season in these three regions was 2·48 per 100 000 (57 cases in the 2·3 million population), whereas in regions without mass vaccination, incidence was 43·8 per 100 000 (3809 cases per 8·7 million population), a 94% difference in crude incidence ($p<0·0001$), and an incidence rate ratio of 0·096 (95% CI 0·046—0·198). Despite enhanced surveillance, no case of serogroup A meningococcal meningitis was reported in the three vaccinated regions. 32 serogroup A carriers were identified in 4278 age-stratified individuals (0·75%) living in a rural area near the capital 2—4 months before vaccination, whereas only one serogroup A meningococcus was isolated in 5001 people living in the same community 4—6 months after vaccination (adjusted odds ratio 0·019, 95% CI 0·002—0·138; $p<0·0001$).
Interpretation: PSA—TT was highly effective at prevention of serogroup A invasive meningococcal disease and carriage in Chad. How long this protection will persist needs to be established.

8. TMIH 2013;18(11):1406-1415

Comparing actual and perceived causes of fever among community members in a low malaria transmission setting in northern Tanzania

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Objective: To compare actual and perceived causes of fever in northern Tanzania.
Methods: In a standardised survey, heads of households in 30 wards in Moshi, Tanzania, were asked to identify the most common cause of fever for children and for adults. Responses were compared to data from a local hospital-based fever aetiology study that used standard diagnostic techniques.

Results: Of 810 interviewees, the median (range) age was 48 (16, 102) years and 509 (62.8%) were women. Malaria was the most frequently identified cause of fever, cited by 353 (43.6%) and 459 (56.7%) as the most common cause of fever for children and adults, respectively. In contrast, malaria accounted for 8 (2.0%) of adult and 6 (1.3%) of paediatric febrile admissions in the fever aetiology study. Weather was the second most frequently cited cause of fever. Participants who identified a non-biomedical explanation such as weather as the most common cause of fever were more likely to prefer a traditional healer for treatment of febrile adults (OR 2.7, $P < 0.001$). Bacterial zoonoses were the most common cause of fever among inpatients, but no interviewees identified infections from animal contact as the most common cause of fever for adults; two (0.2%) identified these infections as the most common cause of fever for children.
Conclusions: Malaria is perceived to be a much more common cause of fever than hospital studies indicate, whereas other important diseases are under-appreciated in northern Tanzania. Belief in non-biomedical explanations of fever is common locally and has important public health consequences.

9. TMIH 2014;19(1):83-97

Systematic review of the proportion of pregnancy-related deaths attributed to HIV in population-based studies in sub-Saharan Africa

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Objectives: To estimate the proportion of pregnancy-related deaths attributed to HIV in population-based studies in sub-Saharan Africa, and to document the methods used to make such attribution.
Methods: Four databases were searched for studies on causes of maternal and pregnancy-related mortality published from 2003 to June 2013. Data were extracted, and meta-analysis of proportions with random effects was used to obtain summary estimates.
Results: In the 19 studies found, the proportion of deaths attributed to HIV ranged from 0.0% to 27.0%. The summary proportion was 3.4% (95% confidence interval: 1.8–6.3), with high heterogeneity. Subregionally, the summary proportions were 1.1% (0.4–3.3%) in West Africa, 4.5% (1.7–11.2%) in East Africa and 26.1% (21.9–30.7%) in Southern Africa. Criteria for assigning HIV as a cause of maternal death were rarely reported, and overall, methods were poor.
Conclusions: The proportion of pregnancy-related/maternal deaths attributed to HIV is substantially lower than modelled estimates, but comparisons are hampered by the absence of standard approaches. Clear guidelines on how to classify pregnancy-related deaths as attributable to HIV are urgently needed, so that the effect of the HIV epidemic on pregnancy-related mortality can be monitored and action taken accordingly.

10. TMIH 2014;19(2):169-176

Emergence of methicillin resistance and Panton-Valentine leukocidin positivity in hospital- and community-acquired Staphylococcus aureus infections in Beira, Mozambique

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The objective of this study was to investigate the antibiotic resistance patterns, including methicillin resistance, inducible macrolide–lincosamide–streptogramin B (MLSB) resistance and Panton-Valentine leukocidin (PVL) toxin gene carriage among hospital-acquired Staphylococcus aureus (HA-SA) and community-acquired S. aureus (CA-SA), in Beira, Mozambique.
Methods: In 2010–2011, two prospective surveillance studies were conducted on post-operative and burn wound infections at the Central Hospital of Beira and on skin and soft tissue abscesses at the São Lucas Health Centre. We cultured pus samples, identified suspected S. aureus isolates and performed antimicrobial susceptibility testing, including detection of MLSB resistance. Real-time polymerase chain reaction was used to detect mecA, Martineau and PVL genes.
Results: The prevalence of hospital-acquired methicillin-resistant S. aureus (HA-MRSA) infection among 53 inpatients was 15.1%; the prevalence of community-acquired methicillin-resistant S. aureus (CA-MRSA) infection among 100 outpatients was 1.0%. Inducible MLSB resistance was present in 41.7% and 10.7% of HA-SA and CA-SA isolates, respectively. PVL toxin gene was detected in 81.1% of methicillin-susceptible S. aureus (MSSA) compared with 11.1% of methicillin-resistant S. aureus.
Conclusions: Our study shows, for the first time in Mozambique, the emergence of HA-MRSA. The prevalence of CA-MRSA was low, whereas the rate of PVL toxin gene carriage in MSSA was high. The high rate of inducible MLSB resistance indicates the importance of performing routine D-tests. Overall, our results show the need of strengthening laboratory facilities to provide microbiological data for both directed therapy and surveillance.

11. TMIH 2014;19(2):177-185

Estimating the costs of implementing the rotavirus vaccine in the national immunisation programme: the case of Malawi

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Objectives: Worldwide, rotavirus infections cause approximately 453 000 child deaths annually. Two licensed vaccines could be life- and cost-saving in low-income countries where the disease burden is highest. The aim of our study was to estimate the total cost of implementing the rotavirus vaccine in the national immunisation programme of a low-income country. Furthermore, the aim was to examine the relative contribution of different components to the total cost.
Methods: Following the World Health Organization guidelines, we estimated the resource use and costs associated with rotavirus vaccine implementation, using Malawi as a case. The cost analysis was undertaken from a governmental perspective. All costs were calculated for a 5-years period (2012–2016) and discounted at 5%. The value of key input parameters was varied in a sensitivity analysis.
Results: The total cost of rotavirus vaccine implementation in Malawi amounted to US$ 18.5 million over a 5-years period. This translated into US$ 5.8 per child in the birth cohort. With GAVI Alliance financial support, the total cost was reduced to US$ 1.4 per child in the birth cohort. Approximately 83% of the total cost was attributed to vaccine purchase, while 17% was attributed to system costs, with personnel, transportation and cold chain as the main cost components.
Conclusion: The total cost of rotavirus vaccine implementation in Malawi is high compared with the governmental health budget of US$ 26 per capita per year. This highlights the need for new financing opportunities for low-income countries to facilitate vaccine implementation and ensure sustainable financing.

12. TMIH 2014;19(2):236-239

Durable HIV RNA resuppression after virologic failure while remaining on a first-line regimen: a cohort study

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Adherence interventions are a recommended strategy to salvage failing antiretroviral therapy without regimen change. We assessed the durability of resuppression when using this approach. Of 300 patients who resuppressed on the same regimen (41% of all those with virologic failure), 148 (45%) remained suppressed during follow-up for a median of 2.4 years (interquartile range [IQR]: 1.1, 4.0). Resuppression can be durable following viraemia without a switch in antiretroviral therapy regimen.

Health Policy

13. Am J TMH2014 Jan 20 [Epub ahead of print]

Improving Global Health Education: Development of a Global Health CompetencyModel

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Although global health is a recommended content area for the future of education in public health, no standardized global health competency model existed for master-level public health students. Without such a competency model, academic institutions are challenged to ensure that students are able to demonstrate the knowledge, skills, and attitudes (KSAs) needed for successful performance into day's global health workforce. The Association of Schools of Public Health(ASPH) sought to address this need by facilitating the development of a global health competency model through a multistage modified-Delphi process. Practitioners and academic global health experts provided leadership and guidance throughout the competency development process. The resulting product, the Global Health Competency Model 1.1, includes seven domains and 38 competencies. The Global Health Competency Model 1.1 provides a platform for engaging educators, students, and global health employers in discussion of the KSAs needed to improve human health on a global scale.

14. HPP 2013;28(7):705-716

Narrowing the treatment gap with equitable access: mid-term outcomes of a community case management program in Cameroon

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Coverage of case management interventions remains low and inadequate to achieve millennium development goal (MDG) target reductions in child mortality. Children living in the poorest households are particularly disadvantaged. Community case management (CCM) uses trained and supervised community health workers to improve access to, quality of and demand for effective case management. Evidence that CCM programs can achieve equitable improvements in coverage is limited. This cross-sectional study uses a quasi-experimental design with intervention and comparison areas. Outcomes of a CCM program for malaria and diarrhoea operating in two districts of Cameroon were measured after 1 year of implementation. A household census (N = 16 954) provided measurement of treatment-seeking behaviour for recent episodes of fever and diarrhoea. Results were compared between areas using chi-square tests. Intervention-area children with fever or diarrhoea were nearly nine times more likely to receive treatment with artemisinin combination therapy or oral rehydration salts, respectively, vs neighbouring comparison-area children. High levels of effective treatment were equitable across socioeconomic status in intervention areas, whereas disparities were observed in neighbouring comparison areas. CCM can achieve rapid and equitable improvements in coverage of case management for malaria and diarrhoea, and is a promising strategy for achieving MDG 4. Improved access to treatment, quality of care and caregiver demand were achieved in two districts of Cameroon. CCM must be scaled up to demonstrate outcomes and impact at scale.

15. HPP 2013;28(8):799-808

Diarrhoeal diseases and the global health agenda: measuring and changing priority

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We investigate priority setting and the global health agenda by analysing the control of diarrhoeal diseases (CDD). CDD was one of the 'twin engines' of the 1980s' child survival movement, but now has a low priority on the global health agenda, even though diarrhoeal diseases still claim around 1.5 million children annually. In this article, we develop a framework and four indicators of priority to measure CDD's overall prominence on the global health agenda over the last three decades: trends in treatment coverage, changes in perceived priority, changes in financial support and institutional involvement and bibliographic trends. We find that CDD's priority is now one-sixth to one-third of its level in 1985. We then use political analysis to suggest strategies for reframing CDD as an issue and promoting its priority on the global health agenda.

KEY MESSAGES

- Develops a framework for measuring the political priority of health issues.
- Generates four indicators to assess the priority of diarrhoeal diseases (DD) on the global health agenda over time.
- Finds that the global-level priority of DD is about one-sixth to one-third as high as in 1985.
- Presents political reframing strategies that could be used to promote the priority of DD in the future

16. HPP 2013;28(8):871-883

Six concerns about the data in aid debates: applying an epidemiological perspective to the analysis of aid effectiveness in health and development

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Is aid helping, hindering, or having no effect on development and health? The answer to this question is highly contested, with proponents on all sides adhering strongly to their competing interpretations. We ask how it is possible for those who are often using the same data to hold such divergent views. Here, we employ an epidemiological perspective and find that, in many cases, the arguments are characterised by methodological weaknesses. There may be selective citation of results and failure to account for bias and confounding, such as where an extraneous factor influencing the outcome is correlated with increased aid or, in confounding by indication, where increased aid is a consequence of a country being in an especially adverse situation. Studies may also lack external validity, whereby lack of data (a widespread problem) or similar considerations mean that

analyses are undertaken on an unrepresentative subset of countries. Multiple outcome measures can also be problematic, where the main outcome of interest is not specified in advance. Many studies fail to account for differential time lags between changes in aid and the outcomes being studied. Some studies may also be underpowered to detect an association where one exists. Although, ideally, this debate should be informed by large scale randomised controlled trials, this will often be unfeasible. Given this limitation, it is essential that those engaged in it are cognisant of the many methodological issues that face any observational study.

17. HPP 2013;28(8):884-890

Sector-wide approaches (SWAps) in health: what have we learned?

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Sector-wide approaches (SWAps) in health were developed in the early 1990s in response to widespread dissatisfaction with fragmented donor-sponsored projects and prescriptive adjustment lending. SWAps were intended to provide a more coherent way to articulate and manage government-led sectoral policies and expenditure frameworks and build local institutional capacity as well as offer a means to more effective relationships between governments and donor agencies. The global health landscape has changed dramatically since then. Although many countries have undertaken SWAps, the experience deviated considerably from the early vision, and many of the problems in national health systems persist. SWAps have contributed to the development of robust national health policies and transparent expenditure frameworks as well as strengthening institutional capacity, though the levels of success vary widely. Government stewardship of donors and local stakeholders as well as their political will to implement health strategies also vary highly. Although SWAps are geared towards consensus building policy changes at the national level, in the face of urgent global health concerns, notably the HIV epidemic, donors often by-passed SWAp arrangements through global health initiatives intended to address international priorities. Yet, a key to sustaining global health initiatives is how well they can be integrated into national health systems, a task requiring a return to SWAp principles. Despite shortcomings, SWAps have remained a popular approach for supporting alignment, harmonization and improved accountability between donors and country governments, increasing predictability of aid and reducing fragmentation. The future of SWAps will depend on stronger government oversight and innovative institutional arrangements to support health strategies that address the need for both targeted initiatives and stronger health systems to provide a wide range of public health and clinical services. For development assistance to be more effective, it will also depend on better discipline by donors to support national governments through transparent negotiation.

18. HPP 2013;28(8):891-898

Emerging chronic non-communicable diseases in rural communities of Northern Ethiopia: evidence using population-based verbal autopsy method in Kilite Awlaelo surveillance site

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In countries where most deaths are outside health institutions and medical certification of death is absent, verbal autopsy (VA) method is used to estimate population level causes of death.
Methods: VA data were collected by trained lay interviewers for 409 deaths in the surveillance site. Two physicians independently assigned cause of death using the International Classification of Diseases manual.
Results: In general, infectious and parasitic diseases accounted for 35.9% of death, external causes 15.9%, diseases of the circulatory system 13.4% and perinatal causes 12.5% of total deaths. Mortalities attributed to maternal causes and malnutrition were low, 0.2 and 1.5%, respectively. Causes of death varied by age category. About 22.1, 12.6 and 8.4% of all deaths of under 5-year-old children were due to bacterial sepsis of the newborn, acute lower respiratory infections such as neonatal pneumonia and prematurity including respiratory distress, respectively. For 5–15-year-old children, accidental drowning and submersion, accounting for 34.4% of all deaths in this age category, and accidental fall, accounting for 18.8%, were leading causes of death. Among 15–49-year-old adults, HIV/AIDS (16.3%) and tuberculosis (12.8%) were commonest causes of death, whereas tuberculosis and cerebrovascular diseases were major killers of those aged 50 years and above.
Conclusion: In the rural district, mortality due to chronic non-communicable diseases was very high. The observed magnitude of death from chronic non-communicable disease is unlikely to be unique to this district. Thus, formulation of chronic disease prevention and control strategies is recommended.

19. Int J Epidemiol 2013;42(5):1340-1355

Risk of childhood undernutrition related to small-for-gestational age and preterm birth in low- and middle-income countries

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Background: Low- and middle-income countries continue to experience a large burden of stunting; 148 million children were estimated to be stunted, around 30–40% of all children in 2011. In many of these countries, foetal growth restriction (FGR) is common, as is subsequent growth faltering in the first 2 years. Although there is agreement that stunting involves both prenatal and postnatal growth failure, the extent to which FGR contributes to stunting and other indicators of nutritional status is uncertain.
Methods: Using extant longitudinal birth cohorts (n = 19) with data on birthweight, gestational age and child anthropometry (12–60 months), we estimated study-specific and pooled risk estimates of stunting, wasting and underweight by small-for-gestational age (SGA) and preterm birth.
Results: We grouped children according to four combinations of SGA and gestational age: adequate size-for-gestational age (AGA) and preterm; SGA and term; SGA and preterm; and AGA and term (the reference group). Relative to AGA and term, the OR (95% confidence interval) for stunting associated with AGA and preterm, SGA and term, and SGA and preterm was 1.93 (1.71, 2.18), 2.43 (2.22, 2.66) and 4.51 (3.42, 5.93), respectively. A similar magnitude of risk was also observed for wasting and underweight. Low birthweight was associated with 2.5–3.5-fold higher odds of wasting, stunting and underweight. The population attributable risk for overall SGA for outcomes of childhood stunting and wasting was 20% and 30%, respectively.
Conclusions: This analysis estimates that childhood undernutrition may have its origins in the foetal period, suggesting a need to intervene early, ideally during pregnancy, with interventions known to reduce FGR and preterm birth.

20. Lancet 2014;383(9913):203-206

India should introduce a new Drugs Act

P Roderick et al.

The 2013 Indian Drugs and Cosmetics (Amendment) Bill will not deliver rational, safe, and effective regulation of drugs, according to a new analysis by legal and health experts.
Policy makers in India are grappling with how best to address the serious problems facing the country's drug regulation system. Reports have repeatedly highlighted multiple concerns, including weak regulatory infrastructure and poor performance, lack of access to safe and effective medicines, badly regulated clinical trials, and the proliferation of fixed-dose combinations (FDCs)—formulations comprised of two or more drugs combined in a fixed ratio of doses and available in a single-dosage form.
The Drugs and Cosmetics (Amendment) Bill introduced in the Indian Parliament in August, 2013, is the latest attempt to deal with some of the concerns. Last month, two of its key proposals—creation of a new Central Drugs Authority with greater powers than the current regulator, the Central Drugs Standard Control Organisation (CDSCO), and extension of the regulatory system to cover exported medicines—were rejected by the same parliamentary committee whose scathing criticism of CDSCO in May, 2012, ushered in the Bill.
In 2012, India's Standing Committee on Health and Family Welfare criticised CDSCO's mission to "meet the aspirations…demands and requirements of the pharmaceutical industry" and its apparently close cooperation with applicants in easing drug approvals and avoiding legal requirements. The Committee was also critical of marketing approvals being granted without clinical trials (especially trials in Indian populations), and was concerned about the "very large number" of FDCs that had been approved by State regulators without prior CDSCO approval. FDCs are a remarkable feature of the Indian pharmaceutical market, with rising approvals reported between 1999 and 2011.
We analysed drug approvals over 42 years in India and examined the development of the country's drug laws over seven decades to assess whether legal changes could explain trends in approvals. We evaluate the 2013 Bill in view of the findings.
Conclusions are described within the following paragraphs:

- New drug approvals 1971-2012
- India's drug laws
- The particular problem of FDCs (with Panel 1: 'Types of fixed-dose combinations (FDCs) and their data submission requirements for approval according to the 1988 Rules' and Panel 2: 'FDC groupings according to WHO guidelines')

- A new Drugs Act (with Panel 3: 'Recommendations for amendments to the Indian Drugs and Cosmetics (Amendment) Bill 2013'

Health systems

21. BMJ 2013;347:f6804 News

Shortage of health workers is set to double, says WHO

Gulland A, London

The world could be short of nearly 13 million health workers by 2035 because of an ageing workforce, a shortage of trainees, and workers leaving for better paid jobs, says a report by the World Health Organization. It says that currently the world is short of 7.2 million doctors, nurses, and midwives but that this number will rise to 12.9 million by 2035 if the shortages are not tackled.

The report found that of 186 countries with available data 83 fell below the basic threshold of 22.8 skilled health professionals for every 10 000 people (seen as the number needed to carry out essential health interventions) and that 118 countries fell below the upper threshold of 59.4 skilled health professionals per 10 000 people.

Most of the countries falling below the basic threshold, and also where the proportion of births attended by skilled birth attendants was less than 80%, were in Africa (70% of the group) and South East Asia (13%). Some of South East Asia's most populous countries fell into this category: India (with a population of 1.24 billion), Indonesia (250 million), and Bangladesh (155 million).

The report looked in detail at how the health workforce has changed in the 57 countries with the lowest ratio of health workers. In 46 countries with available data the report found that 32 reported increases in numbers of trained doctors, nurses, and midwives. However, in seven countries the increase in population meant that the net increases in staff numbers would have little or no effect.

The report also warned that the current rate of training of new health professionals was falling well below current and projected demand and that it was in sub-Saharan Africa where the shortages would have the worst effects. The 47 countries of sub-Saharan Africa have just 168 medical schools. Eleven of these countries have no medical school, and 24 have just one medical school.

22. BMJ 2013;347:f7013 Views & Reviews, Film Review

Patent injustice: how India brought cheap HIV drugs to Africa

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How did people with HIV/AIDS in developing countries overcome prohibitive patents to win access to lifesaving antiretroviral drugs? Leena Menghaney reflects on a documentary film that has recently been released in India.

As a lawyer in India working on tackling the patent barriers that keep drugs for hepatitis C and cancer expensive, particularly in developing countries, I see today's medical community take for granted the availability and affordability of HIV treatment in developing countries.

The director Dylan Mohan Gray's hard hitting documentary Fire in the Blood focuses on the AIDS epidemic, especially in Africa. It systematically exposes how patents enabled Western pharma corporations to increase their profits while millions of people in the developing world lost their lives. It also chronicles the struggle by a few people, primarily, Zackie Achmat, a South African activist, and Peter Mugyenyi, a doctor in Uganda, as they campaigned for access to cheaper, generic drugs.

Fire in the Blood knits together rare archival footage and interviews with activists from the late 1990s, when the epidemic killed millions of people in Africa who had no access to antiretroviral drugs and drugs to treat opportunistic infection. All of these drugs were patented and hence priced out of reach. HIV positive people were unable even to afford drugs to avoid painful opportunistic infections and were dying from AIDS. Pfizer, for example, sold the antifungal drug fluconazole (Diflucan), which prevents and treats two opportunistic diseases associated with AIDS, at $30 (Rs 1890; £18; €22) a capsule in South Africa. With minimal access to opportunistic infection drugs and first generation, lifesaving antiretrovirals—which were available in the West—the medical fraternity and governments in developing countries did not know what to do.

But AIDS is not simply one epidemic amid many others. It is an epidemic among the most marginalised people, and Gray's Fire in the Blood sensitively portrays their growing sense of injustice against a system that kept low cost, generic HIV drugs out of Africa. It shows blatant manipulation on the part of drug companies, which used ruthless tactics to keep low cost, generic substitutes out of Africa, denying patients access to the drugs that would save their lives. This finally led to a confrontation between the people dying from AIDS and the rich

pharmaceutical giants and their powerful lobbyists in Washington, and hence indirectly with the US government itself.

23. Bull WHO 2014;92:3–3A

Editorial: Hospital cause-of-death statistics: what should we make of them? (abridged)

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Public health planning should be based on reliable and timely data on the leading causes of death and disability. Civil registration of all deaths, with certification and coding of their cause by a qualified physician based on the International classification of diseases and related health problems,1 is the preferred standard for generating cause-of-death statistics. Most deaths whose cause is certified occur in hospitals. Although not all hospitals have the same diagnostic tools, it seems reasonable to expect hospital-based certifying physicians to correctly identify patients' underlying causes of death, since hospitals usually have established clinical protocols for monitoring disease progression. After all, if physicians in hospitals cannot correctly ascertain their patients' cause of death, who can?

Cause-of-death statistics from hospitals are routinely amalgamated – along with mortality statistics from other sources – to constitute the essential statistics on the health of a population. Such statistics are widely used by governments, researchers, donors and global development agencies, often uncritically, on the assumption that they reliably capture a country's epidemiological profile. They are used to periodically review health priorities, set research agendas and monitor progress towards national and global health and development goals. We take for granted that such data are correct. But are they?

That the answer is a resounding no is only a part of the problem. More worrying perhaps is the fact that custodians of national mortality data systems fail to grasp the importance of periodically assessing the accuracy of hospital cause-of-death data. Physicians in hospitals may lack the time, incentives, diagnostic facilities or training to correctly certify causes of death and seldom understand that their diagnoses guide national health priorities.

Remarkably, the quality of hospital-based mortality data has seldom been investigated. In a recent review, Rampatige et al.identified only 29 studies published since 1980 and nine studies published since 2005 that met their inclusion criteria. The studies were of variable quality and lacked a standardized methodological framework.

To amend this situation, three broad interventions are required:

- hospital physicians, hospital administrators and medical associations should be made more fully aware of the primary purpose and public health importance of correctly certifying and coding causes of death and of properly maintaining hospital medical records to support better diagnosis;
- hospitals, perhaps on a rolling sample basis, should regularly evaluate the accuracy of cause-of-death certification and coding and of medical record practices to identify and address key problems using the standard methods proposed by Rampatige et al.; and
- training of doctors and medical students in how to certify causes of death should be intensified using simple tools that have recently become available.

Countries, the World Health Organization, academics and development partners should all champion and support the urgent and widespread implementation of these interventions to rapidly improve knowledge about the true causes of death in populations and avoid basing policy on flawed data.

24. Emerg Inf Dis 2013;19(11):1811-8

Mobile phone-based syndromic surveillance system, Papua New Guinea

Rosewell A, et al

The health care system in Papua New Guinea is fragile, and surveillance systems infrequently meet international standards. To strengthen outbreak identification, health authorities piloted a mobile phone-based syndromic surveillance system and used established frameworks to evaluate whether the system was meeting objectives. Stakeholder experience was investigated by using standardized questionnaires and focus groups. Nine sites reported data that included 7outbreaks and 92 cases of acute watery diarrhea. The new system was more timely(2.4 vs. 84 days), complete (70% vs. 40%), and sensitive (95% vs. 26%) than existing systems. The system was simple, stable, useful, and acceptable; however, feedback and subnational involvement were weak. A simple syndromic surveillance system implemented in a fragile state enabled more timely, complete, ands

ensitive data reporting for disease risk assessment. Feedback and provincial involvement require improvement. Use of mobile phone technology might improve the timeliness and efficiency of public health surveillance.

25. Lancet 2013;382(9909):2012-2026

Community-based approaches and partnerships: innovations in health-service delivery in Bangladesh

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In Bangladesh, rapid advancements in coverage of many health interventions have coincided with impressive reductions in fertility and rates of maternal, infant, and childhood mortality. These advances, which have taken place despite such challenges as widespread poverty, political instability, and frequent natural disasters, warrant careful analysis of Bangladesh's approach to health-service delivery in the past four decades. With reference to success stories, we explore strategies in health-service delivery that have maximised reach and improved health outcomes. We identify three distinctive features that have enabled Bangladesh to improve health-service coverage and health outcomes: (1) experimentation with, and widespread application of, large-scale community-based approaches, especially investment in community health workers using a doorstep delivery approach; (2) experimentation with informal and contractual partnership arrangements that capitalise on the ability of non-governmental organisations to generate community trust, reach the most deprived populations, and address service gaps; and (3) rapid adoption of context-specific innovative technologies and policies that identify country-specific systems and mechanisms. Continued development of innovative, community-based strategies of health-service delivery, and adaptation of new technologies, are needed to address neglected and emerging health challenges, such as increasing access to skilled birth attendance, improvement of coverage of antenatal care and of nutritional status, the effects of climate change, and chronic disease. Past experience should guide future efforts to address rising public health concerns for Bangladesh and other underdeveloped countries.

Mother and Child Health

26. BMJ 2013;347:f6632 Editorial

Determinants of childhood mortality

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Hard to isolate and harder to translate into effective universal policies

Millennium development goal 4 calls for a reduction in the mortality rate in under 5s by two thirds between 1990 and 2015. Despite an impressive 47% drop in the global rate since 1990, the rate of decline is too slow to meet that target, particularly in sub-Saharan Africa and southern Asia. It is therefore important to know why some countries are making poor progress. Despite previous studies, there is no strong evidence base defining the determinants of cross country child mortality, which would be an important step towards developing effective policies to tackle high death rates. In a welcome contribution, the linked study by Hanf and colleagues revisits the associations between global factors—such as socioeconomic conditions, health variables, and political contexts—and national rates of death in under 5s.

The 10 year (2000-2009) longitudinal analysis tests for non-linear associations between the rate of deaths in under 5s and its determinants, allowing for the possibility that these associations are time dependent. As expected, the study confirms immediate associations between death rates among young children and factors such as national income, access to sanitation facilities, and prevalence of HIV. Urbanisation, public health spending, and perceived levels of corruption and political instability were found to have delayed associations with mortality. The association between women's education and child deaths seems to level out after only a few years of schooling (5-7 years). More surprisingly, the authors found no association between mortality and undernourishment.

27. BMJ 2013;347:f6695 Practice, Uncertainties

Should women with HIV, or at high risk of contracting HIV, use progestogen-containing contraception?

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Nearly 150 million women worldwide use hormonal methods of contraception, predominantly oral contraceptives taken daily (both combined hormonal pills and progestogen-only pills for the purpose of this article) and long acting injectables such as depot medroxyprogesterone acetate and norethisterone enantate. When used correctly, these are highly effective in preventing pregnancy and are reversible. Side effects of medroxyprogesterone are similar in those who are seropositive for HIV and those who are HIV negative, and antiretroviral therapy does not reduce its effectiveness. However, antiretroviral therapy can make oral

contraceptives less effective at preventing pregnancy, and oral contraceptives can increase antiretroviral drugs' toxicity.
Concerns have been raised about possible harmful effects of hormonal contraception in patients infected with HIV and those at high risk of contracting HIV. These effects can be considered in three main categories: HIV acquisition, HIV infectivity, and rate of progression of HIV. Several biologically plausible mechanisms have been proposed for these effects, including effects on genital HIV viral shedding, vaginal epithelial thickness, degree of cervical ectopy, or local and systemic immune responses. However, there is little consistent evidence. Any potential for harm is important given that in sub-Saharan Africa, women of childbearing age are disproportionately affected by HIV. It is essential to offer women the opportunity to prevent HIV acquisition, not only for their own health but to prevent mother to child transmission. The most upstream means of primary prevention for HIV is preventing unintended pregnancy in the first place. Disease progression puts the woman at risk of opportunistic infections and increases the risk of transmitting the disease to an uninfected partner. However, it is equally important to avoid denying access to contraceptives without adequate evidence, since those areas where unintended pregnancy poses the greatest threat to women's lives are often the same areas where the risks of HIV acquisition are the highest.
There are no firm recommendations to guide the contraceptive choices for HIV positive patients, and even recent advisory publications by the World Health Organization and Centers for Disease Control and Prevention have seemed reluctant to take a definitive stand.

28. Int J Epidemiol 2013;42(5):1355-1357

Commentary: Foetal growth, preterm birth and childhood undernutrition (abridged)

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The application of the World Health Organization (WHO) Child Growth Standards released in 2006 showed that in many low- and middle-income countries (LMICs), a child's length is already compromised at birth. In this issue of the IJE, Christian and colleagues3 make an important contribution to understanding the extent to which foetal growth restriction contributes to childhood stunting and other indicators of nutritional status. The consortium of researchers, pooling data from 19 birth cohorts from LMICs, show that childhood undernutrition has its origins in the foetal period. Relative to children born adequate size-for-gestational age (AGA) and at term, the odds ratios of childhood (12–60 months) stunting associated with AGA and preterm; small-for-gestational age (SGA) and term; and SGA and preterm; are 1.93, 2.43 and 4.51, respectively. A similar magnitude of risk is observed for wasting and underweight.3 Importantly, despite the large variation in the prevalence of both SGA and preterm birth, the risk of undernutrition associated with being born too small or too soon is comparable across populations and regions, reflecting common underlying causes of either foetal growth restriction or preterm birth. The results indicate a stronger association between SGA and stunting than between preterm and stunting. In contrast, preterm birth – which affects a smaller number of neonates – is associated with a higher risk of neonatal mortality, with relative risk ranging from 6 to 9 vs. SGA alone, which was consistently associated with a 3-fold increased risk.

The new evidence from Christian and colleagues is both timely and important. Timely, because it comes at a moment when international mobilization around malnutrition has never been stronger, in particular with the Scaling Up Nutrition (SUN) movement (http://scalingupnutrition.org). Important, because it shows that efforts to tackle the scourge of undernutrition and its perverse effects on human health and development will not succeed without paying attention to what happens during pregnancy and before. Today, no one contests the need to intervene early, during pregnancy and ideally even before, to reduce foetal growth restriction and preterm birth. Promising interventions exist to improve maternal nutrition and reduce foetal growth restriction and SGA births in appropriate settings in LMICs, if scaled up before and during pregnancy. They include balanced energy protein, calcium and multiple micronutrient supplementation and preventive strategies for malaria in pregnancy. These interventions would need to be linked to nutrition-sensitive approaches, i.e. women's empowerment, agriculture, food systems, education, employment, social protection and safety nets, to accelerate progress in countries with the highest burden of child undernutrition. In south Asia, where SGA prevalence is highest, there is a need to introduce promising interventions in the preconception period and in adolescents, given the poor pre-pregnancy health and nutrition status of girls and women. Often uneducated and still teenagers, many mothers in south Asia have little say in decisions or control over household resources.

In 2012 the World Health Assembly adopted an ambitious set of global goals on stunting and other nutrition conditions. Increasingly, stakeholders are convinced that not only is it crucial to effectively address child undernutrition as a prerequisite for development, but also that it is possible to do so. Strong consensus has emerged on the '1000 days window of opportunity' (www.thousanddays.org), when interventions are likely to have the greatest impact on child health and development and ultimately boost social and economic progress.

There might be other windows of opportunity, particularly during adolescence, but no one questions the importance of the early window – given undernutrition's short-term impact on mortality, brain growth and development of other viscera, affecting intelligence or non-communicable diseases (NCDs). What happens, or fails to happen, in the crucial first 1000 days – conception through 24 months of age – will drive progress in fighting child undernutrition in south Asia and sub-Saharan Africa, as in every other region.

29. RHM 2013;21:191–202

Discrepancies between national maternal mortality data and international estimates: the experience of Papua New Guinea

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Over the past 30 years maternal mortality estimates for Papua New Guinea have varied widely. There is no mandatory vital registration in PNG, and 85% of the population live in rural areas with limited or no access to health services. Demographic Health Survey data for PNG estimates the maternal mortality ratio to be 370 deaths per 100,000 live births in 1996 and 733 in 2006, whereas estimates based upon mathematical models (as calculated by international bodies) gave figures of 930 for 1980 and 230 for 2010. This disparity has been a source of considerable confusion for health workers, policy makers and development partners. In this study, we compared 2009 facility-based survey data with figures from the national Health Information System records. The comparison revealed similar maternal mortality ratios: for provincial hospitals (245 and 295), government health centres (574 and 386), church agency health centres (624 and 624), and nationally (394 and 438). Synthesizing these estimates for supervised births in facilities and data on unsupervised births from a community-based survey in one province indicates a national MMR of about 500. Knowing the maternal mortality ratio is a necessary starting point for working out how to reduce it.

30. TMIH 2013;18(11):1294-1316

Newborn care behaviours and neonatal survival: evidence from sub-Saharan Africa

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To review evidence from sub-Saharan Africa for the association between the practice or promotion of essential newborn care behaviours and neonatal survival.
Methods: We searched MEDLINE for English language, peer-reviewed literature published since 2005. The study population was neonates residing in a sub-Saharan Africa country who were not HIV positive. Outcomes were all-cause neonatal or early neonatal mortality or one of the three main causes of neonatal mortality: complications of preterm birth, infections and intrapartum-related neonatal events. Interventions included were the practice or promotion of recommended newborn care behaviours including warmth, hygiene, breastfeeding, resuscitation and management of illness. We included study designs with a concurrent comparison group. Study quality was assessed using the Cochrane EPOC or Newcastle–Ottawa tools and summarised using GRADE.
Results: Eleven papers met the search criteria and most were at low risk of bias. We found evidence that delivering on a clean surface, newborn resuscitation, early initiation and exclusive breastfeeding, Kangaroo Mother Care (KMC) for low-birthweight babies, and distribution of clean delivery kits were associated with reduced risks of neonatal mortality or the main causes of neonatal mortality. There was evidence that training community birth attendants in resuscitation and administering antibiotics, and establishing women's groups can improve neonatal survival.
Conclusion: There is a remarkable lack of robust evidence from sub-Saharan Africa on the association between practice or promotion of newborn care behaviours and newborn survival.

Non Communicable Diseases

31. Int J Epidemiol 2013;42(5):1410-1426

Jumping the gun: the problematic discourse on socioeconomic status and cardiovascular health in India

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There has been an increased focus on non-communicable diseases (NCDs) in India, especially on cardiovascular diseases and associated risk factors. In this essay, we scrutinize the prevailing narrative that cardiovascular risk factors (CVRF) and cardiovascular disease (CVD) are no longer confined to the economically advantaged groups but are an increasing burden among the poor in India. We conducted a comprehensive review of studies

reporting the association between socioeconomic status (SES) and CVRF, CVD, and CVD-related mortality in India. With the exception of smoking and low fruit and vegetable intake, the studies clearly suggest that CVRF/CVD is more prevalent among high SES groups in India than among the low SES groups. Although CVD-related mortality rates appear to be higher among the lower SES groups, the proportion of deaths from CVD-related causes was found to be greatest among higher SES groups. The studies on SES and CVRF/CVD also reveal a substantial discrepancy between the data presented and the authors' interpretations and conclusions, along with an unsubstantiated claim that a reversal in the positive SES-CVRF/CVD association has occurred or is occurring in India. We conclude our essay by emphasizing the need to prioritize public health policies that are focused on the health concerns of the majority of the Indian population. Resource allocation in the context of efforts to make health care in India free and universal should reflect the proportional burden of disease on different population groups if it is not to entrench inequity.

32. Lancet 2013;382(9904):1575-86. Epub2013 Aug 29

Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010

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Background: We used data from the Global Burden of Diseases, Injuries, and Risk Factors Study 2010 (GBD 2010) to estimate the burden of disease attributable to mental and substance use disorders in terms of disability-adjusted life years(DALYs), years of life lost to premature mortality (YLLs), and years lived with disability (YLDs).METHODS: For each of the 20 mental and substance use disorders included in GBD2010, we systematically reviewed epidemiological data and used a Bayesian meta-regression tool, Dis Mod-MR, to model prevalence by age, sex, country, region, and year. We obtained disability weights from representative community surveys and an internet-based survey to calculate YLDs. We calculated premature mortality as YLLs from cause of death estimates for 1980-2010 for 20 age groups, both sexes, and 187 countries. We derived DALYs from the sum of YLDs and YLLs. We adjusted burden estimates for comorbidity and present them with 95% uncertainty intervals.
Findings: In 2010, mental and substance use disorders accounted for 183·9 million DALYs (95% UI 153·5 million-216·7 million), or 7·4% (6·2-8·6) of all DALYs worldwide. Such disorders accounted for 8·6 million YLLs (6·5 million-12·1million; 0·5% [0·4-0·7] of all YLLs) and 175·3 million YLDs (144·5 million-207·8 million; 22·9% [18·6-27·2] of all YLDs). Mental and substance use disorders were the leading cause of YLDs worldwide. Depressive disorders accounted for 40·5%(31·7-49·2) of DALYs caused by mental and substance use disorders, with anxiety disorders accounting for 14·6% (11·2-18·4), illicit drug use disorders for 10·9% (8·9-13·2), alcohol use disorders for 9·6% (7·7-11·8), schizophrenia for 7·4%(5·0-9·8), bipolar disorder for 7·0% (4·4-10·3), pervasive developmental disorders for 4·2% (3·2-5·3), childhood behavioural disorders for 3·4% (2·2-4·7),and eating disorders for 1·2% (0·9-1·5). DALYs varied by age and sex, with the highest proportion of total DALYs occurring in people aged 10-29 years. The burden of mental and substance use disorders increased by 37·6% between 1990 and 2010, which for most disorders was driven by population growth and ageing.
Interpretation: Despite the apparently small contribution of YLLs--with deaths inpeople with mental disorders coded to the physical cause of death and suicide coded to the category of injuries under self-harm--our findings show the striking and growing challenge that these disorders pose for health systems in developed and developing regions. In view of the magnitude of their contribution, Improvement in population health is only possible if countries make the prevention and treatment of mental and substance use disorders a public health priority.

33. TMIH 2013;18(11):1357-1364

Diabetic ketoacidosis: an overlooked child killer in sub-Saharan Africa?

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The true incidence of diabetic ketoacidosis (DKA) in sub-Saharan Africa is unknown but unlike in the Western countries, DKA is also uniquely frequent among type 2 diabetes patients of African origin. Increased hyperglycaemia and hepatic ketogenesis lead to osmotic diuresis, dehydration and tissue hypoxia. Acute complications of DKA include cerebral oedema, which may be compounded by malnutrition, parasitic and microbial infections with rampant tuberculosis and HIV. Overlapping symptoms of these conditions and misdiagnosis of DKA contribute to increased morbidity and mortality. Inability of the patients to afford insulin treatment leads to poor glycemic control as some patients seek alternative treatment from traditional healers or use herbal remedies further complicating the disease process. Standard treatment guidelines for DKA currently used may not be ideal as they are adapted from those of the developed world. Children presenting with suspected DKA should be screened for comorbidities which may complicate fluid and electrolyte replacement therapy

protocol. Patient rehabilitation should take into account concurrent treatment for infectious conditions to avoid possible life-threatening drug interactions. We recommend that health systems in sub-Saharan Africa leverage the Expanded Immunization Programme or TB/HIV/AIDS programmes, which are fairly well entrenched to support diabetes services.

34. TMIH 2013;18(12):1520-1530

The magnitude of diabetes and its association with obesity in the slums of Nairobi, Kenya: results from a cross-sectional survey

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Objectives: To assess the prevalence, awareness, treatment and control of diabetes and to examine the relationship of obesity with raised blood glucose in the slums of Nairobi, Kenya.
Methods: We used data from a cross-sectional population-based survey, conducted in 2008–2009, involving a random sample of 5190 (2794 men and 2396 women) adults aged ≥18 years living in two slums – Korogocho and Viwandani – in Nairobi.
Results: The prevalence (weighted by sampling and response rates) of diabetes was 4.8% (95%CI 4.0–5.7) in women and 4.0% (95%CI 3.3–4.7) in men. Less than a quarter of those found to have diabetes were aware of their condition among which just over half of men and three-quarters of women reported being on any treatment in the 12 months preceding the survey. Overall, fewer than 5% of all people with diabetes had their blood sugar under control. Obesity and overweight were significantly associated with increased odds (1.7, 95%CI 1.1–2.6) of raised blood glucose only among women while adjusting for important covariates.
Conclusion: The prevalence of diabetes in this impoverished population is moderately high, while the levels of awareness, treatment and control are quite low. In this population, obesity is an important risk factor for raised blood glucose particularly among women. Prevention and control strategies that target modifiable risk factors for diabetes and increase access to treatment and control in such disadvantaged settings are urgently needed.

Lancet Special Health in the Arab World Jan 2014

35. Lancet 2014;383(9914):309-320. Epub 2014 Jan 20

The state of health in the Arab world, 1990-2010: an analysis of the burden of diseases, injuries, and risk factors

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Background: The Arab world has a set of historical, geopolitical, social, cultural, and economic characteristics and has been involved in several wars that have affected the burden of disease. Moreover, financial and human resources vary widely across the region. We aimed to examine the burden of diseases and injuries in the Arab world for 1990, 2005, and 2010 using data from the Global Burden of Diseases, Injuries, and Risk Factors Study 2010 (GBD 2010).
Methods: We divided the 22 countries of the Arab League into three categories according to their gross national income: low-income countries (LICs; Comoros, Djibouti, Mauritania, Yemen, and Somalia), middle-income countries (MICs; Algeria, Egypt, Iraq, Jordan, Lebanon, Libya, Morocco, occupied Palestinian territory, Sudan, Syria, and Tunisia), and high-income countries (HICs; Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates). For the whole Arab world, each income group, and each individual country, we estimated causes of death, disability-adjusted life years (DALYs), DALY-attributable risk factors, years of life lived with disability (YLDs), years of life lost due to premature mortality (YLLs), and life expectancy by age and sex for 1990, 2005, and 2010.
Findings: Ischaemic heart disease was the top cause of death in the Arab world in 2010 (contributing to 14·3% of deaths), replacing lower respiratory infections, which were the leading cause of death in 1990 (11·0%). Lower respiratory infections contributed to the highest proportion of DALYs overall (6·0%), and in female individuals (6·1%), but ischaemic heart disease was the leading cause of DALYs in male individuals (6·0%). DALYs from non-communicable diseases--especially ischaemic heart disease, mental disorders such as depression and anxiety, musculoskeletal disorders including low back pain and neck pain, diabetes, and cirrhosis--increased since 1990. Major depressive disorder was ranked first as a cause of YLDs in 1990, 2005, and 2010, and lower respiratory infections remained the leading cause of YLLs in 2010 (9·2%). The burden from HIV/AIDS also increased substantially, specifically in LICs and MICs, and road injuries continued to rank highly as a cause of death and DALYs, especially in HICs. Deaths due to suboptimal breastfeeding declined from sixth place in 1990 to tenth place in 2010, and childhood underweight declined from fifth to 11th place.

Interpretation: Since 1990, premature death and disability caused by communicable, newborn, nutritional, and maternal disorders (with the exception of HIV/AIDS) has decreased in the Arab world--although these disorders do still persist in LICs--whereas the burden of non-communicable diseases and injuries has increased. The changes in the burden of disease will challenge already stretched human and financial resources because many Arab countries are now dealing with both non-communicable and infectious diseases. A road map for health in the Arab world is urgently needed.

Other articles in this special

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