International Health Alerts 2014 Contents

Child Health

1. BMJ 2014;348:g2267

Research: The impact of antibiotics on growth in children in low and middle income countries: systematic review and meta-analysis of randomised controlled trials

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Objectives: To determine whether antibiotic treatment leads to improvements in growth in prepubertal children in low and middle income countries, to determine the magnitude of improvements in growth, and to identify moderators of this treatment effect.
Design: Systematic review and meta-analysis.
Data sources: Medline, Embase, Scopus, the Cochrane central register of controlled trials, and Web of Science.
Study selection: Randomised controlled trials conducted in low or middle income countries in which an orally administered antibacterial agent was allocated by randomisation or minimisation and growth was measured as an outcome. Participants aged 1 month to 12 years were included. Control was placebo or non-antimicrobial intervention.
Results: Data were pooled from 10 randomised controlled trials representing 4316 children, across a variety of antibiotics, indications for treatment, treatment regimens, and countries. In random effects models, antibiotic use increased height by 0.04 cm/month (95% confidence interval 0.00 to 0.07) and weight by 23.8 g/month (95% confidence interval 4.3 to 43.3). After adjusting for age, effects on height were larger in younger populations and effects on weight were larger in African studies compared with other regions.
Conclusion: Antibiotics have a growth promoting effect in prepubertal children in low and middle income countries. This effect was more pronounced for ponderal than for linear growth. The antibiotic growth promoting effect may be mediated by treatment of clinical or subclinical infections or possibly by modulation of the intestinal microbiota. Better definition of the mechanisms underlying this effect will be important to inform optimal and safe approaches to achieving healthy growth in vulnerable populations.

2. HPP 2014;29(2):151-63

Estimates of performance in the rate of decline of under-five mortality for 113 low- and middle-income countries, 1970–2010

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Background: Measuring country performance in health has focused on assessing predicted vs observed levels of outcomes, an indicator that varies slowly over time. An alternative is to measure performance in terms of the rate of change in how a selected outcome compares to what would be expected given contextual determinants. Rates of change in health indicators can prove more sensitive than levels to changes in social, intersectoral or health policy context. It is thus similar to the growth rate of gross domestic product in the economic context. We assess performance in the rate of change (decline) of under-five mortality for 113 low- and middle-income countries.
Methods: For 1970–2010, we study the evolution in rates of decline of under-five mortality. For each decade, we define performance as the average of the difference between the observed rate of decline and a rate of decline predicted by a model controlling for the contextual factors of income, female education levels, decade and geographical location.
Results: In the 1970s, the top performer in the rate of decline of under-five mortality was Costa Rica. In the 2000s, the top performer was Turkey. Overall, performance in rates of decline correlated little with performance in levels of under-five mortality. A major transition in performance between decades suggests a change in underlying determinants and we report the magnitude of these transitions. For example, heavily AIDS impacted countries, such as Botswana, experienced major drops in performance between the 1980s and the 1990s and some, including Botswana, experienced major compensatory improvements between the 1990s and the 2000s.
Conclusions: Rate-based measures of country performance in health provide a starting point for assessments of the importance of health system, social and intersectoral determinants of performance.

3. HPP 2014;29(2):204-16

Community-based intervention packages facilitated by NGOs demonstrate plausible evidence for child mortality impact

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Introduction: Evidence exists that community-based intervention packages can have substantial child and newborn mortality impact, and may help more countries meet Millennium Development Goal 4 (MDG 4)

targets. A non-governmental organization (NGO) project using such programming in Mozambique documented an annual decline in under-five mortality rate (U5MR) of 9.3% in a province in which Demographic and Health Survey (DHS) data showed a 4.2% U5MR decline during the same period. To test the generalizability of this finding, the same analysis was applied to a group of projects funded by the US Agency for International Development. Projects supported implementation of community-based intervention packages aimed at increasing use of health services while improving preventive and home-care practices for children under five.
Methods: All projects collect baseline and endline population coverage data for key child health interventions. Twelve projects fitted the inclusion criteria. U5MR decline was estimated by modelling these coverage changes in the Lives Saved Tool (LiST) and comparing with concurrent measured DHS mortality data.
Results: Average coverage changes for all interventions exceeded average concurrent trends. When population coverage changes were modelled in LiST, they were estimated to give a child mortality improvement in the project area that exceeded concurrent secular trend in the subnational DHS region in 11 of 12 cases. The average improvement in modelled U5MR (5.8%) was more than twice the concurrent directly measured average decline (2.5%).
Conclusions: NGO projects implementing community-based intervention packages appear to be effective in reducing child mortality in diverse settings. There is plausible evidence that they raised coverage for a variety of high-impact interventions and improved U5MR by more than twice the concurrent secular trend. All projects used community-based strategies that achieved frequent interpersonal contact for health behaviour change. Further study of the effectiveness and scalability of similar packages should be part of the effort to accelerate progress towards MDG 4.

4. IJE 2014;43(1):204-15

Child mortality patterns in rural Tanzania: an observational study on the impact of malaria control interventions

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Background: Between 1997 and 2009, a number of key malaria control interventions were implemented in the Kilombero and Ulanga Districts in south central Tanzania to increase insecticide-treated nets (ITN) coverage and improve access to effective malaria treatment. In this study we estimated the contribution of these interventions to observed decreases in child mortality.
Methods: The local Health and Demographic Surveillance Site (HDSS) provided monthly estimates of child mortality rates (age 1 to 5 years) expressed as cases per 1000 person-years (c/1000py) between 1997 and 2009. We conducted a time series analysis of child mortality rates and explored the contribution of rainfall and household food security. We used Poisson regression with linear and segmented effects to explore the impact of malaria control interventions on mortality.
Results: Child mortality rates decreased by 42.5% from 14.6 c/1000py in 1997 to 8.4 c/1000py in 2009. Analyses revealed the complexity of child mortality patterns and a strong association with rainfall and food security. All malaria control interventions were associated with decreases in child mortality, accounting for the effect of rainfall and food security.
Conclusions: Reaching the fourth Millenium Development Goal will require the contribution of many health interventions, as well as more general improvements in socio-environmental and nutritional conditions. Distinguishing between the effects of these multiple factors is difficult and represents a major challenge in assessing the effect of routine interventions. However, this study suggests that credible estimates can be obtained when high-quality data on the most important factors are available over a sufficiently long time period.

Communicable diseases

5. BMJ 2014;348:g2275

Feature; Infectious disease: After eradication: India's post-polio problem

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What of India's forgotten survivors and the debilitating post-polio syndrome that can return decades later? Neena Bhandari reports.
As India celebrates three years of being polio free there is an urgent need to invest in medical care for the thousands of people who made the most of life after having had poliomyelitis but are now facing the debilitating post-polio syndrome (PPS). PPS describes the sudden onset of muscle weakness or fatigability in people with a history of acute paralytic poliomyelitis, usually occurring 15 to 40 years later. Many thousands of polio survivors

experience muscle weakness, fatigue, joint and muscle pain, intolerance to cold, and difficulties in sleeping, breathing, or swallowing.
The March of Dimes, an international non-profit agency based in the United States and founded in 1938 by President and polio survivor Franklin D Roosevelt, warned in 2001 that as many as 20 million people worldwide are at risk of PPS, which could leave them using wheelchairs or ventilators for the rest of their lives.
Anita Ghai, a Delhi psychology professor now aged 55, had polio in both legs aged 2. She told the BMJ, "My legs have become more susceptible and less tolerant to cold and fatigue and I live with severe pain in muscles and joints. These are possibly symptoms of PPS, but there are few doctors in India who recognise and understand this condition." Ghai has had a rich life and travelled the world, but about 30 years after having had polio she began to feel muscle weakness. Climbing stairs became difficult and she began using crutches with callipers. For the past eight years she has been using a wheelchair.
The first case of PPS may have been described in 1875. Many experts think that PPS occurs when the overburdened nerve cells, which sent out new connections to make up for destroyed nerve cells, begin to fail, resulting in new muscle weakness. Ageing may also play a part.

6. BMJ 2014;348:g1136

Analysis: Hazards of setting targets to eliminate disease: lessons from the leprosy elimination campaign

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Diana Lockwood and colleagues reflect on the global leprosy elimination programme and challenge the wisdom of WHO's elimination strategies.
Elimination of a disease sounds attractive, but as the recent re-emergence of polio has shown, it is difficult to accomplish. As part of its roadmap for reducing the burden of neglected tropical diseases, the World Health Organization has identified five diseases for elimination by 2015 and a further eight by 2020.1 Although setting these ambitious targets has the potential to focus money and resources, unless the targets are realistic they can have unforeseen consequences. We use the experience of the 1991 campaign to eliminate leprosy to show how targets can end up causing harm to patients.
Box 1: Neglected tropical diseases identified by WHO for elimination
By 2015:
Rabies in Latin America
Chagas disease transmission through blood
Human African trypanosomiasis in selected countries
Onchocerciasis in Latin America
Schistosomiasis in Eastern Mediterranean region, Caribbean, Indonesia, and Mekong river
By 2020:
Rabies in South East Asia and Western pacific
Blinding trachoma
Leprosy
Chagas in most Latin American countries
Human African trypanosomiasis
Visceral leishmaniasis in Indian subcontinent
Lymphatic filariasis
Endemic treponematoses (yaws)

7. Bull WHO 2014;92(2):126-38

Pre-treatment loss to follow-up in tuberculosis patients in low- and lower-middle-income countries and high-burden countries: a systematic review and meta-analysis

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Objctive: To assess the magnitude of loss to follow-up in smear- or culture-positive tuberculosis patients before treatment initiation and outcomes among patients who were traced.
Methods: Ovid Medline and Global Health databases were searched for studies published between 1994 and January 2013 that described pre-treatment loss to follow-up in patients with smear- or culture-positive tuberculosis in routine national tuberculosis programmes (NTPs) in low- and lower-middle-income countries and in countries with a high burden of tuberculosis. Data on the proportion of patients who did not initiate treatment after their tuberculosis diagnosis were extracted from studies meeting inclusion criteria. Where available, data on causes and outcomes, including initiation of tuberculosis treatment at another facility, were investigated. Heterogeneity and publication bias were assessed and random-effects meta-analyses by subgroup (region) were performed.

Findings: Twenty-three eligible studies were identified, with a total of 34 706 smear- or culture-positive tuberculosis patients from 14 countries (8 in Africa, 5 in Asia and 1 in the western Pacific). Most studies were retrospective and linked laboratory and treatment registers to identify pre-treatment loss to follow-up. Pre-treatment loss to follow-up varied from 4 to 38% and was common in studies from Africa (random-effects weighted proportion, WP: 18%; 95% confidence interval, CI: 13-22) and Asia (WP: 13%; 95% CI: 10-15). Conclusion: Pre-treatment loss to follow-up, common in most settings, can hinder tuberculosis control efforts. By not counting individuals who are lost to follow-up before treatment when reporting standard programme indicators, NTPs underestimate case detection rates and mortality and overestimate cure rates.

8. Clin Inf Dis 2014;58(4):470-80

Protection by BCG vaccine against tuberculosis: a systematic review of randomized controlled trials

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Background: Randomized trials assessing BCG vaccine protection against tuberculosis have widely varying results, for reasons that are not well understood.
Methods: We examined associations of trial setting and design with BCG efficacy against pulmonary and miliary or meningeal tuberculosis by conducting a systematic review, meta-analyses, and meta-regression.
Results: We identified 18 trials reporting pulmonary tuberculosis and 6 reporting miliary or meningeal tuberculosis. Univariable meta-regression indicated efficacy against pulmonary tuberculosis varied according to 3 characteristics. Protection appeared greatest in children stringently tuberculin tested, to try to exclude prior infection with Mycobacterium tuberculosis or sensitization to environmental mycobacteria (rate ratio [RR], 0.26; 95% confidence interval [CI], .18-.37), or infants (RR, 0.41; 95% CI, .29-.58). Protection was weaker in children not stringently tested (RR, 0.59; 95% CI, .35-1.01) and older individuals stringently or not stringently tested (RR, 0.88; 95% CI, .59-1.31 and RR, 0.81; 95% CI, .55-1.22, respectively). Protection was higher in trials further from the equator where environmental mycobacteria are less and with lower risk of diagnostic detection bias. These associations were attenuated in a multivariable model, but each had an independent effect. There was no evidence that efficacy was associated with BCG strain. Protection against meningeal and miliary tuberculosis was also high in infants (RR, 0.1; 95% CI, .01-.77) and children stringently tuberculin tested (RR, 0.08; 95% CI, .03-.25).
Conclusions: Absence of prior M. tuberculosis infection or sensitization with environmental mycobacteria is associated with higher efficacy of BCG against pulmonary tuberculosis and possibly against miliary and meningeal tuberculosis. Evaluations of new tuberculosis vaccines should account for the possibility that prior infection may mask or block their effects.

9. Clin Inf Dis 2014;Mar 18 [Epub ahead of print]

The temporal dynamics of relapse and reinfection tuberculosis after successful treatment: a retrospective cohort study

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Background. There is increasing evidence from tuberculosis high-burden settings that exogenous reinfection contributes considerably to recurrent disease. However, large longitudinal studies of endogenous reactivation (relapse) and reinfection tuberculosis are lacking. We hypothesize a relationship between relapse vs. reinfection and the time between treatment completion and recurrent disease.
Methods. Population-based retrospective cohort study on all smear-positive tuberculosis cases successfully treated between 1996 and 2008 in a suburban setting in Cape Town, South Africa. Inverse Gaussian distributions were fitted to observed annual rates of relapse and reinfection, distinguished by DNA-fingerprinting of Mycobacterium tuberculosis strains re-cultured from diagnostic samples.
Results. Paired DNA fingerprint data were available for 130 (64%) of 203 recurrent smear-positive tuberculosis cases in the thirteen-year study period. Reinfection accounted for 66 (51%) of 130 recurrent cases overall, 9 (20%) of 44 recurrent cases within the first year, and 57 (66%) of 86 thereafter (P<0.001). The relapse rate peaked at 3.93% (95%CI: 2.35%-5.96%) per annum 0.35 (95%CI: 0.15-0.45) years after treatment completion. The reinfection tuberculosis rate peaked at 1.58% (95%CI: 0.94%-2.46%) per annum 1.20 (95%CI: 0.55-1.70) years after completion.
Conclusions. This is the first study of sufficient size and duration using DNA-fingerprinting to investigate relapse and reinfection tuberculosis over a lengthy period. Relapse occurred early after treatment completion, whereas reinfection dominated after one year and accounted for at least half of recurrent disease. This temporal relationship may explain the high variability in reinfection observed across smaller studies. We speculate that follow-up time in anti-tuberculosis drug trials should take reinfection into account.

10. Clin Inf Dis 2014;Apr 9 [Epub ahead of print]

Heterosexual Risk of HIV Transmission Per Sexual Act Under Combined Anti-Retroviral Therapy: Systematic Review and Bayesian Modeling

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Background. Although essential for patient counseling and quality of life of HIV-infected individuals, the risk of HIV transmission during one unprotected sex-act with an HIV-infected person under cART remains unknown.
Methods. We reviewed systematically the literature for studies on HIV transmission among heterosexual HIV-serodiscordant couples, where the infected partner was on cART, with regular virological monitoring, reporting on condom use and sexual activity. We used Bayesian statistics to combine data from selected studies, to investigate the per-act risk of HIV transmission through unprotected sex with an HIV-infected person on cART for >6 months.
Results. At most one HIV transmission, over an estimated 113,480 sex acts, of which 17% were not condom-protected, was reported within 1672 HIV-serodiscordant couples where the index partner had been treated for >6 months. Data were insufficient to determine whether the reported transmission occurred before or after 6 months of cART. We estimated the upper-bound per-act risk of HIV transmission at either 8.7 or 13:100,000, depending on whether the transmission occurred before or after 6 months of cART. These estimates applied whether or not index partners were virally suppressed. Estimating an upper-bound risk below 1:100,000 would require observing no HIV transmission while collecting >12 times the available amount of data.
Conclusion. Available data do not support zero risk of HIV transmission under cART. The per-act risk of HIV transmission through unprotected sex with HIV-infected individuals on cART in comprehensive care for >6 months (whether or not virally suppressed) is <13:100,000. Estimating a 10-fold lower upper-bound risk may be unfeasible due to high condom use among HIV-serodiscordant couples in most research studies.

11. Lancet 2014;Mar 21 [Epub ahead of print]

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

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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.

12. Lancet 2014;Mar 31 [Epub ahead of print]

Human schistosomiasis

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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.

13. Lancet 2014;Apr 11 [Epub ahead of print]

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

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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.

14. Lancet 2014;383(9915):424-35

Feasibility, accuracy, and clinical effect of point-of-care Xpert MTB/RIF testing for tuberculosis in primary-care settings in Africa: a multicentre, randomised, controlled trial

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Background: The Xpert MTB/RIF test for tuberculosis is being rolled out in many countries, but evidence is lacking regarding its implementation outside laboratories, ability to inform same-day treatment decisions at the point of care, and clinical effect on tuberculosis-related morbidity. We aimed to assess the feasibility, accuracy, and clinical effect of point-of-care Xpert MTB/RIF testing at primary-care health-care facilities in southern Africa.

Methods: In this pragmatic, randomised, parallel-group, multicentre trial, we recruited adults with symptoms suggestive of active tuberculosis from five primary-care health-care facilities in South Africa, Zimbabwe, Zambia, and Tanzania. Eligible patients were randomly assigned using pregenerated tables to nurse-performed Xpert MTB/RIF at the clinic or sputum smear microscopy. Participants with a negative test result were empirically managed according to local WHO-compliant guidelines. Our primary outcome was tuberculosis-related morbidity (measured with the TBscore and Karnofsky performance score [KPS]) in culture-positive patients who had begun anti-tuberculosis treatment, measured at 2 months and 6 months after randomisation, analysed by intention to treat. This trial is registered with Clinicaltrials.gov, number NCT01554384.

Findings: Between April 12, 2011, and March 30, 2012, we randomly assigned 758 patients to smear microscopy (182 culture positive) and 744 to Xpert MTB/RIF (185 culture positive). Median TBscore in culture-positive patients did not differ between groups at 2 months (2 [IQR 0—3] in the smear microscopy group vs 2 [0·25—3] in the MTB/RIF group; p=0·85) or 6 months (1 [0—3] vs 1 [0—3]; p=0·35), nor did median KPS at 2 months (80 [70—90] vs 90 [80—90]; p=0·23) or 6 months (100 [90—100] vs 100 [90—100]; p=0·85). Point-of-care MTB/RIF had higher sensitivity than microscopy (154 [83%] of 185 vs 91 [50%] of 182; p=0·0001) but similar specificity (517 [95%] 544 vs 540 [96%] of 560; p=0·25), and had similar sensitivity to laboratory-based MTB/RIF (292 [83%] of 351; p=0·99) but higher specificity (952 [92%] of 1037; p=0·0173). 34 (5%) of 744 tests with point-of-care MTB/RIF and 82 (6%) of 1411 with laboratory-based MTB/RIF failed (p=0·22). Compared with the microscopy group, more patients in the MTB/RIF group had a same-day diagnosis (178 [24%] of 744 vs 99 [13%] of 758; p<0·0001) and same-day treatment initiation (168 [23%] of 744 vs 115 [15%] of 758; p=0·0002). Although, by end of the study, more culture-positive patients in the MTB/RIF group were on treatment due to reduced dropout (15 [8%] of 185 in the MTB/RIF group did not receive treatment vs 28 [15%] of 182 in the microscopy group; p=0·0302), the proportions of all patients on treatment in each group by day 56 were similar (320 [43%] of 744 in the MTB/RIF group vs 317 [42%] of 758 in the microscopy group; p=0·6408).

Interpretation: Xpert MTB/RIF can be accurately administered by a nurse in primary-care clinics, resulting in more patients starting same-day treatment, more culture-positive patients starting therapy, and a shorter time to treatment. However, the benefits did not translate into lower tuberculosis-related morbidity, partly because of high levels of empirical-evidence-based treatment in smear-negative patients.

15. TMIH 2014;19(3):256-66

Goodstart: a cluster randomised effectiveness trial of an integrated, community-based package for maternal and newborn care, with prevention of mother-to-child transmission of HIV in a South African township

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Background: Progress towards MDG4 for child survival in South Africa requires effective prevention of mother-to-child transmission (PMTCT) of HIV including increasing exclusive breastfeeding, as well as a new focus on reducing neonatal deaths. This necessitates increased focus on the pregnancy and early post-natal periods, developing and scaling up appropriate models of community-based care, especially to reach the peri-urban poor.
Methods: We used a randomised controlled trial with 30 clusters (15 in each arm) to evaluate an integrated, scalable package providing two pregnancy visits and five post-natal home visits delivered by community health workers in Umlazi, Durban, South Africa. Primary outcomes were exclusive and appropriate infant feeding at 12 weeks post-natally and HIV-free infant survival.
Results: At 12 weeks of infant age, the intervention was effective in almost doubling the rate of exclusive breastfeeding (risk ratio 1.92; 95% CI: 1.59–2.33) and increasing infant weight and length-for-age z-scores (weight difference 0.09; 95% CI: 0.00–0.18, length difference 0.11; 95% CI: 0.03–0.19). No difference was seen between study arms in HIV-free survival. Women in the intervention arm were also more likely to take their infant to the clinic within the first week of life (risk ratio 1.10; 95% CI: 1.04–1.18).
Conclusions: The trial coincided with national scale up of ARVs for PMTCT, and this could have diluted the effect of the intervention on HIV-free survival. We have demonstrated that implementation of a pro-poor integrated PMTCT and maternal, neonatal and child health home visiting model is feasible and effective. This trial could inform national primary healthcare reengineering strategies in favour of home visits. The dose effect on exclusive breastfeeding is notable as improving exclusive breastfeeding has been resistant to change in other studies targeting urban poor families.

16. PLoS Med 2014;11(1):e1001590

Scale-up of Malaria Rapid Diagnostic Tests and Artemisinin-Based Combination Therapy: Challenges and Perspectives in Sub-Saharan Africa

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Scaling up and sustaining access to malaria diagnosis and treatment in all public sector, for-profit, and informal health facilities across sub-Saharan Africa is central to current global strategies for malaria control and elimination.
The use of malaria rapid diagnostic tests (RDTs) aims to eliminate reliance on signs and symptoms to diagnose and treat malaria but evidence shows health workers do not always test the right patients, nor provide treatment based on the results of the test.
Expanding access to malaria RDTs on the scale needed to achieve universal coverage requires retraining of public, private, and retail sector providers as well as sustained supplies and quality assurance.
Barriers to rational use of tests and drugs may be overcome through appropriate policy design for the local health service setting, which addresses health worker practice and patient perceptions.
Innovative methods have been used to increase access to the most effective antimalarial drugs in the last five years, but these efforts will be incomplete and unsustainable without similar efforts to incorporate RDTs into practice.

17. PLoS Med 201;11(1):e1001594

Impact of Intermittent Screening and Treatment for Malaria among School Children in Kenya: A Cluster Randomised Trial

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Background: Improving the health of school-aged children can yield substantial benefits for cognitive development and educational achievement. However, there is limited experimental evidence of the benefits of alternative school-based malaria interventions or how the impacts of interventions vary according to intensity of

malaria transmission. We investigated the effect of intermittent screening and treatment (IST) for malaria on the health and education of school children in an area of low to moderate malaria transmission.
Methods and Findings: A cluster randomised trial was implemented with 5,233 children in 101 government primary schools on the south coast of Kenya in 2010–2012. The intervention was delivered to children randomly selected from classes 1 and 5 who were followed up for 24 months. Once a school term, children were screened by public health workers using malaria rapid diagnostic tests (RDTs), and children (with or without malaria symptoms) found to be RDT-positive were treated with a six dose regimen of artemether-lumefantrine (AL). Given the nature of the intervention, the trial was not blinded. The primary outcomes were anaemia and sustained attention. Secondary outcomes were malaria parasitaemia and educational achievement. Data were analysed on an intention-to-treat basis.
During the intervention period, an average of 88.3% children in intervention schools were screened at each round, of whom 17.5% were RDT-positive. 80.3% of children in the control and 80.2% in the intervention group were followed-up at 24 months. No impact of the malaria IST intervention was observed for prevalence of anaemia at either 12 or 24 months (adjusted risk ratio [Adj.RR]: 1.03, 95% CI 0.93–1.13, p = 0.621 and Adj.RR: 1.00, 95% CI 0.90–1.11, p= 0.953) respectively, or on prevalence of P. falciparum infection or scores of classroom attention. No effect of IST was observed on educational achievement in the older class, but an apparent negative effect was seen on spelling scores in the younger class at 9 and 24 months and on arithmetic scores at 24 months.
Conclusion: In this setting in Kenya, IST as implemented in this study is not effective in improving the health or education of school children. Possible reasons for the absence of an impact are the marked geographical heterogeneity in transmission, the rapid rate of reinfection following AL treatment, the variable reliability of RDTs, and the relative contribution of malaria to the aetiology of anaemia in this setting.

18. PLoS Med 2014;11(2):e1001605

Effect of Water, Sanitation, and Hygiene on the Prevention of Trachoma: A Systematic Review and Meta-Analysis

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Background: Trachoma is the world's leading cause of infectious blindness. The World Health Organization (WHO) has endorsed the SAFE strategy in order to eliminate blindness due to trachoma by 2020 through “surgery,” “antibiotics,” “facial cleanliness,” and “environmental improvement.” While the S and A components have been widely implemented, evidence and specific targets are lacking for the F and E components, of which water, sanitation, and hygiene (WASH) are critical elements. Data on the impact of WASH on trachoma are needed to support policy and program recommendations. Our objective was to systematically review the literature and conduct meta-analyses where possible to report the effects of WASH conditions on trachoma and identify research gaps.
Methods and Findings: We systematically searched PubMed, Embase, ISI Web of Knowledge, MedCarib, Lilacs, REPIDISCA, DESASTRES, and African Index Medicus databases through October 27, 2013 with no restrictions on language or year of publication. Studies were eligible for inclusion if they reported a measure of the effect of WASH on trachoma, either active disease indicated by observed signs of trachomatous inflammation orChlamydia trachomatis infection diagnosed using PCR. We identified 86 studies that reported a measure of the effect of WASH on trachoma. To evaluate study quality, we developed a set of criteria derived from the GRADE methodology. Publication bias was assessed using funnel plots. If three or more studies reported measures of effect for a comparable WASH exposure and trachoma outcome, we conducted a random-effects meta-analysis. We conducted 15 meta-analyses for specific exposure-outcome pairs. Access to sanitation was associated with lower trachoma as measured by the presence of trachomatous inflammation-follicular or trachomatous inflammation-intense (TF/TI) (odds ratio [OR] 0.85, 95% CI 0.75–0.95) and C. trachomatis infection (OR 0.67, 95% CI 0.55–0.78). Having a clean face was significantly associated with reduced odds of TF/TI (OR 0.42, 95% CI 0.32–0.52), as were facial cleanliness indicators lack of ocular discharge (OR 0.42, 95% CI 0.23–0.61) and lack of nasal discharge (OR 0.62, 95% CI 0.52–0.72). Facial cleanliness indicators were also associated with reduced odds of C. trachomatis infection: lack of ocular discharge (OR 0.40, 95% CI 0.31–0.49) and lack of nasal discharge (OR 0.56, 95% CI 0.37–0.76). Other hygiene factors found to be significantly associated with reduced TF/TI included face washing at least once daily (OR 0.76, 95% CI 0.57–0.96), face washing at least twice daily (OR 0.85, 95% CI 0.80–0.90), soap use (OR 0.76, 95% CI 0.59–0.93), towel use (OR 0.65, 95% CI 0.53–0.78), and daily bathing practices (OR 0.76, 95% CI 0.53–0.99). Living within 1 km of a water source was not found to be significantly associated with TF/TI or C. trachomatis infection, and the use of sanitation facilities was not found to be significantly associated with TF/TI.
Conclusions: We found strong evidence to support F and E components of the SAFE strategy. Though limitations included moderate to high heterogenity, low study quality, and the lack of standard definitions, these

findings support the importance of WASH in trachoma elimination strategies and the need for the development of standardized approaches to measuring WASH in trachoma control programs.

19. PLoS Med 2014;11(2):e1001608

Incident HIV during Pregnancy and Postpartum and Risk of Mother-to-Child HIV Transmission: A Systematic Review and Meta-Analysis

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Background: Women may have persistent risk of HIV acquisition during pregnancy and postpartum. Estimating risk of HIV during these periods is important to inform optimal prevention approaches. We performed a systematic review and meta-analysis to estimate maternal HIV incidence during pregnancy/postpartum and to compare mother-to-child HIV transmission (MTCT) risk among women with incident versus chronic infection.
Methods and Findings: We searched PubMed, Embase, and AIDS-related conference abstracts between January 1, 1980, and October 31, 2013, for articles and abstracts describing HIV acquisition during pregnancy/postpartum. The inclusion criterion was studies with data on recent HIV during pregnancy/postpartum. Random effects models were constructed to pool HIV incidence rates, cumulative HIV incidence, hazard ratios (HRs), or odds ratios (ORs) summarizing the association between pregnancy/postpartum status and HIV incidence, and MTCT risk and rates. Overall, 1,176 studies met the search criteria, of which 78 met the inclusion criterion, and 47 contributed data. Using data from 19 cohorts representing 22,803 total person-years, the pooled HIV incidence rate during pregnancy/postpartum was 3.8/100 person-years (95% CI 3.0–4.6): 4.7/100 person-years during pregnancy and 2.9/100 person-years postpartum (p = 0.18). Pooled cumulative HIV incidence was significantly higher in African than non-African countries (3.6% versus 0.3%, respectively; p<0.001). Risk of HIV was not significantly higher among pregnant (HR 1.3, 95% CI 0.5–2.1) or postpartum women (HR 1.1, 95% CI 0.6–1.6) than among non-pregnant/non-postpartum women in five studies with available data. In African cohorts, MTCT risk was significantly higher among women with incident versus chronic HIV infection in the postpartum period (OR 2.9, 95% CI 2.2–3.9) or in pregnancy/postpartum periods combined (OR 2.3, 95% CI 1.2–4.4). However, the small number of studies limited power to detect associations and sources of heterogeneity.
Conclusions: Pregnancy and the postpartum period are times of persistent HIV risk, at rates similar to “high risk” cohorts. MTCT risk was elevated among women with incident infections. Detection and prevention of incident HIV in pregnancy/postpartum should be prioritized, and is critical to decrease MTCT.

20. PLoS Med 2014;11(3):e1001620

Water, Sanitation, Hygiene, and Soil-Transmitted Helminth Infection: A Systematic Review and Meta-Analysis

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Background: Preventive chemotherapy represents a powerful but short-term control strategy for soil-transmitted helminthiasis. Since humans are often re-infected rapidly, long-term solutions require improvements in water, sanitation, and hygiene (WASH). The purpose of this study was to quantitatively summarize the relationship between WASH access or practices and soil-transmitted helminth (STH) infection.
Methods and Findings: We conducted a systematic review and meta-analysis to examine the associations of improved WASH on infection with STH (Ascaris lumbricoides, Trichuris trichiura, hookworm [Ancylostoma duodenale and Necator americanus], and Strongyloides stercoralis). PubMed, Embase, Web of Science, and LILACS were searched from inception to October 28, 2013 with no language restrictions. Studies were eligible for inclusion if they provided an estimate for the effect of WASH access or practices on STH infection. We assessed the quality of published studies with the Grades of Recommendation, Assessment, Development and Evaluation (GRADE) approach. A total of 94 studies met our eligibility criteria; five were randomized controlled trials, whilst most others were cross-sectional studies. We used random-effects meta-analyses and analyzed only adjusted estimates to help account for heterogeneity and potential confounding respectively.
Use of treated water was associated with lower odds of STH infection (odds ratio [OR] 0.46, 95% CI 0.36–0.60). Piped water access was associated with lower odds of A. lumbricoides(OR 0.40, 95% CI 0.39–0.41) and T. trichiura infection (OR 0.57, 95% CI 0.45–0.72), but not any STH infection (OR 0.93, 95% CI 0.28–3.11). Access to sanitation was associated with decreased likelihood of infection with any STH (OR 0.66, 95% CI 0.57–0.76), T. trichiura (OR 0.61, 95% CI 0.50–0.74), and A. lumbricoides (OR 0.62, 95% CI 0.44–0.88), but not with hookworm infection (OR 0.80, 95% CI 0.61–1.06). Wearing shoes was associated with reduced odds of hookworm infection (OR 0.29, 95% CI 0.18–0.47) and infection with any STH (OR 0.30, 95% CI 0.11–0.83). Handwashing, both before eating (OR 0.38, 95% CI 0.26–0.55) and after defecating (OR 0.45, 95% CI 0.35–0.58), was associated with lower odds of A. lumbricoidesinfection. Soap use or availability was significantly

associated with lower infection with any STH (OR 0.53, 95% CI 0.29–0.98), as was handwashing after defecation (OR 0.47, 95% CI 0.24–0.90).
Observational evidence constituted the majority of included literature, which limits any attempt to make causal inferences. Due to underlying heterogeneity across observational studies, the meta-analysis results reflect an average of many potentially distinct effects, not an average of one specific exposure-outcome relationship.
Conclusions: WASH access and practices are generally associated with reduced odds of STH infection. Pooled estimates from all meta-analyses, except for two, indicated at least a 33% reduction in odds of infection associated with individual WASH practices or access. Although most WASH interventions for STH have focused on sanitation, access to water and hygiene also appear to significantly reduce odds of infection. Overall quality of evidence was low due to the preponderance of observational studies, though recent randomized controlled trials have further underscored the benefit of handwashing interventions. Limited use of the Joint Monitoring Program's standardized water and sanitation definitions in the literature restricted efforts to generalize across studies. While further research is warranted to determine the magnitude of benefit from WASH interventions for STH control, these results call for multi-sectoral, integrated intervention packages that are tailored to social-ecological contexts.

21. SocScM 2014;102:165-73

Understanding motives for intravaginal practices amongst Tanzanian and Ugandan women at high risk of HIV infection: The embodiment of social and cultural norms and well-being

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Some types of intravaginal practices (IVP) may increase the risk for HIV acquisition. This is particularly worrisome for populations with dual high prevalence of HIV and IVP. Women involved in transactional sex are at increased risk for HIV infection in sub-Saharan Africa. Social, cultural and economic influences are strong drivers of IVP in this population. To explore this, we carried out a qualitative research study to investigate the drivers and motivations for using IVP within a large observational study of women at high risk of HIV in Tanzania and Uganda from September 2008 to September 2009. Of the 201 women selected, 176 women took part in a semi-structured in-depth interview. Additionally, in Tanzania, eight focus group discussions among study participants and community members were carried out to obtain information on community norms and expectations. IVP were motivated by overlapping concerns with hygiene, morality, sexual pleasure, fertility, relationship security, and economic security. These motives were driven by the need to meet cultural and social expectations of womanhood, and at the same time attend to personal well-being. Among women involved in transactional sex in East Africa, interventions aimed at modifying or eliminating IVP should attend to local cultural and social norms as well as the individual as an agent of change.

22. TMIH 2014;19(3):246–55

Oral lesions among HIV-infected children on antiretroviral treatment in West Africa

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Objective: To estimate the prevalence of oral mucosal diseases and dental caries among HIV-infected children receiving antiretroviral treatment (ART) in West Africa and to identify the factors associated with the prevalence of oral mucosal lesions.
Methods: Multicentre cross-sectional survey in five paediatric HIV clinics in Côte d'Ivoire, Mali and Sénégal. A standardised examination was performed by trained dentists on a random sample of HIV-infected children aged 5–15 years receiving ART. The prevalence of oral and dental lesions and mean number of decayed, missing/extracted and filled teeth (DMFdefT) in temporary and permanent dentition were estimated with their 95% confidence interval (95% CI). We used logistic regression to explore the association between children's characteristics and the prevalence of oral mucosal lesions, expressed as prevalence odds ratio (POR).
Results: The median age of the 420 children (47% females) enrolled was 10.4 years [interquartile range (IQR) = 8.3–12.6]. The median duration on ART was 4.6 years (IQR = 2.6–6.2); 84 (20.0%) had CD4 count<350 cells/mm3. A total of 35 children (8.3%; 95% CI: 6.1–11.1) exhibited 42 oral mucosal lesions (24 were candidiasis); 86.0% (95% CI = 82.6–89.3) of children had DMFdefT ≥ 1. The presence of oral mucosal lesions was independently associated with CD4 count < 350 cells/mm3 (POR = 2.96, 95% CI = 1.06–4.36) and poor oral hygiene (POR = 2.69, 95% CI = 1.07–6.76).
Conclusions: Oral mucosal lesions still occur in HIV-infected African children despite ART, but rarely. However, dental caries were common and severe in this population, reflecting the need to include oral health in the comprehensive care of HIV.

Drug policy

23. BMJ 2014;348:g1083

Views and Reviews, Personal View: China's misuse of antibiotics should be curbed

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Pressure from patients and perverse financial incentives are just two of many factors that conspire to encourage potentially dangerous overuse of antibiotics in China, writes Yan Li

China has a high rate of antibiotic use for inpatients and outpatients. On average, each Chinese person consumes 138 g of antibiotics a year—10 times that consumed in the United States. About 75% of patients with seasonal influenza are estimated to be prescribed antibiotics, and the rate of antibiotic prescription for inpatients is 80%. The World Health Organization recommends a maximum of 30%. About 97% of surgical patients in China are given antibiotics.

In many primary healthcare centres in China, antibiotics are regarded as a panacea. However, they have no effect on viral infections such as the common cold. They are also ineffective against sore throats, which are usually viral and resolve spontaneously.

Antibiotic misuse is not helpful to treatment and can damage the body in different ways. Irrational use of antibiotics can lead to drug resistance, toxicity, and allergic reactions.

Health Policy

24. Am J TMH 2014;90(3):560-5 Epub 2014 Jan 20

Improving global health education: development of a Global Health Competency Model

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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 in today'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 36 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.

25. HPP 2014;29(2):137–50

Impact of user fees on maternal health service utilization and related health outcomes: a systematic review

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Objective: To assess the evidence of the impact of user fees on maternal health service utilization and related health outcomes in low- and middle-income countries, as well as their impact on inequalities in these outcomes.
Methods: Studies were identified by modifying a search strategy from a related systematic review. Primary studies of any design were included if they reported the effect of fee changes on maternal health service utilization, related health outcomes and inequalities in these outcomes. For each study, data were systematically extracted and a quality assessment conducted. Due to the heterogeneity of study methods, results were examined narratively.
Findings: Twenty studies were included. Designs and analytic approaches comprised: two interrupted time series, eight repeated cross-sectional, nine before-and-after without comparison groups and one before-and-after in three groups. Overall, the quality of studies was poor. Few studies addressed potential sources of bias, such as secular trends over time, and even basic tests of statistical significance were often not reported. Consistency in the direction of effects provided some evidence of an increase in facility delivery in particular after fees were removed, as well as possible increases in the number of managed delivery complications. There was little evidence of the effect on health outcomes or inequality in accessing care and, where available, the direction of effect varied.

Conclusion: Despite the global momentum to abolish user fees for maternal and child health services, robust evidence quantifying impact remains scant. Improved methods for evaluating and reporting on these interventions are recommended, including better descriptions of the interventions and context, looking at a range of outcome measures, and adopting robust analytical methods that allow for adjustment of underlying and seasonal trends, reporting immediate as well as longer-term (e.g. at 6 months and 1 year) effects and using comparison groups where possible.

26. HPP 2014;29(2):164-76

Is franchising in health care valuable? A systematic review

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Background: Franchising is an organizational form that originates from the business sector. It is increasingly used in the healthcare sector with the aim of enhancing quality and accessibility for patients, improving the efficiency and competitiveness of organizations and/or providing professionals with a supportive working environment. However, a structured overview of the scientific evidence for these claims is absent, whereas such an overview can be supportive to scholars, policy makers and franchise practitioners.
Methods: This article provides a systematic review of literature on the outcomes of franchising in health care. Seven major databases were systematically searched. Peer-reviewed empirical journal articles focusing on the relationship between franchising and outcomes were included. Eventually, 15 articles were included and their findings were narratively synthesized. The level of evidence was rated by using the Grading of Recommendations Assessment, Development, and Evaluation scale.
Results: The review shows that outcomes of franchising in health care have primarily been evaluated in low- and middle-income countries in the reproductive health/family planning sector. Articles about high-income countries are largely absent, apart from three articles evaluating pharmacy franchises. Most studies focus on outcomes for customers/clients and less on organizations and professionals. The evidence is primarily of low quality. Based on this evidence, franchising is predominantly positively associated with client volumes, physical accessibility and some types of quality. Findings regarding utilization, customer loyalty, efficiency and results for providers are mixed.
Conclusions: We conclude that franchising has the potential to improve outcomes in healthcare practices, but the evidence base is yet too weak for firm conclusions. Extensive research is needed to further determine the value of healthcare franchising in various contexts. We advocate more research in other healthcare sectors in both low- and middle-income countries and high-income countries, on more types of outcomes with attention to trade-offs, and on what factors produce those outcomes.

27. HPP 2014;29:227–36

Using incentives to attract nurses to remote areas of Tanzania: a contingent valuation study

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This article analyses how financial incentives (salary top-ups) and non-financial incentives (housing and education) affect nurses' willingness to work in remote areas of Tanzania and (2) how the magnitude of the incentives needed to attract health workers varies with the nurses' geographic origin and their intrinsic motivation. A contingent valuation method was used to elicit the location preferences of 362 nursing students. Without any interventions, 19% of the nurses were willing to work in remote places. With the provision of free housing, this share increased by 15 percentage points. Better education opportunities increased the share by 28 percentage points from the baseline. For a salary top-up to have the same effect as provision of free housing, the top-up needs to be between 80 and 100% of the base salary. Similarly, for salary top-ups to have the same effect as provision of better education opportunities, the top-up should be between 120 and 140%. Our study confirms results from previous research, that those with a strong intrinsic motivation to provide health care are more motivated to work in a remote location. A more surprising finding is that students of older age are more prepared to take a job in remote areas. Several studies have found that individuals who grew up in a remote area are more willing to work in such locations. A novel finding of our analysis is that only nursing students with a 'very' remote origin (i.e. those who grew up farther from a district centre than the suggested remote working place) express a higher willingness to take the remote job. Although we do control for nursing school effects, our results could be biased due to omitted variables capturing individual characteristics.

28. Lancet 2014;383(9925):1333-54 Epub 2013 Nov 19

Advancing social and economic development by investing in women's and children's health: a new Global Investment Framework

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A new Global Investment Framework for Women's and Children's Health demonstrates how investment in women's and children's health will secure high health, social, and economic returns. We costed health systems strengthening and six investment packages for: maternal and newborn health, child health, immunisation, family planning, HIV/AIDS, and malaria. Nutrition is a cross-cutting theme. We then used simulation modelling to estimate the health and socioeconomic returns of these investments. Increasing health expenditure by just $5 per person per year up to 2035 in 74 high-burden countries could yield up to nine times that value in economic and social benefits. These returns include greater gross domestic product (GDP) growth through improved productivity, and prevention of the needless deaths of 147 million children, 32 million stillbirths, and 5 million women by 2035. These gains could be achieved by an additional investment of $30 billion per year, equivalent to a 2% increase above current spending.

29. Lancet 2014;383(9917):630-67

The political origins of health inequity: prospects for change

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Despite large gains in health over the past few decades, the distribution of health risks worldwide remains extremely and unacceptably uneven. Although the health sector has a crucial role in addressing health inequalities, its efforts often come into conflict with powerful global actors in pursuit of other interests such as protection of national security, safeguarding of sovereignty, or economic goals.
This is the starting point of The Lancet—University of Oslo Commission on Global Governance for Health. With globalisation, health inequity increasingly results from transnational activities that involve actors with different interests and degrees of power: states, transnational corporations, civil society, and others. The decisions, policies, and actions of such actors are, in turn, founded on global social norms. Their actions are not designed to harm health, but can have negative side-effects that create health inequities. The norms, policies, and practices that arise from global political interaction across all sectors that affect health are what we call global political determinants of health.
This report examines power disparities and dynamics across a range of policy areas that affect health and that require improved global governance: economic crises and austerity measures, knowledge and intellectual property, foreign investment treaties, food security, transnational corporate activity, irregular migration, and violent conflict. The case analyses show that in the contemporary global governance landscape, power asymmetries between actors with conflicting interests shape political determinants of health.
We identified five dysfunctions of the global governance system that allow adverse effects of global political determinants of health to persist. First, participation and representation of some actors, such as civil society, health experts, and marginalised groups, are insufficient in decision-making processes (democratic deficit). Second, inadequate means to constrain power and poor transparency make it difficult to hold actors to account for their actions (weak accountability mechanisms). Third, norms, rules, and decision-making procedures are often impervious to changing needs and can sustain entrenched power disparities, with adverse effects on the distribution of health (institutional stickiness). Fourth, inadequate means exist at both national and global levels to protect health in global policy-making arenas outside of the health sector, such that health can be subordinated under other objectives (inadequate policy space for health). Lastly, in a range of policy-making areas, there is a total or near absence of international institutions (eg, treaties, funds, courts, and softer forms of regulation such as norms and guidelines) to protect and promote health (missing or nascent institutions).
We recognise that global governance for health must be rooted in commitments to global solidarity and shared responsibility through rights-based approaches and new frameworks for international financing that go beyond traditional development assistance, such as for research and social protection. We want to send a strong message to the international community and to all actors that exert influence in processes of global governance: we must no longer regard health only as a technical biomedical issue, but acknowledge the need for global cross-sectoral action and justice in our efforts to address health inequity.

30. SocScM 2014;105:38-46

Do Sector Wide Approaches for health aid delivery lead to 'donor-flight'? A comparison of 46 low-income countries

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Sector Wide Approaches (SWAp) emerged during the 1990s as a new policy mechanism for aid delivery. Eschewing many features of traditional project-based aid, SWAps give greater control of aid allocation to recipient countries. Some critics have questioned whether reducing a donor's level of influence over aid

allocation might lead to a decrease in donor contributions. While some qualitative evaluations have described the level of fund pooling and donor participation in SWAps, no previous study has empirically examined this potential 'donor-flight' response to health SWAp implementation. This paper utilises a uniquely compiled dataset of 46 low-income countries over 1990e2009 and a variety of panel data regression models to estimate the impact of health SWAp implementation on levels of health aid. Results suggest that amongst 16 especially poor low-income countries, SWAp implementation is associated with significant decreases in health aid levels compared with non-implementers. This suggests donors are not indifferent to how their contributions are allocated by recipients, and that low-income countries considering a SWAp may need to weigh the benefits of greater control of aid allocations against the possibility of reduced aid income.

Non-communicable diseases

31. IJE 2014);43(1):116-28

Hypertension among older adults in low- and middle-income countries: prevalence, awareness and control

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Background: This study uses data from the World Health Organization's Study on Global Ageing and Adult Health (SAGE) to examine patterns of hypertension prevalence, awareness, treatment and control for people aged 50 years and over in China, Ghana, India, Mexico, the Russian Federation and South Africa.
Methods: The SAGE sample comprises of 35 125 people aged 50 years and older, selected randomly. Hypertension was defined as ≥140 mmHg (systolic blood pressure) or ≥90 mmHg (diastolic blood pressure) or by currently taking antihypertensives. Control of hypertension was defined as blood pressure below 140/90 mmHg on treatment. A person was defined as aware if he/she was hypertensive and self-reported the condition.
Results: Prevalence rates in all countries are broadly comparable to those of developed countries (52.9%; range 32.3% in India to 77.9% in South Africa). Hypertension was associated with overweight/obesity and was more common in women, those in the lowest wealth quintile and in heavy alcohol consumers. Awareness was found to be low for all countries, albeit with substantial national variations (48.3%; range 23.3% in Ghana to 72.1% in the Russian Federation). This was also the case for control (10.2%; range 4.1% in Ghana to 14.1% India) and treatment efficacy (26.3%; range 17.4% in the Russian Federation to 55.2% in India). Awareness was associated with increasing age, being female and being overweight or obese. Effective control of hypertension was more likely in older people, women and in the richest quintile. Obesity was associated with poorer control.
Conclusions: The high rates of hypertension in low- and middle-income countries are striking. Levels of treatment and control are inadequate despite half those sampled being aware of their condition. Since cardiovascular disease is by far the largest cause of years of life lost in these settings, these findings emphasize the need for new approaches towards control of this major risk factor.

Nutrition

32. BMJ 2014;348:g2272

Research: Global, regional, and national consumption levels of dietary fats and oils in 1990 and 2010: a systematic analysis including 266 country-specific nutrition surveys

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Abstract: Objectives; To quantify global consumption of key dietary fats and oils by country, age, and sex in 1990 and 2010.
Design: Data were identified, obtained, and assessed among adults in 16 age- and sex-specific groups from dietary surveys worldwide on saturated, omega 6, seafood omega 3, plant omega 3, and trans fats, and dietary cholesterol. We included 266 surveys in adults (83% nationally representative) comprising 1 630 069 unique individuals, representing 113 of 187 countries and 82% of the global population. A multilevel hierarchical Bayesian model accounted for differences in national and regional levels of missing data, measurement incomparability, study representativeness, and sampling and modelling uncertainty.
Setting and population: Global adult population, by age, sex, country, and time.
Results: In 2010, global saturated fat consumption was 9.4%E (95%UI=9.2 to 9.5); country-specific intakes varied dramatically from 2.3 to 27.5%E; in 75 of 187 countries representing 61.8% of the world's adult population, the mean intake was <10%E. Country-specific omega 6 consumption ranged from 1.2 to 12.5%E

(global mean=5.9%E); corresponding range was 0.2 to 6.5%E (1.4%E) for trans fat; 97 to 440 mg/day (228 mg/day) for dietary cholesterol; 5 to 3,886 mg/day (163 mg/day) for seafood omega 3; and <100 to 5,542 mg/day (1,371 mg/day) for plant omega 3. Countries representing 52.4% of the global population had national mean intakes for omega 6 fat ≥5%E; corresponding proportions meeting optimal intakes were 0.6% for trans fat (≤0.5%E); 87.6% for dietary cholesterol (<300 mg/day); 18.9% for seafood omega 3 fat (≥250 mg/day); and 43.9% for plant omega 3 fat (≥1,100 mg/day). Trans fat intakes were generally higher at younger ages; and dietary cholesterol and seafood omega 3 fats generally higher at older ages. Intakes were similar by sex. Between 1990 and 2010, global saturated fat, dietary cholesterol, and trans fat intakes remained stable, while omega 6, seafood omega 3, and plant omega 3 fat intakes each increased.
Conclusions: These novel global data on dietary fats and oils identify dramatic diversity across nations and inform policies and priorities for improving global health.

33. BMJ 2014;348:g2617 News

Economic growth alone will not alleviate poor nutrition in developing countries, concludes study

Kolkata SB

Economic growth does little to prevent childhood undernutrition in developing countries, a study has concluded. Over a 22 year period from January 1990 to December 2011, there was no correlation between the growth in a country's gross domestic product and the fall in undernutrition in children.

Published in the April issue of Lancet Global Health, the study, which looked at 121 Demographic and Health Surveys from 36 low income and middle income countries, found that "the contribution of economic growth to the reduction in early childhood undernutrition in developing countries is very small, if it exists at all."

The researchers, led by Sebastian Vollmer, a professor at the department of economics at the University of Göttingen, in Germany, added, "This finding challenges the assumption that economic growth will automatically lead to reductions in child undernutrition. Our results therefore emphasise the need to focus on direct investments in health and nutrition, and not to rely on the so-called trickle-down approach of a growth-mediated strategy to improve nutrition in children."

They examined the data on 1.5 million children aged between 0 and 35 months and found that 36% were stunted, 23% were underweight, and 13% were wasted. However, there was no association, at the country level, between the average changes in the prevalence of child undernutrition outcomes and average growth of per head gross domestic product over the study period, which was between 1 January 1990 and 31 December 2011.

Miscellaneous

34. BMJ 2014;348:g2379

News: One in eight deaths is due to air pollution, says WHO

Gulland A, London

Seven million people died from exposure to air pollution in 2012—equivalent to one in every eight of all deaths that year.

New figures from the World Health Organization are more than double the previous estimates of deaths from air pollution. Previous estimates said that in 2004 two million people died from household air pollution and that 1.3 million died from outdoor air pollution in 2008.

The most deaths were in the western Pacific and South East Asia, with a total of 3.3 million deaths linked to indoor air pollution and 2.6 million deaths linked to outdoor air pollution.

Indoor exposure to pollutants claimed more deaths worldwide, as 4.3 million people died in households that cook with coal, wood, and biomass stoves. WHO estimated that 3.7 million deaths were attributable to outdoor air pollution. The agency said that many people were exposed to indoor and outdoor air pollution and that therefore the numbers did not add up to seven million.

Almost 680 000 people died from pollution in Africa in 2012, compared with about 415 000 in the eastern Mediterranean region, nearly 600 000 in Europe, and around 230 000 in the Americas.

The new data are based on WHO's mortality estimates and on new global data mapping, including satellite mapping, ground level monitoring, and data on pollution from key sites.

Ischaemic heart disease and stroke were responsible for most deaths that were linked to outdoor air pollution (80%), followed by chronic obstructive pulmonary disease (COPD) (11%), lung cancer (6%), and acute lower respiratory infections in children (3%).

35. TMIH 2014;19(4):476–88

Systematic review and meta-analysis: prevalence of alcohol use among young people in eastern Africa

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Objective: To assess whether the lack of water or the lack of sanitation facilities in either the home or in health facilities is associated with an increased risk of maternal mortality and to quantify the effect sizes.
Methods: Systematic review of published literature in Medline, Embase, Popline and Africa Wide EBSCO 1980.
Results: Fourteen articles were found. Four of five ecological studies that considered sanitation found that poor sanitation was associated with higher maternal mortality. Meta-analysis of adjusted estimates in individual-level studies indicated that women in households with poor sanitation had 3.07 (95% CI 1.72–5.49) higher odds of maternal mortality. Four of six ecological studies assessing water environment found that poor water environment was associated with higher maternal mortality. The only individual-level study looking at the adjusted effect of water showed a significant association with maternal mortality (OR = 1.50, 95% CI 1.10–2.10). Two ecological and one facility-based study found an association between a combined measure of water and sanitation environment and maternal mortality.
Conclusions: There is evidence of association between sanitation and maternal mortality and between water and maternal mortality. Both associations are of substantial magnitude and are maintained after adjusting for confounders. However, these conclusions are based on a very small number of studies, few of which set out to examine sanitation or water as risk factors, and only some of which adjusted for potential confounders. Nevertheless, there are plausible pathways through which such associations may operate.