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All nations need home-grown research

Countries without home-grown medical research are operating blind to the specific health needs of their citizens. Their governments cannot know what is wrong, how to fix it, or where to direct resources for the best health gains. For a few, ignorance is all but deliberate — a side-effect of authoritarian governance that feels threatened by open scrutiny of the population's health and the dissent that might follow. Researchers from North Korea, for example, have published just five papers since 1996, according to a team of authors examining international research output ahead of the next World Health Report, due later this year. The poorest countries of the former Soviet Union are also struggling at the bottom of the league table, along with many African countries, particularly those emerging from war.

What can be done? The authors urge international donors to invest in research infrastructure, encourage international networks, and reward collaboration wherever politically possible. Surprising advances can be achieved even without much political co-operation — Gabon, The Gambia, and the Republic of Congo all punch above their weight by hosting research institutions funded and managed by high-income countries, they write. Others, such as Botswana, Cape Verde, Swaziland and Mauritius, have more committed governments and may need small investments — perhaps through international consortiums — to kick-start high-quality local research. Experience tells us that investment in health research must last for at least 10 years, encourage leadership and good management (not just teaching and research skills), and create sustainable career pathways for graduates.

'Countries don't need a national airline, but they do need a national health research strategy,' the authors conclude — all countries, not just the lucky few.

McKee M, Stuckler D, Basu S. PLoS Med 2012;9(4):e1001209.

Antibiotics versus surgery for uncomplicated acute appendicitis

The authors of this recent paper compared the safety and efficacy of antibiotic treatment versus appendicectomy for the primary treatment of uncomplicated acute appendicitis using a meta-analysis of randomised controlled trials.

They chose randomised controlled trials of adult patients presenting with uncomplicated acute appendicitis, diagnosed by haematological and radiological investigations. The interventions were antibiotic treatment versus appendicectomy.

The primary outcome measure was complications. The secondary outcome measures were efficacy of treatment, length of stay, and incidence of complicated appendicitis and readmissions.

Four randomised controlled trials with a total of 900 patients (470 antibiotic treatment, 430 appendicectomy) met the inclusion criteria. Antibiotic treatment was associated with a 63% (277/438) success rate at 1 year. Meta-analysis of complications showed a relative risk reduction of 31% for antibiotic treatment compared with appendicectomy. A secondary analysis, excluding the study with crossover of patients between the two interventions after randomisation, showed a significant relative risk reduction of 39% for antibiotic therapy. Of the 65 (20%) patients who had appendicectomy after readmission, 9 had perforated appendicitis and 4 had gangrenous appendicitis. No significant differences were seen for treatment efficacy, length of stay, or risk of developing complicated appendicitis.

The conclusion was that antibiotics are both effective and safe as primary treatment for patients with uncomplicated acute appendicitis. Initial antibiotic treatment merits consideration as a primary treatment option for early uncomplicated appendicitis.

Varadhan KK, Neal KR, Lobo DN. BMJ 2012;344:e2156.

Hip replacement versus resurfacing in patients with arthritis of the hip joint

This recent study compared the clinical benefits and cost-effectiveness of total hip arthroplasty with resurfacing arthroplasty in patients with severe arthritis of the hip. The authors used a single-centre, two-arm, parallel-group, assessor-blinded, randomised, controlled trial with 1:1 treatment allocation. Patients were drawn from one large teaching hospital in the UK.

A total of 126 patients older than 18 years with severe arthritis of the hip joint, suitable for resurfacing arthroplasty of the hip, participated. Patients were excluded if they were considered unable to adhere to trial procedures or complete questionnaires.

The interventions were total hip arthroplasty (replacement of entire femoral head and neck) or hip resurfacing arthroplasty (replacement of the articular surface of the femoral head only – femoral neck remains intact). Both procedures replaced the articular surface of the acetabulum.

The main outcome measures were hip function at 12 months after surgery, assessed using the Oxford hip score and Harris hip score. Secondary outcomes were quality of life, disability rating, physical activity level, complications and cost-effectiveness.

Sixty patients were randomly assigned to hip resurfacing arthroplasty and 66 to total hip arthroplasty. Intention-to-treat analysis showed no evidence for a difference in hip function between treatment groups at 12 months; 95% of follow-up data was available for analysis. Mean Oxford hip score was 40.4 in the resurfacing group and 38.2 in the total arthroplasty group (estimated treatment effect size 2.23 (-1.52 - 5.98)). Mean Harris hip score was 88.4 (84.4 - 92.4) in the resurfacing group and 82.3 (77.2 - 87.5) in the total arthroplasty group (6.04 (-0.51 - 12.58)). Although we saw no evidence of a difference, we cannot definitively exclude clinically meaningful differences in hip function in the short term. Overall complication rates did not differ between treatment groups ($p=0.291$). However, we

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saw more wound complications in the total arthroplasty group ($p=0.056$) and more thromboembolic events in the resurfacing group ($p=0.049$), reported the authors.

No evidence of a difference in hip function was seen in patients with severe arthritis of the hip 1 year after receiving a total hip arthroplasty versus resurfacing arthroplasty. The long-term effects of these interventions remain uncertain.

Cost ML, et al. *BMJ* 2012;344:e2147.

Measles deaths are falling, but not far enough

The number of deaths from measles worldwide fell by 74% in the decade between 2000 and 2010, according to the latest estimates — from 535 300 (95% confidence interval (CI) 347 200 - 976 400) to 139 300

(71 200 - 447 800). Measles vaccination alone saved an estimated 9.6 million lives during the same period.

Progress looks good, but the target set by the World Health Assembly to reduce measles deaths by 90% between 2000 and 2010 was not achieved. India in particular seems to be lagging behind its neighbours and the rest of the developing world. In a new modelling study, deaths from measles fell by just 26% in India, increasing the country's share of deaths from 16% to 47%. The authors blame delays in mass vaccination programmes and slow expansion of routine vaccination. Most of the remaining deaths occurred in Africa. Europe accounted for less than 1% of measles deaths during the study period.

Measles is one of the most infectious diseases for which we have a vaccine,

says a linked comment (doi:10.1016/S0140-6736(12)60638-2). Eradication is still possible if countries can sustain and strengthen their vaccination programmes. The new model, unlike previous efforts, factored in the effect of herd immunity and counted real cases tracked by real surveillance programmes where available. The resulting figures remain best guesses, however. Accurate registration of deaths and adequate surveillance are still the exception, not the rule. Ever more sophisticated guessing is no substitute for real data when the ultimate prize is to drive deaths down to zero.

Simons E, et al. *Lancet* 24 April 2012 (early online publication). [doi:10.1016/S0140-6736(12)60522-4]