Bangladesh: innovating for health

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Writing earlier this year, as part of a series of country case studies on good health at low cost, Dina Balabanova and her colleagues concluded that "Bangladesh has made enormous health advances and now has the longest life expectancy, the lowest total fertility rate, and the lowest infant and under-5 mortality rates in south Asia, despite spending less on health care than several neighbouring countries".[1] Why is this so?

Having published analyses of health systems in several Asian nations—China, India, Pakistan, and countries in the southeast Asian region—we now turn our attention to Bangladesh[2–7] to investigate one of the great mysteries of global health. This is a story not only of unusual success, but also one that describes the frailties and challenges that lie ahead as the country charts a course towards universal health coverage.

What has driven Bangladesh's health success? First, history. The brutal Bangladeshi war of liberation in 1971 and the trauma of genocide compelled people to initiate a national renaissance.[2] The beginnings of a social transformation took place. In most countries, health reforms begin with some kind of idealised policy framework. But the Bangladesh Government instead created an environment for pluralistic reform in which many participants in the health sector, including non-governmental organisations and the private sector, were allowed to flourish. This multiplicity of health actors could have produced confusion, but, as this *Lancet* Series shows, pluralism had positive effects.[3] The government's willingness and flexibility to allow experimentation in service delivery led to rapid health improvements.

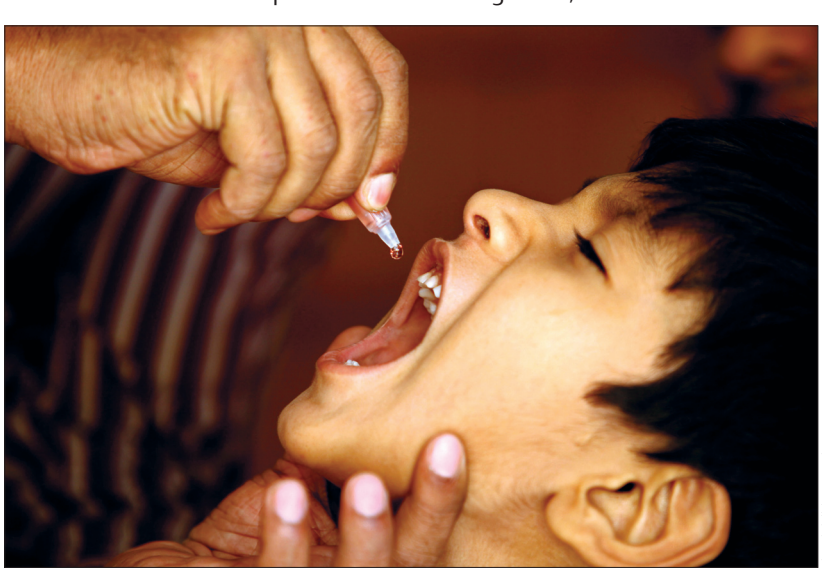
Second, research. One institution, the International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b), pioneered important work in family planning, immunisation, and treatment of diarrhoea in an open culture of innovation. Important investments were made in vaccination coverage, demographic health surveys, maternal health, and tuberculosis treatment. Impact evaluations were completed. Research provided reliable knowledge for health-system strengthening.[4,5]

Third, equity. Bangladesh's aptitude for innovation led to community-based approaches and partnerships that enabled the country's locally produced research findings to be delivered at scale. Bangladesh has pioneered pro-poor and pro-women development programmes—in microfinance and education, for example—that have encouraged the social and economic empowerment of women. Together, these approaches have resulted in extensive gains in coverage of key health interventions, together with improvements in gender equity.[4,5]

Finally, international cooperation. Bangladesh has achieved many of its health gains not only because of the creativity and steadfast effort of its people, but also through the support of external partners. That culture (and dependency) still exists. Still, governance is poor. Corruption is widespread, and inefficiencies remain endemic.

What lessons can Bangladesh offer to other countries? Mobilisation of communities, gender equity, and a commitment to universal health coverage could make a big difference elsewhere. One example is tuberculosis treatment. By deploying community health workers, Bangladesh has achieved high treatment coverage and greater than 90% cure rates.[3] South Africa has already copied this model for treatment of HIV, as well as tuberculosis.

Much of Bangladesh's success has centred on progress towards the Millennium Development Goals. However, less successful have been improvements in maternal and child malnutrition and access to primary care. The future looms heavily in a small country with such a huge population, amid continuing deep poverty and inequality. An obesity epidemic is emerging among the urban middle class. The proliferation of unregulated,



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low-quality, and high-cost private practitioners is also a cause for present concern.

The final paper in this Series sets out a plan to create a second wave of innovation in health, one that could steer Bangladesh towards universal health coverage.[7] As national elections approach in January, 2014, the country's vulnerability to climate change,[6] rapid urbanisation, persistence of poverty and inequality, and low quality of life and income levels will be major political challenges. Bangladeshis have shown enormous creativity, resilience, and energy in the past. They will need to continue to do so again in the future.

Pamela Das, Richard Horton
The Lancet, London NW1 7BY, UK

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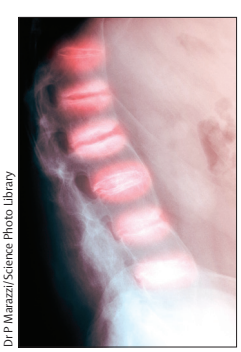
17 and 23: prime numbers for ankylosing spondylitis?



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Treatment options for patients with ankylosing spondylitis have improved considerably over the past decade with the availability of tumour necrosis factor-α (TNF)-inhibitors. Traditional disease-modifying anti-rheumatic drugs such as methotrexate that are effective in rheumatoid arthritis have no proven benefit for spinal inflammatory arthritis, the hallmark of ankylosing spondylitis. TNF-inhibitors are often recommended when first-line therapy with non-steroidal anti-inflammatory drugs does not control disease activity, and are effective at reducing inflammation and symptoms of spinal pain and stiffness and improving function in most patients.[1] However, 20–40% of patients either do not respond or respond inadequately to TNF-inhibitors, and whether this class of biological agents can slow new bone formation and resulting spinal fusion remains unclear, although recent evidence is encouraging.[2] Thus, despite advances in treatment, there is a need for new drugs that can improve disease outcome.

The interleukin 23 (IL-23)/IL-17 axis is important in several immune-mediated inflammatory diseases including multiple sclerosis, psoriasis, inflammatory bowel disease, rheumatoid arthritis, and spondylo-arthritis. In ankylosing spondylitis, evidence derives from genome-wide association studies,[3] animal models,[4] and translational studies[5–8] that implicate not only IL-17, but also upstream cytokines such as IL-23 that might drive pathogenesis and disease phenotype,[4,8,9] in part by promoting IL-22 production.[9] However, despite strong evidence supporting the importance of IL-17 in several inflammatory diseases, clinical trials blocking this cytokine or its receptor had mixed success. In psoriasis, there is clear evidence of benefit,[10,11] whereas in Crohn's disease the results have been disappointing.[12] In rheumatoid arthritis, psoriatic arthritis, and uveitis the results are less than clear; although in some cases there is evidence of clinical benefit, the primary endpoints of the relevant trials were not met.[13–15]

In *The Lancet*, Dominique Baeten and colleagues provide evidence that targeting IL-17 with secukinumab could be beneficial in treatment of active ankylosing spondylitis.[16] The primary evidence of efficacy was that a larger proportion of patients in the secukinumab group (59%) than in the placebo group (24%) achieved an ASAS20 response. An ASAS20 response is a composite measure of change in four patient-reported outcomes (patient global assessment, spinal pain, physical function limitations, and morning stiffness, each measured on a 0–10 scale) that requires improvement in at least three of these outcomes by at least 20%, and by at least one unit, with no worsening, in the remaining measure. This is a well-accepted response criterion, and a reasonable choice for the primary efficacy endpoint in a proof-of-