

EDITOR'S CHOICE

Back to basics with the three Rs

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We've known for years that the world is running out of effective antibiotics. What should we do? Epidemiologists Ramanan Laxminarayan and David Heymann contrast the widespread misuse of antibiotics in lower income countries with the undertreatment that contributes to one million deaths of children from pneumonia each year (doi:10.1136/bmj.e1567). In India alone, per capita antibiotic use increased by 37% between 2005 and 2010, and in New Delhi in 2003-4 more than 70% of *Escherichia coli* bacteria isolated from the urine of healthy women were resistant to ampicillin and nalidixic acid. Weak public healthcare and private systems that benefit from drug sales, they say, are making this a very tough nut to crack.

Anthony D So and colleagues lead us into industry's "valley of death," where companies no longer want to take possibly antimicrobial compounds into costly clinical research programmes with uncertain return on investment (doi:10.1136/bmj.e1782). They see salvation through three Rs: sharing resources, risks, and rewards among the private and public research sectors. While companies might once have baulked at sharing commercially sensitive data, "the line between precompetitive and competitive data has shifted downstream, leading to unprecedented collaborations," say the authors. Drug development focused on single targets and molecules is too narrow, however, and "we need to get back to the basics of biology—'targeting an organism (bacterium) inside another organism (the human host)'—and give more attention to the potential of resistance arising rapidly."

Jean-Pierre Paccaud from the Drugs for Neglected Diseases initiative doubts that current "push" and "pull" incentives for the private sector to develop new antibiotics will succeed (doi:10.1136/bmj.e2591). Instead, he suggests, antibiotic development might become largely the responsibility of the public sector. Then new antibiotics could be public goods,

available to every patient in need at an affordable price. Partnerships with industry would still be important, though, and at the recent annual conference on neglected diseases in Philadelphia, Paccaud described numerous successful collaborations (doi:10.1136/bmj.e2453).

Given all this, I was glad that the Head to Head debate asking "should we treat lower urinary tract symptoms without a definitive diagnosis?" wasn't about antibiotics for infections. Instead, it focuses on a group of common disorders affecting storage and voiding of urine and problems after micturition, and termed, er, "lower urinary tract symptoms." "Unfortunately, the term has been extended to apply to any patient, male or female, young or old, with urinary symptoms," argues Julian Shah (doi:10.1136/bmj.d6058). "Terms come into parlance because of the enthusiasm of a particular group [and] symptoms are generally not resolved by 'best guess' medical management." Unless appropriate urodynamic testing shows obstruction, he says, reassurance may suffice and medical treatment may be useless. Indeed, a systematic review found that 43-83% of patients discontinue medical treatment within 30 days. Paul Abrams, on the other hand, asserts that invasive investigations are often unnecessary and impractical and that lifestyle interventions, behaviour modification, and drugs for these symptoms are neither risky nor expensive (doi:10.1136/bmj.d6038). Guidance from the UK National Institute for Health and Clinical Excellence seems to agree with him. Who's right?

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