

AN IRRESISTIBLE ANTIBIOTIC

And finally it appears that there truly has been a breakthrough – an antibiotic without resistance! Scientists from Northeastern University in Boston, Massachusetts, have published the development of an antibiotic which bacteria will find hard to develop resistance to. This antibiotic – Teixobactin – is very effective against methicillin-resistant *Staph. aureus* in mice. How did they discover it? It is formed by certain soil bacteria called *Eleftheria terrae*. Soil bacteria are so difficult to be cultured in the laboratory that these are called microbial dark matter. The discovery of Teixobactin relies heavily on a brand new technology called iChip. The device sorts out the soil microbiota into individual bacteria and isolates them into separate chambers. The iChip is then buried in the ground to maintain a suitable environment for the bugs. The flourishing bacterial colonies are later tested for potential antibiotics. Teixobactin was seen to be the most promising of these antibiotics. It kills bacteria by binding to the lipids in the cell wall. While other antibiotics often target protein component of the cell wall that the bacteria are able to circumvent by new mutations. It appears that bacteria will have a hard time to change such a fundamental structure as the lipid layer. It is already being said that this will be one of the top discoveries of the year. (*Nature 7 January 2015*)

VIOLENCE IN THE WORK PLACE

In 2014, 80% of nurses in a survey in the US reported to have been attacked on the job in the past one year. Health-care workers account for 70% of all non-fatal assaults on the job according to the Bureau of Labor Statistics. In the survey, 50% of the assaults were from patients or relatives who were drunk, or were on drugs. The prevailing sentiment among health care workers is neatly summed up in the article, “Nothing changes, nobody cares” published in July 2014 in the *Journal of Emergency Nursing*. In a 2011 survey, nurses reported that no action was taken after they lodged a complaint in 50%, a warning was issued in 20%, and the nurse was blamed in 10%. It is now well recognized that it is critical to develop training programs to identify potentially violent situations, and de-escalate and diffuse them in time. If this is part of the curriculum, it may well prevent many assaults on novice health care workers. It is also incumbent on the hospital to identify potential hazards such as poor lighting, understaffing and inadequate safety training. The National Institute for Occupational Safety and Health has a free online training module which can be readily accessed. In a world swamped in violence, an ounce of prevention will far outweigh pounds of cure. (*Scientific American 31 December 2014*)

UNJUSTIFIED RADIOLOGICAL PRACTICES

Routine daily chest X-rays in intensive care units, skull radiograph in a child or infant with epilepsy, skull radiograph in a child or infant with headache, sinus radiograph in an infant or child less than 6 years, cervical spine X-ray in an infant or child with torticollis without trauma, radiograph of the opposite side for comparison in limb injury, scaphoid X-rays in a child under 6 years, nasal bone X-rays in children below 3 years, and radiological examinations purely for medico-legal purposes are considered unjustified according to the publication by the International Commission on Radiological Protection. The experts suggest rigorous justification for every radiological examination involving ionizing radiation in children. When a new equipment is bought, one needs to consider availability of dose-reduction measures. Special attention to patient positioning, field size and adequate collimation, use of protective shielding, optimization of exposure factors, use of pulsed fluoroscopy, and limiting fluoroscopy time greatly reduce exposure to radiation in children. For computed tomography, dose reduction should be optimized by the adjustment of scan parameters according to patient’s weight or age, region scanned, and study indication. Images with greater noise should be accepted if they are of sufficient diagnostic quality. Up-to-date dose reduction technology such as tube current modulation, organ-based dose modulation, auto kV technology, and iterative reconstruction should be utilized when appropriate. A little thought and planning will prevent a lot of unnecessary radiation to children. (*The Hindu 18 December 2014*)

HEALTH AS A FUNDAMENTAL RIGHT

The draft National Health Policy 2015 has suggested that health be made a fundamental right like education. So far there has been a discussion on the issue for last 10 years, without any fruitful outcome. Countries like Brazil and Thailand have made significant progress towards universal health coverage due to similar laws. Rulings from courts also appear to see health as a fundamental right and a constitutional obligation flowing out of the right-to-life. The draft is now in the public domain for stakeholders’ suggestions and comments. The new policy also wants to ensure universal access to free drugs and diagnostics, raise public health expenditure to 2.5% of GDP, and explore the creation of a health cess on the lines of the education cess. We live in interesting times. (*The Hindu 1 January 2015*)

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