Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Journal of Hospital Infection 88 (2014) 55–57

Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevierhealth.com/journals/jhin

News and Views

Journal Roundup

We're increasingly used to hearing about losing the therapeutic utility of antibiotics due to resistance, so it's good to hear that antibiotics have won the **Longitude Prize** following a public vote![1] The £10m Longitude Prize will be awarded, following a competitive scheme, to a research group to prompt innovation in the development of novel bacterial diagnostics. However, novel diagnostics is only one of the strategies needing development as we come towards the end of antibiotics. Discussion in the *Lancet ID* has focused on the need for a **global response** to the global problem of antibiotic resistance following the recent report from the Lancet Infectious Diseases Commission.[2,3]

Novel antibiotics are another important need. Randomized controlled studies in the *New England Journal of Medicine* (*NEJM*) evaluated two new glycopeptide antibiotics for treating bacterial skin infection.[4,5] A single intravenous dose of oritavancin was non-inferior to twice daily intravenous vancomycin over seven to 10 days.[4] Similarly, one weekly intravenous dose of dalbavancin was non-inferior to daily vancomycin followed by linezolid.[5] Clearly, a single or weekly dose of antibiotics is preferable for a number of reasons, not least the patient's convenience! The discovery of truly novel antibiotics is limited by the fact that most potential bacterial targets are covered by other agents. A new insight into the construction of the outer membrane lipopolysaccharide published in *Nature* could spur novel drug discovery.[6]

Another approach is to **augment** the activity of existing antibiotics. Research in the *Journal of Antimicrobial Chemotherapy* reports that the addition of an anthracycline antibiotic isolated from *Streptomyces* sensitized Gram-negative bacteria to the activity of rifampicin.[7] A related approach is the interruption of quorum sensing between bacteria to attenuate virulence. A study in *PLoS Pathogens* demonstrates that a 'small molecular inhibitor' (savirin) selectively inhibits *agr*-based quorum sensing in *Staphylococcus aureus* without disrupting *Staphylococcus epidermidis*.[8]

Using **chemicals** for prophylaxis and treatment of wounds reduces the burden of antibiotic use. A randomized controlled trial in *Infection Control and Hospital Epidemiology* (*ICHE*) found that surgical site infection was no more common when using nasal povidone-iodine vs nasal mupirocin prophylaxis.[9] A study in *Journal of Infectious Diseases* demonstrated that antimicrobial blue light therapy for multidrug-resistant *Acinetobacter baumannii* was effective in a mouse burn model and may be a future option for prophylaxis and treatment of burns.[10]

Several studies have identified unnerving levels of antibiotics in **effluent** from pharmaceutical factories in developing markets such as India.[11] However, a study of river sediments in the Midlands of the UK published in the *Journal of Antimicrobial Chemotherapy* reports that the important ESBL CTX-M-15 gene is being introduced by waste water treatment plants.[12] Furthermore, the study reports a carbapenem-resistant *Escherichia coli* isolate from the river samples. Similar data have also been reported recently from France.[13] We need to stop polluting our planet with antibiotics!

The way that antibiotics are **prescribed** can also affect levels of resistance. A US study found that lower availability of primary care doctors was associated with more inappropriate prescription of antibiotics for upper respiratory tract infections, suggesting that busy doctors are more likely to prescribe antibiotics as the 'easy way out'.[14] To 'rotate or not to rotate' empiric antibiotics remains a controversial question. A *PLoS Medicine* review and meta-analysis concludes that cycling (rotating) antibiotics is associated with a reduction in both infection and resistant infections.[15] Similarly, a review and meta-analysis of antibiotic stewardship to reduce *C. difficile* incidence yielded a positive outcome.[16]

The World Cup in Brazil and the upcoming Hajj in Saudi Arabia illustrate the challenges of communicable disease identification and control during **international events**. Lessons from previous events such as the London 2012 Olympics and the Euro 2012 Football Championships in Poland/Ukraine can be applied to current and future gatherings, according to experts commenting in the *Lancet* and *Lancet Infectious Diseases* (*ID*).[17–20] International collaboration is crucial, but the recent 'discovery' of an additional 113 MERS-CoV cases raises questions about the transparency of reporting, which could be significant come Hajj time.[21]

The update of the '**Compendium** of strategies to prevent healthcare-associated infection' continues in *ICHE*, with the publication of revised guidelines for central line-associated bloodstream infection and meticillin-resistant *S. aureus*.[22,23] The accompanying editorial raises some questions about whether a 'vertical' (i.e. targeted) or 'horizontal' (i.e. universal) approach is the way to go, reporting a shift in opinion away towards so-called 'horizontal' approaches.[24]

In support of a move away from pathogen-based 'vertical' (targeted) strategies, a Canadian study reported that relaxation of **vancomycin-resistant enterococci (VRE)** screening and isolation did not affect the rate of VRE infections, although the

http://dx.doi.org/10.1016/j.jhin.2014.07.005

rate of colonization rose sharply.[25] Meanwhile, a dramatic increase in VRE prevalence is reported in a multicentre German study.[26] However, a very much 'vertical' (targeted) approach has reduced carbapenem-resistant Enterobacteriaceae in Israeli post-acute care hospitals.[27]

We need to embrace **new technology** continually to improve patient outcomes. Even in resource-limited settings, most patients have a mobile phone so it's no surprise that issuing mobile phone reminders improved attendance to scheduled HIV appointments in Cameroon in a *Lancet ID* randomized controlled trial.[28] A 'big brother is watching' study in US operating rooms identified a dismal hand hygiene compliance rate for anesthesiologists: 2.9%![29] The authors, understandably, question the attainability of the hand hygiene recommendations in this setting.

Several useful **reviews** have been published recently. The *Journal of the American Medical Association* (*JAMA*) has published some handy advice for those tasked with writing editorials.[30] *NEJM* includes a comprehensive review of infections in pregnancy.[31] Colistin and polymyxin B are often mentioned in the same breath, but how similar are they? A *Clinical Infectious Diseases* review likens them to peas in a pod. And chalk and cheese![32] The need for rapid nucleic acid diagnostics is reviewed in *Journal of Antimicrobial Chemotherapy*.[33] However, a *JAMA* research letter suggests that three-quarters of doctors can't calculate a positive predictive value correctly![34] A *Journal of Hospital Infection* review highlights a potential and largely unrecognized role for free-living amoebae to provide a safe-haven for hospital pathogens such as *Legionella pneumophila*, *Acinetobacter baumannii*, and some viruses in hospital water systems.[35]

In terms of **conferences**, the British Society for Antimicrobial Chemotherapy (BSAC) will hold a series of roundtable meetings about antimicrobial resistance in late 2014/early 2015.

And finally, a *Journal of Antimicrobial Chemotherapy* study found that UK Chief Medical Officer announcements about antibiotic resistance, and the release of the US Centers for Disease Control and Prevention 'Antimicrobial Resistance Threat Report' made Twitter light up in discussion about antibiotics more than any other![36]

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July 2014

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Available online 8 July 2014