Journal Watch

Neil Wigglesworth¹ and Deborah Xuereb²

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The journal watch feature is provided as a service to our readers. The intention is to highlight new research and other developments in infection prevention and control and related fields, published elsewhere. A brief description of each article and its main findings is given here; readers are encouraged to refer to the full published article for the details of the work. The authors and the editorial management group would welcome feedback and recommendations for articles to feature in this column; for comments and recommendations please contact neil.wigglesworth@gmail.com or editor@ips.uk.net.

The November issue of the *Journal of Infection Prevention* coincides with European Antibiotic Awareness Day on the 18th of November (<http://ecdc.europa.eu/en/eaad/Pages/Home.aspx>) and the corresponding World Antibiotic Awareness Week during 14–20th November (<http://www.who.int/antimicrobial-resistance/events/world-antibiotic-awareness-week-2016/en/>). *Journal Watch* reflects this with a partial theme of antimicrobial resistance and, in particular, stewardship. We have three articles related to these issues, an article about how much hand rub is enough and a ‘wild card’ about patient and public involvement.

The first of our themed articles is a guideline paper related to an issue that creates significant debate in our experience, the role of antimicrobials in wound care;

Lipsky BA, Dryden M, Gottrup F et al. (2016) Antimicrobial stewardship in wound care: a Position Paper from the British Society for Antimicrobial Chemotherapy and European Wound Management Association. *Journal of Antimicrobial Chemotherapy*; doi:10.1093/jac/dkw287.

The issue of if, when and how to treat wounds, particularly chronic wounds, that may or may not be infected has been debated in practice for as long as many of us can remember. In that respect, this position paper is very welcome. The authors admit that this is neither a full systematic review nor a rigid set of rules. Instead, the two societies have collaborated to produce, in their own words, ‘pragmatic guidance on optimizing antimicrobial therapy for wounds’. Although advice about prescribing or actual prescribing may not be your responsibility, this will prove a useful resource for conversations with clinical and other specialist

colleagues. In particular, it makes some clear statements about when not to sample a wound, how to sample when it is appropriate, and when and how to treat infection. The authors set the scene with the need for stewardship, arguments that do not need to be repeated here, as well as some definitions and recognised approaches to achieving it. They note that the evidence suggests that, in the longer term, persuasive methods may be more effective than restrictive ones (definitions of these terms are in the paper). They go on to note that, despite that fact that skin and soft tissue infections are among the most common reasons for antibiotics, guidance is scarce. There are some very useful quick reference tables in this paper, including ‘key factors contributing to antibiotic misuse in wounds’, e.g. diagnostic uncertainty, with some suggested solutions. As well as the above, there is also a table and straightforward algorithm explaining when to sample and when to treat. Some of the clear statements made include: there is no evidence for treating until healed, only prescribe for clinically infected wounds; take a tissue sample rather than a swab and take it after wound cleansing and debridement; and, generally, avoid topical antibiotics. There are useful sections on diagnostics (including primary and secondary signs of infection), sampling, treatment and stewardship activities, and the paper is easy to read and well structured. I was particularly struck by the list of suggested areas for more research. Biofilms and antimicrobial dressings are important areas of uncertainty, but in particular the issue of heavy microbial colonisation is an area where evidence is still limited. I understand from this that the notion of ‘critical colonisation’ levels remains unproven. If you want a handy reference to the issue of infection in wounds, look no further.

Another important issue in antimicrobial stewardship is timely and appropriate treatment, stewardship is as much about the right drug at the right time, as it is about reducing

¹Infection Prevention and Control, Guy's and St Thomas' NHS Foundation Trust, Westminster Bridge Road, London, UK

²Infection Control Unit, Mater Dei Hospital, Malta

Corresponding author:

Neil Wigglesworth, Deputy Director, Infection Prevention and Control, Guy's and St Thomas' NHS Foundation Trust, Westminster Bridge Road, London SE1 7EH, UK.

Email: neil.wigglesworth@gstt.nhs.uk

inappropriate prescribing. This next article is a timely reminder that these two things go together.

Cairns KA, Doyle JS, Trevillyan JM et al. (2016) The impact of a multidisciplinary antimicrobial stewardship team on the timeliness of antimicrobial therapy in patients with positive blood cultures: a randomised controlled trial. *Journal of Antimicrobial Chemotherapy*; doi:10.1093/jac/dkw285.

There is sometimes an apparent tension between rapid and life-saving antimicrobial treatment for sepsis and antimicrobial stewardship. This tension may be real or just perceived but it does affect the effective implementation of both. This article in *JAC* helps a little with the understanding that these two things should be complementary rather than antagonistic. The authors have conducted what appears to be a rigorous randomised controlled trial with blinded assessment of the outcomes. Their hypothesis was that an assessment by a multidisciplinary team, which included an infectious disease physician and pharmacist, compared with standard care (ringing out of the result from microbiology), would improve the timelines of optimal antibiotic treatment in patients with positive blood cultures. The study had about 80 patients in intervention and control arms and the two groups were broadly similar, large numbers were excluded, mainly for seemingly reasonable reasons of already getting some kind of enhanced service, e.g. in critical care, but few were lost to follow-up. The outcome measures included active treatment (an antibiotic that was effective) and appropriate treatment (effective and as narrow spectrum as possible) measured from 24 h after the blood culture was drawn, as this was typically when the culture was positive but not identified to species level or sensitivity testing completed. The results are perhaps mixed in terms of demonstrating big improvements, though that is partly because standard care performed quite well; overall, the intervention led to earlier active and appropriate treatment, although not all the results were significant and some suggest an underpowered study despite a power calculation. There were no differences in the numbers of patients appropriately not treated because of a contaminant (low in both groups) or in post bacteraemia length of stay. For me, the main message from this study is that efforts in antimicrobial stewardship do not have to be detrimental to work to improve survival in sepsis and indeed vice versa.

Finally, in our mini-theme, we have an article from the *American Journal of Infection Control* that looks at the contribution of nurses to antimicrobial stewardship.

Manning ML, Pfeiffer J and Larson EL. (2016) Combating antibiotic resistance: the role of nursing in antibiotic stewardship. *American Journal of Infection Control*; doi: 10.1016/j.ajic.2016.06.023.

In the past, antimicrobial stewardship programmes involved mostly doctors and pharmacists and only recently have we started seeing more focus on the role of nurses in optimising antibiotic use. This paper has a US focus and provides details of the extent, impact and costs of antibiotic resistance and discusses the role of nurses in antibiotic stewardship. The authors summarise the goal of antibiotic stewardship as 'to achieve the best clinical outcomes related to antibiotic use while simultaneously minimizing toxicity, other adverse events and the emergence of antibiotic-resistant bacterial strains'. It makes sense to have nurses involved in antimicrobial stewardship programmes: nurses make up the largest segment of healthcare workforce, are placed across the healthcare continuum and are consistently at the forefront of patient care. As a result, nurses are ideally placed to evaluate antibiotic use as they are often present at the time of prescribing and are predominantly the 'first responders' to prescriptions as well as to provide education to patients, family members and the general public on the appropriate use of antibiotics.

This paper challenges the nursing community and argues that, in spite of significant attention on antibiotic resistance, nursing and professional nursing organisations (in the US) have been particularly silent on the issue. It is possible that the nursing profession does not feel empowered enough to actively take on a role in antimicrobial stewardship. Empowerment is linked with knowledge and confidence and nurses need a sound knowledge base on pharmacology, antibiotic use and antimicrobial resistance to be able to challenge colleagues, teach patients and be actively involved in antibiotic stewardship programmes. In addition, nurses also need to be recognised by other team members as having an influential role in antibiotic stewardship. I suspect that lots more needs to be done before nurses can feel they can actively help combat antibiotic resistance.

We thought we had covered hand hygiene from every angle; we were wrong... Another article from *AJIC* considers how much alcohol hand rub you need to decontaminate your hands.

Zingg W, Haidegger T and Pittet D. (2016) Hand coverage by alcohol-based handrub varies: Volume and hand size matter. *American Journal of Infection Control*; doi: 10.1016/j.ajic.2016.07.006.

At first glance, this study from Pittet's group seems to show the obvious: the larger your hands, the more alcohol handrub you need to apply to ensure adequate hand disinfection. The study methodology was simple – 67 attendees at ICPIC selected one of three available volumes of UV traced alcohol handrub—1 mL, 2 mL, or 3 mL—and then disinfected their hands. Coverage of palms, fingertips and dorsums was then assessed with a UV scanning device, which took digital images of the hands. The study then

compared the size of the palm and dorsum and their coverage with volume of alcohol handrub, as well as coverage of fingertips. Although palm coverage was not influenced by volume applied, dorsum coverage was heavily influenced. The study indicates that 1 mL of alcohol handrub is not enough to cover palms and fingertips of any hand size and that even 3 mL is not enough to cover palm, dorsum and fingertips of any hand size. The application technique of the alcohol handrub was not assessed and this could have influenced coverage on the different areas of the hands.

The World Health Organization (WHO) hand hygiene technique recommends 'apply a palmful of ABHR and cover all surfaces of the hands'. Anyone involved in hand hygiene observations in healthcare settings can appreciate the large variations in hand hygiene techniques and alcohol volume applications, which influence bacterial reduction on skin. Although a very technical study, this is a must-read for all IPC practitioners, especially those of us involved in teaching hand hygiene techniques to healthcare workers. As an IPCN, I would then want to know how many pump activations translate to 3 mL of alcohol hand rub. This probably depends on the product being used (liquid/gel), the dispenser and dispensing method. This study provides a level of detail in achieving better hand hygiene disinfection which could help develop novel alcohol handrub dispensers.

The final article and accompanying editorial are another in the series of 'something completely (well a little) different'. Both of these pieces from *BMJ Quality and Safety* discuss patient and public involvement in healthcare and safety in particular. Both are disappointed in what they find.

Ocloo J and Matthews R. (2016) From tokenism to empowerment: progressing patient and public involvement in healthcare improvement. *BMJ Quality & Safety* 25: 626–632.

O'Hara JK and Lawton RJ. (2016) At a crossroads? Key challenges and future opportunities for patient involvement in patient safety. *BMJ Quality & Safety* 25: 565–568.

Neither of these articles is about infection prevention and control and only one is specific to patient safety; however, infection prevention professionals need to avoid remaining within our silo and we should engage with the issues that

are challenging healthcare. There is no doubt that patient and public involvement (PPI) is one of these. As these two articles point out, before we even begin to discuss PPI we need to navigate the lexicon of terminology: 'involvement, empowerment, co-production, partnership, shared decision-making (SDA)'; the list goes on. Both of these papers are in agreement about one thing, whatever we call this phenomenon, we are not very good at it. Where we, in all forms of health and social care, do engage our patients/clients and their families, we tend to do so at the shallow end of the engagement spectrum. We are better at informing and educating, which are quite paternalistic terms, than we are at partnering and truly sharing. The power in these relationships rests with the professionals and the institutions and not with the patients. Equally, those who we engage are not representative of those most in need of care, such as ethnic minority groups and those who are most fragile and vulnerable. Ocloo and Matthews argue that our approaches to PPI are rooted in market research and attempts to 'improve the product' and they call for a much wider approach based on values and democratic rights. The situation is characterised as one of tokenism and exclusivity, in which middle class, educated and health literate individuals have limited impact on service design and delivery. Both papers offer some suggested improvements; building mutual, reciprocal networks of people as assets, breaking down boundaries and roles—patients do not recognise the artificial demarcation of organisations and professions. A very practical example of this is given by O'Hara and Lawton; in the risky time of transition between care settings, the only constant is the patient and their family, so we should involve them in making it safer. Ocloo and Matthews recommend we avoid trying to measure the 'impact' of PPI and recognise it as valuable in and of itself. These papers are an interesting and enlightening read and worth reading in full. Perhaps the most illustrative quote is '...engage with patients and their families *on their turf and their terms*'.

We frequently recommend you read a certain article in full; do you do that? We'd be interested to hear how (if) you use *Journal Watch*. Do you just read the summaries we provide? Do you occasionally, regularly retrieve the full paper and read it? Or never? Let us know via the contact details above or tweet us @Neilwigg @XuerebD @IPS_Infection.