Journal Watch

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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.

A feature for this issue is that we have two articles either authored or jointly authored by healthcare/medical sociologists. We think this is a first for *Journal Watch*, but hopefully not the last time. We all need to draw on expertise wherever we can find it.

The first article concerns an issue that the infection prevention community worldwide have been discussing for at least as long as I've been a member of it: what should an IPC service look like?

Bryant KA, Harris DA, Gould CV, Humphreys E, Lundstrom T, Murphy DM, Olmsted R, Oriola S and Zerr D. (2016) Necessary infrastructure of infection prevention and healthcare epidemiology programs: A review. *Infection Control & Hospital Epidemiology*; DOI: 10.1017/ice.2015.333.

This is labelled as a 'white paper' from the Society for Healthcare Epidemiology of America (SHEA), so will presumably be taken as the standard by our colleagues in USA facilities. For those who are not familiar with US terminology a brief glossary: 'Healthcare Epidemiologist' – close to our 'Infection (prevention and) Control Doctor', though they're not all medics now, and 'Infection Preventionist (IP)' – the US term for Infection Prevention and Control Nurse or Practitioner here. This paper sets out both the changes in the infection prevention landscape in recent years, specifically since the last time they published similar

guidance in 1998, and what the authors deem to be the functions of, and necessary resources for, an infection prevention and healthcare epidemiology programme. UK and Ireland-based practitioners and those in other parts of the world may wonder how this is applicable in their settings; however, the principles are similar and US standards have previously been cited widely, for example, the 'famous' one infection control nurse for every 250 beds. The changes and challenges the authors describe will be familiar; legislation, finance, quality improvement strategies, new and emerging pathogens, and of course the inexorable rise of multiply resistant organisms. The paper starts with a restatement of the goals of any such programme:

- “1. Protect the patient
2. Protect healthcare personnel, visitors and others
3. Meet accreditation and regulatory mandates
4. Accomplish goals above in as cost-effective manner as possible”

Of these, only number three has been added since 1998 and I think most IPC teams would recognise and acknowledge these as reasonable and proper. The paper goes on to describe the elements of a programme, both core, such as surveillance, reporting, outbreak detection and management and education, and peripheral, including liaison with employee [occupational] health. It is interesting to note that the most 'column inches' are given to education which is clearly still regarded as a key intervention. When it comes to resources the paper is mixed. There are both detailed and

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specific recommendations regarding the healthcare epidemiologist role (how many and how they should be remunerated), but nothing on IPs other than a 'watch this space' for a publication in 2016. There is also no mention at all of specialist decontamination expertise or leadership roles. The biggest surprise in this publication is the length of time it has taken to complete, with the process starting in 2011, five years ago! Overall this is worth reading as 'food for thought', and if new to the specialty, it sets out a useful overview of the scope of infection prevention and control.

We frequently feature medical, nursing, epidemiological and even psychological research in *Journal Watch* but rarely, if ever, research from the world of healthcare sociology, an omission that is corrected here with an article about speaking up from *Sociology of Health & Illness*:

Szymczak JE. (2016) Infections and interaction rituals in the organisation: clinician accounts of speaking up or remaining silent in the face of threats to patient safety. *Sociology of Health & Illness* 38(2): 325–339.

The reason this article is here in *Journal Watch* is because of Twitter; social media is becoming an increasingly important way of increasing awareness of research and other intelligence. A 'retweet' of a 'tweet' (non-Twitter users, join now!) from Mary Dixon-Woods (@MaryDixonWoods) brought it to our attention. The author describes a study based on sociological theory that seeks to explain some of the reasons that healthcare workers do, or don't, speak up when they observe breaches in safety and in this case, specifically, breaches in infection prevention. The methodology in simple terms is qualitative, using semi-structured in depth interviews, with 103 'clinicians' about their experiences of speaking up and not speaking up when they've observed breaches in infection prevention procedures. 'Clinician' in this paper is used in the wider (better) sense to include doctors, nurses and allied health professionals, specifically respiratory therapists. The important aspect of this study is the analysis; following what sounds like quite standard thematic coding, the author has applied micro-sociological theory that focuses on the interactions between the healthcare workers and the context in which those interactions occur. This theory of interactions, which are described as interaction rituals (IR) and said to occur in chains (interaction ritual chains or IRC) 'fills the gap' between individual cognitive level factors (e.g. 'confidence in one's knowledge') and organisational level factors (e.g. hierarchy) when explaining speaking up decisions. The other key concept is 'emotional energy' which is derived from IR and either supplemented or depleted, depending on the nature of the IR. The results identified three themes related to IR and speaking up. First, 'mutual focus' is needed for a successful IR and if absent can prevent speaking up, strategies such as a time-out prior to a procedure can enhance mutual focus on the task in hand. Second, the

importance of past interactions, in one sense the relationship built up with colleagues (good or bad) from previous interactions. When this is positive it can eliminate the effect of hierarchy. Third, there is 'presence of an audience' which includes patients, families and other professionals. This includes a reluctance to threaten a colleague's perceived credibility or competence or make them vulnerable. There is a lot more detail and analysis and example in this paper and it should be read in full (it is open access). What is lacking to a certain extent is what we do about it: how do we design interventions to enhance IR? It should be noted that this study was conducted in a children's hospital which may impact upon the interpretation for other settings. And finally a recommendation: read the section on interviews in research; the sociologist's perspective on this is very interesting.

Continuing the focus on social science research, the next article demonstrates the value of bringing different perspectives to our specialty. The paper from *Journal of Hospital Infection* explores the complex issues around caring for children in their own home with invasive devices.

Soto C, Tarrant C and Dixon-Woods M. (2016) What is the right approach to infection prevention and control for children living at home with invasive devices? *Journal of Hospital Infection*; DOI: <http://dx.doi.org/10.1016/j.jhin.2015.12.023>.

This opinion piece comes from Dr Carolyn Tarrant's group SAPPHIRE (Social Sciences Applied to Healthcare Improvement Research) at the University of Leicester. The group conducts evaluations of programmes designed to improve patient safety and quality of care. In this paper they bring forward the issue of the increasing prevalence of children living with an invasive device in their home and the infection prevention challenges this brings with it. Individuals who are not healthcare professionals may be handling their child's invasive devices such as central lines, gastrostomy tubes, dialysis catheters and tracheostomies, and managing the infection risks. The authors point out that in spite of this rapid increase in children living at home with an invasive device, there has not been a similar increase in awareness of how infection risks are recognised and managed and also how these children and their families can be best supported to prevent infections. The authors also comment that although there have been reported successes in reduction of healthcare-associated infections (HCAI) through care bundles, these were largely focused on adult populations and these strategies are not easily transferable to the paediatric population. The quality of maintenance and care of the child's invasive device at home will have a significant impact on the development of infections related to that device. Children provide many different challenges than adults, for example, few adults would chew on their Hickman line or run away during a dressing

change! This discussion paper brings forward several valid points relevant for the infection prevention community, mostly those working with children and in community settings. It invites us to approach the topic of HCAI prevention in this particular population, not only from a healthcare worker point of view, but also to take into consideration the viewpoint of the child and their family. The infection prevention challenges are multiplied when caring for a child at home and could be stressful for the family. With increasing advance in oncology, neonatology and cardiology in paediatrics, we need to get better at developing infection prevention support for these children and their families.

We probably overuse the phrase ‘Big Brother is watching you’ when talking about audit and surveillance; the next paper in this issue describes what some may think, will be the closest we ever get in healthcare to Orwell’s dystopian vision.

Joo S, Xu T and Makary MA. (2016) Video transparency: a powerful tool for patient safety and quality improvement. *BMJ Quality and Safety*; DOI: 10.1136/bmjqs-2105-005058.

In healthcare, transparency refers to the open sharing of facts on performance. Video transparency can have two uses – as a quality improvement tool to improve compliance with best practices, or to be shared with patients. The authors, both of whom come from Johns Hopkins School of Medicine in the US, look at the implications of each of these uses, to improve care. They give some examples where video recording was successfully utilised to improve performance in the healthcare setting. Most examples mentioned focus on videoing in operating rooms (ORs) where feedback was then given in real time or retrospectively on the behaviour or technique used by the surgical team. The primary purpose of videoing is therefore educational, similar to the way pilots learn from the events of a flight crash. It appears also, that in the US there is pressure from the public to have cameras installed in ORs to increase hospital transparency and the authors state that it is possible, in the future, that this could actually be required by law in US states. My first question, when reading this paper was who would ever agree to be video-recorded in their workplace without feeling like Big Brother is watching? This could be uncomfortable and stressful, and possibly impact negatively on work practice. Trade unions would probably largely oppose their use, to protect their members. The authors, in fact, argue that data collected this way needs to be only used in a way that encourages best practices and does not threaten healthcare professionals or patients. For this to work positively there needs to be assurances that the data will not be used as evidence for disciplinary action or malpractice claims. When applied to infection prevention, however, the scope for this technology intervention could be mostly beneficial; Armellino et al. (2013) observed an

impressive increase in hand hygiene compliance (from 7% to 85%) when using narrow-focus video cameras aimed on sinks and alcohol dispensers to send information to remote auditors. Could this technique be the answer for behaviour change in healthcare? After reading this discussion paper I would say it definitely offers potential and infection prevention could certainly consider ways to utilise video technology as a quality improvement tool.

Finally for this *Journal Watch*, a review from *Lancet Infectious Diseases* that serves to remind us of the global effort to end tuberculosis (http://www.who.int/tb/post2015_strategy/en/) as well as providing a useful summary of current knowledge of this ‘captain of the men of death’ (a misquote of John Bunyan).

Yates TA, Khan PY, Knight GM, Taylor JG, McHugh TD, Lipman M, White RG, Cohen T, Cobelens FG, Wood R, Moore DA and Abubakar I. (2016) The transmission of *Mycobacterium tuberculosis* in high burden settings. *Lancet Infectious Diseases* 16: 227–238.

The End TB strategy cited above is a plan “...to reduce TB deaths by 95% and to cut new cases by 90% between 2015 and 2035, and to ensure that no family is burdened with catastrophic expenses due to TB”. According to the authors of this review, the world is not even close to hitting these targets. They suggest a need to reduce disease incidence by 20% per year compared with actual reductions in low single figures. This is not a publication about infection prevention in our settings for the most part, but we do have colleagues supporting countries where TB burden is high, and in addition this is an interesting and useful paper for anyone studying TB in some depth. The authors’ main point is that in areas of the world with a high burden of TB, the prevention of transmission is the key to reducing incidence and therefore prevalence. There is an excellent graphic on the second page of the article (p. 228) which shows the *M. tuberculosis* ‘transmission cycle’ and lists the factors that influence exposure and transmission via the primary route, i.e. the airborne route. The article is wide-ranging and includes discussion on the generally held view that patients are less infectious after two weeks of anti-TB treatment; they consider it to be likely but by no means proven. There is a useful summary of diagnostic tests of infection (not necessarily pulmonary diagnosis but rather tuberculin skin tests and blood tests to identify transmission and exposure) and a discussion about molecular epidemiology, including Whole Genome Sequencing. The review is primarily concerned with TB in populations and reviews the characteristics of transmission in populations, comparing for example, incidence of disease studies with notifications to national programmes of surveillance. The paper discusses infection control, in particular the importance of ventilation, but also innovations such as ultraviolet light irradiation of rooms (the article uses the phrase ‘upper room’ which I take as the

upper area of rooms rather than upstairs, but it is not clear). There is an interesting discussion on the location of TB transmission, suggesting a significant proportion is not in households, again in high burden settings. There is also comment on the impact of drug resistance, both multi (MDR) and extremely (XDR), on transmission and whether resistance confers a fitness cost on the organism as well as the effect of delayed appropriate therapy. The final section covers HIV and the use of anti-retroviral therapy (ART) including the likely increase in the use of ART in response to new guidance from WHO to provide it to anyone living with HIV, irrespective of CD4 count. There is a lot of information presented in the paper and it is an interesting read

for anyone wanting to know more about the global burden of TB.

Some years ago, what was then the Infection Control Nurses Association had a conference slogan of 'Think Globally, Act Locally' – perhaps *Journal Watch* and the *Journal of Infection Prevention* assists you in that laudable aim.

Reference

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