

# OTHER JOURNALS IN BRIEF

A selection of abstracts of clinically relevant papers from other journals. The abstracts on this page have been chosen and edited by John R. Radford.

## INFECTIVE ENDOCARDITIS – NICE GUIDELINES

### Incidence of infective endocarditis in England, 2000–13: a secular trend, interrupted time-series analysis

Dayer MJ, Jones S *et al.* *Lancet* 2014; DOI: 10.1016/S0140-6736(14)62007-9  
(Epub ahead of print: [http://dx.doi.org/10.1016/S0140-6736\(14\)62007-9](http://dx.doi.org/10.1016/S0140-6736(14)62007-9))

Thirty-five more cases of infective endocarditis reported per month in England.

The oral viridans group of streptococci have been associated with infective endocarditis in 35–45% of patients. Yet there is no evidence to support the use of antibiotic prophylaxis in the prevention of infective endocarditis.

In March 2008, NICE recommended cessation of antibiotic prophylaxis for the prevention of infective endocarditis for patients receiving dental treatment resulting in a bacteraemia. Similar advice has been given in the USA and elsewhere in Europe for patients at moderate risk only of infective endocarditis. But for those at high risk of infective endocarditis ('previous infective endocarditis, prosthetic heart valves or valves repaired with prosthetic material, unrepaired cyanotic congenital heart disease, or some repaired congenital heart defects') in the USA and elsewhere in Europe, antibiotic prophylaxis is still recommended (search Infective Endocarditis – American Heart Association).

The investigators of this high impact research report the results of a retrospective secular trend study. It examined the effect that stopping antibiotic prophylaxis had on the incidence of infective endocarditis, cogent that any change may not only be as a consequence of this intervention. Using data from hospital discharge episode statistics, the number of patients who were diagnosed with infective endocarditis between 2000 and 2013, including those who died, were quantified. And the number of prescriptions for antibiotic prophylaxis between January 2004 and March 2013 were obtained from data from the National Health Service Business Services Authority. Segmented regression analysis of the interrupted time series was used to compare the incidence of infective endocarditis before and after the introduction of the NICE guidelines.

In those months before the NICE guidance, 10,900 prescriptions each month were made for antibiotic prophylaxis. From April 2008, the mean number of prescriptions dropped dramatically to 2,236 each month ( $p < 0.001$ ).

The key finding from this study is that the true numbers of infective endocarditis increased significantly above the projected historical trend (95% CI 0.05–0.16,  $p < 0.0001$  – range within which the true treatment effect is likely to occur). This increase in the number of patients with infective endocarditis has affected individuals from both high-risk and lower-risk groups.

Infective endocarditis has both a high morbidity and mortality. No causal relationship was established.

DOI: 10.1038/sj.bdj.2015.166

## HAND HYGIENE – COMPLIANCE

### The impact of time at work and time off from work on rule compliance: the case of hand hygiene in health care

Dai H, Milkman K L *et al.* *J Appl Physiol* 2014; DOI: 0.1037/a0038067  
(Epub ahead of print: <http://dx.doi.org/10.1037/a0038067>)

'...average compliance rate dropped from 42.6% in the first hour of a shift to 34.8% in the last hour of a typical 12-hr shift'.

This paper includes a wordy commentary on how 'organizations develop, communicate, and reinforce professional standards to ensure the safe and reliable performance of work and delivery of services'. 'Performance protection strategy' of those tasks that are considered important and urgent, may compromise others that are considered peripheral such as hand hygiene ('subsidiary task failure'). This longitudinal field observational study examined three years of hand hygiene compliance. It used the Proventix electronic monitoring system ([proventix.com](http://proventix.com)) in 35 different US hospitals. Data were collected from over four thousand caregivers during 13.7 million hand hygiene opportunities. Compliance fell at the end of a shift, and also as the work intensity increased. Longer times between shifts improved such compliance, particularly for those care workers with sub-optimal compliance. This study did not report separately hand hygiene compliance among dental care workers.

DOI: 10.1038/sj.bdj.2015.167

## 'FROM A GRASSY FIELD IN MAINE'

### A new antibiotic kills pathogens without detectable resistance

Ling LL, Schneider T *et al.* *Nature* 2015; 517: 455–459.

Teixobactin is active against difficult-to-treat enterococci and is more effective than vancomycin against *Staphylococcus aureus*.

More recently, synthetic techniques have been used to develop new antibiotics. However, these antibiotics have not been able to fill the gap left by those now rendered effete. These earlier antibiotics were screened from soil microorganisms and these were overmined by the 1960s. The investigators of this research, which is of the highest impact, report the discovery of a new antibiotic which they named teixobactin. It was discovered after screening previously uncultured microorganisms. These were grown using an elegant and exacting method. In summary, soil was diluted and single bacterial cells were covered by semi-permeable membranes, contained within a device. This device, named the i-Chip, was placed back into soil for one month. Teixobactin, produced from a new genus related to *Aquabacteria*, inhibits cell wall synthesis by binding lipid II and lipid III. Lipid II is the precursor of peptidoglycan and described as an 'Achilles heel' for antibiotic attack. Lipid III is the precursor of cell wall teichoic acid.

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