

be approached in a more analytical fashion, and there are alternative management strategies for under-resourced healthcare systems. Good function is to be expected in the majority of cases and the current paradigm of prevention of cosmetic deformity at all costs is not only illogical, but also potentially harmful. This is an interesting read by two 'senior' opinions, but like all opinions, should be taken as such!

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## Research

**X-ref** For other Roundups in this issue that cross-reference with **Research see: Hip Roundup 1, 3, 5, 6; Knee Roundup 1, 3, 5, 6; Trauma Roundup 5; Foot & Ankle Roundup 5.**

### Body fat should be the focus X-ref

■ Much has been made of the potential issues associated with obesity and outcomes. However, the current body of research could at best be described as 'conflicting' and, perhaps more accurately, as 'murky'. The majority of studies are consecutive case series, where, at worst, patients are arbitrarily divided into their WHO groups, and incidence of complications and such is reported in a comparative manner, usually with some rudimentary statistical analysis. Researchers in **Durham, North Carolina (USA)** have taken a slightly more scientific approach, and started by asking, how should obesity be defined? There are plenty of potential measures, and body composition is becoming 'in vogue' in many academic disciplines. The research team reports a small study of 215 patients undergoing lower limb arthroplasty, and examines the value of body fat percentage as a marker of complications and outcomes.<sup>1</sup> The study team collected patient demographic data, BMI and body fat percentage as pre-operative variables, and the UCLA activity and

appropriate clinical outcome scores. Perhaps not surprisingly, the body fat percentage was a better predictor of medical or surgical complication (odds ratio 1.58) than BMI. The measure also predicted UCLA activity and pain scores more accurately than BMI, which was not predictive in this small study. Patients may be denied surgery secondary to a high body mass index, however, this study demonstrates that manual measurement of body fat percentage is a better metric for evaluating clinical outcomes and complications. Future use of this index may be beneficial for patient risk stratification, if properly measured, and certainly should form the basis for further study rather than the much more crude (but easier to obtain) BMI data.

### How best to learn orthopaedic surgery?

■ There is a potential problem raising its head in the future - that of a lack of a skilled workforce. Healthcare systems throughout the world are struggling with raised expectations, difficulties of surgeon-reported outcome measures (which can be a bar to training) and imposition of time-restrictive and service-driven contracts. All of this may potentially lead to a significant skills shortage. Proponents of modern training argue that simulation (now a compulsory part of the UK core teaching curriculum)

may be able to compensate for this and that surgeons ought not to be worried. However, with more and more specialties and centres the world over also moving towards an 'on call'-based system of care provision, there is the worry that the traditional model of 'surgical apprentice' may not suffice to allow appropriate training in procedural skills such as arthroplasty. The financial and human cost of a poor arthroplasty is high, and researchers from **London (UK)** have undertaken a nice assessment of the learning curves and assessment tools, making the point that the move to a competency-based training framework really does require the use of appropriate and validated assessment tools.<sup>2</sup> In a 2013 report in the same journal, researchers in **Christchurch (New Zealand)** evaluated the outcomes of 35 415 patients and concluded that, in their system at least, there were no differences in outcomes between those who underwent consultant-led surgery, and those who underwent trainee-led surgery.<sup>3</sup> We may do well to re-evaluate this question as surgical training moves forward into the future.

### All prep is good prep X-ref

■ The prevention of infection is a laudable goal, and sometimes it is the more simple steps - theatre hygiene, skin preparation and

attention to detail in maintaining a surgical site clean of contaminants - that are perhaps of greater importance than the more expensive approaches to infection control, such as laminar flow and antimicrobial-resistant implants. We were delighted to see this simple study from **Philadelphia, Pennsylvania (USA)** evaluating the use of particular skin prep methods.<sup>4</sup> Six hundred patients were enrolled in a prospective randomised controlled trial, comparing standard of care (alcohol and povidone-iodine prep before draping) with a double prep group where a second application of iodine povacrylex and isopropyl alcohol was undertaken before application of the final adhesive drape. The final analysis included the outcomes of 577 patients. The incidence of superficial surgical site infection was significantly higher in the control group (6.5% vs 1.8%), although there were no differences in deep infection risk between the two groups. It certainly seems that the results of this study support the double prep approach as a simple low-cost intervention to reduce the risk of superficial infections.

### The 'weekend effect' does not exist!

■ Much has been made in the world's press about the potential difficulties associated with the new

junior doctors' contract in the UK, and specifically attention has focused on the so-called 'weekend effect'. Junior doctors and politicians have been seen at odds on national and international television, arguing about the excess mortality seen in some studies surrounding weekend admissions. Researchers from **Birmingham (UK)** have published an apparently all-encompassing article exploring the specialist cover and mortality effect seen at the weekend.<sup>5</sup> The authors conducted a cross-sectional study on two days across all hospital trusts within England receiving acute admissions. On a specific Sunday and Wednesday a point prevalence survey of consultants and number of specialist hours per ten surgical admissions was conducted. This was then cross-referenced to mortality data for the whole year. In a very thorough statistical analysis, the authors established that there was a lower level of specialist care available at the weekend, although a higher proportion of the time was spent on emergency admission care. Even adjusting for this, the ratio was 0.7 Sunday:Wednesday. This, combined with a higher mortality ratio for weekend admissions, 1.1 in favour of Wednesdays, could easily lead one to conclude that weekends are in fact less safe than weekdays. However, there was no relationship on a trust-by-trust level between staffing and mortality, suggesting that these two factors are not, in fact, causally linked. These authors conclude that policy makers should be cautious before attributing differences in mortality rates to variation in specialist staffing levels. We wholeheartedly agree.

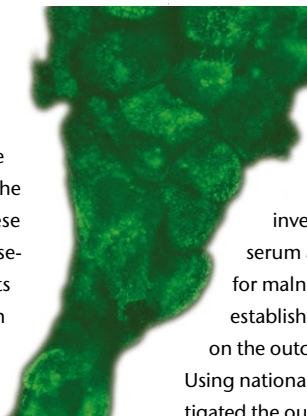
#### Osseointegrating implants for amputees X-ref

■ One of the major difficulties associated with planned or traumatic amputations is prosthetic attachment. The current mould and

suction methods require a residium of a specific length, and often run into problems with pressure areas and the occasional need for stump refashioning. There are few other options; although bone-anchored prostheses have been tried on a number of occasions, the results are somewhat mixed. The most modern of these approaches uses osseointegrated implants and there have been some reports of success with these in reconstruction. There are, however, some significant residual concerns – bone implants with an external environment raise concerns of transmitting infection and establishing osteomyelitis in the residium. To make matters worse, perhaps despite the attractions of such an implant system and its increasingly widespread use, there are few long-term reports of the outcomes. Surgeons in **Australia** and **The Netherlands** have reported a two-centre series of 91 implants in 86 patients.<sup>6</sup> They report an uneventful course for 31 patients (36%), signs of infection in 29 (34%), while 26 (30%) developed complications of another sort. This is not highbrow research, but what it does represent is good-quality clinical data to support the use of a novel implant with an osseointegration option.

#### Hypoalbuminaemia may increase the risk of periprosthetic joint infection X-ref

■ In an era where there is an increasing emphasis being placed on reducing joint infection, it is interesting to look at the potential



for avoiding infection altogether. One of the side effects of the obesity epidemic is that, conversely, there are a large number of malnourished (not undernourished) patients.

Obesity does not mean that patients are well nourished! Investigators in **Chicago (USA)** have published a novel research study investigating the value of serum albumin as a marker for malnutrition, and sought to establish if this had any bearing on the outcome of infection.<sup>7</sup> Using national audit data they investigated the outcomes of 4517 patients undergoing revision arthroplasty. The cohort contained 715 patients (16%) who required revision for a septic indication. There was a higher rate of hypoalbuminaemia in this cohort *versus* the aseptic loosening cohort (relative risk 3.6). Perhaps more interestingly, however, of those who had their index revision for aseptic reasons, there was a 2.1-fold relative risk of hypoalbuminaemia in those patients who went on to develop a subsequent periprosthetic infection. Clinical nutrition is a complicated and poorly studied topic in orthopaedic surgery. Although a very basic study investigating only a single factor, it is somewhat surprising that there was such a profound difference. It is clear that we are far behind our colleagues in other disciplines in understanding clinical nutrition and its impact on our outcomes. More work needs to be done.

#### The curse of the 'bleep'

■ We all perhaps remember warmly our first day as a doctor. I remember with great fondness sitting in the bar after work with my colleagues, and almost *as one* (and with great effect so that any casual observer could not miss it)

removing the pagers from our trousers and placing them on the table next to the pint. The satisfaction of acquiring a pager evaporated almost as quickly as it had first appeared once we realised the damn thing wouldn't stop making a noise! In an interesting little paper from **London (UK)**, a simple analysis of pager activity in a central London teaching hospital<sup>8</sup> shed light on the use of pagers – it seems that doctors are far from the most popular recipients of the 'bleep'.

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