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**Mapping bacterial biofilms on recovered orthopaedic implants by a novel agar candle dip method.**

**Author(s):** Moley, James P; McGrath, Mary S; Granger, Jeffrey F; Sullivan, Anne C; Stoodley, Paul; Dusane, Devendra H

**Source:** APMIS : acta pathologica, microbiologica, et immunologica Scandinavica; Mar 2019; vol. 127 (no. 3); p. 123-130

**Abstract:** While the detrimental effects of periprosthetic joint infecions (PJIs) are well known, the process of biofilm formation on orthopaedic hardware is unclear. Previous work has shown that encasement of explant hardware in agar can aid in identifying biofilms. This study tested the utility of agar 'candle dip' method in detecting and mapping the location of biofilm on infected orthopedic components. Explant components from 15 patients were rinsed, briefly submerged in agar to create a surface coating, and incubated. Larger components were coated by pipetting agar over them. After incubation, colony outgrowth on the component surface was documented (candle dip status). Data were compared with clinical laboratory results (clinical culture status) and the PJI diagnosis using Musculoskeletal Infection Society criteria (MSIS status). All six patients classified as MSIS and clinical culture positive were also positive with the candle dip technique. Of the nine candle dip negative cases, four were positive and five were negative for both MSIS and clinical culture status. Candle dip may be negative in few cases due to the residual antibiotic eluting from the spacers, limiting the growth of bacterial biofilms on the components. The candle dip method shows promise for biofilm mapping but requires additional testing to evaluate the clinical diagnostic potential.

**Shift working reduces operative experience for trauma and orthopaedic higher surgical trainees: a UK multicentre study.**

**Author(s):** Sevenoaks, H; Ajwani, S; Hujazi, I; Sergeant, J; Woodruff, M; Barrie, J; Mehta, J

**Source:** Annals of the Royal College of Surgeons of England; Mar 2019; vol. 101 (no. 3); p. 197-202

**Abstract:** INTRODUCTION In recent years there has been a rise in the number of trauma and orthopaedics trainees working on full shift patterns. Historically, most trauma and orthopaedics trainees worked 24 hours non-resident on-call shifts. The effect of this change in shift patterns has not previously been measured. As
two trusts (one trauma unit, one major trauma centre) in our region underwent a change to full shift working, we assessed the impact on the trainees' operating experience.

METHODS Fifty-five logbooks were analysed across the two trusts over a two-year period, with comparisons made between pre- and post-shift working.

RESULTS Overall operating fell by 13% for trainees working full shift patterns, which was statistically significant. There was a loss of elective operating of 15% at the trauma unit and 32% at the major trauma centre for trainees doing shift work. The effect on trauma operating opportunities was mixed. Index operating was largely preserved.

CONCLUSIONS Shift working significantly impacts on surgical training opportunities. We explore approaches to minimising this effect.

**Short-term perioperative iron in major orthopedic surgery: state of the art.**

**Author(s):** Gómez-Ramírez, Susana; Maldonado-Ruiz, María Ángeles; Campos-Garrigues, Arturo; Herrera, Antonio; Muñoz, Manuel  
**Source:** Vox sanguinis; Jan 2019; vol. 114 (no. 1); p. 3-16  
In major orthopaedic surgery, it is recommended to detect and correct preoperative anaemia several weeks prior to surgery. However, in many cases, the procedure is urgent or the patient is evaluated shortly before the intervention. As iron deficiency is the leading cause of perioperative anaemia, an exhaustive review of the literature was performed to assess the efficacy and safety of short-term perioperative intravenous, with or without erythropoietin, or postoperative oral or intravenous supplementation in major orthopaedic surgery. Overall, 20 studies met the inclusion criteria. There were 13 randomized trials (moderate quality) and seven observational studies (low to very low quality). The primary outcomes were reduction in transfusion requirements, haemoglobin increase and medication side-effects during the study period. Data analysis showed that postoperative oral iron administration neither increased haemoglobin nor reduced transfusion requirements, and it was associated with significant gastrointestinal adverse effects (15%). In contrast, for some patient populations, perioperative or postoperative administration of intravenous iron, with or without recombinant erythropoietin, may reduce transfusion requirements and/or hasten the recovery from postoperative, with few clinically relevant adverse effects (<2%). However, discrepancies between randomized trials and observational studies on the possible beneficial effects of short-term perioperative intravenous iron administration were found for patients undergoing surgery for hip fracture repair. Further studies are needed to elucidate when the treatment should be started, which combination of drugs should be used, and which patient groups would be most benefit.

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**Osteogenesis Imperfecta: A Pediatric Orthopedic Perspective.**

**Author(s):** Franzone, Jeanne M; Shah, Suken A; Wallace, Maegen J; Kruse, Richard W  
**Source:** The Orthopedic clinics of North America; Apr 2019; vol. 50 (no. 2); p. 193-209  
**Abstract:** Osteogenesis imperfecta is a genetically and phenotypically heterogeneous disorder related to a defect or deficiency in the production of type I collagen. It is characterized by brittle bones, fractures, spine and extremity deformity, and a host of extraskeletal manifestations. Type I collagen is present in bone, tendons, ligaments, skin, dentin, and the sclera of the eye and other connective tissues. Osteogenesis imperfecta includes a multitude of disease manifestations that may be present at birth or develop over time and vary depending on the severity of the disease. This article describes the disease presentation and management considerations from a pediatric orthopedic perspective. Request this article from the library

**The Role of Vitamin D in Pediatric Orthopedics.**

**Author(s):** Horan, Michael P; Williams, Kevin; Hughes, Daniel  
**Source:** The Orthopedic clinics of North America; Apr 2019; vol. 50 (no. 2); p. 181-191  
**Abstract:** Understanding the role of vitamin D is an important component of the proper care of the pediatric orthopedic patient. Vitamin D is an essential component of bone metabolism in the growth and development of the pediatric skeleton, which can be acutely affected by changes to the body's vitamin D, calcium, and phosphate levels, resulting in pathologic conditions such as rickets or fractures. This article reviews the main areas in which vitamin D relates to pediatric orthopedics and highlights some of the areas where future research is being directed. Request this article from the library

**Cell therapy in orthopaedics: where are we in 2019?**

**Author(s):** Rodeo, S A  
**Source:** The bone & joint journal; Apr 2019; vol. 101
Abstract: Stem cells are defined by their potential for self-renewal and the ability to differentiate into numerous cell types, including cartilage and bone cells. Although basic laboratory studies demonstrate that cell therapies have strong potential for improvement in tissue healing and regeneration, there is little evidence in the scientific literature for many of the available cell formulations that are currently offered to patients. Numerous commercial entities and 'regenerative medicine centres' have aggressively marketed unproven cell therapies for a wide range of medical conditions, leading to sometimes indiscriminate use of these treatments, which has added to the confusion and unpredictable outcomes. The significant variability and heterogeneity in cell formulations between different individuals makes it difficult to draw conclusions about efficacy. The 'minimally manipulated' preparations derived from bone marrow and adipose tissue that are currently used differ substantially from cells that are processed and prepared under defined laboratory protocols. The term 'stem cells' should be reserved for laboratory-purified, culture-expanded cells. The number of cells in uncultured preparations that meet these defined criteria is estimated to be approximately one in 10,000 to 20,000 (0.005% to 0.01%) in native bone marrow and 1 in 2000 in adipose tissue. It is clear that more refined definitions of stem cells are required, as the lumping together of widely diverse progenitor cell types under the umbrella term 'mesenchymal stem cells' has created confusion among scientists, clinicians, regulators, and our patients. Validated methods need to be developed to measure and characterize the 'critical quality attributes' and biological activity of a specific cell formulation. It is certain that 'one size does not fit all' - different cell formulations, dosing schedules, and culturing parameters will likely be required based on the tissue being treated and the desired biological target. As an alternative to the use of exogenous cells, in the future we may be able to stimulate the intrinsic vascular stem cell niche that is known to exist in many tissues. The tremendous potential of cell therapy will only be realized with further basic, translational, and clinical research.

Analysis of Articles about Hand Surgery Published in Orthopaedic and Hand Surgery Journals.

Author(s): Fujihara, Yuki; Fujihara, Nasa; Yamamoto, Michiro; Hirata, Hitoshi

Source: The journal of hand surgery Asian-Pacific volume; Mar 2019; vol. 24 (no. 1); p. 36-44

Abstract: BACKGROUND To date, little is known about the characteristics of highly cited studies in hand surgery compared with other orthopaedic subspecialties. We aimed to assess the position of hand surgery within the orthopedic surgery literature. METHODS We conducted a bibliographic analysis using the Web of Science database to review 1,568 articles published between January 2012 and December 2012 in 4 relevant general orthopedic and 2 hand surgery journals. We used the number of citations within 3 years of publication to measure the impact of each paper. To analyze prognostic factors using logistic regression analysis, we extracted data on orthopedic subspecialty, published journal, location of authorship, and type of study for all articles. For clinical studies, we also recorded details on study design and sample size. RESULTS Of eligible hand surgery articles (n = 307), the majority (62%) were case reports/series. Only 19% were comparative studies, comprising a significantly smaller proportion of comparative studies from other subspecialties in general orthopedic journals. Systematic reviews/meta-analyses generated a significantly higher number of average citations, whereas educational reviews were consistently cited less frequently than other study types (14.9 and 6.1 average citations, respectively). Being published in the Journal of Bone and Joint Surgery, American volume, having authorship in North America or Europe and Australia, focusing on subspecialties like hip & knee, sports, or shoulder, utilizing a comparative or randomized clinical trial study design, and having a larger sample size increased the odds of receiving more citations. CONCLUSIONS Clinical studies related to hand surgery published in general orthopedic journals are most often of lower quality study design. Having a larger sample size or using a comparative study or randomized clinical trial design can improve the quality of study and may ultimately increase the impact factor of hand surgery journals.
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Other News

**NHS can save millions by preventing broken bones**
More than 50,000 life-altering fractures could be avoided if preventative services were made available more widely, according to a new report released from the Royal College of Physicians (RCP).

*Source: Royal College of Physicians*
*Published: 29th March 2019*

**Newborn hip checks ‘have failed to prevent late diagnosis’**
The current system of checking newborns for hip problems is failing, resulting in too many late diagnoses and corrective surgery, a study suggests.

*Source: BBC News*
*Published: 29th March 2019*

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