

## **Neuropathic Pain and Chronic Pain as an Underestimated Interdisciplinary Problem**

Anna K. Szewczyk, Anna Jamroz-Wiśniewska, Natalia Haratym, Konrad Rejdak

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### **Abstract**

Neuropathic pain and chronic pain constitute an interdisciplinary problem on the border of medicine, psychology, sociology and economics. While it seems to be underestimated, the scale of this problem will continue to increase due to the population aging and the growing incidence of lifestyle disorders. People employed in various occupational sectors may also wrestle with these disease units, which affect the quality of their life, mental health and work productivity. A narrative review provided an overview of neuropathic pain and chronic pain, and their relationship to such factors as job type, work absenteeism and productivity decline, as well mental well-being. A systematic literature search was conducted based on the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines to identify appropriate literature by searching the electronic databases: PubMed/MEDLINE, Pain Journal and the Cochrane Database of Systematic Reviews. Studies were published in Polish, English and French. Research shows an increasing number of musculoskeletal diseases in professionally active people, which lead to disability or provoke work absences. However, sickness presenteeism and/or absenteeism caused by pain not only leads to economic burdens, but also to burnout, fatigue and depression syndromes in employees. These disorders may require specialized effective interventions to support the return to work or maintaining employment despite experiencing pain. Every patient with chronic or neuropathic pain should be correctly assessed to determine the best method of treatment and its effectiveness.

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## **Work stress-related problems in physicians in the time of COVID-19**

Francis Somville, Gert Vanspringel, Harald De Cauwer, Erik Franck,  
Peter Van Bogaert

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### **Abstract**

**Objectives:** Healthcare workers in the emergency department are exposed to a wide range of physical and psycho-social risks or hazards in the workplace. The aim of this study was to investigate the impact of exposure to, the occurrence and perceived risks of, and the worry about, occupational hazards among emergency and hospital physicians in the time of COVID.

**Material and Methods:** Based on the review of occupational hazards in emergency physicians, a questionnaire already used and validated in another study, conducted in

2016, was constructed. The questionnaire consisted of both socio-demographic questions and questions regarding the exposure to, the occurrence and perceived risks of, and the worry about, the following occupational hazards: infectious diseases, COVID-19, physical hazards, violence at work, and stressful situations at work that can cause burnout. A total of 497 questionnaires were distributed to Belgian emergency and hospital physicians in April 20–May 26, 2020.

**Results:** Overall, 319 responses (out of 497 questionnaires) were collected, of which 196 were eligible for statistical analysis. Of the respondents, 32% stated to be confronted with violence and 54% to suffer from health problems related to their work. The exposure to, and the occurrence and perceived risks of, occupational hazards and, more specifically, the exposure to COVID-19 (88%) and its occurrence (10%), and also the worry about these hazards, appear to be high in physicians working in the emergency department. The worry about each of these outcomes is predicted by the supposed exposure, occurrence, and perceived risks.

**Conclusions:** The exposure to, and the occurrence and perceived risks of, physical hazards, violence and burnout are generally high in physicians in the time of COVID-19. Emergency and hospital physicians in Belgium worry the most about the impact of violence, burnout and COVID-19. *Int J Occup Med Environ Health*. 2021;34(3):373–83

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## **The Role of Antioxidants on Wound Healing: A Review of the Current Evidence**

Inés María Comino-Sanz, María Dolores López-Franco, Begoña Castro, Pedro Luis Pancorbo-Hidalgo

**J. Clin Med 2021; 10(16): 3558.**  
<https://doi.org/10.3390/jcm10163558>

### **Abstract**

**Background:** Reactive oxygen species (ROS) play a crucial role in the preparation of the normal wound healing response. Therefore, a correct balance between low or high levels of ROS is essential. Antioxidant dressings that regulate this balance are a target for new therapies. The purpose of this review is to identify the compounds with antioxidant properties that have been tested for wound healing and to summarize the available evidence on their effects.

**Methods:** A literature search was conducted and included any study that evaluated the effects or mechanisms of antioxidants in the healing process (in vitro, animal models or human studies).

**Results:** Seven compounds with antioxidant activity were identified (Curcumin, N-acetyl cysteine, Chitosan, Gallic Acid, Edaravone, Crocin, Safranal and Quercetin) and 46 studies reporting the effects on the healing process of these antioxidant compounds were included. **Conclusions:** this review offers a map of the research on some of the antioxidant compounds with potential for use as wound therapies and basic research on redox balance and oxidative stress in the healing process. Curcumin, NAC, quercetin and chitosan are the antioxidant compounds that shown some initial evidence of efficacy, but more research in human is needed.

Keywords: [wound healing](#); [oxidative stress](#); [antioxidant dressing](#); [reactive oxygen species](#)

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## **The Association between Early-Life Gut Microbiota and Long-Term Health and Diseases**

Anujit Sarkar, Ji Youn Yoo, Samia Valeria Ozorio Dutra, Katherine H. Morgan, Maureen Groer

**J. Clin. Med. 2021; 10(3): 459.**  
<https://doi.org/10.3390/jcm10030459>

### **Abstract**

Early life gut microbiota have been increasingly recognized as major contributors to short and/or long-term human health and diseases. Numerous studies have demonstrated that human gut microbial colonization begins at birth, but continues to develop a succession of taxonomic abundances for two to three years until the gut microbiota reaches adult-like diversity and proportions. Several factors, including gestational age (GA), delivery mode, birth weight, feeding types, antibiotic exposure, maternal microbiome, and diet, influence the diversity, abundance, and function of early life gut microbiota. Gut microbial life is essential for assisting with the digestion of food substances to release nutrients, exerting control over pathogens, stimulating or modulating the immune system, and influencing many systems such as the liver, brain, and endocrine system. Microbial metabolites play multiple roles in these interactions. Furthermore, studies provide evidence supporting that imbalances of the gut microbiota in early life, referred to as dysbiosis, are associated with specific childhood or adult disease outcomes, such as asthma, atopic dermatitis, diabetes, allergic diseases, obesity, cardiovascular diseases (CVD), and neurological disorders. These findings support that the human gut microbiota may play a fundamental role in the risk of acquiring diseases that may be programmed during early life. In fact, it is critical to explore the role of the human gut microbiota in early life.

Keywords: Gut microbiota; early-life gut microbiota; gut dysbiosis; long-term health and disease; Developmental Origins of Health and Disease (DOHaD)

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## **Prevalence of Chronic Kidney Disease in Asia: A Systematic Review and Analysis**

Thaminda Liyanage, Tadashi Toyama, Carinna Hockham, Toshiharu Ninomiya, Vlado Perkovic, Mark Woodward, Masafumi Fukagawa, Kunihiro Matsushita, Kearkiat Praditpornsilpa, Lai Seong Hooi, Kunitoshi Iseki, Ming-Yen Lin, Heide A. Stirnadel-Farrant, Vivekanand Jha, Min Jun.

**BMJ Global Health 2022;7:e007525**

### **Abstract**

**Introduction** The burden of chronic kidney disease (CKD) is growing rapidly around the world. However, there is limited information on the overall regional prevalence of CKD, as well as the variations in national prevalence within Asia. We aimed to consolidate available data and quantify estimates of the CKD burden in this region.

**Methods** We systematically searched MEDLINE, Embase and Google Scholar for observational studies and contacted national experts to estimate CKD prevalence in countries of Asia (Eastern, Southern and South Eastern Asia). CKD was defined as estimated glomerular filtration rate (eGFR) <60 mL/min/1.73 m<sup>2</sup> or the presence of proteinuria. For countries without reported data, we estimated CKD prevalence using agglomerative average-linkage hierarchical clustering, based on country-level risk factors and random effects meta-analysis within clusters. Published CKD prevalence data were obtained for 16 countries (of the 26 countries in the region) and estimates were made for 10 countries.

**Results** There was substantial variation in overall and advanced (eGFR <30 mL/min/1.73 m<sup>2</sup>) CKD prevalence (range: 7.0%–34.3% and 0.1%–17.0%, respectively). Up to an estimated 434.3 million (95% CI 350.2 to 519.7) adults have CKD in Asia, including up to 65.6 million (95% CI 42.2 to 94.9) who have advanced CKD. The greatest number of adults living with CKD were in China (up to 159.8 million, 95% CI 146.6 to 174.1) and India (up to 140.2 million, 95% CI 110.7 to 169.7), collectively having 69.1% of the total number of adults with CKD in the region.

**Conclusion** The large number of people with CKD, and the substantial number with advanced CKD, show the need for urgent collaborative action in Asia to prevent and manage CKD and its complications.

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## **Economic impacts of overweight and obesity: current and future estimates for 161 countries**

Adeyemi Okunogbe, Rachel Nugent, Garrison Spencer, Jaynaide Powis, Johanna Ralston, John Wilding

**BMJ Global Health 2022;7:e009773**

### **Abstract**

**Introduction** The scope of the challenge of overweight and obesity (OAO) has not been fully realised globally, in part because much of what is known about the economic impacts of OAO come from high-income countries (HICs) and are not readily comparable due to methodological differences. Our objective is to estimate the current and future national economic impacts of OAO globally.

**Methods** We estimated economic impacts of OAO for 161 countries using a cost-of-illness approach. Direct and indirect costs of OAO between 2019 and 2060 were estimated from a societal perspective. We assessed the effect of two hypothetical scenarios of OAO prevalence projections. Country-specific data were sourced from published studies and global databases.

**Results** The economic impact of OAO in 2019 is estimated at 2.19% of global gross domestic product (GDP) ranging on average from US\$20 per capita in Africa to US\$872 per capita in the Americas and from US\$6 in low-income countries to US\$1110 in HICs. If current trends continue, by 2060, the economic impacts from OAO are projected to rise to 3.29% of GDP globally. The biggest increase will be concentrated in lower resource countries with total economic costs increasing by fourfold between 2019 and 2060 in HICs, whereas they increase 12–25 times in low and middle-income countries. Reducing projected OAO prevalence by 5% annually from current trends or keeping it at 2019 levels will translate into average annual reductions of US\$429 billion or US\$2201 billion in costs, respectively, between 2020 and 2060 globally.

**Conclusion** This study provides novel evidence on the economic impact of OAO across different economic and geographic contexts. Our findings highlight the need for concerted and holistic action to address the global rise in OAO prevalence, to avert the significant risks of inaction and achieve the promise of whole-of-society gains in population well-being.

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## **Osteoporosis in older adults**

Louise Statham, Terry J. Aspray

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### **Abstract**

Osteoporosis is a symptomless disease resulting in an increased risk of low-trauma fracture, common fracture sites including the wrist, spine and hip. Comprehensive clinical guidelines for the diagnosis and treatment of osteoporosis in adults include those produced by the National Institute for Health and Care Excellence, National Osteoporosis Guideline Group and Scottish Intercollegiate Guideline Network. However, older people bear the greatest health burden from osteoporosis and the applicability to this age group of guidelines, clinical risk factors and bone mineral density (BMD) measurements must be considered. Fracture risk estimation can be used to identify patients at highest fracture risk, either with or without BMD, and treatment targeted at those most likely to benefit. Lifestyle factors, including exercise and diet, are important in fracture prevention, although the evidence to support these in treating osteoporosis needs further assessment. Ultimately, pharmacological therapy is likely to be necessary in those at greatest fracture risk. In approaching treatment decisions, benefits and risks of therapy must be balanced to reach a shared care agreement, with patients (and their carers). Generally the benefits of treatment are likely to outweigh risks of adverse outcomes for patients at high risk of osteoporotic fracture.

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## **Fluids and Early Vasopressors in the Management of Septic Shock: Do We Have the Right Answers Yet?**

E. Carlos Sanchez, Michael R. Pinsky, Sharmili Sinha, Rajesh Chandra Mishra, Ahsina Jahan Lopa, Ranajit Chatterjee

**J Crit Care Med (Targu Mures). 2023; 9(3): 138–147.**

### **Abstract**

Septic shock is a common condition associated with hypotension and organ dysfunction. It is associated with high mortality rates of up to 60% despite the best recommended resuscitation strategies in international guidelines. Patients with septic shock generally have a Mean Arterial Pressure below 65 mmHg and hypotension is the most important determinant of mortality among this group of patients. The extent and duration of hypotension are important. The two initial options that we have are 1) administration of intravenous (IV) fluids and 2) vasopressors, The current recommendation of the Surviving

Sepsis Campaign guidelines to administer 30 ml/kg fluid cannot be applied to all patients. Complications of fluid over-resuscitation further delay organ recovery, prolong ICU and hospital length of stay, and increase mortality. The only reason for administering intravenous fluids in a patient with circulatory shock is to increase the mean systemic filling pressure in a patient who is volume-responsive, such that cardiac output also increases. The use of vasopressors seems to be a more appropriate strategy, the very early administration of vasopressors, preferably during the first hour after diagnosis of septic shock, may have a multimodal action and potential advantages, leading to lower morbidity and mortality in the management of septic patients. Vasopressor therapy should be initiated as soon as possible in patients with septic shock.

**Keywords:** septic shock, sepsis, vasopressor, fluid, early norepinephrine

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## **Adverse Effects Associated with Long-Term Use of Proton Pump Inhibitors**

Naina Mohamed Pakkir Maideen

**Chonnam Med J. 2023; 59(2): 115–127.**

### **Abstract**

Proton Pump Inhibitors are used widely to manage many gastric acid-related conditions such as gastroesophageal disease, gastritis, esophagitis, Barrett's esophagus, Zollinger-Ellison syndrome, peptic ulcer disease, nonsteroidal anti-inflammatory drug-associated ulcers, and *Helicobacter pylori* eradication, around the globe. This review article focuses on adverse effects associated with the long-term use of proton pump inhibitors. Various observational studies, clinical trials, and meta-analyses have established the adverse effects associated with the long-term use of proton pump inhibitors including renal disorders (acute interstitial nephritis, acute kidney injury, chronic kidney disease, and end-stage renal disease), cardiovascular risks (major adverse cardiovascular events, myocardial infarction, stent thrombosis, and stroke), fractures, infections (*Clostridium difficile* infection, community-acquired pneumonia, and Coronavirus disease 2019), micronutrient deficiencies (hypomagnesemia, anemia, vitamin B12 deficiency, hypocalcemia, hypokalemia), hypergastrinemia, cancers (gastric cancer, pancreatic cancer, colorectal cancer, hepatic cancer), hepatic encephalopathy, and dementia. Clinicians including prescribers and pharmacists should be aware of the adverse effects of taking proton pump inhibitors for an extended period of time. In addition, the patients taking proton pump inhibitors for long-term should be monitored for the listed adverse effects. The American Gastroenterological association recommends a few non-pharmacological measures and the use of histamine 2 blockers to lessen gastrointestinal symptoms of gastroesophageal reflux disease and the utilization of proton pump inhibitors treatment if there is a definitive indication. Additionally, the American Gastroenterological association's Best Practice Advice statements emphasize deprescribing when there is no clear indication for proton pump inhibitors therapy.

**Keywords:** Proton Pump Inhibitors, Cardiovascular Diseases, Risk Factors.

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## **How to use biomarkers of infection or sepsis at the bedside: guide to clinicians**

Póvoa, P., Coelho, L., Dal-Pizzol, F. et al.

**Intensive Care Med 49, 142–153 (2023).**  
**<https://doi.org/10.1007/s00134-022-06956-y>**

### **Abstract**

Sepsis is defined as a life-threatening organ dysfunction caused by a dysregulated host response to infection. In this context, biomarkers could be considered as indicators of either infection or dysregulated host response or response to treatment and/or aid clinicians to prognosticate patient risk. More than 250 biomarkers have been identified and evaluated over the last few decades, but no biomarker accurately differentiates between sepsis and sepsis-like syndrome. Published data support the use of biomarkers for pathogen identification, clinical diagnosis, and optimization of antibiotic treatment. In this narrative review, we highlight how clinicians could improve the use of pathogen-specific and of the most used host-response biomarkers, procalcitonin and C-reactive protein, to improve the clinical care of patients with sepsis. Biomarker kinetics are more useful than single values in predicting sepsis, when making the diagnosis and assessing the response to antibiotic therapy. Finally, integrated biomarker-guided algorithms may hold promise to improve both the diagnosis and prognosis of sepsis. Herein, we provide current data on the clinical utility of pathogen-specific and host-response biomarkers, offer guidance on how to optimize their use, and propose the needs for future research.

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