

meningitis. However, readers should keep in perspective that Castelblanco and colleagues' study¹ assessed only admissions to hospitals.

Bacterial meningitis continues to exert a substantial burden on the US health-care system, with several thousands of patients visiting hospital-based emergency departments with this disease.² When we queried the online Healthcare Cost and Utilization Project system HCUPnet (which provides nationally representative estimates of emergency department visits in the USA during the years 2006–11), we noted that 7268 visits to hospital emergency departments were due to pneumococcal meningitis and 7047 visits were due to staphylococcus meningitis (table). During these 6 years, the number of emergency department visits by people due to bacterial meningitis seems to be constant without any obvious reduction.

We declare no competing interests

**Veerasathpurush Allareddy, Sankeerth Rampa, Veerajalandhar Allareddy*
veerasathpurush-allareddy@uiowa.edu

Department of Orthodontics, College of Dentistry, The University of Iowa, Iowa City, IA 52242, USA (Veerasathpurush Allareddy); Health Services Research and Administration, University of Nebraska Medical Center, Omaha, NE, USA (SR); and Department of Pediatric Critical Care and Pharmacology, Rainbow Babies and Children's Hospital, University Hospitals, Case Medical Center, Cleveland, OH, USA (Veerajalandhar Allareddy)

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We congratulate Rodrigo Lopez Castelblanco and colleagues on their study of the epidemiology of bacterial meningitis in the USA.¹ The decreasing incidence and mortality of pneumococcal meningitis are welcome, and we agree that use of effective vaccines and

possibly corticosteroid therapy has contributed to this decrease.

Although these epidemiological data are interesting, practising physicians might find the probable mortality of an individual patient to be of more interest than epidemiological data. To estimate the probability of death from pneumococcal meningitis, we used data reported in figures 1 and 2 of the study¹ and divided the mortality rate by the incidence in a given year. In 1997 the mortality of pneumococcal meningitis was 11% (0.09/0.81). In 2008, the last year for which both incidence and mortality rates were reported,¹ the probability of death decreased to 6% (0.025/0.4). The reported mortality in adult patients with pneumococcal meningitis in the modern era has been reported to range between 21% and 30%.^{2,3} The mortality in paediatric pneumococcal meningitis is lower than for adults and ranges from 8% to 15%.^{4,5}

The reduced mortality values derived from the data presented in this study¹ raise the question of whether the individual mortality of a patient with pneumococcal meningitis has actually decreased in the modern era or whether the actual mortality is underestimated by the methods used in this study.

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Michael S Gelfand, Kerry O Cleveland
kcleland@uthsc.edu

Department of Medicine, Division of Infectious Diseases, University of Tennessee Health Science Center, Memphis, TN 38104, USA

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Chikungunya, the emerging migratory rheumatism

Felicity Burt and colleagues¹ recently highlighted the arthritogenic capacity of chikungunya and postulated that it might exacerbate or increase susceptibility to joint diseases, notably to rheumatoid arthritis. Recent clinical data from Reunion Island and India support this hypothesis.

Acute febrile polyarthritis is often followed by chronic disorders, mainly affecting joints, tendons, and bones. The causality of chikungunya in joint symptoms is highly suggested by long-term comparison of infected and uninfected adults.² To better address pathogenesis and case management, we need to identify the different nosological entities of post-chikungunya musculoskeletal and rheumatic disorders, and first of all, to assess their inflammatory nature. The spectrum is wide: exacerbation of pain in previously sick or injured joints or bones, mechanical misbalance in susceptible joints, neuropathic pain, abarticular inflammation, periostitis, and multiple or focal persisting inflammation in synovium and tendons ranging from oedematous steroid-sensitive polyarthralgia up to authentic chronic inflammatory rheumatism in about 5% of patients with chronic disease.³

These postinfective rheumatism, mostly rheumatoid arthritis and spondylarthropathy, are the most severe presentations because they can destroy joints, impair daily life, and need heavy treatment with disease-modifying antirheumatic drugs. Chikungunya

can also worsen pre-existing chronic inflammatory rheumatism and lead to intensification of the treatment (adjunctive steroid course, change background drug; unpublished). However, so far, no evidence shows that chikungunya can induce or worsen osteoporosis, except after prolonged courses of systemic corticotherapy.

Because international travel is an increasing source for chikungunya infection, persisting musculoskeletal disorders or rheumatic diseases are now reported in travellers returning to non-epidemic countries months to years after the acute stage.⁴ We believe that travellers should be warned that chikungunya is not a negligible risk because of its biphasic evolution. Patients older than 70 years or suffering underlying diseases (cardiovascular, respiratory, neurological disorders, or systemic lupus) are at higher risk for complication or death in the acute stage. In the same way, an unfavourable rheumatic outcome with long-term impairment of quality of life is predictable after chikungunya for patients with one of several criteria: female sex, age older than 45 years, and any pre-existing osteoarticular disease (mostly degenerative osteoarthritis).^{3,5}

Considering this point, travelling in an epidemic area should be discouraged for patients who are highly susceptible to acute complications or long-lasting arthritic diseases; if the travel cannot be cancelled or postponed, all measures to prevent diurnal mosquito bites are recommended: long clothes, repellents, bednets, insecticides, and air conditioning.

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*Emilie Javelle, Philippe Gautret,
Fabrice Simon
simon-f@wanadoo.fr

Department of Infectious Diseases and Tropical Medicine, Laveran Military Teaching Hospital, 13384 Marseille cedex 13, France

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Cases of chikungunya in the Americas are increasing substantially.^{1,2} As noted by Felicity Burt and colleagues,¹ spread and establishment of the virus in new endemic regions will be dependent on availability of competent vectors and a source of the virus, but also on other factors.

A complication from a Latin American perspective is that health systems are very heterogeneous. Although some have achieved excellent results in control of other vector-borne diseases (eg, onchocerciasis in Colombia or malaria in Chile), there have, unfortunately, been setbacks in communicable disease control.³ Could Latin America control the dissemination of the chikungunya disease in view of the current epidemics?

Even in Chile, a Latin American country with high incomes and development, could not control dengue across all its territory. Dengue epidemics have substantially affected Chilean citizens in Easter Island. Nothing assures that this might not occur in same way with chikungunya.⁴ Moreover, countries that in past decades controlled vector-borne disease, such as Venezuela for malaria, are now failing to control them.³

In 2010, an epidemic of chikungunya was noted in Europe in areas such as

southern France, which has a similar climate to that of southern South America. This epidemic highlights the possibility that chikungunya infection could reach countries such as Argentina, Chile, and Uruguay—with not only imported cases but also with transmission, since the vector is present during warm seasons.⁵ Accumulation of imported but particularly autochthonous cases in some Latin American countries has happened quickly (figure). In Puerto Rico, the number of autochthonous cases increased from 48 during week 27 (July, 2014) to 2305 at week 40 (October, 2014).

In the other countries of Latin America, where the existence of mosquitoes is endemic, the doubts about the control of the disease are even greater because of the inability of vector control. Importantly, chikungunya is highly symptomatic, so if governments could coordinate policies in early detection of cases, disease expansion would be mitigated. More joint efforts of Latin American countries are needed, in addition to regional efforts of the Pan American Health Organization, to provide and establish guidelines and policies.

There are more elements of concern in the current stage of this disease for Latin America, but a call for collaboration and search for health policies must exist, particularly in view of the increasing number of people travelling to and from Latin American countries.

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*Patricio Alfaro-Toloza,
Diego E Clouet-Huerta,
Alfonso J Rodríguez-Morales
arodriguezm@utp.edu.co

Asociación Chilena de Seguridad, Chillán, Chile (PA-T); Faculty of Medicine, Universidad Austral de Chile, Valdivia, Chile (DEC-H); and Public Health and Infection Research Group, Faculty of Health Sciences, Universidad Tecnológica de Pereira, Pereira, Colombia (AJR-M)

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