in New Zealand, where Māori and Pasifika children have unacceptably high acute rheumatic fever rates. In 2012, a nationwide Rheumatic Fever Primary Prevention programme[4] was launched, which was an unparalleled 5-year effort to reduce acute rheumatic fever by treating *S pyogenes* pharyngitis in children at high risk. Programme coverage peaked in 2014, with more than 250 schools and 53 000 children enrolled, when a reduction in acute rheumatic fever was observed. However, this reduction was not sustained, and from 2016 onwards the incidence increased back to pre-programme levels. Despite this waning efficacy, our scarlet fever data suggest that the Rheumatic Fever Primary Prevention programme had a broader effect on serious *S pyogenes* disease in children in New Zealand. This effect was probably a consequence of intensive sore throat treatment and widespread public health awareness campaigns within the programme.

Worryingly, our data suggest that acute rheumatic fever rates are an indicator for scarlet fever in New Zealand. With acute rheumatic fever increasing, and our proximity to countries with epidemic scarlet fever, public health authorities need to be prepared for a scarlet fever outbreak. In a setting where *S pyogenes* incidence is already one of the highest in the world,[5] there is an urgent need to increase surveillance efforts and detect *S pyogenes* strains with invasive potential.

We declare no competing interests.

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1 Lynskey NN, Jauneikaite E, Li HK, et al. Emergence of dominant toxigenic M1T1 *Streptococcus pyogenes* clone during increased scarlet fever activity in England: a population-based molecular epidemiological study. *Lancet Infect Dis* 2019; **19:** 1209–18.
2 Yung CF, Thoon KC. A 12 year outbreak of scarlet fever in Singapore. *Lancet Infect Dis* 2018; **18:** 942.
3 Walker MJ, Brouwer S, Forde BM, et al. Detection of epidemic scarlet fever group A *streptococcus* in Australia. *Clin Infect Dis* 2019; **69:** 1232–34.
4 Jack SJ, Williamson DA, Galloway Y, et al. Primary prevention of rheumatic fever in the 21st century: evaluation of a national programme. *Int J Epidemiol* 2018; **8:** 1585–93.
5 Williamson DA, Morgan J, Hope V, et al. Increasing incidence of invasive group A *streptococcus* disease in New Zealand, 2002–2012: a national population-based study. *J Infect* 2015; **70:** 127–34.

Should we fear gonorrhoea?

Marcus Chen and colleagues[1] tested solithromycin for the treatment of uncomplicated genital gonorrhoea. They were unable to show non-inferiority of this relatively new macrolide antibiotic compared with standard treatment with ceftriaxone and azithromycin.

Similar to other molecules in development, solithromycin was largely expected to treat gonorrhoea in the context of global fear of antibiotic resistance. Indeed, *Neisseria gonorrhoeae* has been classified by the US Centers for Disease Control and Prevention as a threat with a high emergency level.[2] According to their 2013 report, 30% of *N gonorrhoeae* strains are resistant to antibiotics.

Instead of searching for new antibiotics, we should be looking at what we already know. Some old oral antibiotics with few side-effects could be investigated for the treatment of gonorrhoea.[3] An interesting alternative to new molecules could be fosfomycin trometamol. This molecule has recently been tested in a randomised trial.[4] 62 men received a single dose of fosfomycin trometamol on days 1, 3, and 5 after diagnosis (confirmation of Gram-negative diplococci on Gram strain of urethral secretion), and were compared with 61 men receiving standard treatment. 60 (97%) of 62 patients in the fosfomycin trometamol group were clinically and microbiologically cured 7 days after intervention, with no relapse at day 14. In France, this treatment is available at a cost of €4·66 a day and should be explored instead of new and costly molecules.

Information about the spread of multidrug-resistant *N gonorrhoeae* should be treated with caution. Antibiotic choice in each hospital should be ruled by local ecology and not by international communication. As an example, in October, 2019, we did data extraction for all strains of *N gonorrhoeae* cultivated in our laboratory at Institut hospitalo-universitaire Méditerranée infection (Marseille, France) using NexLabs (V01.32.S50; Technidata, Montbonnot Saint Martin, France). Between January, 2010, and September, 2019, 214 strains of *N gonorrhoeae* were isolated from clinical samples (mainly from the emergency and gynaecology departments). Of 170 strains with available antibiograms, no strain was resistant to ceftriaxone, and 101 (57%) strains were resistant to fluoroquinolones. According to these data, ceftriaxone (the reference treatment) is efficient in Marseille for the treatment of gonorrhoea. In case resistance should emerge, fosfomycin trometamol could be added to the standard treatment. This association has been tested in vitro with success against *N gonorrhoeae*.[5]

We declare no competing interests.

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1 Chen MY, McNulty A, Avery A, et al. Solithromycin versus ceftriaxone plus azithromycin for the treatment of uncomplicated genital gonorrhoea (SOLITAIRE-U): a randomised phase 3 non-inferiority trial. *Lancet Infect Dis* 2019; **19:** 833–42.
2 Centers for Disease Control and Prevention. Antibiotic resistance threats in the United States, 2013. https://www.cdc.gov/drugresistance/pdf/ar-threats-2013-508.pdf (accessed Oct 21, 2019).
3 Raoult D. Gonorrhea resistance: don't forget the old chaps. *Eur J Clin Microbiol Infect Dis* 2017; **36:** 2537.

4 Yuan Z, He C, Yan S, Ke Y, Tang W. Randomized controlled clinical trial on the efficacy of fosfomycin trometamol for uncomplicated gonococcal urethritis in men. *Clin Microbiol Infect* 2016; **22:** 507–12.
5 Hauser C, Hirzberger L, Unemo M, Furrer H, Endimiani A. In vitro activity of fosfomycin alone and in combination with ceftriaxone or azithromycin against clinical *Neisseria gonorrhoeae* isolates. *Antimicrob Agents Chemother* 2015; **59:** 1605–11.

Unprecedented rise in dengue outbreaks in Bangladesh

Dengue is a common mosquito-borne infection that affects millions of people each year. 75% of the world's dengue burden is in Asia, particularly in countries such as the Philippines, Indonesia, and Thailand.[1] Bangladesh, in south Asia, has lower dengue seroprevalence than countries in southeast Asia,[2] but the situation is rapidly changing. We highlight the largest dengue outbreak in Bangladesh on record, which is taking place this year.

Bangladesh had sporadic transmission of dengue virus from 1964 to 1999, but the first outbreak due to dengue virus type 3 occurred in 2000,[2] with dengue outbreaks occurring at increasing frequency and magnitude since then, peaking with 10 148 cases in 2018.[3] In 2019, dengue outbreaks surpassed all previous records, mostly in the capital city of Dhaka. By August, 2019, a total of 70 188 dengue cases had been officially recorded, with 67 dengue-related deaths. The numbers increased to 81 832 cases with 67 deaths as of the last count on Sept 16, 2019 (figure). This high frequency of dengue cases is due to dengue virus type 3, but all other serotypes are co-circulating.[4]

What are the reasons for this unprecedented rise in dengue cases? Bangladesh has had an influx of Rohingya refugees from neighbouring Myanmar, which has led to a rise in many infectious diseases in Bangladesh, such as diphtheria.[4] However, reliable data supporting the importation of dengue via Rohingya refugees do not exist. Given the increasing connectivity of air travel,[5] it is more plausible that dengue outbreaks in Bangladesh are a result of dengue importation from southeast Asia, which is currently also witnessing an unusually elevated dengue prevalence. Climate change, unplanned rapid urbanisation and construction, high population densities, and the struggling health-care system in Bangladesh further compound the magnitude and severity of dengue outbreaks. Additionally, Bangladesh's insufficient preparedness, including inadequate public health infrastructure and suboptimal vector-control programmes, further magnifies the impact of dengue virus importation, resulting in epidemics of escalating severity.

Consequently, there is an urgent need to improve prevention and control strategies in Bangladesh. Communities need to be engaged in community-based measures to reduce mosquito breeding sites. Tools for early detection of dengue infection need to be provided to all health-care facilities, including diagnostic laboratory capability. Finally, clinicians in Bangladesh need to be trained in managing severe dengue to reduce fatality rates.

We declare no competing interests.

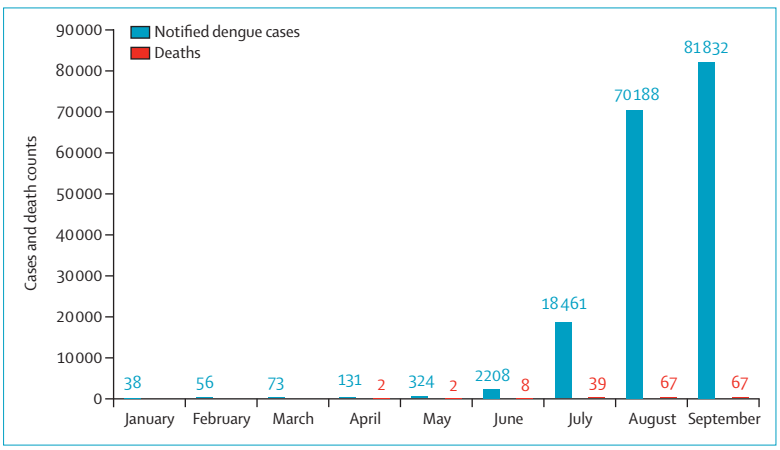

Figure: **Dengue notifications and deaths in Bangladesh in 2019**

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1 Wilder-Smith A, Ooi E-E, Horstick O, Wills B. Dengue. *Lancet* 2019; **393:** 350–63.
2 Sharmin S, Viennet E, Glass K, Harley D. The emergence of dengue in Bangladesh: epidemiology, challenges and future disease risk. *Trans R Soc Trop Med Hyg* 2015; **109:** 619–27.
3 Akram A. Alarming turn of dengue fever in Dhaka city in 2019. *Bangladesh J Infect Dis* 2019; **6:** 1–2.
4 Rahman MR, Islam K. Massive diphtheria outbreak among Rohingya refugees: lessons learnt. *J Travel Med* 2019; **26:** tay122.
5 Glaesser D, Kester J, Paulose H, Alizadeh A, Valentin B. Global travel patterns: an overview. *J Travel Med* 2017; **24:** 24.

Dengue infection in Pakistan: not an isolated problem

Up until October, more than 19 000 cases of dengue infection and 30 deaths had been reported by the National Institute of Health, Pakistan,