

Subcontinent. Our results not only add new insights on the evolutionary history of cholera, but also provide valuable information to modulate the public health response to the disease.

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Misdiagnosed outbreak of bartonella bacilliformis in Peruvian Amazon department



A. Cornejo¹, V. Casabona², C.S.P. Gomes^{3,*}, C. Tinco⁴, S. Martinez-Puchol⁵, L. Suarez⁶, J. Ruiz⁷, J. del Valle⁸

¹ Universidad Peruana de Ciencias Aplicadas (UPC) e Instituto de Investigación Nutricional (IIN), Lima, PE, Peru

² Universidad Peruana de Ciencias Aplicadas.

Instituto de Investigación Nutricional, Lima, Peru

³ Barcelona Centre for International Health Research, Barcelona, Spain

⁴ Instituto de Investigación Nutricional, Lima, Peru

⁵ Barcelona Centre for International Health Research, Barcelona, Spain

⁶ Facultad de Ciencias de la Salud, Universidad Peruana de Ciencias Aplicadas, Lima, Peru

⁷ Centre de Recerca en Salut Internacional de Barcelona, Hospital Clinic/Institut d'Investigacions Biomèdiques August Pi i Sunyer, Barcelona, Spain

⁸ Instituto de Investigación Nutricional (IIN) y UPC-Perú, PERU, PE, Peru

Background: In March 2013, the presence of an outbreak of *Bartonella bacilliformis* in the Rodriguez de Mendoza (Amazonas department, Peru) was reported. *B. bacilliformis* is an endemic pathogen of the Andean region, responsible for Carrion's disease. One of the main problems of this illness is the lack of adequate technical and human resources for proper diagnosis in endemic rural areas. The objective of this study was to characterize a supposed *B. bacilliformis* outbreak, internationally informed in Rodriguez de Mendoza province.

Methods & Materials: Fifty-three blood samples were recovered from people diagnosed with Carrion's disease, either by optical microscopy and/or clinical manifestations. In all cases epidemiological and clinical data were recorded. The samples were cultured on Columbia Agar adding 10% of sheep blood and incubated at 28 °C for a period of 10 weeks. Every 14 days the plates were visually inspected to detect any bacterial growth. Additionally, the DNA was directly extracted from blood and 2 different 16S rRNA PCR schemes were used, one specific for *Bartonella* genus and other using universal primers. Twenty-six amplified products of universal 16S rRNA were randomly recovered and sequenced.

Results: The main clinical presentations reported were headache (51%), physical discomfort (51%), chill (32%) and fever (24, 5%). Only 3 blood cultures were positive. No positive PCR was obtained when using the *Bartonella* specific PCR either on blood or on cultured bacteria. However, all the PCR with the universal primers were positive. The sequenced 26 (49%) samples were identified as *Sphingomonas* spp. being this microorganism the causative

agent of this outbreak. In 17% of the cases, patients were reported to have aquatic activities.

Conclusion: Several *Sphingomonas* spp. infections in humans have been reported, mostly limited to sporadic case reports or intra-hospitalary outbreaks, but as far as we know this is the first outbreak of *Sphingomonas* spp. described in a non-hospital environment. The association between 17% of patients with aquatic activities suggests that this was the most feasible transmission way.

Training of health staff and development of new diagnostic able to be implemented in rural endemic areas is urgent in order to overcome wrong diagnostics and avoid wrong treatments.

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Malaria among sickle cell anaemia (SCA) patients in a nomadic population



M.M. Dalhat^{1,*}, B.A. Gwaram², H. Muhammad³, Z.G. Habib⁴, M.M. Bello⁵, A.M. Yakasai⁶, A.H. Sadauki⁷, H. Aliyu⁷, Z.G. Vandi⁷, F. Sarkin-Fada⁵, K.M. Karaye⁸, A.G. Habib⁸

¹ Aminu Kano Teaching Hospital, Kano, Kano, Kano, Nigeria

² Bayero University, Kano, Kano, Kano, Nigeria

³ Bayero University Kano, Kano, Kano, Nigeria

⁴ University of Abuja Teaching Hospital,

Gwagwalada, Abuja, Gwagwalada, Abuja, Nigeria

⁵ Bayero University, Kano, Kano, Nigeria

⁶ Murtala Muhammed Specialist Hospital, Kano, Nigeria

⁷ Aminu Kano Teaching Hospital, Kano, Kano, Nigeria

⁸ Bayero University Kano, Kano, Nigeria

Background: Nigeria has one of the world's highest burdens of malaria in the world. Nomadic Fulani in northern-Nigeria have been identified as a vulnerable group, often neglected during planning and implementation of health interventions. Nomadic lifestyle, common practice of consanguineous marriages and poor access to preventive and curative strategies against malaria make sickle cell anaemia common and expose them to devastating effects of malaria. We conducted a cross-sectional study in a nomadic Fulani setting in Kano state, Nigeria to determine burden and effects of malaria in the community.

Methods & Materials: We administered structured questionnaires to individuals 15 years and above to obtain socio-demographic information, consanguinity and symptoms of malaria. We conducted on-the-spot malaria rapid diagnostic test (RDT) and collected blood sample for haematocrit and haemoglobin electrophoresis. We also conducted Focussed Group Discussions (FGD) with selected members of the community to determine knowledge, attitude and preventive practices against malaria and SCA. We compared prevalence of malaria, consanguinity and haemoglobin genotypes within the community.

Results: A total 229 subjects were interviewed, among which 100 (43.7%) were females. Median age (range) was 35 yrs (15 – 80 yrs). More than two-thirds of the women 72 (72.0%) were of reproductive age. Symptoms of malaria and positive RDT

were found among 97 (42.4%) and 24 (10.5%) subjects respectively. Among those with positive RDT, 13 (48.0%) were women of reproductive age. Haemoglobin AS was found among 53 (23.1%) of the subjects; none had haemoglobin SS. The median (range) hematocrit was 36% (4.0 – 52%). The FGD revealed that respondents considered malaria as an important cause of ill-health but lack knowledge of appropriate preventive measures against it. None of the participants was aware of SCA as a disease not to talk of how to prevent it.

Conclusion: The high prevalence of malaria, haemoglobin AS, and absent haemoglobin SS implies devastating effect of malaria decimating individuals with haemoglobin SS in early childhood. This could significantly impact food production. Public health authorities should devise innovative measures to reach this neglected, vulnerable population. The impact of high prevalence of malaria parasitaemia to poor foetal outcomes and early childhood deaths in the community should be further evaluated.

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Sources of water deterioration in the rural department of Yoro, area of Honduras



G.E. Halder¹, G. Bearman^{2,*}, K. Sanogo³, M.P. Stevens³

¹ Virginia Commonwealth University School of Medicine, Richmond, USA

² Richmond, VA, USA

³ Virginia Commonwealth University, Richmond, Va, USA

Background: The contamination of tested fecal-free drinking water following its collection from improved water sources has been documented. Post-collection water deterioration has been linked to fecal contaminated fingertips and storage containers. The published WHO Guidelines for Drinking Water Quality emphasizes a holistic approach - from the point of distribution to the point of consumption - as a means of increasing the safety of drinking water. This study aimed to compare and contrast the sanitation of water containers, container lid usage, and hand sanitation among the suburban community of Coyoles and the rural and geographically distinct communities of La Hicaca and Lomitas in the Department of Yoro area of Honduras.

Methods & Materials: A total of 263 randomly selected individuals receiving care from a June 2011 medical brigade to the area completed a 20-item, anonymous, brief, interviewer-administered water sanitation questionnaire in Spanish. We assessed self-reported practices for the sanitation of water transport and storage containers, water container lid use, and hand sanitation prior to filling water containers.

Results: The use of chlorine and soap for the sanitation of containers for water transport and storage was significantly different among the three communities (<0.01). Coyoles most commonly employed chlorine for sanitizing water transport (68.8%) and storage (73.9%) containers. La Hicaca and Lomitas most commonly used soap for sanitizing both container types. Although 86% of participants in Lomitas identified using a lid on their water storage

containers, lid-use in this community was significantly less compared to the communities of Coyoles and La Hicaca, where over 95% of participants identified their use ($p=0.02$). Lomitas also had the fewest respondents (29.5%) placing a lid on water containers at the water source site ($p<0.01$). Over 97% of all individuals at each site identified washing their hands with soap and water prior to filling water containers ($p=0.57$).

Conclusion: Across the three Honduran communities, water container sanitation method and lid usage varied, while hand sanitation remained relatively constant. These data suggest that sanitation practice interventions are of least importance in the most suburban area of Coyoles, and in most need in the remote and rural communities of La Hicaca and Lomitas.

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Suspected outbreak of shigellosis in Nelson Mandela Bay Health District, Eastern Cape Province - South Africa, November 2012 to February 2013



G.M. Ntshoe^{1,*}, J. Thomas¹, A. Cengimbo¹, N. Muvhango², P. Ekermans³, F. Fourie⁴

¹ National Institute for Communicable Diseases (NICD) of the National Health Laboratory Service (NHLS), Johannesburg, South Africa

² University of Pretoria, Pretoria, South Africa

³ National Health Laboratory Service, Port Elizabeth, South Africa

⁴ Department of Health, Nelson Mandela Bay Health District, Port Elizabeth, South Africa

Background: In November 2012 a sudden increase of *Shigella* cases was reported in Nelson Mandela Bay Health District, with 12 cases reported between 23 and 26 November 2012. The National Outbreak Unit (NOU) assisted the District Outbreak Response Team (DORT) with the outbreak investigation and response.

Methods & Materials: Public and private healthcare facilities instituted active case finding and stool specimen collection from patients with illness suggestive of shigellosis. A subset of cases was interviewed to interrogate possible common risk factors. Stool specimens underwent routine bacteriology testing and *Shigella* spp isolates were referred to the Centre for Enteric Diseases (NICD-NHLS) for characterisation. Water samples collected at strategic sites were serially tested for quality indicators.

Results: From 1 November 2012 to 28 February 2013, a total of 69 cases (63 laboratory-confirmed, 1 probable, and 5 possible) with one death was reported. Children ≤ 5 years accounted for the highest proportion (35%) of cases. The median age was 13 years (range 7 days to 83 years). The majority (48%) of cases resided in two neighbouring suburbs but shared no other common risk exposures. Diarrhoea was reported in 98% of cases, which in 38% was bloody. Of laboratory-confirmed cases, 90% were *Shigella flexneri*, 68% of which were *Shigella flexneri* type 1b. Water testing conducted on 19 November 2012 in the two suburbs with most cases showed higher than acceptable *E. coli* counts and sub-standard chlorine levels. Following intensified efforts to improve water chlorination, a