

measures and provoked a number of further contacts. Six contact persons developed mild symptoms consistent with a mild Lassa virus infection and were therefore biosafety level 3 isolated. All of whom were finally tested negative for Lassa virus.

Conclusion: Information between different authorities involved has to be shared rapidly and should be facilitated by a central coordination. It is mandatory to well-inform those affected, reinforced by a written order for the contact person from the authority in charge. Implementing public health measures requires sufficient staff on all levels to be able to meet such challenges. Even one imported case may have an impact on an international level. Rapid communication and cooperation at all levels is crucial.

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19.156

Survey on the impact of the Ebola outbreak in West Africa on public health in North Rhine-Westphalia, Germany



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Purpose: The Ebola outbreak in West Africa has also been a challenge to other public health systems. North Rhine-Westphalia (NRW) is the largest state in Germany with a population of approximately 18 million people. Even though no imported cases were reported, many uncertainties and questions emerged in NRW regarding preparedness for such a case.

Methods & Materials: An online questionnaire via LamaPoll has been used to identify the workload and challenges among local public health departments in NRW, Germany, during the Ebola outbreak in West Africa. The survey was anonymous and voluntary.

Results: Ultimately 40 of 54 finished questionnaires were analysed. Of those 11 were completed in an urban district and 26 in a rural district in NRW (3 not stated). People that answered the questionnaires were mainly medical doctors (31), working with infectious disease public health for 15 years on average (range 1 to 36 years). Most local public health departments in NRW had to deal with the Ebola topic, but 23 of the participants did not report any probable Ebola case and 29 less than 5 suspected cases. Nevertheless almost all participants (39) stated they had a higher workload due to the Ebola outbreak. Although 26 participants stated to have purchased PPE in their public health office, only 19 have trained donning and doffing of PPE and mere 5 are planning to continue PPE training. Also 82% of participants think to be better prepared for suspected cases of highly pathogenic infectious diseases. However, only 4 participants are allowing enough time in their department for preparedness regarding such a case. Half the participants used the epidemics preparedness plan NRW and found it to be helpful, but 25% wished to receive relevant information sooner.

Conclusion: Emerging challenges during risk assessment of imported possible Ebola cases should be used to scrutinise and improve preparedness regarding suspected and probable cases of public health significance on all levels. The NRW Centre for Health focuses to support the local public health departments as specific and timely as possible. Central coordination and networking between all players involved are required to implement public health measures efficiently.

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19.157

Evaluation of Acute Flaccid Paralysis (AFP) Surveillance system in Balochistan



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Purpose: The purpose of this evaluation is to identify the weaknesses and strengths of this system.

Methods & Materials: CDC's updated guide lines for evaluation of public health surveillance system were followed and a descriptive study was carried out in March 2011 to evaluate the system's functioning in 2010. Literature was studied, records were reviewed in provincial health department, stakeholders were identified and information was obtained through a designed questionnaire based on system attributes by conducting in depth interviews and focus group discussions with the stakeholders.

Results: AFP Surveillance is active meaning the staff visits hospitals frequently and also goes door to door to find cases. It is simple with an easily understandable case definition. System demonstrated its flexibility by incorporating information on measles and neonatal tetanus in 2009. Representativeness is average as system has limited integration with private sectors. All 30 districts submitted reports daily to the national level in the year 2010. However there is a gap in information sharing from district to provincial (sub-national) level. Ninety percent of the reports are correctly filled. Information is shared with national & international health authority through electronic system within 24 hours. System sensitivity is 100%, whereas PVP is 5.6%.

Conclusion: We recommend integration of AFP with private sectors and report sharing at provincial level. Data analysis at provincial level is necessary for policy making due to the security-compromised situation.

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19.159

Detection of viral RNA in tissues following plasma clearance from an Ebola virus infected patient



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Purpose: An unprecedented Ebola outbreak occurred in 2014–2015 in West Africa. A better understanding of the EBOV life cycle is fundamental to develop new countermeasures, as well as to fully comprehend the pathways of inter-human transmission. We have

explored the possibility of viral persistence in different body fluids' samples obtained from a Health Care Worker (HCW) infected in Sierra Leone and treated at INMI L. Spallanzani, Italy. To evaluate whether the virus was in a replicative status or simply derived from blood spill over, we compared the trends of EBOV-specific negative sense genomic RNA (neg-RNA), positive sense RNA (pos-RNA) and total viral RNA in different clinical samples.

Methods & Materials: Clinical samples were inactivated in BSL4 facility and RNA was extracted with QIAamp Viral-RNA Mini-Kit (Qiagen). Quantification of total viral RNA was performed with the reference test Altona-FilovirusScreen Kit1.0 (Altona Diagnostics). To measure EBOV-specific negative sense genomic RNA (neg-RNA) and positive sense RNA (pos-RNA) [including both replication intermediate (cRNA) and messenger RNA (mRNA)], L-gene specific reverse or forward primers were used in the reverse transcription step

Results: The clinical samples analyzed (sputum, nasopharyngeal swab, ocular swab, urine and plasma) show different trends in neg-RNA, pos-RNA and total viral RNA levels. In Nasopharyngeal swab, Ocular Swab and Urine, total viral RNA is the only one detectable, until Day 12, 5 and 15 after hospitalization, respectively. On the contrary, in plasma, total viral RNA, neg-RNA and pos-RNA levels simultaneously decreased, starting from day 3 and becoming undetectable at Day 6. In Sputum, pos-RNA levels decreased since Day 8, persisting at detectable levels up to Day 10, coherently with total viral RNA and neg-RNA levels, which start decreasing at Day 10 and become undetectable at Day 11.

Conclusion: The presence of viral RNA and replication markers (pos-RNA and neg-RNA) in sputum might be of relevance in future analysis regarding the persistence of the virus in the upper respiratory tract, even after viral clearance from plasma. These results should be taken under further investigation in order to better understand the role of the respiratory tract for possible involvement in viral shedding, viral replication site or as a viral reservoir.

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19.160

Burden of Chagas disease related cardiomyopathy in Guyana



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Purpose: A descriptive study to fill a knowledge gap regarding Chagas disease cardiomyopathy prevalence in Guyana by testing for antibodies to *Trypanosoma cruzi* in patients throughout the country who are identified as having cardiac abnormalities on screening Echocardiogram (ECG) and echocardiography. This has public health significance as the chronic disease phase carries a high mortality rate due to its progression to dilated cardiomyopathy in 20–30% of cases.

Methods & Materials: Health workers at Regional Health Centers recruit and screen patients that present with unexplained

syncope, palpitations or overt/suspected heart failure. This is occurring throughout all 10 regions of Guyana. Consenting patients undergo screening with 12 lead ECG and Echocardiography. Patients with abnormal findings including: (1) AV conduction abnormality on ECG, (2) RBBB on ECG, or (3) echocardiographic evidence of left ventricular dysfunction, has blood drawn and the Standard Diagnostics Rapid Test for *T. Cruzi* (sensitivity 99.3%; specificity 100%) performed to determine if seropositive for antibodies to *T. Cruzi*. We anticipate screening 1200 patients, 300 at the Georgetown Public Hospital Corporation, and 100 patients per region in the outlying 9 regions. Data collection began in July 2016. Patients with a positive Test and their local physician are provided with test results, as well as education regarding Chagas positivity and management of cardiac disease as indicated by their individual results. All Chagas seropositive patients will also receive a referral to Vector Control Services, Ministry of Public Health of Guyana.

Results: Expected: The seroprevalence of *T. cruzi* in patients with cardiac abnormalities will be similar to that of other countries in the Guyana Shield where it is endemic. Chagas associated cardiac disease prevalence may represent a higher preventable burden of morbidity and mortality than previously identified.

Conclusion: Considering the prevalence (.5%–6.7%) and significant public health burden of Chagas disease in countries surrounding Guyana and the status of Chagas Disease as a neglected tropical disease, knowledge about its prevalence in the country is critical for public health planning and vector control. With knowledge about the rates of Chagas infection, resources could be allocated to improved prevention and earlier treatment leading to decreased morbidity and mortality.

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19.161

Surveillance of Zika virus infection: The experience of an adult tertiary care hospital in Singapore



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Purpose: Singapore is vulnerable to the importation and transmission of Zika virus as it is a travel hub with the *Aedes* mosquito present. Tan Tock Seng Hospital, which serves as the national outbreak response centre in Singapore, set up a Zika surveillance system after the designation of Zika as a notifiable disease in January 2016. We report our findings and describe the first confirmed case of Zika in Singapore.

Methods & Materials: We conducted a retrospective review on all cases screened at the Emergency Department of Tan Tock Seng Hospital between 27 January and 8 June 2016.

Results: 11 patients (aged 18–55 years) were screened during the study period. 55% were female. All patients had travelled to Zika-affected areas within 2 weeks of symptom onset. Eight (73%) were treated as outpatients. Of these, four were tested negative for Zika using PCR (Real-Time Reverse-Transcription) on serum. One of them was positive for dengue NS1 antigen. Zika was not tested in remaining 4 due to incompatible clinical pictures. Three patients were admitted for viral illness; all were male Singapore residents (aged 37–48 years), and presented with fever, rash, and one of the following: arthralgia, myalgia, headache or non-purulent conjunctivitis. These patients presented to hospital between 2–7 days from