2021 FETP INTERNATIONAL NIGHTS

Wednesday July 14–Thursday July 15, 2021
Cover photos credits

*Top:* Dr. Khyati Aroskar, India EIS. Joint operation with all stakeholders for the earliest international repatriation flight, airport runway in India. The EIS Officer is evaluating the COVID-19 surveillance system established at this point of entry, March 2020.

*Bottom left:* Ernestina Agbemafle, Ghana FELTP. Resident of Ghana FELTP supervise vaccination team in round 2 of mOPV vaccination campaign in Ellembelle District, Western Region, Ghana, October 2020.

*Bottom right:* Lilibeth Romero Mendoza, Colombia FETP. Field epidemiologist Lilibeth Romero (on the left) with the team from the Leticia, Colombia health secretary, in the framework of the epidemiological survey on COVID-19 in a high-risk area.

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# Table of Contents

- **FETP 40th Anniversary** ......................................................................................................................................................................2
- **Dr. Nancy Knight Welcome Letter** .........................................................................................................................................4
- **Dr. Kip Baggett Welcome Letter** .............................................................................................................................................5
- **Dr. Carl Reddy Welcome Letter** ................................................................................................................................................ 6
- **List of Poster Abstracts** ...................................................................................................................................................................7
- **Detailed Poster Abstracts** ...........................................................................................................................................................10
- **List of Oral Abstracts** .......................................................................................................................................................................50
- **Detailed Oral Abstracts** ...................................................................................................................................................................51
- **Photo Contest Awards** ..................................................................................................................................................................57
  - Jeffrey P. Koplan Award for Excellence in Poster Scientific Presentation .................................................................58
  - William H. Foege Award for Excellence in Oral Scientific Presentation.................................................................59
  - Sara Lowther FETP Memorial Award .................................................................................................................................61
  - Director’s Award for Excellence in Epidemiology and Public Health Response .......................................................62
- **Acknowledgments** ...........................................................................................................................................................................63
  - FETP International Nights Committee .................................................................................................................................63
In 1980, the U.S. Centers for Disease Control and Prevention (CDC) helped establish the first Field Epidemiology Training Program (FETP) outside of North America in Thailand (Canada’s FETP launched independently in 1975). The year 2020 marked the 40th anniversary of the FETPs, which was modeled after CDC’s famed Epidemic Intelligence Service (EIS, launched in 1951). In fact, the program was originally called Global EIS before taking on its current name of FETP.
The COVID-19 pandemic led to the cancellation of the 2020 EIS Conference, the International Nights event, and a formal celebration of the 40th anniversary. However, we would like to acknowledge this milestone here, during the 2021 first virtual International Nights event.

The infographic below provides a visual timeline of FETPs worldwide over the past 40 years. To learn more about how the FETPs have been expanding the footprint of disease detectives worldwide, visit the CDC Global Health page at [FETP 40th Anniversary webpage](https://www.cdc.gov/globalhealth/fetp40th.html).
Dear colleagues:

It is with tremendous pleasure and excitement that I welcome you to the 2021 Field Epidemiology Training Program (FETP) International Nights. The event provides an opportunity for public health professionals—epidemiologists, physicians, academics, and others—to assemble for two sessions of oral and poster presentations from FETP graduates and residents. The presentations provide a remarkable insight into the vital public health work FETPs are doing in their respective countries and around the globe.

This year is, by all measures, unique. Because of the COVID-19 pandemic, the International Nights are, for the first time ever, taking place virtually and as a stand-alone event. In addition, 2021 is a milestone year for FETP International Nights as we celebrate the 20th anniversary of this exceptional forum.

Since 1980, the U.S. Centers for Disease Control and Prevention (CDC) has helped establish FETPs in over 80 countries which have trained more than 18,000 disease detectives to collect, analyze, and interpret disease information to save lives. Over the past four decades, FETP residents and graduates have played integral roles in public health emergencies and responses, including preparedness and response for COVID-19 within their countries; ebola in Central and West Africa; MERS-CoV transmission in the Middle East, South Korea, and the Philippines; polio in Pakistan and Nigeria; and many others. Without their expertise and direct involvement, these health crises would have undoubtedly had more negative consequences.

While the Division of Global Health Protection’s (DGHP) training programs have made significant progress in increasing the number of global FETPs, we still have much work to do if we are to meet the International Health Regulations surveillance goal of having one trained field epidemiologist per every 200,000 people. Meeting this goal is critical in increasing global health security, and these two days of extraordinary presentations reaffirm just how important that goal is to the safety of our world.

As we gather to observe the accomplishments of FETPs globally, let us remember that two-thirds of the world remains unprepared for a public health emergency. Multiple variants of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19, are appearing worldwide. The COVID-19 pandemic reminds us that outbreaks can emerge anywhere without warning and cause severe disruptions to public health systems, local and global economies, and devastate the health and well-being of the world population. Given this stark reality, the value of FETPs in global health security cannot be overstated.

I want to thank you for attending, but more importantly, I’d like to thank you for your contributions in making the world a safer and healthier place for everyone.

RADM Nancy Knight, MD, USPHS  
Director, Division of Global Health Protection  
Center for Global Health  
U.S. Centers for Disease Control and Prevention
Dear colleagues:

Welcome to the Field Epidemiology Training Program (FETP) International Nights. This year is especially meaningful as we celebrate the 20th anniversary of this event. Historically, FETP International Nights have been the highlight of the Annual Epidemic Intelligence Service (EIS) conference, and with the conference on hold, we are excited that, for the first time ever, this will be a standalone, virtual event.

Throughout the past two decades, International Nights evolved to reflect the increasing importance and value of the FETPs’ contributions to global health. Since 2016, the event has expanded from one to two nights—one night dedicated to poster presentations and the other to oral presentations. These changes are a testament to the incredible work of FETPs and the ever-increasing quality of the abstracts, making it difficult to select the best to showcase. This year, we received 159 abstracts from 40 countries. The accepted abstracts address a range of public health issues on infectious and non-infectious diseases.

The U.S. Centers for Disease Control and Prevention (CDC) remains committed to supporting FETPs, a cornerstone of global public health workforce development. Today, more than ever, FETPs play a crucial role in preventing, detecting, and responding to public health threats wherever they occur. The past two years have been challenging and have been stark reminders of the ever-growing threats we face around the globe. In 2020, the World Health Organization declared two public health emergencies of international concern—the ebola virus disease outbreak in the Democratic Republic of the Congo and the novel COVID-19 pandemic—only the 5th and 6th such declarations since 2009.

The year 2021 saw the continuation of the COVID-19 pandemic and two more ebola outbreaks. Meanwhile, we continue to battle other threats such as polio, measles, malaria, and many other diseases. FETP graduates and residents play critical roles in these and many other responses. In 2020, FETP Advanced and Intermediate residents responded to 534 public health emergencies, including COVID-19 (126), measles (14), and Crimean-Congo hemorrhagic fever virus (14), to name a few. They also contributed to scientific research and understanding with the publication of 168 scientific papers and over 50 surveillance reports.

I encourage you to attend this year’s 20th International Nights and help us celebrate 41 years of work in improving global health security for everyone everywhere.

Kip Baggett, MD, MPH
CAPT, US Public Health Service
Chief, Workforce and Institute Development Branch
Division of Global Health Protection
Center for Global Health
U.S. Centers for Disease Control and Prevention
Dear colleagues and friends:

On behalf of TEPHINET, the global network of Field Epidemiology Training Programs (FETPs) strengthening public health systems and global health security across more than 100 countries, I am pleased to welcome you to the 20th FETP International Nights.

Prior to last year, we never imagined that we would be celebrating the twentieth anniversary of this time-honored event virtually, and not here in Atlanta during an EIS conference. However, I am deeply grateful to our partners at the U.S. Centers for Disease Control and Prevention (CDC), our planning committee, abstract reviewers, FETP authors and their supportive mentors for making this year’s virtual event possible. FETP International Nights are an incredible forum for spotlighting FETP residents who are rising leaders in public health. The work they will present over the next two days demonstrates the value of these programs in developing the global health security workforce.

The COVID-19 pandemic has made clear the need for enhanced field epidemiology capacity in all countries to enable earlier detection and coordinated response to public health threats. FETPs strengthen public health systems by increasing the number and quality of field epidemiologists in the public health workforce; developing global capacity for timely detection, investigation of, and response to public health emergencies; improving capacity to collect public health data through improved disease surveillance systems; and promoting the use of data and evidence-based recommendations in public health policies and decision-making.

In total, residents and alumni of TEPHINET-member FETPs have evaluated, developed, or implemented more than 5,000 disease surveillance systems and investigated more than 11,000 outbreaks or acute health events. The 46 presenters from whom you will hear over the next two days represent just a few of the 19,000 disease detectives who have trained through a TEPHINET-member FETP. As the last year and a half has shown us, we still have much work to do, but without the commitment and expertise of our FETP staff, residents, and alumni, we would undoubtedly be far worse off.

Thank you for attending this year’s FETP International Nights. I hope we can meet in person next year.

Carl Reddy, MBBCh, FCPHM, MSc (Epi)
Director, TEPHINET
The Task Force for Global Health
List of Poster Abstracts

Al-Jamrah, Khaled. Risk Factors for Multidrug-resistant Tuberculosis in Yemen, 2019: A Case-control Study


Banda, Dabwitso. Prevalence of SARS-CoV-2 Infection Among Outpatients During a Period of Community Transmission—Zambia, July 2020


Chipoya, Musole. Outbreak of Circulating Vaccine-derived Poliovirus Type-2, Chienge District, Luapula Province, Zambia, September 2019

Demissie, Henok Solomon. Cervical Cancer Screening Service Uptake and Associated Factors Among Women in Wolaita Zone, Southern Ethiopia, 2019

Elshishiney, Galal. Results of the Largest Nationwide Campaign Targeting 60 Million Egyptians Above 18 Years For Reducing Mortality From Noncommunicable Diseases, 2018–2019: A Focus on Diabetes Mellitus

Emtom, Sepde. Epidemiological Profile and Risk Factors Associated with COVID-19 Deaths in Douala City, Cameroon, 2020


Fomba, Alfred. Investigation of Circulating Vaccine-derived Poliovirus (cVDPV) Type 2 Outbreak, Sierra Leone, December 2020

Gauto, Micaela. COVID-19 in Chronic Dialysis Patients: One Year of Pandemic in Argentina

Getu, Amare. Incidence and Predictors of Tuberculosis Among HIV-infected Adults on Antiretroviral Therapy after Universal Test and Treat Program in Selected Public Hospitals, Addis Ababa, Ethiopia, 2020


Haslett, Maria Isabella. Knowledge, Attitudes, and Practices During a Brazilian Spotted Fever Outbreak in a Municipality in Southeastern Brazil, 2019

Hassan, Abdala. Factors Associated with Newly-diagnosed HIV Infections Among Young Adults Aged 15–24 Years Attending a Rural County Referral Hospital, Kenya, 2018
Joseph, Gabriel. Guinea Worm Disease Case Search and Risk Assessment in Ohangwena and Omusati Region, Namibia, February–March 2019

Kamboj, Arvind. Investigation of Newly-identified COVID-19 Clusters in Kalyanpuri, New Delhi, India, June–July 2020

KC, Sachin. An Outbreak of Shigellosis Attributed to Consumption of Contaminated Well-water, Kottamparamba, Calicut, Kerala, India, 2020

Keimbe, Charles. Factors Contributing to Delays in Accessing Maternal Delivery Services in Health Facilities, Sierra Leone, 2018: A Community-based Cross-sectional Study

Kerr, Elenor. Monitoring Progress Towards Improvement in Human Immunodeficiency Virus Care for Those Newly Diagnosed in Queensland, Australia, 2014–2018


Khan, Adnan. Risk Factors Analysis of an HIV Outbreak Among Children Under 15 Years, Sindh, Pakistan, June 2019

Main, Stephanie. Investigation of an Early 2020 COVID-19 Outbreak in a Vulnerable Population at a Psychiatric Health Facility in Victoria, Australia

Mengue Essindi, Annie Marielle. Impact of Pneumococcal Conjugate Vaccine 13 and Haemophilus Influenzae Type b Vaccine: Database Analysis of the Sentinel Surveillance Site of the Pediatric Bacterial Meningitis, Cameroon, 2003–2017

Menon, Nikhilesh. An Outbreak of Hepatitis A Due to Consumption of Wedding Party Food Prepared from an Unchlorinated Well-water, Nairpetta, Kozhikode district, Kerala, India, November 2019–January 2020

Mhiche, Ambakisy Kuyokwa. Mass Drug Administration Coverage and Determinants of Drug Uptake for Elimination of Onchocerciasis in Ulanga District, 2019


Mushangwe, Blessing. Predictors of Viral Load Suppression Among HIV Positive Female Sex Workers on Antiretroviral Therapy in Harare, Zimbabwe, 2019

Mutebi, Ronald Reagan. Food Poisoning Outbreak Caused by Consumption of Humanitarian Relief Food Contaminated with Jimsonweed (Datura stramonium), Napak and Amudat Districts, Uganda, March 2019

Nabatanzi, Sandra. Uganda’s Preparedness and Prompt Control of Imported Ebola Virus Disease, June 2019


Njidda, Ahmad. Knowledge of Occupational Hazards and Prevalence of Injuries Among Construction Workers Abuja, Nigeria, 2019

Rivera, Sandra. Impact of the SARS-CoV-2 Pandemic on Health Workers in Colombia, 2020
**Ruseesa, Edward.** Tuberculosis Screening Among Contacts of Bacteriologically-confirmed TB Patients, Rwanda, 7 June 2016–16 July 2019

**Shao, Ge.** Investigation of a Type 2 Vaccine-derived Poliovirus Event in Sichuan Province, China 2019

**Syed, Muhammad Asif.** Determinants of Primary Amoebic Meningoencephalitis Infection in Karachi, Pakistan, 2019

**Tigga, Ashish.** Post-cyclone Rapid Needs Assessment, Puri Urban, Odisha, India, May 2019

**Yang, Yi-Ting.** Clostridium Perfringens Outbreak Associated with School Lunch, New Taipei City, Taiwan, 2019
Detailed Poster Abstracts

Al-Jamrah, Khaled

Country: Yemen

Abstract title: Risk Factors for Multidrug-resistant Tuberculosis in Yemen, 2019: A Case-control Study

Short biography: Khaled Al-Jamrah has a BSc and an MSc in Medical Microbiology from Sana’a University. In 2020, he graduated from the Yemeni FETP. From May 2020 to the present, he has been the IMCI Director on behalf of the Ministry of Health of Yemen. Khaled participated in activities aiming to improve the quality of health services and served as a member of the national committee to develop, formulate, and implement several guidelines, policies, strategies and mechanisms. He has published in medical and epidemiological journals and has had three accepted abstracts at conferences over the past 2 years: the 2nd Arab Public Health Conference (Casablanca, Morocco), the 10th Southeast Asia and Western Pacific Bi-regional TEPHINET Scientific Conference, and the 2021 FETP International Nights Conference. Khaled is a member of the American Society for Microbiology.

ABSTRACT

Authors: Dr. Khaled Al-Jamrah, Dr. Esam Mahyoub, Dr. Abdulaziz Al aghbari, Dr. Labiba Anam

Background: The emergence of multidrug-resistant tuberculosis (MDR-TB) is a great challenge for TB control program in Yemen where an estimated 2.3% of new TB cases and 18% of previously treated cases had MDR-TB. This study aimed to determine the risk factors associated with MDR-TB in Yemen.

Methods: A case-control study was conducted at the four main TB-centers in Yemen during November–December 2019. Patients diagnosed with MDR-TB were selected as cases, and controls were selected from TB-patients who responded to first-line anti-TB drugs. Data were collected through face-to-face interviews using a predesigned questionnaire. Bivariate and multivariable logistic regression were used. The collected data were analyzed using Epi-Info 7.2.

Results: A total of 84 cases and 252 controls were selected. Among the cases, 64% were males compared with 59% among the controls. The mean age of the cases was 34.8 ± 15 years compared to 35.2 ± 16 years for the controls. A history of previous TB treatment (aOR 11.8; 95% CI 6.0–22.9, p<0.001) was strongly associated with MDR-TB. Those with a history of smoking (aOR 2.4; 95% CI 1.1–.0, p = 0.02), and a history of traditional therapy (aOR 4.0; 95% CI 1.5–11.1, p = 0.006) differed significantly with MDR-TB. In addition, living in a rural residency (aOR 3.4; 95% CI 2.0–5.8, p<0.001), in a house with a single room and with/without a single window (aOR 2.6; 95% CI 1.3–5.3, p = 0.008), (aOR 3.0; 95% CI 1 6–5.9, p<0.001) respectively, also were found to be independent factors associated with MDR-TB.

Conclusions: Previous TB-treatment, history of traditional therapy, history of smoking, living in a rural residency, house with single room, and house with/without a single window were found to be potential risk factors associated with MDR-TB. To reduce the burden of MDR-TB, enhancing directly observed treatment, health education, and addressing identified factors are recommended.
Alma, Iyawa Clarisse

Country: Cameroon


Short biography: In 2015, Iyawa Clarisse Alma received a diploma in general medicine from the Faculty of Medicine and Biomedical Sciences, University of Yaoundé 1, Cameroon. For the next 3 years, she was the chief doctor of a rural subdivisional medical center, implementing health programs such as reproductive health, immunization, and HIV. In 2021, she graduated from the Cameroon FETP with a Master in Field Epidemiology from the University of Buea. From 2018 to 2021, she conducted investigations including a measles outbreak in a refugee's camp and human monkey pox outbreak in the East region of Cameroon. She was also involved in strengthening routine immunization and polio vaccination campaigns. She was a member of the rapid response teams in the national incident management system for COVID-19. Clarisse completed a 2-year internship at the national AIDS control committee, working on the tools of psychosocial agents. She also evaluated the case-by-case surveillance system of retention-in-care of people living with HIV on antiretroviral therapy in Cameroon. Since March 2021, Clarisse has been working at the research unity of the national AIDS control committee.

ABSTRACT

Authors: Dr. Iyawa Clarisse Alma, Dr. Daniel Mabongo, Dr. Marinette Ngo Nemb, Dr. Serge Billong, Dr. Rose-Carole Bohimbo, Dr. Armel Evouna, Dr. Georges Alain Etoundi Mballa

Background: In 2016, Cameroon recruited psychosocial agents (PSAs) to improve follow-up and retention-in-care of people living with HIV/AIDS (PLWHA) on antiretroviral therapy (ART). PSAs perform case-by-case surveillance of retention-in-care in addition to routine surveillance. The Center region includes roughly 1/4 of Cameroon patients on ART. We evaluated the surveillance system of retention-in-care of PLWHA in Biyem-assi and Cité verte Health Districts (HDs) in that region.

Methods: We conducted a cross-sectional study from 2017 to 2018. We realized a multistage sampling by randomly selecting 2 of the 30 HDs and about half of health facilities (HFs) within each HD. We also worked at the regional technical group of the national AIDS control committee (RTG/NACC). Respondents were PSAs and all staff involved in surveillance. We assessed key system attributes with the CDC 2001 updated guidelines for evaluation of public health surveillance systems. We collected data from monthly reports of PSAs and routine surveillance through District Health Informations 2 Software (DHIS2). Analysis was done using Epi info 7.0.

Results: Overall, 140/194 (72%) people were surveyed in 17 HFs and the RTG/NACC. PSAs accounted for 95% (133/140) of respondents and 62% (83/133) of them completed medical or psychosocial training. Definition of retention-in-care and definition of at least three operational terms were known by 74% (104/140) and 81% (113/140) of these same respective respondents. Surveillance reports at RTG/NACC were only paper-based. Among respondents, 69% (97/140) knew when to start looking for a patient who did not attend an appointment. The surveillance detected 52% (3,012/5,759) of absentees reported in DHIS2 and 78% (105/135) of respondents stated that reports were available in their HF.

Conclusions: The surveillance system of retention-in-care of PLWHA is simple. However, its utility, reactivity, sensitivity, and stability can be improved. We recommend analyzing reports at the RTG/NACC, recycling APS, and archiving reports after on-site validation.
AlMaibari, Hanan

Country: Saudi Arabia

Abstract title: Burden and Associated Risk Factors of Coronavirus Disease (COVID-19) in Al-Buraimi Governorate, Oman

Short biography: Hanan AlMarbouai is a medical officer in the Ministry of Health, Oman. She is completing her second year of training in the Saudi FETP. She obtained her MD from Oman Medical College in 2014. Prior to joining FETP, Hanan was a general physician in hospitals and health centers in Oman for 4 years, then in administration as the medical officer in charge at an extended health center in Oman for 1 year. Her interests include infectious and chronic diseases.

ABSTRACT

Authors: Dr. Hanan AlMaibari, Dr. Amal AlNafisi, Dr. Eman Saleh, Dr. Muhammad Muqeet Ullah, Dr. Mostafa Elsayed ElNifily

Background: Oman reported its first case of COVID-19 on 24 February 2020, and has reported an increasing number of cases recently. Understanding patient characteristics and demand on the healthcare system is essential to ensure Oman can continue to provide high quality care. We describe the burden of COVID-19 and risk factors for more severe disease in Al-Buraimi Governorate, Oman.

Methods: We retrieved demographic and clinical data from electronic medical records for all COVID-19 laboratory-confirmed patients in Al-Buraimi Governorate from 1 February–31 August 2020. We assessed risk factors for hospitalization and outcome using Chi-square test and multivariable logistic regression model in Epi info 7 and SPSS software (p≤0.05 significance level).

Results: We identified 977 COVID-19 patients, with a prevalence rate of 8.4 per 1,000 in Al-Buraimi Governorate, with rates of 9.5 per 1,000 among Omani, and 7.4 per 1,000 among non-Omanis. The male:female ratio was 3.1:1. Of COVID-19 patients, 11.7% were hospitalized and 1.5% died. Diabetes (12.2%) and hypertension (10.8%) were the most prevalent chronic conditions among COVID-19 patients. Older patients (>60 years old) and those with comorbidities (chronic kidney disease, diabetes, heart disease, hypertension) were prone to hospitalization (p<0.001), intensive care (p<0.001), and death (p<0.001). Multivariate logistic regression analysis found that these risk factors were significantly associated with hospital admission (OR 5.905; 95% CI 3.923–8.889; p<0.001), ICU admission (OR 4.363; 95% CI 1.952–9.750; p<0.001), and death (OR 6.785; 95% CI 2.295–20.062; p<0.001).

Conclusions: We found more cases among men and Omanis. Public health messaging for COVID-19 prevention should be tailored to inform these groups to slow the spread. Our findings are consistent with other studies, and local health care providers should be informed of the risk for severe disease among older patients and those with comorbidities.
AlMutairi, Abdulaziz

Country: Saudi Arabia


Short biography: Abdulaziz Almutairi is a 2020 graduate of the Saudi FETP and currently works there. He earned his Bachelor of Dental Surgery from Misr University for Science and Technology in Egypt and his Diploma of Field Epidemiology from King Saud University. Prior to working for the FETP, Abdulaziz was a dentist in the MOH primary health care centers for 3 years, then director of a dental center in Hafar Albatin for a year. Prior to his FETP training, he worked in the Vision Realization Office in the MOH for a year.

ABSTRACT

Authors: Dr. Abdulaziz AlMutairi, Dr. Sami AlMudarra

Background: Saudi Arabia reported its first COVID-19 cases on 2 March 2020. Cases continued to spread in the Kingdom, and the existing public health infrastructure was unable to meet testing demands. To meet this emerging public health need, the Saudi Center for Disease Control (CDC) created rapid response teams (RRTs) to deploy quickly and for long periods of time to assist with the response. The main objective of the COVID-19 RRTs is rapid testing of potential COVID-19 cases and contacts. We describe the development and impact of the RRTs on testing and identification of COVID-19 cases.

Methods: We collected data on team development and implementation. We reviewed data on sample positivity and response time.

Results: The RRTs recruited and trained 20 members on infection prevention and control. Specific member roles included swab collection, administration, and laboratory analyses. The COVID-19 RRTs were established in April 2020, and within 4 months, the RRTs had completed 99 missions and conducted more than 2,300 tests. At least 352 (15.3%) swabs were positive; national positivity for COVID-19 laboratory testing at that time was approximately 1%. The time from notification of a cluster to swabbing was reduced from 24 hours to less than 8 hours.

Conclusions: The size and flexibility of the team allowed the Saudi government to quickly and effectively identify cases of COVID-19, including those cases that are pre symptomatic or asymptomatic, to prevent the transmission and spread of COVID-19. The high proportion of positive swabs collected by the RRTs suggests they were effective at targeting groups at high suspicion for COVID-19 infection and identifying cases before they could spread additional infection. While establishing and operating the RRTs was challenging, the Saudi CDC gained invaluable experience in public health emergency response.
Authors: Dr. Dabwitso Banda, Dr. Nyambe Sinyange

Background: Zambia recorded its first cases of SARS-CoV-2 infections in March 2020 and began regularly testing persons at health facilities in April 2020. We assessed the prevalence of SARS-CoV-2 infection among outpatients during a period of community transmission to determine if health facility testing was an effective case identification strategy.

Methods: We did a cross-sectional survey of outpatients in 20 health facilities in 6 districts in Zambia during the first wave in July 2020. Participants were randomly selected regardless of symptoms, and consenting participants completed a questionnaire. Nasopharyngeal swabs and blood specimens were collected and tested for SARS-CoV-2 infection and antibodies using polymerase chain reaction (PCR) and enzyme-linked immunosorbent assay (ELISA), respectively. SARS-CoV-2 prevalence was calculated separately for PCR and ELISA as the number of positive individuals divided by the number of individuals tested. Variance and 95% confidence intervals (CIs) were adjusted for clustering by health facility. Additionally, outpatients’ SARS-CoV-2 PCR-positive prevalence was compared with the community prevalence of 7.6% from a concurrent household survey in the same districts.

Results: Among the 1,975 persons approached, a total of 1,952 (98.8%) completed the questionnaire, of whom 1,490 (76.3%) submitted nasopharyngeal specimens and 1,657 (84.3%) submitted blood specimens. The median age was 32 years (interquartile range 24–43) and 60% were female. PCR-positive prevalence was 13.4% (95% CI 8.3–18.5) and ELISA-positive prevalence was 8.2% (95% CI 5.1–11.4). Compared to persons in the community, outpatients had higher SARS-CoV-2 PCR-positive prevalence (absolute difference: 5.7%; 95% CI 0.3–11.2).

Conclusions: During a period of community transmission, outpatients had a higher SARS-CoV-2 prevalence than the surrounding community. Health facility testing for SARS-CoV-2 infection during periods of community transmission might be an effective case identification strategy. Based on these findings, Zambia has targeted health facilities for SARS-CoV-2 surveillance.
Bvochora, Talent

Country: Zimbabwe


Short biography: Talent Bvochora is a medical epidemiologist and Zimbabwe FETP trainee. She is currently attached to the city of Harare Health Department. As an FETP resident she evaluated the COVID-19 surveillance system performance and provided appropriate recommendations for improvement of the system to help curb the pandemic. Her work includes providing clinical leadership in strategic approach to care and treatment of infectious diseases in the city, in line with the national guidelines.

ABSTRACT

Authors: Dr. Talent Bvochora, Dr. Hilda Bara, Dr. Prosper Chonzi, Ms. Tsitsi Juru, Dr. Emmanuel Govha, Dr. Notion Gombe, Prof. Mufuta Tshimanga

Background: Surveillance is key for controlling the COVID-19 pandemic. Of the 90 confirmed cases reported in Harare city between 1–4 December 2020, 80 (89%) had been detected in previous months. Of these, only 10% were reported within 10 days of laboratory confirmation and could be contact-traced. We assessed the performance of the laboratory-based COVID-19 surveillance system in Harare city.

Methods: We conducted a descriptive cross-sectional study at Harare city COVID-19 facilities using the updated CDC guidelines for evaluation of public health surveillance system. We reviewed the line-list and 200 laboratory and case-investigation forms. We interviewed 56 health workers and 6 key informants to collect data on reasons for late reporting. We then evaluated the following system attributes: representativeness, stability, data quality, and timeliness.

Results: Three of 43 public health facilities in the city and 3 private laboratories participated in COVID-19 surveillance. The system was mainly paper-based. Of 200 case-investigation forms, 58% did not have addresses, 16% no age, and 7% no sex documented. Late reporting of confirmed cases resulted in 84%, 96%, and 80% of cases not being contact-traced in October, November, and December, respectively. Reasons for late reporting were late turn around time of laboratory results 40/56 (71%) and poor knowledge of the reporting system 38/56 (68%). Of the three public health facilities, none had communication and internet services, one had dedicated transport for COVID-19 activities, and two had case investigation forms.

Conclusions: The COVID-19 surveillance system in Harare city was not timely and data quality was poor thereby affecting contact tracing. Decentralization of services is necessary to make the system more representative of the city population. Continuous provision of resources such as transport and means of communication is needed to ensure the system’s stability. Use of integrated electronic systems may improve data quality and ultimately contact tracing.
**Chipoya, Musole**

**Country:** Zambia

**Abstract title:** Outbreak of Circulating Vaccine-derived Poliovirus Type-2, Chienge District, Luapula Province, Zambia, September 2019

**Short biography:** Musole Chipoya is a graduate of the Zambia FETP, currently stationed in the surveillance and disease intelligence cluster within the Zambia National Public Health Institute. She is the focal point for surveillance of vaccine-preventable diseases with particular focus on polio and measles/rubella. Her work includes routine review of vaccine-preventable disease surveillance data to ensure data quality, completeness, and dissemination of findings to lower levels for prompt action. She has 5 years of experience working as a general physician in Zambia. Musole attended medical school in China and has a good command of Mandarin. In her role as FETP resident she investigated a typhoid and a polio outbreak and participated in the vaccination response. Additionally, she lead an evaluation of the acute flaccid paralysis surveillance system in Zambia and worked on an analysis of HIV among female sex workers in Zambia.

**ABSTRACT**

**Authors:** Dr. Musole Chipoya, Dr. Nyambe Sinyange

**Background:** Africa has seen a significant rise in circulating vaccine-derived polioviruses type 2 (cVDPV2) outbreaks following the switch to bivalent oral polio vaccine (bOPV) in 2016. In September 2019, the World Health Organization (WHO) country office notified the Zambian Ministry of Health of a case of VDPV-2 in Chienge district, Luapula province. This paper describes the investigation and public health response.

**Methods:** An Investigation was conducted per WHO standard operating procedures, where cVDPV is defined as VDPV demonstrating person-to-person transmission in the community or evidence from human and/or environmental detections of related viruses. The patient’s grandmother and mother were interviewed; blood samples were collected from the patient; and 36 stool samples were collected from direct and community contacts aged <5 years from the two villages where the patient resided. Genetic sequencing for intratypic differentiation was used to determine relatedness of poliovirus samples.

**Results:** The patient was an unvaccinated 2-year-old boy from the Chienge district bordering the Democratic Republic of the Congo (DRC). He had spent time in both countries, although his last trip to DRC was >1 year prior to the illness. The patient developed sudden weakness in his lower limbs following a fever of <24 hours in July. Sequencing results of the case showed VDPV2 with nine nucleotide differentiation from Sabin-2. Of the 36 stool samples, 3 isolated polioviruses (one Sabin-like-type 1 and two poliovirus-type 2[PV2]). Sequencing results of the two PV2 indicated genetic linkage to the index case but not to any ongoing cVDPV2 outbreaks in the DRC.

**Conclusions:** The confirmed presence of cVDPV2 outbreak in Zambia represents another novel emergence of cVDPV2 since switching to bOPV. Response included mass vaccination with monovalent OPV2 in Luapula province and a countrywide catch-up vaccination with inactivated polio vaccine. Future recommendations included strengthening AFP surveillance systems and improving vaccination coverage.
Demissie, Henok Solomon

Country: Ethiopia

Abstract title: Cervical Cancer Screening Service Uptake and Associated Factors Among Women in Wolaita Zone, Southern Ethiopia, 2019

Short biography: Henok Solomon Demissie is a senior public health specialist from Ethiopia. He graduated from Addis Ababa University School of Medicine in 2014 and received a Master of Public Health in Advanced Field Epidemiology in 2019 from St. Paul's Hospital Millennium Medical College, Ethiopia. Since March 2020, he has been a research fellow at the CDC Foundation Tobacco Control Scholarship Program. Henok was awarded an NCD mini-grant project and successfully accomplished the project during his field epidemiology residency. He has been presenting his project, including his outbreak investigation, at TEPHINET’s 10th global scientific conference which was held in Atlanta. He worked as a clinician at a general hospital in rural Ethiopia for almost 2 years, and after completing his post graduate study he joined the Ethiopian Public Health Institute as a senior public health specialist and worked there for a year. Currently he is a national officer at WHO, supporting the regional COVID-19 response.

ABSTRACT

Authors: Dr. Henok Solomon Demissie, Mrs. Fatimatu Fatimatu

Background: Cervical cancer is the fourth most frequent cancer representing 6.6% of all female cancers and the majority occur in low and middle-income countries. Incidence and mortality from cervical cancer can be prevented by precancerous screening. Screening service uptake in developing countries is generally low. The aim of this study was to determine uptake of cervical cancer screening service and associated factors among women in Wolaita Zone, southern Ethiopia.

Methods: The study was conducted in Wolaita Zone, southern Ethiopia, using a community-based cross-sectional analytic study from July–August 2019, among women aged 30–49. A total of 401 women were sampled and multistage sampling technique was applied to select participants, with cases receiving cervical cancer screening and controls remaining unscreened. Data were collected by pretested and structured questionnaire. Data entry and analysis were done using SPSS. Bivariate and multivariable logistic regression was performed to determine factors associated with service uptake.

Results: Among 387 study participants, only 39 (10.1%) were screened for cervical cancer. Age between 35–39 (aOR 4.3; 95% CI 1.2–15) and 40–44 (aOR 6.1; 95% CI 1.3–26.8), history of multiple sexual partners (aOR 4; 95% CI 1.4–11.2), good knowledge about cervical cancer (aOR 3.6; 95% CI 1.1–12.2), being sero-reactive for HIV (aOR 5.9; 95% CI 1.2–27.7), and ever recommended by health professionals for screening (aOR 3.7; 95% CI 1.4–9.7) were significantly associated with screening service uptake. Absence of symptoms and little understanding about cervical cancer and its screening were major barriers for screening uptake.

Conclusions: The uptake of screening service is very low. Women aged 35–44, history of multiple sexual partner, HIV infection, good knowledge about cervical cancer, and receiving a screening recommendation were independent predicators of screening uptake. Awareness creation about screening and cervical cancer, with special attention to women who are HIV-negative, have one life time sexual partner, and are either below 35 years of age or above 45 years of age should be strengthened.
Elshishiney, Galal

Country: Egypt

Abstract title: Results of the Largest Nationwide Campaign Targeting 60 Million Egyptians Above 18 Years For Reducing Mortality From Noncommunicable Diseases, 2018–2019: A Focus on Diabetes Mellitus

Short biography: Galal Elshishiney is associate Egyptian Minister of Health for Public Health and Health Policies, and Deputy Director for 100 million healthy lives initiatives. He also served as Director in charge for noncommunicable diseases unit in the Egypt’s Ministry of Health and Population. Currently he is a committee member for command and control committee to fight and control coronavirus in Egypt. He has a master’s degree in business administration and total quality management. He also achieved a field epidemiology program in collaboration with CDC and EMPHNET, and a scientific clinical research training program at Harvard Medical School of Medicine.

ABSTRACT

Authors: Dr. Galal Elshishiney, Dr. Sahar Samy, Dr. Hanaa Abuelsood, Dr. Salma Afifi, Mr. Aysam Salah, Dr. Mohamed Hassany

Background: Egypt is facing a growing burden of noncommunicable diseases (NCDs) driven by uncontrolled risk factors. Studies indicated that 15.1% of Egyptians aged 15–69 years are diabetics. A total of 84% of all deaths and 67% of premature deaths are caused by NCDs. Taking advantage of the HCV elimination mass campaign, Egypt implemented nationwide action to assess the burden and reduce death toll from NCDs. Our aim is to describe the results of random blood glucose level (RBGL) and Body Mass Index (BMI) for all Egyptians >18 years, 2018–2019.

Methods: Overall 5,656 healthcare facilities and 60,057 health care workers participated. Rapid test was used to assess RBGL, hyperglycemia defined as ≥200 mg/dl, overweight defined as BMI ≥25, obesity as BMI ≥30, and morbid obesity as BMI ≥40. The national demographic database was connected electronically to each subject interview and testing results. Media were used to motivate community for participation. Hyperglycemic subjects were referred to the nearest hospital for confirmation by HbA1c test, counselling, and treatment.

Results: Overall 49,931,468 Egyptians participated, representing 82.1% of the target population. Their mean age was 42.5 ± 14.3 years, 48.4% were males. Hyperglycemia was identified in 2,596,436 (5.2%) of subjects, including 70.1% with no history of diabetes, half were 55–65 years of age and 45.8% males. Rate of hyperglycemia differs by governorate (range: 6.4% in Gharbia–3.7% in Fayoum). Among all hyperglycemic subjects, 502,896 (19.4%) visited governmental hospitals for confirmation and treatment. Of them 72,133 (14.3%) subjects tested for HbA1c, including 61.7% confirmed as diabetics. Of all subjects, 34.7% were overweight, 33.6% obese, and 6.3% morbidly obese. Obesity was higher in females (64.2%).

Conclusions: Egypt has successfully implemented a large campaign for early detection of NCDs. Results showed a high percentage of undetected diabetic patients and high rates of obesity. Community health education is required to improve healthcare seeking behavior and lifestyle among Egyptians.


**Emtom, Sepde**

**Country:** Cameroon

**Abstract title:** Epidemiological Profile and Risk Factors Associated with COVID-19 Deaths in Douala City, Cameroon, 2020

**Short biography:** Sepde Emrom received his MD from the Faculty of Medicine and Biomedical Sciences of Yaounde in 2015. In 2021, he graduated from the Cameroon FETP with a master's degree in epidemiology from the University of Buea. Prior to his training he was the surveillance point of contact and the lead of the case-management unit for people living with HIV in the Deido health district, Littoral region for 2 years. Now he is a support staff in the Department of Disease Control, Epidemics and Pandemics of the MOH. During his internship in the neglected tropical diseases subdepartment, Sepde evaluated the epidemiological surveillance system of buruli ulcer in the northern part of his country and participated in the elimination of human African trypanosomiasis as a public health problem in Cameroon. From 2018 to 2021, Sepde responded to several outbreaks in Cameroon such as cholera in the north region, yellow fever in the center region, malaria in a refugee camp, measles in the east region and COVID-19 across the country, especially in the littoral region where he did a planned study on people who died from COVID-19.

**ABSTRACT**

**Authors:** Dr. Sepde Emtom, Dr. P.N. Atangia, Dr. Serge Billong, Mr. Alphonse Acho, Dr. Armel Evouna, Dr. Priscilla Anya, Dr. Georges Alain Etoundi Mballa

**Background:** COVID-19 is an emerging, deadly viral zoonosis caused by SARS-CoV-2. In March 2020, Cameroon was one of the most affected countries in Africa, with a case fatality rate of 2.2% (25/1,136), and nearly half of the reported deaths were in Douala. We analyzed the risk factors for pandemic-related deaths in this city in 2020.

**Methods:** We conducted a case-control study over a 2-month period in the health districts of Douala. Risk factors were assessed by matching one case with two controls by age and sex. A case was any suspected COVID-19 death in the community or in a hospital, confirmed by RT-PCR after postmortem sampling, or any infected person who died of COVID-19. We collected sociodemographic data, clinical characteristics, and risk factors like comorbidities using a questionnaire administered to the victims’ relatives. We used logistic regression to search for risk factors.

**Results:** A total of 1,493 COVID-19 cases were confirmed, of which 162 suspected deaths were notified, 64 cases were confirmed by RT-PCR, and 56 were investigated. The remaining eight cases did not obtain consent. The sex ratio M/F was 4.1, the mean age was 57.3 years (14–82). The most represented group was 50–70 years. The attack rate was 4.62/10,000 (case fatality 4.3%). Risk factors associated with death from COVID-19 were male (OR 2.64; 95% CI 1.23–5.66), age ≥60 years (OR 5.60; 95% CI 2.63–11.93), and hospital attendance >3 days after onset of symptoms (OR 2.88; 95% CI 2.49–36.37). Comorbidities associated with death were hypertension (OR 51.2; 95% CI 11.5–228); diabetes (OR 25.3; 95% CI 7.15–89.68); and asthma (OR 18.89; 95% CI 2.26–155.32). Self-medication with non-steroidal anti-inflammatory drugs was associated with death (OR 6.83; 95% CI 1.36–71.12).

**Conclusions:** Fatality of COVID-19 in Douala remains high compared with that nationally. Risk factors associated with deaths are related to age ≥60, hypertension, diabetes, and delayed management. The response strategy should be primarily directed toward these vulnerable populations.
Foday, Amara

Country: Sierra Leone


Short biography: Francis Amara Foday is a district disease surveillance officer with 7 years’ experience in the health sector. He holds a Bachelor of Science in public health and is an Intermediate and Frontline graduate of the Sierra Leone FETP. He is also a member of the Kailahun district public health emergency management committee, charged with managing all emergency responses. He has been part of the investigation of major outbreaks in Kailahun district, Sierra Leone, including the ebola outbreak in 2014. He is currently the case investigator for COVID-19 and lead investigator for the circulating vaccine-derived poliovirus-type 2 outbreak in Kailahun district. Amara has evaluated different surveillance systems and conducted several studies on emerging public health issues including the protective behavioral practice against COVID-19 among health workers in Sierra Leone.

ABSTRACT

Authors: Mr. Amara Foday, Ms. Kadijatu Kamara, Mr. Abdul Sesay, Mr. Joseph Bangura, Mr. Patrick Swaray, Mr. Jeffery Macavora, Ms. Mary Mansaray, Mrs. Musu Abu, Mr. David Moses, Mr. Umaru Sesay, Mr. Idrissa Tarawalie, Mr. Salieu Jalloh, Mr. Sheku Samba, Mr. Alfred Fomba, Dr. Uzoma Ogbonna, Dr. Leonard Hakizimana, Prof. Kofi Nyarko

Background: Coronavirus disease (COVID-19) is a global public health threat. Health care workers (HCWs) are at high risk of infection because they treat COVID-19 patients. In Sierra Leone, HCWs were affected disproportionately by COVID-19 at the beginning of the pandemic. HCWs’ practices towards COVID-19 are crucial to prevent nosocomial COVID-19 transmission. We assessed protective practices toward COVID-19 and associated factors among HCWs in Sierra Leone.

Methods: We conducted a cross-sectional study among 465 HCWs in hospitals and health centers. We used multistage sampling to select participants and collected data on a pretested standardized questionnaire. Eight behavioral practice-related variables were scored on a Likert scale from 1 to 5. A participant’s total score could range from 8 to 40, and scores from 32 to 40 were classified as “good practice.” Bivariate and multivariate logistic regression models were used to calculate adjusted odds ratios (aOR) and 95% confidence intervals (CI) and used to identify risk factors.

Results: All 465 (100%) HCWs selected for this study responded. A total of 59% (95% CI 54–64%) HCWs scored “good practice,” with 55% reporting they always washed their hands, and 57% reported wearing a mask most of the time. Of the 265 (57%) who wore a mask most of the time, only 74 (28%) wore the mask correctly, and 106 (40%) did not wear a mask during their interview. Factors significantly associated with good COVID-19 preventive practice were working outside Freetown (aOR 3.7; 95% CI 2.2–6.2), having a colleague who had COVID-19 (aOR 1.6; 95% CI 1.0–2.6), having a high perception that COVID-19 can be serious (aOR 3.7; 95% CI 1.9–7.5), and having a low perception that COVID-19 is a problem in a health facility (aOR 2.1; 95% CI 1.1–4.4).

Conclusions: More HCWs must improve their practices of protective behaviors towards COVID-19 to reduce transmission. We initiated continuing education and encouraged the enforcement of infection prevention and control procedures among HCWs.
**Abstract**

Mr. Alfred Fomba, Mr. Joseph Bangura, Mr. Patrick Swaray, Mr. Idrissa Tarawalie, Mr. Salieu Jalloh, Mr. Sheku Samba, Dr. Leonard Hakizimana, Dr. Uzoma Ogbonna, Dr. Eboh Victor, Mr. Gebrekrstos Gebru, Prof. Kofi Nyarko, Dr. Alden Henderson, Dr. Tushar Singh

**Background:** Circulating vaccine-derived poliovirus (cVDPV), is a genetic mutation of the Sabin virus. Sierra Leone reported its last case of wild poliovirus in 2010. In December 2020, the national disease surveillance program was notified of three people with acute flaccid paralysis who had cVDPV2. We investigated to identify the source, determine the magnitude of the outbreak, and the risk factors.

**Methods:** We assessed the clinical and vaccination status of the cases, searched for trivalent-Oral Polio Vaccine (tOPV) and monovalent-OPV (mOPV2) in the health facilities serving the affected communities. We searched for additional cases in affected communities and collected stool specimens from contacts of case-patients. We assessed cold chain management and routine immunization services. We conducted a vaccination coverage survey using WHO’s zero-dose case investigation form in 128 randomly selected households in affected communities.

**Results:** Case-patients were a 26-month old male from Kambia, a 16-month old female from western area rural, and a 15-month old female from Tonkolili district. All had fever and acute paralysis. No tOPV or mOPV were found in the facilities. Poliovirus strains found in two case-patients were genetically linked to cases in Guinea and Côte d’Ivoire. There was no history of travel within 21 days of symptom onset for all cases. All received three doses of OPV, and two received one dose of inactivated polio vaccine (IPV). Nine (47.4%) contacts tested positive for poliovirus type-2. Cold chain status at facilities was poor. Only 47% (44/93) of children 0–59 months surveyed received three doses of OPV and 48% (30/63) received one dose of IPV.

**Conclusions:** The cVDPV2 may have been imported from neighboring countries. OPV and IPV coverage was low, and poor cold chain may have reduced the vaccine potency. We conducted enhanced surveillance and prepared for nOPV2 vaccination. We recommend strengthening AFP surveillance, routine immunization, and cold chain management.
Gauto, Micaela

Country: Argentina

Abstract title: COVID-19 in Chronic Dialysis Patients: One Year of Pandemic in Argentina

Short biography: Micaela Azucena Gauto is a biochemist who graduated from the University of Buenos Aires. She is currently in the second year of residence in epidemiology, under the National Ministry of Health's Epidemiology Directorate. Prior to this, she completed a residency in clinical biochemistry at the Dr. Juan P. Garrahan Nacional Pediatrics Hospital, where she also was chief resident and a member of the board of directors of the national commission of biochemistry residents. As an epidemiology resident during the COVID-19 pandemic, she has been working in the analysis of the national COVID-19 cases surveillance, participating in monitoring and assistance activities in different provinces of the country, participating in field research and in several studies on the impact of the pandemic, and focusing in specific population groups (health care workers, chronic dialysis patients, close-contacts).

ABSTRACT

Authors: Mrs. Micaela Gauto, Mrs. Andrea Baldani, Mr. Augusto Vallejos

Background: The characteristics of chronic dialysis (CD) patients may imply that the impact of SARS-CoV-2 infection could be greater than in the general population. However, information related to this topic in Latin America is limited. This study aimed to describe the COVID-19 pandemic in CD patients in Argentina.

Methods: A cross-sectional study was performed on COVID-19 cases reported to the National Health Surveillance System between March 2020–February 2021. A clinical, demographic, and epidemiological description was made in CD patients compared with the general population.

Results: During the period under analysis, a total of 2,496 COVID-19 cases were diagnosed in CD patients (2,107,676 nationwide) with a cumulative incidence almost 2-fold the national rate (83 cases per 1,000 CD patients vs 46 cases per 1,000 population). The median age in CD patients was higher than the general population’s (60 vs 37 years, p<0.05), while the median age of deceased cases was lower (67 vs 73 years, p<0.05). The case fatality rate (CFR) in CD patients was 24%, 10-fold the national value (2.4%). From the 20–29 years age group on, the CFR in CD patients was significantly higher compared to the general population. A total of 87% of cases in CD patients had one or more symptoms (53% in the general population). The temporal and geographical trends in both groups were similar but the proportion of cases classified as close contact transmission was higher for CD patients.

Conclusions: The incidence and CFR due to COVID-19 in CD patients was markedly higher than in the general population. When analyzed by age, SARS-CoV-2 infections in CD patients had a higher CFR in younger age groups. These findings evidence the particular vulnerability of CD patients in the pandemic and the importance of developing control and prevention strategies for this population.
Getu, Amare

Country: Ethiopia

Abstract title: Incidence and Predictors of Tuberculosis Among HIV-infected Adults on Antiretroviral Therapy After Universal Test and Treat Program in Selected Public Hospitals, Addis Ababa, Ethiopia, 2020

Short biography: Amare Getu is a 2020 graduate of the Ethiopian FELTP at the University of Gondar. Currently, he works for the Ethiopian Public Health Institute.

ABSTRACT

Authors: Mr. Amare Getu

Background: Tuberculosis (TB) is the leading cause of morbidity and mortality among people living with human immunodeficiency virus (HIV). Almost one-third of deaths among people living with HIV are attributed to TB. This study aimed to assess the incidence and predictors of TB among patients enrolled at public health hospitals in Addis Ababa, Ethiopia.

Methods: An institutional-based retrospective follow-up study was conducted at selected public health hospitals in Addis Ababa from 1 January 2016–25 August 2020. Multistage random sampling was employed to select 539 adults enrolled on antiretroviral therapy (ART). Data were collected by record review, entered into Epi Data version 3.1, and exported to STATA version 14.1 for analysis. A multivariable Cox-proportional hazard model was fit to identify predictors of TB among HIV patients and Adjusted Hazard Ratio (AHR) with the corresponding 95% Confidence Interval (CI) was reported to declare the significant predictors.

Results: A total of 529 records were included in the final analysis and produced 1,529 person-years (PY) observation. The incidence rate of TB was 4.8 per 100 PY (95% CI 3.8–6.1). Baseline WHO stages three or four (AHR 2.3; 95% CI 1.1–5.0), not taking isoniazid preventive therapy (IPT) (AHR 2.8; 95% CI 1.1–7.3), CD4 count<200 (AHR 3.1; 95% CI 1.6–7.1), poor ART adherence (AHR 2.2; 95% CI 1.2–3.9), underweight with body-mass index (BMI) <18.5) (AHR 2.4; 95% CI 1.3–4.51) and being bedridden (AHR 3.1; 95% CI 1.5–6.2) were independent predictors of TB.

Conclusions: TB incidence declined following initiation of the test and treat program in Ethiopia in 2017. Poor adherence, BMI <18.5kg/m, not taking IPT, baseline WHO stage 3 or 4, bedridden functional status, and low CD4 count increased the hazard of TB. Hence, close follow-up, reminders, surveillance, and tracing mechanisms targeting these high-risk groups would decrease TB among HIV patients.
Gonahasa, Doreen

Country: Uganda


Short biography: Doreen Nsiimire Gonahasa is a field epidemiologist with a master’s degree in public health and background in food science and technology with particular interest in implementation of the One Health approach to public health. Doreen has served in various capacities as a public health specialist including response to disease outbreaks and health worker training and preparation of national strategic documents in the health sector. Doreen, a recent graduate of the FETP-Advanced, is currently the resident advisor for the FETP-Intermediate at the Uganda National Institute of Public Health.

ABSTRACT

Authors: Ms. Doreen Gonahasa, Dr. Alex Riolexus Ario, Dr. Ronald Reagan Mutebi, Mr. Daniel Kadobera, Dr. Julie Harris

Background: Incoming travelers from neighboring countries were the primary source of early COVID-19 cases in Uganda. Travelers crossed at multiple land and lake borders, including Kasensero and Nangoma fishing communities on Lake Victoria. In April 2020, persons in these communities migrated inland following flooding of Lake Victoria, leading to concern about introduction and spread of COVID-19. We evaluated these communities for SARS-CoV-2 infection and border-community-associated risk factors during May–June.

Methods: We conveniently sampled persons from Kasensero (population: 6,793) and Nangoma (population: 2,949) regardless of symptoms. A confirmed case was positive SARS-CoV-2 RT-PCR from a nasopharyngeal or oropharyngeal swab. Confirmed case-patients were isolated. We interviewed confirmed case-patients to identify potential high-risk person-to-person exposures.

Results: A total of 4,602 individuals (3,344 [88%] from Kasensero and 441 [12%] from Nangoma) were tested 19 May–27 June 2020. A total of 56% were males and 80% were aged 16–45 years. We identified 26 case-patients during 25 May–3 June, including 15 (0.5%) in Kasensero and 11 (2.5%) in Nangoma; 15 (58%) were asymptomatic. Reported interactions between female case-persons and foreigners included sexual activity, bar service, or fish trading, while interactions between male case-persons and foreigners comprised cross-border movements or fishing-related interactions. Six (23%) case-patients had travelled to neighboring countries (road or lake travel) in the past 14 days. Among 228 contacts, 172 (75%) were locatable; 2 (1.2%) (symptomatic) tested positive. Contacts were monitored for face mask use and social distancing. Testing of 1,454 additional community members from 4–28 June 2020, yielded no cases.

Conclusions: We identified SARS-CoV-2 community transmission in Ugandan fishing communities bordering Tanzania. Infections among women may have been acquired from sexual, social, or business interactions with foreigners while those among men may have occurred during travel or fish-handling activities. Similar border communities should be individually assessed early during outbreaks to identify and intervene to reduce high-risk exposures.
Haslett, Maria Isabella

Country: Brazil

Abstract title: Knowledge, Attitudes, and Practices During a Brazilian Spotted Fever Outbreak in a Municipality in Southeastern Brazil, 2019

Short biography: Maria Isabella Claudino Haslett is an occupational nursing specialist. She has an MBA in Health Auditing. She graduated from the FETP-Brazil/EpiSUS in 2019, where she investigated waterborne diseases, infectious diseases like chickenpox and leptospirosis, and developed a vaccine coverage survey. Prior to that, she worked at the county and state levels, coordinating the surveillance department and the immunization network. She was also a team coordinator in hospital assistance, in the primary care network and in the family health strategy. She also implemented professional training strategies. Maria Isabella is currently a technical consultant in the PAHO/WHO, working in the arbovirus coordination at the Health Surveillance Department of the Brazil Ministry of Health. She helps implement and strengthen strategies and actions for the surveillance of neuroinvasive diseases caused by arbovirus in Brazil.

ABSTRACT

Authors: Ms. Maria Isabella Haslett, Ms. Camila Fernanda Santana, Ms. Lidsy Fonseca, Ms. Juliana Fittipaldi, Ms. Junia Carrieri, Ms. Luciane Coutinho, Mr. Edmundo Flores, Ms. Isabela Veloso, Mr. José Renato Costa, Ms. Cibelle Cabral

Background: Brazilian Spotted Fever (BSF) is a febrile hemorrhagic infectious disease caused by the bacterium Rickettsia rickettsii, transmitted by the Amblyomma sculptum tick. Between May–June 2019, there was an outbreak of the disease in the municipality of Contagem, state of Minas Gerais, Brazil, with five confirmed cases in the same family and four deaths (80% lethality). This study aimed to evaluate the knowledge, attitudes, and practices (KAP) of the outbreak population in relation to BSF.

Methods: A cross-sectional KAP study was conducted through a semi-structured questionnaire in June 2019. Individuals exposed to the probable site of infection during a BSF outbreak in the municipality of Contagem were interviewed. Exclusion criteria comprised individuals under 18. It was considered appropriate KAP to correctly answer ≥60% of the related questions for each attribute. Prevalence ratios (PR) and confidence interval (CI 95%) were calculated.

Results: From 34 conducted interviews, 18 (53%) were female, 11 (32%) had incomplete elementary school, and median age was 40 years. Knowledge: 32 (94,1%) knew how to get the disease, which vector transmits it, and what environments were most exposed; 24 (70,6%) knew the symptoms of the disease. Attitude: 29 (85,3%) would correctly prevent BSF infection, 11 (32,5%) would correctly remove the vector from their bodies, and 31 (91,2%) would look for medical attention if they had fever after a tick bite. Practice: of those with vegetation areas in their residence, 10 (29,4%) provide adequate care in that place, and 22 (64,7%) protect themselves against the disease. There was a statistical association between knowledge and attitude with PR = 0,9 (CI 95% 0,8–0,99).

Conclusions: The population demonstrated adequate knowledge and attitudes, but inadequate practice in relation to BSF. The outbreak provided greater knowledge about the disease in this population. Inadequate practice may be related to control interventions performed by the municipality. We recommend intensifying educational actions aimed at the transmission mode, disease control, and prevention.
Hassan, Abdala

Country: Kenya

Abstract title: Factors Associated with Newly-diagnosed HIV-infections Among Young Adults Aged 15–24 Years Attending a Rural County Referral Hospital, Kenya, 2018

Short biography: Abdala Hassan is a medical epidemiologist from Mandera County, northern Kenya. He is a graduate of the Kenya FELTP. As a resident he was attached to the National HIV and STI Control Program, where he evaluated the progress towards elimination of mother to child HIV transmission. He presented his work at the 9th TEPHINET global scientific conference in Chiang Mai, Thailand in 2017. Abdala led investigations of Rift Valley fever outbreak in Kenya in 2018 and shared the findings with participants at the 67th meeting of Annual Society of Tropical Medicine and Hygiene in New Orleans in 2018. In 2018, he participated in protocol development for the Kenya population-based HIV impact assessment survey as well as training and monitoring of the field teams. He is currently pursuing an anesthesiology residency at Moi University, Kenya.

ABSTRACT

Authors: Dr. Abdala Hassan, Prof. Arthur Kwena, Dr. Joyce Wamicwe, Dr. Jane Githuku

Background: In 2017, about 2.7 million people aged 15–24 years were living with HIV globally, 430,000 of them being new infections. In Kenya, this age group accounted for 40% of all new HIV infections nationally and 48% of new HIV infections in Siaya County in 2017. Drivers of these new infections are not well known. We determined sociodemographic and behavioral factors associated with new HIV infections among young adults to guide evidence-based interventions.

Methods: We conducted an unmatched case–control study at a ratio of 1:2 at Siaya county referral hospital in August 2018. A case was an HIV-positive person aged 15–24 years diagnosed in May–July 2018, a control was an HIV-negative youth tested in the same period. Sociodemographic and behavioral information was obtained using a structured questionnaire. Univariate and multivariate analyses were performed to identify factors associated with newly-diagnosed HIV infections. The findings were shared with policy makers.

Results: We enrolled 59 cases and 118 controls; the mean age was 19.3 years (SD ± 3.0) among cases and 20.6 years (SD ± 2.5) among controls. Cases’ median age at sexual debut was 15 years (interquartile range, IQR 11) and 18 years (IQR 17) among controls. There were 43 females (72.9%) among cases and 63 (53.4%) among controls. Being female (aOR 2.72; 95% CI 1.09–6.74), belonging to age-group 15–19 years (aOR 3.50; 95% CI 1.42–8.65), being an orphan (aOR 3.09; 95% CI 1.32–7.19), early sexual debut (<15 years) (aOR 3.24; 95% CI 1.12–9.40) and being unaware of partners status (aOR 2.34; 95% CI 1.01–5.41) were independently associated with newly-diagnosed HIV infection. School health talks to sensitize the school-going teens on HIV/AIDS were conducted.

Conclusions: Being orphaned, early sexual debut, and lack of knowledge of partners’ HIV status were drivers of new infections. Targeted health promotion programming campaigns could help reduce HIV incidence among young adults.
Joseph, Gabriel

Country: Namibia

Abstract title: Guinea Worm Disease Case Search and Risk Assessment in Ohangwena and Omusati Region, Namibia, February–March 2019

Short biography: Gabriel Joseph is an environmentalist and public health expert. He has a bachelor's degree in environmental health sciences from the Polytechnic of Namibia. He completed a post graduate diploma in environmental management and a Master of Philosophy in environmental management from the University of Stellenbosch in South Africa. Gabriel has a Master of Science in Applied Epidemiology and Laboratory training program from the University of Namibia. He is currently an epidemiologist at the Ministry of Health and Social Services, coordinating emergency preparedness and response and International Health Regulations in the country. He is part of the rapid response team in Namibia and Southern Africa.

ABSTRACT

Authors: Mr. Gabriel Joseph, Mrs. Emmy-Else Ndevaetela, Ms. Ndiitodino Kakehongo, Prof. Kofi Mensah Nyarko, Mrs. Undjee Kaura, Mr. Stark Katokele, Mr. Festus Kuushomwa, Mrs. Emmerita Lipinge, Mrs. Esther Haimbodi

Background: Dracunculiasis, commonly known as Guinea-worm disease (GWD), is a crippling parasitic disease caused by Dracunculus medinensis, a long, thread-like worm. GWD is a neglected tropical disease targeted for eradication. Namibia has never been known to be endemic of GWD and was certified GWD free in February 2000. However, the recent confirmation of cases in Southern Angola, which borders Namibia, calls for heightened disease surveillance. The Ministry of Health together with WHO conducted active case search in the two regions bordering Angola. We investigated to assess risk factors for GWD transmission, explore opportunities to strengthen GWD surveillance, and determine whether there is GWD.

Methods: A descriptive study was conducted in 89 villages and 875 households bordering Angola using convenience sampling. We conducted data review in health facilities, assessed knowledge of GWD in the communities by showing GWD photo-cards, and administered questionnaires to households. Data were analyzed using Excel.

Results: Out of 875 respondents, 5 (0.6%) recognized GWD on the photo-cards who claimed to have seen it in Angola. A suspected-case investigated during the study was ruled out and determined to be a body tissue. About 402 (45%) respondents had access to safe drinking water, 183 (21%) use unsafe water-sources and 297 (34%) use both sources. About 59 (66%) villages are linked to cross-border movement between Angola and Namibia.

Conclusions: No active GWD case was found. Cross-border movement from and to Angola, and lack of safe-water sources in some villages were identified as risk factors for GWD. We oriented communities and health workers on GWD. We recommended strengthening post-certification surveillance activities per WHO’s global strategy of GWD eradication. The GWD to be included in the national IDSR reporting system and advocacy for safe-water supply for all at-risk villages.
**Kamboj, Arvind**

**Country:** India

**Abstract title:** Investigation of Newly-identified COVID-19 Clusters in Kalyanpuri, New Delhi, India, June–July 2020

**Short biography:** Arvind Kumar Kamboj is a trainee of India EIS at the National Centre for Disease Control, New Delhi. In 2007 he received an MBBS from Lala Lajpat Rai Memorial Medical College, District Meerut, Uttar Pradesh State. He then joined the health services in the Department of Medical Health and Family Welfare of Uttar Pradesh State. Prior to that, he worked at a private Saraswathi Medical College, District Hapur, Uttar Pradesh State, for one year. He was also associated with public health activities at a community health centre in Meerut for the last 10 years as a senior medical officer. He managed these activities working as medical officer, tuberculosis centre and a medical officer, nodal officer for revised national tuberculosis control program, national pulse polio program, routine immunization program, surveillance of acute flaccid paralysis and pertussis cases and also as nodal officer for active case finding suspected for TB under monitoring of WHO. He was also responsible for monitoring the routine immunization program, measles and rubella campaign, and other healthcare activities run in collaboration with WHO and UNICEF. While working in the department of health services, he acquired training of non-scalpel vasectomy, a new treatment strategic guidelines under RNTCP, HIV program training.

**ABSTRACT**

**Authors:** Dr. Arvind Kamboj, Dr. Nishant Nirwan, Dr. Kanica Kaushal, Dr. Sushma Choudhary, Dr. Tanzin Dikid

**Background:** COVID-19 was declared a pandemic on 30 January 2020, as a Public Health Emergency of International Concern. In the early part of the pandemic, the transmission dynamics of SARS CoV-2 were poorly understood and surveillance and containment strategies were evolving. We investigated a new COVID-19 cluster to estimate fraction of asymptomatic, clinical course, positivity rate (PR), cycle threshold (CT) values amongst household (HH), and immediate neighborhood (NGH) contacts of confirmed cases in Delhi.

**Methods:** We enrolled a cohort of HH and NGH contacts at day 1 from two newly notified COVID-19 clusters; and collected sociodemographic, clinical information, and biological specimens for RT-PCR and CT values. Follow-up field visits were made on day 13 and 28 for RT PCR and ELISA IgM antibody testing. A daily symptom tracking of all contacts was done telephonically until day 28.

**Results:** In 27 enrolled contacts, 15 were positive for RT PCR (PR 56%) on day 1. Overall HH and NGH PR for clusters were comparable (54% and 57%, respectively). All contacts (median age: 22 years; range: 8–60 years; females: 74%) were asymptomatic throughout 28 days with no comorbidities. Among 23 contacts, 4 and 12 were RT PCR-positive on day 13 and 28. Of the 4 RT PCR-positive on day 13, 3/4 were earlier positive on day 1; their corresponding CT values were lower (Orf1B gene; 25.6, 25.7, 32.3) than others (range 34.1–36.6). Of 27 contacts, 12 were positive for ELISA IgG antibody test.

**Conclusions:** All contacts were asymptomatic with no deaths throughout 28 days. Comparatively lower CT values indicates high infectivity being positive from day 1–13. We recommended early contact tracing and testing irrespective of symptoms to prevent further transmission and use of non-pharmacological interventions during home isolation. These guidelines were adopted in the surveillance and containment strategy of government of India.
**ABSTRACT**

**Authors:** Dr. Sachin KC, Dr. Nikhilesh Menon, Dr. Polani Rubeshkumar, Dr. Bency Joseph, Dr. Mohankumar Raju, Dr. Sarita RL, Dr. Jayasree V, Dr. Asha Devi

**Background:** In India, over 100,000 people die of waterborne diseases annually. On 11 December 2020, the district surveillance unit, Calicut, Kerala, notified a cluster of loose stools in Kottamparamba, Calicut. We investigated the outbreak to identify potential exposures and propose recommendations.

**Methods:** We defined a case as loose stools (≥3 episodes) or vomiting in a resident of Kottamparamba, December 2020. We actively searched and line-listed the cases. We described cases by time (epi-curve), place (spot map), and person (attack rate by age and gender). We conducted the environmental investigation, interviewed a key informant, and generated a hypothesis. We conducted a case-control study to test the hypothesis. We defined the case as loose stools or vomiting in a resident of Kottamparamba; and controls as a resident of Kottamparamba without symptoms. We computed Odds Ratio (OR) and 95% confidence interval (CI) by comparing the attack rates between cases and control. We sent 14 stool specimens and well water for laboratory investigation.

**Results:** We identified 53 (33%) cases and 1 death (case fatality rate = 0.02%) among 161 residents. The attack rate was higher among <15 age group (64%, 25/39) and males (35%, 29/84). A spot map showed clustering of cases around a well. We identified seepage of sewage water from the subterranean pipeline into the well used for drinking and cooking purposes during the environmental investigation. We recruited 53 cases and 108 controls to test the hypothesis that well-water could be the potential exposure. Cases were more likely to have consumed contaminated water from the well than controls (OR 11.2; 95% CI 3.5–35.7). The water analysis reports and stools samples showed the presence of *Shigella sonnei*.

**Conclusions:** Contaminated well-water due to seepage of sewage led to an outbreak of shigellosis in Kottamparamba. We recommended repairing the subterranean pipelines and regular chlorination of well-water.
**Keimbe, Charles**

**Country:** Sierra Leone

**Abstract title:** Factors Contributing to Delays in Accessing Maternal Delivery Services in Health Facilities, Sierra Leone, 2018: A Community-based Cross-sectional Study

**Short biography:** Charles Keimbe works in the Sierra Leone Ministry of Health and Sanitation as a national surveillance officer in charge of the southern region. He is a graduate of the FETP Intermediate and Frontline and a public health emergency management fellow from the US CDC in Atlanta. He participated in major outbreak responses in Sierra Leone, including cholera in 2012, ebola in the subregion of 2014–2016, and the mudslide of 2017. Currently, he is the national case investigation subpillar lead for the COVID-19 response which involves training case investigation supervisors nationwide, supportive supervision, data analysis, and reporting. He is also the lead for the national influenza sentinel surveillance system, IDSR roll-out, and supporting the national routine surveillance system. He is also the national focal point for auto visual AFP detection and reporting, an innovative strategy to enhance AFP case detection and notification at the community level.

**ABSTRACT**

**Authors:** Mr. Charles Keimbe, Mr. Henry Bangura, Mrs. Doris Bah, Mrs. Isha Sesay, Ms. Fatmata Bangura, Mr. Saffa Saffa, Mr. Amara Sheriff, Mr. Francis Tamba, Dr. Sahr Gborie, Mr. Andrew Bangalie, Mr. Mohammed Jalloh, Mr. Gildo Okure, Mr. Gebrekrstos Gebru, Dr. Eric Ikoona, Prof. Kofi Nyarko, Dr. Tushar Singh

**Background:** At 1,360 deaths per 100,000 live-births, Sierra Leone has the highest maternal mortality ratio globally. National data indicate that over 98% of maternal deaths are related to delays in accessing obstetric services, but no empirical study has been conducted to identify associated factors. We identified factors contributing to delays in accessing maternal delivery services as perceived by women in Sierra Leone.

**Methods:** We conducted a community-based survey among women who delivered from 1 May 2017–30 June 2018, in 4 of 16 districts. We calculated a sample size of 605. Data on sociodemographics, perceived delays in deciding to seek facility-based delivery services (delay-1), perceived delays in reaching facility-based delivery services (delay-2), and data on the determinants of delays 1 and 2 were collected. We calculated frequencies and proportions for factors contributing to the delays as well as prevalence odds ratios (POR) and 95% Confidence Intervals (CI) to identify risk factors for the delays.

**Results:** Of the 614 mothers interviewed, the median age was 28 years (range: 14–52 years). The prevalence of delay-1 was 23.3% (143/614), and delay-2 was 26.9% (165/614). The significant factors contributing to delay-1 were low socioeconomic status, costly services, lack of essential medicines, and limited knowledge of pregnancy-related complications. Factors contributing to delay-2 were long distances and transport difficulties to health facilities. Bivariate analysis showed an association between perceived delay-2 and previous pregnancy-related complications (POR 1.80; 95% CI 1.13–2.83) and poor condition of roads (POR 2.34; 95% CI 1.15–4.77).

**Conclusions:** We found a high prevalence of perceived delays 1 and 2 for mothers to access obstetric services. Delays were mainly related to transport difficulties, low knowledge of pregnancy-related complications, and costly obstetric services. We recommended health education on pregnancy-related complications; and a practical strategy for birth preparedness as well as improved transportation to health facilities to reduce delays.
Kerr, Elenor

Country: Australia

Abstract title: Monitoring Progress Towards Improvement in Human Immunodeficiency Virus Care for Those Newly Diagnosed in Queensland, Australia, 2014–2018

Short biography: Elenor Kerr has a Master of Applied Epidemiology from the Australian National University. She completed the program at the Queensland Health Communicable Diseases Branch in Brisbane, Australia; the Pasteur Institute, Cambodia; and the Doherty Institute in Melbourne, Australia; as part of the ASEAN-Australia health security program. During this time, Elenor completed projects related to HIV surveillance, influenza epidemiology, as well as malaria time to re-infection analysis and investigation of a national salmonella outbreak. Prior to that, Elenor worked in sexual health and family planning programs in the Asia-Pacific region. Her main areas of interest are in infectious disease outbreak investigation, surveillance systems, and bloodborne virus and STI epidemiology.

ABSTRACT

Authors: Ms. Elenor Kerr, Dr. Jonathan Malo, Dr. Emma Field, Dr. Damin Si, Prof. Robert Ware, Dr. Sonya Bennett, Prof. Stephen Lambert

Background: Shortening the time to viral suppression after HIV diagnosis reduces morbidity and transmission. Current treatment indicators do not include the more relevant health outcome of viral suppression. This study explored a recently proposed HIV care indicator, the percentage of newly diagnosed individuals achieving early viral suppression, and investigated risk factors for non-suppression in Queensland (population: 5.07 million), Australia.

Methods: We constructed a retrospective cohort of Queensland state-wide surveillance data for newly diagnosed people with HIV, 2014–2018. Proportions achieving viral suppression, viral load <200 copies/mL, within 3 and 6 months of diagnosis were calculated overall and annually by demographic, clinical, and risk groups. Risk factors associated with non-suppression were identified using univariable logistic regression.

Results: Of 1,006 individuals diagnosed with HIV, 90% were male; 95% had at least one viral load test at/following diagnosis. Individuals averaged 1.8 (range: 1–5) and 2.5 (1–8) tests within 3 and 6 months of diagnosis, respectively. The likelihood of achieving viral suppression increased year-on-year (p<0.001); within 3 months from 19.6% in 2014 to 58.8% in 2018, and 6 months from 46.9% to 82.2%. Viral suppression was more common among older age-groups and individuals with lower CD4 counts (<350 cells/µL) at diagnosis, and lower among injecting drug users (IDUs). Risk factors for non-suppression included CD4 count ≥350 cells/µL (OR 3 months: 1.5; 95% CI 1.1–2.0; 6 months: 1.6, 1.2–2.4) and recent acquisition (OR 3 months: 1.3, 1.0–1.8; 6 months: 1.3, 1.0–1.7). STI infection pre/at diagnosis was a risk factor at 6 months (OR 1.4, 1.1–1.9).

Conclusions: We found increasing viral suppression following HIV diagnosis between 2014–2018, likely related to health service and monitoring improvements and changes to treatment guidelines. These are important metrics for HIV control, improving our understanding of year-to-year progress for population groups and enabling non-suppression risk factors to be understood and addressed.
Kgatla, Hellen

Country: South Africa


Short biography: Hellen Kgatla has a Bachelor of Nutrition from the University of Venda, Limpopo Province, South Africa, and a postgraduate degree in HIV and AIDS management from the University of Stellenbosch, Western Cape Province, South Africa. She recently graduated with Master of Public Health in Field Epidemiology from University of Pretoria, Gauteng Province, South Africa. She began her career as a nutritionist for the Department of Health in 2011. Her passion was improving the nutritional status of communities through nutrition education, counselling, and management. In the Department of Health, she was a nutrition coordinator aiming to improve the provision of nutrition services for people living with HIV and AIDS. In 2019, she joined the South African FETP, where she was involved in COVID-19 response in Tshwane District, Gauteng Province. She currently is a field epidemiologist for the FETP.

ABSTRACT

Authors: Ms. Hellen Kgatla, Dr. Alex de Voux, Ms. Rebecca Mphaka, Dr. Alfred Musekiwa, Ms. Hetani Mdose, Ms. Emelda Ramutshila, Dr. Mpho Moshime, Ms. Lekwetji Mamabolo, Dr. Lazarus Kuonza


Methods: COVID-19 cases confirmed at public and private public health laboratories in SA were reported to the National Institute for Communicable Diseases (NICD). The NICD sent consolidated surveillance reports to provincial health offices to disseminate to the districts. We analyzed surveillance data of laboratory-confirmed COVID-19 cases reported during March–June 2020. Data were analyzed using descriptive statistics and a multivariable logistic regression model was used to determine factors associated with hospitalization and mortality.

Results: During March–June 2020, a total of 5,020 laboratory-confirmed COVID-19 cases were reported in Tshwane. The mean age of cases was 39.7 years (standard deviation 16.1) and 56.7% were female (n = 2,846/5,020). Hospitalization occurred in 4.9% (n = 246/5,020) of cases and 2% of cases died (n = 103/5,020). Factors associated with hospitalization included age >60 years (adjusted odds ratio [aOR] 18.70; 95% CI 11.83–29.55, p<0.001), male gender (aOR 1.38; CI 1.10–1.87, p = 0.035); and having a pre-existing comorbidity (aOR 2.89; 95% CI 2.09–3.93, p<0.001). Risk factors for mortality were age >60 years (aOR 47.13; 95% CI 8.33–121.20, p<0.001), male sex (aOR 1.72; 95% CI 1.10–2.71, p = 0.020), and having a pre-existing comorbidity (aOR 5.58; 95% CI 3.52–8.85, p<0.001).

Conclusions: COVID-19 affected people of all ages in Tshwane and was less severe among younger cases. Age, gender, and pre-existing comorbidities were risk factors for both hospitalization and mortality. Individuals with these characteristics should be prioritized for management of COVID-19 infections and vaccination.
Khan, Adnan

Country: Pakistan

Abstract title: Risk Factors Analysis of an HIV Outbreak Among Children Under 15 Years, Sindh, Pakistan, June 2019

Short biography: Adnan Khan is the Deputy Director of Health Services at Karachi Pakistan. He holds an MCPS in pediatrics from PNS Shifa Hospital Karachi, an MBBS from Liquat University of Medical and Health Sciences Jamshoro, Sindh Pakistan, and is currently a fellow of the M.Phil in Epidemiology in the FELTP in Islamabad. He is attached to the Regional Disease Surveillance and Response Unit in Karachi. Prior to this, he worked at the Hepatitis Control Program Sindh in Karachi. As an FELTP fellow he investigated an outbreak of dengue fever, Crimean-Congo hemorrhagic fever, and XDR typhoid fever. He also worked in the largest outbreak of HIV outbreak among children under 15 years in Sindh.

ABSTRACT

Authors: Dr. Adnan Khan, Dr. Muhammad Asif Syed

Background: From April–June 2019, a total of 909 new HIV infections were identified in Larkana, Pakistan; 86% were children age <15 years. To identify the possible transmission links in this outbreak, a case-control study was conducted in June 2019.

Methods: An age, sex, and place matched case-control study was done with 100 cases and 200 control. For cases, we selected a stratified random sample of 100 HIV-positive children registered in the treatment list. We chose two age and sex-matched controls from the neighborhood of each HIV-positive case. All selected children were tested using WHO rapid diagnosis test. We interviewed the parents of each selected child about previous exposures to parenteral treatment and compared exposures of case and control children using conditional logistic regression.

Results: The ages of selected children ranged from 3 months to 10 years. A total of 83% of HIV-positive children compared to 46% of HIV-negative children had received healthcare from one private physician (aOR 29; 95% CI 10–79). Intravenous infusions during the last outpatient visit were more likely in case-children than control-children (aOR 57; 95% CI 2.2 to >1,000). Among case-children, 94% had been given infusions through a drip set compared to 85% of control-children (aOR 7.7; 95% CI 2.3–26). The drip set was a reused one for 70% of the case-children compared to 8% of control-children (aOR 197; 95% CI 16–2400).

Conclusions: A high frequency of private physicians reusing intravenous drip sets to treat outpatients seen in private practice was responsible for this HIV epidemic. Mapping and regulation of private practitioners was suggested.
Main, Stephanie

Country: Australia

Abstract title: Investigation of an Early 2020 COVID-19 Outbreak in a Vulnerable Population at a Psychiatric Health Facility in Victoria, Australia

Short biography: Stephanie Main is a field epidemiologist in training in Australia’s FETP at the Australian National University. Prior to this, she was a research officer and investigator in the international development discipline, at the Burnet Institute for Medical Research and Public Health. Her primary focus is tuberculosis programs and operational, clinical and implementation research in Papua New Guinea and Indonesia. Stephanie has a Bachelor of Science in research and a Master of Public Health. Her recent work includes outbreak investigation and management for the Victorian COVID-19 response, TB healthcare worker prevalence screenings in South-East Asia, sociobehavioral research in Indonesia, and conceptualizing a latent TB surveillance system for LMICs.

ABSTRACT

Authors: Ms. Stephanie Main, Ms. Rebecca Schack, Dr. Ramona Muttucumaru, Ms. Lucinda Franklin, Dr. Hazel Clothier, Dr. Tony Stewart, Ms. Sally Dougall, Dr. Kat Ryan, Dr. Tambri Housen, Ms. Amy Parry, Dr. Jane Greig, Dr. Clare Looker, Dr. Charles Alpren

Background: On 1 April 2020, the Victorian authorities were notified of a confirmed COVID-19 case linked to a psychiatric healthcare facility. We conducted an investigation to support the management and control of this outbreak and to inform future practice.

Methods: Descriptive case series, laboratory investigation, and site review were done. We interviewed laboratory-confirmed cases using a standardised questionnaire. Data collected included clinical data, facility maps, rosters, and patients’ locations and activities. All staff and inpatients were tested on site on 24 April 2020. Infection prevention control (IPC) and cleaning protocols were reviewed.

Results: To support the outbreak management, the facility was temporarily closed on 26 April, and all inpatients transferred. We epidemiologically linked 18 cases to this outbreak: 5 staff, 8 inpatients, and 5 household/family contacts. Median age of cases was 44 years (range 21–65), and 12 (67%) were female. All identified cases reported symptoms, six cases were hospitalized, no associated deaths were reported. A total of 15 cases were whole genomic sequenced, and 13 belonged to a genomic cluster. Multiple waves of transmission occurred in the facility, localized to two of four wards, through direct patient care or in group therapy sessions where patients and staff had daily contact for more than 1 hour per session. The facility had established physical distancing measures, however we found IPC practices, including personal protective equipment use and management of presumptive or confirmed cases, were insufficient to meet needs, including significant diagnosis delays.

Conclusions: This was the first reported outbreak of COVID-19 in a psychiatric healthcare facility in Australia. We found that established preventive measures were insufficient to manage this outbreak. As such, improvements were made to IPC guidelines at the facility and across health facilities in Victoria. Our investigation reinforces the importance of rapid case identification, diagnosis, management and isolation, and robust and unique IPC protocols for sensitive healthcare settings.
**Mengue Essindi, Annie Marielle**

**Country:** Cameroon

**Abstract title:** Impact of Pneumococcal Conjugate Vaccine 13 and Haemophilus Influenzae Type b Vaccine: Database analysis of the Sentinel Surveillance Site of the Pediatric Bacterial Meningitis, Cameroon, 2003–2017

**Short biography:** Annie Marielle Mengue Essindi is a medical doctor and a Cameroon FETP graduate. She is currently the chief of the vaccine-preventable disease and AEFI surveillance unit at the Expanded Program on Immunization, Ministry of Public Health. She evaluated the surveillance system of adverse event following immunization in Cité Verte health district, central region. She also worked on AEFI’s measles and rubella national campaign in December 2019 and the polio campaign in response to cVDPV2 outbreak. Currently she is working on vaccination to response to COVID-19 pandemic in Cameroon. Her work includes training health care providers on surveillance and vaccination, and participating in outbreak investigations. In 2019, she received a TEPHINET mini grant to carry out a study on arterial hypertension.

**ABSTRACT**

**Authors:** Dr. Annie Marielle Mengue Essindi, Dr. Eric Mboke, Dr. Franky Baonga, Dr. Dorine Ngono Noah, Dr. Armel Evouna, Dr. Georges Alain Etoundi Mballa

**Background:** Pediatric bacterial meningitis (PBM) is a preventable cause of childhood morbidity and mortality. For Cameroon in 1999, the most common causes of PBM percentage-wise were Streptococcus pneumoniae (S. pneumoniae), and Haemophilus influenzae type b (Hib). However, data are limited on the change of PBM burden and causes since introduction in infant immunization schedule of Hib vaccine in 2009 and pneumococcal conjugated vaccine 13 (PCV) in 2011. We evaluated the impact of these vaccines on PBM in Yaounde.

**Methods:** We collected data of children aged 0–60 months before and after the introduction of each vaccine for 2003–2017 in the Yaounde sentinel site for PBM surveillance. We analyzed sociodemographic characteristics, prevalence, case fatality rate (CFR) for S. Pneumonia and Hib. The Pasteur Center of Cameroon confirmed cases with positive cerebrospinal fluid culture. We used Fisher exact test for comparison of data for pre-vaccine and post-vaccine periods.

**Results:** Overall, 374 PBM were confirmed out of 1,087 samples collected. S. Pneumonia accounted for 19% (206) and Hib 9% (101) of PBM. Meningitis CFR was 9% (29/307). CFR among children of 0–11 months was 1% (1/101) for Hib and 14% (28/206) for S. Pneumonia. Hib PBM decreased from pre-vaccine period (2003–2008) to post-vaccine period (2009–2017): 24% (83/351) vs 2% (18/736) (p = 0.043). S. Pneumonia PBM decreased from pre-vaccine (2003–2010) period to post-vaccine period (2011–2017): 30% (137/455) vs 2% (18/736) (p = 0.005). Among post-vaccine positive cases, Hib was found in 22% (18) and S. Pneumonia in 27% (69). Hib PBM serotype-2 was recovered in 86% (6/7) and S. Pneumonia serotypes 15B, 5, 6A/B in 21% (3/14) were identified.

**Conclusions:** PBM attributable to S. pneumonia and Hib decreased after the introduction of the respective vaccines. Correlating PBM incidence reduction with vaccination coverage data is recommended and could further support continuous pediatric immunization to further decrease and prevent future outbreaks.
Menon, Nikhilesh

Country: India

Abstract title: An Outbreak of Hepatitis A Due to Consumption of Wedding Party Food Prepared from an Unchlorinated Well-water, Naripetta, Kozhikode district, Kerala, India, November 2019–January 2020

Short biography: Nikhilesh Menon completed an MBBS from the MOSC Medical College, Kolenchery, Kerala, India, and an MD in clinical microbiology from St John's National Academy of Medical Sciences, Bangalore, India. In 2017, he received a DTM&H from the London School of Hygiene and Tropical Medicine. He as a post graduate diploma in Hospital and Health Management from Indira Gandhi National Open University, India. He is currently an Epidemic Intelligence Officer at ICMR- National Institute of Epidemiology, Chennai. He has been a district lab surveillance nodal officer for COVID-19, Ernakulam district, Kerala, since January 2020, and has been instrumental in setting up a comprehensive COVID-19 testing laboratory in public sector in Ernakulam district, Kerala, which performs open RT-PCR, closed RT-PCR, POC-RT PCR, RT-LAMP-based tests, and antigen test for COVID-19.

ABSTRACT

Authors: Dr. Nikhilesh Menon, Dr. Amjeeth Rajeevan, Dr. Sachin KC, Dr. Polani Rubeshkumar, Dr. Mohankumar Raju, Dr. Manikandanesan Sakthivel, Dr. Parasuraman Ganeshkumar, Dr. Prabhdeep Kaur

Background: Hepatitis A (HAV) causes 5–15% of acute liver failure cases in India. On 4 December 2019, the district surveillance unit notified a cluster of HAV cases in Naripetta, Kozhikode, Kerala. We investigated to identify potential exposures and propose recommendations.

Methods: We defined a case as fever/jaundice/dark urine in any resident of Naripetta, November 2019–January 2020. We conducted an active case search. We described the cases by date of symptoms onset and plotted by their residence. We calculated the attack rate by age and gender. We conducted a case-control study to test the generated hypothesis. We defined a case as HAV case; and control as an individual without HAV in a resident of Naripetta, November 2019–January 2020. We calculated the odds ratio (OR), adjusted OR (aOR), and 95% confidence interval (95% CI). We examined dose-response and performed chi-square test for trend.

Results: The attack rate of HAV was 2 per 1,000 (60/24,833). The attack rate was higher among aged 15–29 years (5/1000) and males (3/1,000). Among the 60 cases, 52 (87%) had jaundice, and 33 (55%) were hospitalized. All 60 cases attended a wedding party in November 2019. The epicurve suggested a point-source outbreak, and cases reported following the wedding party. We generated a hypothesis that water/food served during a wedding party could be the potential exposure. We recruited 60 cases and 171 controls. Salad (aOR 3.0; 95% CI 1.02–8.8) and alcohol with water (aOR 2.4; 95% CI 1.1–5.5) were significantly associated with HAV. Odds of HAV increased with an increase in exposures in salad nor alcohol (OR 1[Ref.]), alcohol (OR 2.8), salad (OR 4.9), salad and alcohol (OR 11.4), Chi-square = 15.8, p<0.001. We found that unchlorinated well-water was used to prepare salad and alcoholic drinks.

Conclusions: Consumption of salad and alcoholic drinks prepared from the unchlorinated well-water caused an HAV outbreak in Naripetta. We recommended using chlorinated well-water.
Mhiche, Ambakisye Kuyokwa

Country: Tanzania

Abstract title: Mass Drug Administration Coverage and Determinants of Drug Uptake for Elimination of Onchocerciasis in Ulanga District, 2019

Short biography: Ambakisye Kuyokwa Mhiche is a public health epidemiologist. He has served as regional epidemiologist, regional health officer, and coordinator for Neglected Tropical Diseases Control Program for Kigoma region, Tanzania. He has been a key person on the regional efforts to combat disease outbreaks and public health emergencies, particularly COVID-19. He has been heading the regional public health emergency Operation Center (EOC) and has helped establish a subnational EOC in Kigoma, Dar es Salaam, and Kagera. He currently works with the Ministry of Health as coordinator for Trachoma Elimination Program under the National Neglected Tropical Diseases Control Program. He is responsible for coordinating, overseeing and executing the national strategy for trachoma elimination.

ABSTRACT

Authors: Mr. Ambakisye Kuyokwa Mhiche, Prof. Dinah Gasarasi, Dr. Ahmed Abade, Mr. Oscar Kaitaba, Mr. Isaac Njau, Dr. Akili Kalinga

Background: Ulanga district has been implementing Mass Drug Administration (MDA) intervention for the past 20 years. However, there has been limited evidence for transmission interruption while prevalence of onchocerciasis in both human and vector species has remained persistently high. We conducted a study to assess treatment coverage and explore determinants of drug uptake during MDA program.

Methods: A cross-sectional community-based study using multistage cluster sampling method was carried out in Ulanga district, Morogoro region from April–June 2019. Study participants were randomly selected from households and interviewed using a structured questionnaire. Modified Poisson regression was performed to determine independent factors associated with MDA uptake.

Results: A total of 502 participants were recruited during the study period with a response rate of 96%. The mean age of the study participants was 37.8 ±15 years, the majority being in the age range of 25–34 (25.5%) while females were 67%. MDA coverage was 68%, 83%, 84% and 79% for Mawasiliano, Uponera, Isongo and Togo villages, respectively. These coverages were below the optimal coverage recommended by WHO (85%) for successful transmission interruption. Having ≤24 years (adjusted prevalence ratio [APR] 3.9 [95% CI 1.9–8.3], p<0.05), living in the village for at least a year (APR 3.4 [95% CI 2.4–4.8], p<0.05) and believing IVM prevent onchocerciasis (APR 13.4 [95% CI 2.9–60.9], p<0.05) were associated with increased chances of ivermectin uptake during MDA. Fear of restriction from drinking alcohol after taking drugs was attributable to decreased drug uptake (APR 12[95% CI 2.4–60.9], p<0.05).

Conclusions: Low coverage of drug uptake indicates that the effectiveness of the MDA activities was not up to the recommended level. These findings highlight the need to intensify the MDA awareness campaign targeting less compliance group in the community to reinforce the benefits of ivermectin in onchocerciasis control and address the community misconceptions about MDA.
**Mhondoro, Marvellous**

**Country:** Zimbabwe

**Abstract title:** Risk Factors for Community-acquired Urinary Tract Infections by Extended Spectrum Beta-lactamase Producing Bacteria, Harare, Zimbabwe, 2019

**Short biography:** Marvellous Mhondoro is a senior laboratory scientist at Victoria Falls Wildlife Trust, Diseases and Forensic laboratory. Previously, she worked at the Lancet clinical laboratory as head scientist in the histopathology department. Marvellous is passionate about antimicrobial resistance (AMR) research and control and has published on AMR trends in Harare. She is currently participating in AMR surveillance training with the African Society for Laboratory Medicine. She has a Bachelor of Medical Laboratory Sciences and a Master in Public Health, both from the University of Zimbabwe.

**ABSTRACT**

**Authors:** Ms. Marvellous Mhondoro, Mr. Nqobile Ndlovu, Mr. Simbarashe Chiwanda, Ms. Tsitsi Juru, Dr. Gerald Shambira, Dr. Notion Gombe, Prof. Mufata Tshimanga

**Background:** Drug resistance is a major public health concern responsible for morbidity and mortality globally. In Harare, third generation cephalosporins resistant E. coli in urines increased from 28% to 38% between 2014 and 2017. These organisms known as extended spectrum beta-lactamase producers (ESBL) are multidrug-resistant. The associated risk factors and treatment outcomes for ESBL infections in Harare remain undefined. We determined factors associated with community-acquired urinary tract infections (UTIs) by ESBL.

**Methods:** We conducted a 1:1 unmatched case-control study among patients attending two major hospitals in Harare between April–August 2019. A case was a patient with community-acquired UTI and a urine culture positive for ESBL-producing bacteria. We randomly selected participants from laboratory registers and interviewed using structured questionnaires to collect data on demographic characteristics, comorbidity factors, health related factors, and knowledge levels on UTI. Data were analyzed to generate frequencies, means, proportions and odd ratios (ORs). We also conducted bivariate and multi-variate analysis.

**Results:** A total of 81 cases-control pairs were recruited. UTI within the past 6 months (aOR 4.13; CI 28–13.35), antibiotic use within the previous 12 months (aOR 2.93; CI 1.14–7.49) and in males, having prostate enlargement (aOR 8.93; CI 1.88–42.47) were independent risk factors for community-acquired UTI by ESBL-producing organisms. A total of 62% of isolates from cases (50/81) compared to 17% (14/81) from controls were ciprofloxacin-resistant. A total of 32% (26/81) of isolates from the cases compared to 11% (9/81) from controls were gentamicin-resistant. A total of 2% (4/162) of participants had carbapenem-resistant infections. The cases were 70% less likely to fully recover within 7 days than the controls.

**Conclusions:** Treatment of patients with recurrent UTI, previous antibiotic use, and men with prostate diseases should be guided by laboratory results since they are at high risk of ESBL infection. We recommend revision of treatment guidelines for UTI in patients with risk factors for ESBL-positive infections.
Mushangwe, Blessing

Country: Zimbabwe

Abstract title: Predictors of Viral Load Suppression Among HIV Positive Female Sex Workers on Antiretroviral Therapy in Harare, Zimbabwe 2019

Short biography: Blessing Mushangwe is a medical epidemiologist and a Zimbabwe FETP graduate. She is currently working as a senior program manager at Zimbabwe Technical Assistance, Training & Education Center for Health. As an FETP resident assigned to the Zimbabwe National AIDS Council, she evaluated management of HIV comorbidities and provided appropriate and updated clinical input in the development and adaptation of various HIV curricula and training material. Her work includes providing clinical leadership in strategic approach to HIV treatment and care in line with the national HIV/AIDS program.

ABSTRACT

Authors: Dr. Blessing Mushangwe, Mr. Raymond Yekeye, Dr. Cleophas Chimbetete, Dr. Sherpherd Shamhu, Ms. Tsitsi Juru, Dr. Notion Gombe, Prof. Mufuta Tshimanga

Background: The estimated viral load suppression among female sex workers (FSWs) in Harare is 63% against 95% target for elimination of HIV. Virological non-suppression among FSWs living with HIV increases the risk of HIV transmission to their clients. We determined predictors of viral load (VL) suppression, to inform recommendations which may improve VL suppression among FSWs.

Methods: We conducted a 1:1 case-control study. A case was defined as a FSW aged ≥18 years on antiretroviral therapy (ART) for at least 6 months with most recent viral load of ≥1,000 copies/ml. We collected data on sociodemographic, behavioral, clinical, and psychological factors associated with VL suppression using a questionnaire. We reviewed medical records of participants using a checklist to determine clinical factors associated with VL suppression. We assessed adherence by conducting a pill count of doses taken and depression by using a Shona symptom screening tool. Epi Info was used to generate frequencies, means, proportions, and odds ratios at 95% confidence interval.

Results: We recruited 93 case-control pairs. FSWs who had been treated for a sexually transmitted infection (STI) (aOR 2.0; 95% CI 1.1–4.4) and had below secondary level of education (aOR 2.4; 95% CI 1.2–4.7) were significantly more likely to be virally unsuppressed. Adherence to ART (aOR 0.2; 95% CI 0.1–0.5), consistent condom use (aOR 0.4; 95% CI 0.2–0.8) and being on ART for less than 5 years (aOR 0.4; 95% CI 0.2–0.7) reduced the likelihood of an unsuppressed viral load.

Conclusions: History of receiving STI treatment and having below secondary level of education increased the odds of virological non-suppression. Good adherence, consistent condom use, and being on ART for less than 5 years reduced the likelihood of an unsuppressed viral load. STI clinics hold crucial opportunities for providing support and health education to FSWs who are at high risks of virological non-suppression.
**Mutebi, Ronald Reagan**

**Country:** Uganda

**Abstract title:** Food Poisoning Outbreak Caused by Consumption of Humanitarian Relief Food Contaminated with Jimsonweed (*Datura stramonium*), Napak and Amudat Districts, Uganda, March 2019

**Short biography:** Ronald R. Mutebi holds a post graduate diploma in project planning and management from UM, a Master of Public Health from Makerere University, School of Public Health, and a BMBS from Mbarara University of Science and Technology. Before joining the advanced program, Ronald completed the medium-term fellowship of both Quality Improvement and Leadership and Governance from Makerere School of Public Health and gained experience in health systems leadership and public health practices. As a regional epidemiologist of Uganda’s Masaka region, Ronald coordinated COVID-19 regional epidemiologic response strategies during the first wave of the pandemic. Today, Ronald works with ICAP at Columbia University, Mailman School of Public Health as a senior epidemiologist.

**Authors:** Dr. Ronald Reagan Mutebi, Dr. Alex Riolexus Ario, Ms. Maureen Nabatanzi, Dr. Irene Kyamwine, Dr. Yvette Wibabara, Dr. Peter Muwereza, Mr. Daniel Eurien, Dr. Benon Kwesiga, Mr. Steven Kabwama, Mr. Daniel Kadobera, Dr. Arthur Chang, Dr. Alden Henderson, Dr. John Callahan, Dr. Bao-Ping Zhu

**Background:** Jimsonweed (*Datura stramonium*) grows in fields together with leguminous crops, such as soybeans. It contains toxic alkaloids, and can cause gastrointestinal and central nervous system symptoms when ingested. Due to persistent famine, the Karamoja region in Uganda, receives routine humanitarian relief food, including corn-soy blend (CSB+). On 16 March 2019, the Uganda Ministry of Health was alerted of a suspected foodborne outbreak in Karamoja. Patients reportedly developed symptoms soon after eating CSB+. We investigated to determine the cause and scope of the outbreak, and recommend control measures.

**Methods:** A suspected case was onset of confusion, dizziness, convulsions, hallucinations, diarrhea, or vomiting in a resident of affected districts from 1 March–30 April 2019. We identified cases by reviewing health facility records and active case-finding. We conducted a retrospective cohort study with all 211 residents of villages receiving relief food, interviewed them about dietary history during 11–15 March, and used Poisson regression to identify risk factors. Food samples underwent microbiological (bacteria, mold, yeast), chemical (heavy metals), and DNA tests at three international laboratories.

**Results:** We identified 293 suspected cases; 5 (1.7%) died. Symptoms included confusion (62%), dizziness (38%), diarrhea (22%), nausea/vomiting (18%), convulsions (12%), and hallucinations (8%). The outbreak started on 12 March, 2–12 hours after Batch X of CSB+ was distributed at health facilities. A total of 89 (66%) of 134 persons who ate CSB+ developed illness compared to 2 (2.2%) of 75 who did not (RR = 22; 95% CI 6.0–81). Samples of Batch X distributed 11–15 March, contained 14 tropane alkaloids, including atropine (25–50 ppm) and scopolamine (1–10 ppm). Jimsonweed DNA was identified from Batch X samples tested.

**Conclusions:** Consumption of food contaminated with toxic levels of tropane alkaloids caused this outbreak. Implicated food was immediately recalled. Contamination may have occurred during mass harvesting. Humanitarian food safety and quality checks should include tropane alkaloids.
Nabatanzi, Sandra  
Country: Uganda  

Abstract title: Uganda’s Preparedness and Prompt Control of Imported Ebola Virus Disease, June 2019  

Short biography: Sandra Nabatanzi is the outbreak coordinator for Makerere University School of Public Health, Monitoring and Evaluation Technical Support program, CDC. She completed the FETP with the Uganda Public Health FETP. She has vast experience in epidemiology and outbreak response and management and has responded to COVID-19, ebola, yellow fever, cholera, measles, malaria, food poisoning, and others. Sandra was nominated under the category of ebola prevention and management at the heroes in health awards, 2020. Prior to her current role, she was a technical officer for public health emergencies with the WHO and Ministry of Health. She is a member of the national task force for managing outbreaks, east and southern Africa emergency forum, COVID-19 surveillance task force, and the National Integrated Sentinel Surveillance technical working groups.  

ABSTRACT  

Authors: Ms. Sandra Nabatanzi, Dr. Alex Riolexus Ario, Dr. Allan Muruta, Dr. Issa Makumbi, Dr. Benon Kwesiga, Mr. Atek Kagirita, Ms. Doreen Gonahasa, Mr. Paul Mbaka, Mr. Innocent Komakech, Dr. Felix Ocom, Dr. Joseph Ojwang, Dr. Ida Marie Ameda, Mr. Simon Kyazze, Dr. Allan Mpairwe, Dr. Henry Mwebesa, Dr. Miriam Nanyunja  

Background: On 1 August 2018, the Democratic Republic of the Congo (DRC) declared an outbreak of ebola virus disease (EVD) in North-Kivu province, 100 km from the Uganda border. The World Health Organization (WHO) categorized the country as high-risk for importation, and Uganda immediately commenced preparedness activities. On 11 June 2019, the Uganda Ministry of Health (MOH) recorded the first case of EVD in Kasese District.  

Methods: The Uganda MOH activated coordination mechanisms, conducted preparedness assessments, and categorized districts of the country by risk. Preparedness interventions structured around 11 EVD response pillars were heightened in 30 high-risk districts. A simulation exercise was conducted in Kasese district to test the country’s readiness. EVD operational readiness was monitored using key performance indicators. These preparations were tested when the first patient from DRC entered Uganda.  

Results: A 3-year-old with suspected EVD travelled from DRC through an undesignated border crossing at Mpondwe, Kasese district, on 10 June 2019, after attending the burial of an EVD victim. He had been accompanied by six relatives, two of whom later developed symptoms; all sought care at Kagando hospital on 10 June 2019. Patients had bloody diarrhoea, muscle pain, headache, vomiting blood, fatigue, and abdominal pain. Health workers at Kagando hospital suspected EVD and referred the three patients to an ebola treatment unit at Bwera hospital, Kasese. All were confirmed positive for EVD and died within 4 days of admission. In total, 114 contacts were identified, vaccinated, and followed up for 21 days. None developed EVD symptoms. The MOH declared an end of the outbreak 42 days after the last contact with a confirmed case.  

Conclusions: This EVD outbreak was contained at the source with no transmission in Uganda. Heightened preparedness in a high-risk district enabled early detection, effective isolation, and infection prevention and control.
Ndlovu, Babongile

Country: South Africa


Short biography: Babongile Ndlovu has a background in medical sciences (human physiology) through training with the University of KwaZulu-Natal. She also has a Master in Field Epidemiology through training with the University of the Witwatersrand and the South Africa FETP. She is currently working for the National Institute for Communicable Diseases as a field epidemiologist and supporting the COVID-19 response in the Western Cape province, South Africa.

ABSTRACT

Authors: Ms. Babongile Ndlovu, Mr. Wenlong Chen, Dr. Lazarus Kuonza, Dr. Mazvita Sengayi-Muchengeti, Dr. Elvira Singh

Background: Persons with higher levels of melanin are assumed to have a lower risk of skin cancer (SC). However, sunlight exposure is not the only SC risk factor and lesions can occur on covered body sites. In South Africa (SA), SC incidence in blacks has increased from 1993–2014. This study aimed to identify risk factors associated with SC and describe the histological and anatomical distribution of SC subtypes among SA blacks.

Methods: We conducted a retrospective case-control study using data from the Johannesburg Cancer Study (JCS). JCS recruited adult (≥18 years), SA blacks, newly diagnosed SC patients attending public referral hospitals in Johannesburg from 1995–2016. Cases included SC subtypes; non-melanoma (NMSC) and melanoma (MSC). Controls were those without a cancer diagnosis, sampled from the same hospital. Information on sociodemographics (sex, age, province), smoking behavior, cooking or warming fuel-type, and HIV status was collected. We evaluated risk factors associated with each SC subtype using stepwise logistic regression.

Results: There were 160 NMSC and 101 MSC cases. NMSC lesions were mostly distributed on the skin of head and neck in males (53.3%, 40/75) and on the trunk in females (43.5%, 37/85), while MSC lesions were mostly distributed on lower limbs for males (67.5%, 27/40) and females (59.02%, 36/61). NMSC cases had 2.56 times (confidence interval [CI] 1.60–4.10) and MSC cases had 1.99 times (CI 1.09–3.64) the odds of being male compared to controls. NMSC cases had 10.48 (CI 2.05–53.70) times the odds of using coal as a warming fuel compared to controls, after adjusting for age, province, cooking fuel-type, smoking behavior and HIV status.

Conclusions: Differences in anatomical distribution of NMSC by sex suggest different SC risk factors for males compared to females. Using coal as a warming fuel is a significant SC risk factor in this population and warrants tailored interventions.
Njidda, Ahmad

Country: Nigeria

Abstract title: Knowledge of Occupational Hazards and Prevalence of Injuries Among Construction Workers Abuja, Nigeria, 2019

Short biography: Ahmad M. Njidda is an MD and a graduate of the Nigeria FELTP. During his residency in the FELTP, he was posted to the Nigeria Centre for Disease Control where he took part in several disease outbreak responses. He supported various disease emergency operation centres, after action reviews of public health emergencies and development of epidemic preparedness plan. He authored a publication titled “the Nigeria Centre for Disease Control” and co-authored “Performance of the Public Health System During a Full-Scale Yellow Fever Outbreak Simulation Exercise in Lagos State, Nigeria, in 2018: How Prepared Are We for the Next Outbreak?” He has presented his work in scientific conferences. Ahmad worked on the curriculum for the malaria short course delivered through the Africa Field Epidemiology Network. At the beginning of the COVID-19 pandemic, he was part of the rapid response team in Abuja. He is currently a senior medical officer in the case management branch of the Nigeria National Malaria Elimination Program.

ABSTRACT

Authors: Dr. Ahmad Njidda, Dr. Auwal Abubakar, Dr. Jamilu Nikau, Dr. Muhammad Shakir Balogun, Dr. Patrick Nguku, Dr. Adamu Shehu

Background: The health and safety profile of the construction industry in Nigeria is poor. The industry alone accounted for 39.2% of injuries and 34.9% of deaths at the workplace in Nigeria between 2014 and 2016. We assessed the knowledge of occupational hazards, prevalence, and factors associated with occupational injuries among construction workers in Abuja Municipal Area Council, Federal Capital Territory.

Methods: We conducted a cross-sectional study among 223 construction workers selected using the multistage sampling technique. We used a pre-tested structured interviewer-administered questionnaire to elicit responses on knowledge of occupational hazards, injuries sustained, and factors that determine injuries. We calculated means and proportions. We calculated adjusted odds ratios (aOR) to determine the association between injury and independent variables using a multivariable logistic regression at a 5% level of significance.

Results: A majority (220 [98.7%]) of the workers were males. Their mean age was 34.4 ± 7.3 years. A total of 98 (43.9%) of them had been trained on occupational health. These workers were masons (16.1%), carpenters (9%), scaffold builders (9%), and welders (9%). A total of 140 (62.8%) respondents had adequate knowledge, and 185 (83%) had reported occupational injuries in the past 12 months. A total of 99 (53.5%) of the injured sustained more than one injury. Predictors of injury were poor knowledge (aOR 9.0; 95% CI 1.9-41.9), non-use of personal protective equipment (aOR 5.1; 95% CI 1.4–18.5), and working 40 hours or more per week (aOR 4.4; 95% CI 1.9–9.8).

Conclusions: The finding that a majority of workers had adequate knowledge was not reflected in practice as shown by the high prevalence of injuries sustained in the past 12 months, which are related to certain factors. We recommend that the FCT occupational health unit mandate construction companies provide and enforce the use of PPE, establish a ceiling for working hours, and provide regular training and supervision of workers.
Rivera, Sandra

Country: Colombia

Abstract title: Impact of the SARS-CoV-2 Pandemic on Health Workers in Colombia, 2020

Short biography: Sandra Milena Rivera Vargas is an epidemiologist from Rosario University, candidate for a master’s degree in epidemiology, el Bosque University, resident of the FETP. She has a certification in prevention and control of healthcare-associated infections (HAIs) of the Juan Jara National Institute of Health from Argentina and the Catholic University of Chile. She has more than 10 years of experience in infection surveillance and control for HAIs. She is currently an epidemiologist for the HAI team of the National Institute of Health, Colombia.

ABSTRACT

Authors: Ms. Sandra Rivera, Ms. Cindy Sánchez, Ms. Jessica Pedraza, Dr. Jose William Martínez, Dr. Franklin Prieto

Background: In December 2019, the circulation of a new coronavirus (SARS-CoV-2) was identified as the causative agent of a severe acute respiratory disease (COVID-19) in Wuhan, China, which spread rapidly to the world. The World Health Organization declared a pandemic in March 2020. The first case in Colombia was detected in March 2020. Transmission in health workers is frequent and is associated with close and direct contact with patients. This study aims to characterize the behavior of SARS-CoV-2 in health workers in Colombia.

Methods: We conducted a retrospective, descriptive study of the surveillance of COVID-19 in health workers between March–September 2020. A case definition was established as a health worker with a positive PCR for SARS-CoV-2. Through a standardized field research form, demographic information, signs, symptoms, contacts, and sources of infection were collected, classified into four categories: associated with hospital, established by contact with a patient or work colleague with failures in the use of measures of protection; indeterminate, where the contagion could not be determined; and community or imported source. Clusters were established in hospitals from a case with a hospital transmission source. A descriptive analysis was made.

Results: A total of 9,071 developed COVID-19, which represented 1.3% of the national total. A total of 97.7% presented mild symptoms and of these, 7.9% were asymptomatic. It was identified that 67.9% associated went to the provision of the service, 17.0% undetermined source and 15.2% community. Nursing technicians, physicians, and nurses were the most affected. The fatality was 0.7%. A total of 756 health institutions with hospital clusters and weaknesses in infection control were identified.

Conclusions: There is a high level of involvement of health personnel with a source associated with the provision of the service, which shows the need to strengthen control measures.
Ruseesa, Edward  
Country: Rwanda  

Abstract title: Tuberculosis Screening Among Contacts of Bacteriologically-confirmed TB Patients, Rwanda, June 2016–July 2019  

Short biography: Edward Ruseesa received a bachelor’s degree in general medicine from the National University of Rwanda in 2009. He recently completed his MSc in Field Epidemiology from the University of Rwanda. From 2008 to 2011, he worked with American Refugee Committee International (ARC)-Rwanda and Africa Humanitarian action (AHA)-Rwanda. He led, supervised, and oversaw the implementation of health activities in refugee camps in Rwanda. In 2013, Edward joined the national TB program as technical lead in charge of case finding in TB high-risk groups. His work contributes to early detection of TB cases and early initiation of TB treatment, and to the reduction of morbidity and mortality among TB patients. From February 2020 to date, Edward has been in the frontline for Rwanda's COVID-19 response. His role includes supporting surveillance, evacuation and isolation of COVID-19 positive cases, case management, and decentralization of response activities. He has worked in different capacities: as a team lead of the national COVID-19 high-risk groups sample collection team and team lead of the team tasked by Rwanda Ministry of Health to support COVID-19 response activities in the Southern province.  

ABSTRACT  

Authors: Dr. Edward Ruseesa, Prof. Joseph Ntaganira, Dr. Patrick Migambi, Mr. Samuel Rwunganira  

Background: Although Rwanda has made substantial progress in tuberculosis (TB) control, it remains a major public health challenge. From July 2016–June 2019, the TB surveillance system reported 17,535 all-forms TB cases with 13,132 (75%) bacteriologically confirmed. Since 2016, Rwanda has conducted active case finding through symptoms’ screening among contacts of bacteriologically confirmed TB patients at the beginning and at the end of TB treatment. We analyzed the data of TB screening among contacts of bacteriologically confirmed TB patients to determine TB positivity trends among the contacts.  

Methods: A retrospective review of surveillance data from the Rwanda National TB Program from June 2016–July 2019, was conducted. Contact screening data are collected and reported electronically to the HMIS by each health facility. We extracted the contact screening data from HMIS and analyzed the aggregated data. Proportions of contacts of bacteriologically confirmed TB patients screened for TB both at the beginning and at the end of TB treatment were calculated.  

Results: From June 2016–July 2019, the proportion of contacts screened for TB at the beginning and at the end of treatment was 96% (40,735/42,392), and 87% (38,973/44,606) respectively. The presumptive TB-positivity rate at the beginning and at the end of treatment was 21% (8,650/40,735) and 11% (4,342/38,973) respectively. Among presumptive TB cases, 4.4% (376/8,650) and 3.2% (140/4,342) were confirmed TB respectively. TB-positivity yield among contacts at treatment initiation were 0.7% (93/13,338), 1.0% (132/13,477) and 1.1% (151/13,920) in 2016–2017, 2017–2019 and 2018–2019 respectively. Three districts (Kicukiro, Rwamagana, and Gasabo) out of 30 accounted for 44% (228/516) of all TB cases reported from contact screening during a 3-year period.  

Conclusions: Contact screening contributed to identifying a significant number of TB patients in Rwanda, with an increasing yield from 2016 to 2019. However, contact screening at the end of TB treatment should be reinforced.
**Shao, Ge**

**Country:** China

**Abstract title:** Investigation of a Type 2 Vaccine-derived Poliovirus Event in Sichuan Province, China 2019

**Short biography:** Ge Shao is an attending doctor of disease control. She has been working in immunization planning in municipal centers for disease control and prevention for 6 years, mainly responsible for the monitoring of vaccination coverage rate, the management of the vaccination clinic, and the investigation and control of the outbreak of vaccine-preventable infectious diseases. In 2019, she joined the FETP in China. During the training, she investigated type 2 vaccine-derived polio in Sichuan, food poisoning in schools, and the novel coronavirus outbreak in China. She graduated in 2020.

**ABSTRACT**

**Authors:** Ms. Ge Shao, Dr. Ning Wen, Dr. Lixin Hao, Dr. Chunxiang Fan, Dr. Chao Ma, Dr. Zhijie An, Dr. Zundong Yin

**Background:** In 2016, type 2 poliovirus was withdrawn globally from trivalent live attenuated polio vaccine (OPV) to stop generation of type 2 vaccine-derived polioviruses (VDPV2). China subsequently changed routine immunization to one dose of inactivate polio vaccine (IPV) followed by three doses of bivalent (I+III) OPV. In June 2019, a VDPV2 was detected from an acute flaccid paralysis (AFP) case in Sichuan province. We investigated the VDPV2 event and monitored the response.

**Methods:** We reviewed AFP surveillance data and searched for additional AFP cases; collected stool specimens from the case, contacts, and local communities; conducted environmental surveillance (ES) in the county and high-risk prefectures; and conducted a coverage survey. The affected prefecture conducted two non-selective Sabin-strain-IPV campaigns, and surrounding prefectures conducted catch-up IPV campaigns.

**Results:** The VDPV2 had 28 mutations from the vaccine strain, and had 9 mutations in common with a 13-mutation VDPV2 isolated in Xinjiang province ES in 2018. Three VDPV2s were detected in healthy Sichuan children: two from contacts of the initial case and one from another local child. Prior to the event, polio vaccine coverage was 65% among under-5-year-olds in surrounding townships based on convenience sampling. The AFP case rate was above 1 per 100,000; none of these AFP cases were polio. No type 2 polioviruses have been isolated through ES. All IPV campaign coverage rates were above 98%.

**Conclusions:** This VDPV2 outbreak followed cessation of OPV2; no transmission source was identified. The VDPV likely circulated for 3 years, enabled by weak routine immunization in the county. The IPV campaigns appear to have prevented further VDPV2 spread, however, it is uncertain whether an IPV-only strategy will completely stop transmission. We recommend enhancing AFP and environmental surveillance and introducing a second IPV dose into routine immunization.
Syed, Muhammad Asif

Country: Pakistan

Abstract title: Determinants of Primary Amoebic Meningoencephalitis Infection in Karachi, Pakistan, 2019

Short biography: Muhammad Asif Syed is an MD and graduate of the FELTP. He has a PhD in Epidemiology and Public Health. He is working as a technical officer at the Regional Disease Surveillance and Response Unit in Karachi under the Department of Health, Sindh. He has a wide range of expertise in vectorborne, vaccine-preventable, and other communicable diseases, and investigation and response. Being a mentor for FELTP resident, he provided technical support for more than 30 outbreak investigations. In addition, he attended the one year fellowship related to biosafety and biosecurity from Germany and One Health certificate course from the University of Florida. His area of interest are emerging and re-emerging infections, public health surveillance, and outbreak investigation.

ABSTRACT

Authors: Dr. Muhammad Asif Syed, Dr. Ishfaq Memon

Background: Primary amebic meningoencephalitis (PAM) is an acute, fulminant, and fatal central nervous system infection caused by an amoeba, Naegleria fowleri. It occurs naturally in warm, freshwater bodies. Infection occurs only when contaminated water enters the nasal passages. Since 2014, PAM has been recognized as a continuing problem in Karachi. We did a case-control study to identify risk factors for PAM in Karachi.

Methods: We defined cases as PCR-confirmed cases of PAM infection among the residents of Karachi, during 2017–2019. Hospital records were reviewed. Using a standard questionnaire, we interviewed family members about nasal irrigation and other nasal exposures to the water in 29 PAM cases. For each case, three age-sex matched controls were recruited from the same neighborhoods and interviewed with the same questionnaire. We measured the chlorination levels of the household water of cases. We computed frequencies, attack rates (AR) and using conditional logistic regression, adjusted odds ratios (aOR) and 95% confidence intervals (CI).

Results: During 2017–2019, 29 PAM cases (AR 3/100,000 population) from 5–55 years old (median: 30) with a male to female ratio of XX were reported. Cases experienced fever (100%), coma (100%), neck stiffness (97%) and headache (52%). All died from 3–7 days after onset. Cases peaked in June (n = 7; 25%) and July (n = 8; 29%) when the mean ambient air temperatures reached 31.6°C. Of cases, 76% had performed nasal irrigation during ablution compared to 24% of controls (aOR 15; 95% CI 5.1–41). Residual chlorine levels in the household water were found to be below 0.2 mg/l.

Conclusions: Performing nasal irrigation with inadequately chlorinated water during ablution was the most probable cause of PAM in Karachi. Using boiled or chlorinated water for nasal irrigation during ablution was recommended. A community awareness campaign which included infographics were displayed in the mosques and health awareness was given to the general public.
**Tigga, Ashish**

**Country:** India

**Abstract title:** Post-cyclone Rapid Needs Assessment, Puri Urban, Odisha, India, May 2019

**Short biography:** Ashish Nawal Tigga is a medical graduate and an Epidemic Intelligence Service (EIS) officer trained under WHO-EIS. He completed his EIS training in 2019. He is presently working as sub regional team leader for WHO-India and has experience of more than 10 years in public health. As an EIS trainee he assessed the surveillance system of Kala-azar, investigated outbreaks of diarrhoea and measles. He also was art of the in response team for cyclone ‘Fani’ in Odisha state. He was a medical officer in the primary health centre for government and worked as trainer for adolescent reproductive and sexual health for frontline workers. He has contributed in transition from trivalent to bivalent oral polio vaccine national switch, maternal and neonatal tetanus elimination and launch of new vaccines in routine immunization. He is also involved in the COVID-19 pandemic, conducting surveillance, contact tracing, and monitoring of COVID-19 vaccination drive.

**ABSTRACT**

**Authors:** Dr. Ashish Tigga, Dr. Kevisetuo Dzeyie, Dr. Nihar Ranjan Ray, Dr. Sunil Dash, Dr. Rajesh Yadav, Dr. Pankaj Bhatnagar, Dr. Pauline Harvey

**Background:** Extremely severe cyclonic storm Fani hit Odisha State on 3 May 2019, displacing 1.5 million and causing 64 deaths. We conducted a rapid needs assessment in highly affected Puri Urban area in Odisha from 18–21 May 2019 to assess the health and safety needs of the affected community.

**Methods:** We adopted the Community Assessment for Public Health Emergency Response methodology for selecting 210 households using 30 x 7 two-stage cluster sampling technique. We interviewed households using a structured questionnaire. We calculated projected proportions with a 95% Confidence Interval (CI).

**Results:** Of the 210 households interviewed, an estimated 42% (CI 36–49) households reported a member <5 years and 51% (CI 44–57) >65 years of age. An estimated 64% (CI 57–70) of households reported significant damage, 47% (CI 40–54) evacuated and 17% (CI 12–22) reported injuries. Households lacked working toilet (32%; CI 26–39), tap water (47%; CI 40–54), electricity (89%; CI 84–93) and water purification method (70%; CI 63–76). Moreover, 50% (CI 43–56) households reported fever, cough, diarrhoea, or rash; 33% (CI 27–40) experienced anxiety, depression, agitation or nightmares since the cyclone, and 88% (CI 82–92) experienced an increased presence of mosquito. Of the 36% (CI 29–43) households with a member on prescription medicines for noncommunicable diseases, 36% (CI 25–47) did not have a week’s supply. Most urgent needs expressed by households were shelter (70%; CI 64–76), electricity (50%; CI 44–58), drinking water (46%; CI 39–53) and food (32%; CI 26–38).

**Conclusions:** Cyclone Fani damaged nearly two-third and evacuated half of households, disrupted basic necessities and caused psychological trauma. These findings guided authorities with the response to basic needs, psychological support, and distribution of mosquito nets.
Yang, Yi-Ting  
Country: Taiwan  

Abstract title: Clostridium Perfringens Outbreak Associated with School Lunch, New Taipei City, Taiwan, 2019  

Short biography: Yi-Ting Yang is a trainee with the Taiwan FETP. She completed her Master of Science in nursing from the Department of Nursing, College of Medicine, National Taiwan University. She has been a nurse for 10 years at the medical center in Taiwan. She is currently a professional nurse at the Taiwan Centers for Disease Control. Her work focuses on monitoring, investigating, and implementing interventions for vectorborne diseases. She is interested in infectious disease epidemiology and advanced statistics.

ABSTRACT

Authors: Ms. Yi-Ting Yang, Ms. Pei-Chen Chen, Dr. Jih-Hui Lin, Ms. Ching-Yi Wu, Ms. Yu-Ju Chen, Ms. Hsueh-Hsuan Lin, Dr. Meng-Yu Chen  

Background: Clostridum perfringens is a spore-forming bacterium commonly found on raw meat and poultry, which may cause foodborne disease. In September 2019, an outbreak of gastroenteritis occurred in three schools in New Taipei City, Taiwan. More than 200 students became ill after eating school lunch provided by the same caterer on 3 September. We investigated the outbreak to identify infection source and recommend preventive measures.

Methods: We conducted a case-control study in two affected schools. We defined case-patients as students with onset of gastrointestinal symptoms occurring within 72 hours after eating school lunch on 3 September 2019. We conducted bivariate analyses to identify foods associated with illness. We tested stool samples of cases and leftover for common pathogens. We interviewed caterers and reviewed food preparation and delivery process.

Results: We identified 199 cases and 387 controls. The median age of cases was 12 years (range 9–16 years). Main symptoms included diarrhea (n = 165, 83%) and abdominal pain (n = 134, 67%), with median incubation period of 15 hours. Illness was associated with consuming braised chicken (OR 2.62; 95% CI 1.66–4.17). Cpe-positive C. perfringens was detected in 10 of 16 stool samples. Kitchen’s logbooks and caterer’s reports showed cooking without measuring internal temperature of chicken, storing cooked foods at room temperature, and more than 4 hours from chicken cooking to consumption.

Conclusions: Eating braised chicken was associated with the school outbreak of C. perfringens. We recommend caterers should strengthen the risk monitoring during preparation, cooking, storage, and transportation of food for school lunches, and schools should contract caterers complying with food safety standards.
List of Oral Abstracts


Mweso, Oliver. Prevalence of Suspected SARS-CoV-2 Reinfection Among the Zambian Population, Zambia, 2020–2021

Nawaz, Nayyar. Risk Factors Associated with Frequent Outbreaks of Crimean Congo Hemorrhagic Fever in Sindh Province, Pakistan: A Case-control Study

Relvas, Lais. Beriberi (Thiamine Hypovitaminosis) Outbreak Investigation Among Male Prisoners in a State Public Jail, Brazil, 2020

Taubayeva, Ryszhan. Factors Associated with an Outbreak of COVID-19 in Oilfield Workers, Kazakhstan, June–September 2020

Yousaf, Anna R. Household Transmission of SARS-CoV-2 from Children and Adolescents
Hammer, Charlotte

Country: Finland

Abstract title: Monitoring of COVID-19 Vaccine Acceptance and Reasons for Vaccine Acceptance, Finland, April–December 2020

Short biography: Charlotte Hammer is a fellow of the European Program for Intervention Epidemiology Training (EPIET). She is based at the Finnish Institute for Health and Welfare, in the Department of Health Security, Helsinki. As part of her fellowship, she conducted outbreak investigations, performed surveillance activities, and led operational research, and completed an international deployments for the ebola response and one for the COVID-19 response. Prior to starting her field epidemiology training, she worked in academia and humanitarian aid. In 2019, she completed her PhD; her thesis focused on outbreak risks and rapid risk assessment in humanitarian emergencies. Charlotte will complete her EPIET fellowship in September 2021 after which she will join the Disease Dynamics Unit at the University of Cambridge as a research fellow with a focus on operational research on and response to outbreaks of emerging and reemerging infectious diseases.

ABSTRACT

Authors: Dr. Charlotte Hammer, Dr. Veronica Cristea, Dr. Thimothee Dub, Dr. Jonas Sivelä

Background: Vaccination is a cornerstone in the fight against the COVID-19 pandemic. Finland started vaccination against COVID-19 in December 2020. To better understand the impact of this control measure in Finland, COVID-19 vaccination acceptance was monitored between April–December 2020.

Methods: We used the COSMO study protocol from WHO EURO, a tool for rapid, flexible and cost-effective monitoring of public knowledge, risk perceptions, behaviors, and trust during the COVID-19 pandemic. Four rounds of online surveys with a representative sample of the adult Finnish population of approximately 1,000 individuals each were conducted in April (x2), May, and November–December 2020. A question on willingness to accept COVID-19 vaccination was added. We performed a descriptive analysis and linear regression of the likelihood of COVID-19 vaccine acceptance on a 7-point Likert scale and potential predictors.

Results: Vaccine acceptance declined from 70% (95% CI 67–73) in April to 64% (95% CI 61–67) in December. Complacency among those aged below 50 years (estimate: -0.19; 95% CI -0.21 – -0.02) and worry about side effects (-0.27; -0.35 - -0.19 below 50; -0.24, -0.30 - -0.18 above 50) were the main reasons against vaccination. Concern about severe disease was a strong motive for vaccination (0.11, 0.03–0.19 below 50; 0.08, 0.01–0.15 above 50). Convenience of vaccination (0.12, 0.05–0.19) and recommendations by health care workers (HCWs) (0.22, 0.07–0.37) were identified as enablers for vaccination among those aged under 50 years.

Conclusions: Vaccine acceptance slightly declined over time. Key communications will have to be around the likelihood of side effects and vaccine safety and the need for younger people to get vaccinated. Additionally, alternatives to increased convenience and recommendations by HCWs need to be found for older group. The COSMO study design has been an effective mechanism for monitoring behavioral insights rapidly and repeatedly during a pandemic and allows for cross-border comparison.
Mweso, Oliver

Country: Zambia


Short biography: Oliver Mweso is a Zambia FETP resident, assigned to the Expanded Program of Immunization site within the Zambia Ministry of Health. He is leading three COVID-19 related research projects in Zambia: an investigation into the prevalence of suspected SARS-CoV-2 reinfection in Zambia, a case control study evaluating COVID-19 vaccine effectiveness among health care workers in Zambia, and predictors of clinical severe outcomes among persons admitted for COVID-19 in Zambia. Prior to joining the FETP, Oliver was a general surgery registrar at the University Teaching Hospital in Lusaka from 2017 to 2020. He graduated from the University of Zambia with a Bachelor of Medicine and Surgery in 2013. He is a recipient of the Moses Sinkala Memorial Award for Research at the University of Zambia for a study on the prevalence of deep vein thrombosis amongst adult patients with swollen lower limbs at the university teaching hospital.

ABSTRACT

Authors: Dr. Oliver Mweso, Dr. Nyambe Sinyange

Background: The onset of the second COVID-19 wave in December 2020 in Zambia coincided with detection of the B.1.351 SARS-CoV-2 variant as the predominant strain among sequenced specimens in the country. This variant contains mutations that might lead to escape from pre-existing immunity from natural infection or immunization. We sought to investigate the prevalence of suspected SARS-CoV-2 reinfection among persons with confirmed COVID-19 in Zambia.

Methods: We did a retrospective data analysis of the database of positive SARS-CoV-2 test results (PCR or RDT) in Zambia maintained by the Zambia National Public Health Institute from 18 March 2020 to 18 January 2021. We identified persons with more than one positive SARS-CoV-2 test and defined a case of suspected reinfection as two positive SARS-CoV-2 test results separated by >3 months. We analyzed demographic characteristics; clinical outcomes data were not available. We calculated the suspected reinfection prevalence and 95% confidence intervals (CIs) in R.

Results: In total, 38,207 persons tested positive for SARS-CoV-2 in Zambia during 18 March 2020–18 January 2021. We identified 12 suspected reinfections for a prevalence of 0.03% (95% CI 0.02–0.06%). The median age of persons with suspected SARS-CoV-2 reinfection was 28 years (interquartile range: 26–32) and six (50%) were female. Five (41.7%) of the 12 suspected reinfection cases occurred during the second wave (mid-December 2020–January 2021) of the outbreak. All patients with SARS-CoV-2 reinfection were alive at the time of last contact.

Conclusions: Suspected SARS-CoV-2 reinfections were detected in Zambia, although the prevalence was low and most occurred before the B.1.351 variant was detected in the country. None were confirmed via genomic sequencing. Ensuring the ability to rapidly identify suspected reinfection and confirm with SARS-CoV-2 genotyping will be critical to identify novel variants of interest and concern in Zambia.
Nawaz, Nayyar

Country: Pakistan

Abstract title: Risk Factors Associated with Frequent Outbreaks of Crimean Congo Hemorrhagic Fever in Sindh Province, Pakistan: A Case-control Study

Short biography: Nayyar Baloch Nawaz is an MD who graduated from DOW University of Health Sciences in Karachi, Pakistan. She completed her MCPS fellowship in radiology from 2005–2007. She also worked with WHO on polio eradication. She has participated in national and international workshops and conferences for IDSR, outbreak investigation, and response. Currently she is working at the Regional Disease Surveillance and Response Unit in Karachi under the Department of Health, Sindh. As an FELTP fellow she is supporting the Pakistan government in the COVID-19 pandemic. She has investigated multiple outbreaks of vaccine-preventable diseases, and vectorborne diseases like CCHF, dengue and chikungunya. She is also providing technical support to the government of Sindh in developing humanitarian strategic plans by conducting a vulnerability assessment in vulnerable areas and communities, which is a step towards strengthening the country’s readiness for health-related emergencies and disasters management.

ABSTRACT

Authors: Dr. Nayyar Nawaz, Dr. Muhammad Asif Syed, Dr. Adnan Khan, Dr. Aamir Hussain, Dr. Arslan Memon

Background: Congo Crimean hemorrhagic fever (CCHF) is a tick-borne zoonotic infection that is enzootic in Sindh Province, Pakistan. Each year, it leads to many outbreaks and sporadic cases in humans. Animal handlers and butchers are considered to be the high-risk groups. The main objective of this study was to explore the risk factors for the CCHF infection and recommend control measures.

Methods: All 81 reported CCHF cases from 2016–2020 in Sindh Province were included in a case-control study. A case was defined as any individual with CCHF viral nucleic acid in blood detected by real-time reverse transcription-polymerase chain reaction (RT-PCR). Control were individuals selected from neighborhoods of cases and who did not have a history of CCHF or acute febrile illness consistent with CCHF. Information on exposures was collected using a structured questionnaire. A multivariate logistic regression model was used to estimate adjusted odd ratios (aOR) with 95% confidence intervals.

Results: Of the 81 cases, 69% were reported between July–October around the religious ceremony of Eid-Al-Adha when livestock was customarily slaughtered. The highest attack rate, 6 per million (26 cases) was in the 30–39 year age group. The case fatality rate was 35%. Animal handlers (aOR 4.8; 95% CI 2.5-6.9), butcher (aOR 5.7; 95% CI 2–14), history of a tick bite (aOR 3.7: 95% CI 1.0–12), and cattle market visit (aOR 2.5; 95% CI 1.4–4.3) were significantly associated with contracting the CCHF infection.

Conclusions: Animal handlers, butchers, tick bites, and cattle market visits were significantly associated with CCHF. The preponderant cases were reported during Eid-al-Adha. Applying acaracides to livestock 10–14 days prior to slaughter or export is recommended. The establishment of isolation units with implementation of ICP measures, capacity building of HCW for surveillance, diagnosis, and case management is highly recommended.
Relvas, Lais

Country: Brazil

Abstract title: Beriberi (Thiamine Hypovitaminosis) Outbreak Investigation Among Male Prisoners in a State Public Jail, Brazil, 2020

Short biography: Laís Relvas has a degree in primary health care, a degree in problem-based learning applied to the Brazilian Unified Health System, and a master's degree in public health epidemiology. She is currently a fellow of the Brazil FETP/EpiSUS. Before that, she worked as a healthcare manager at the municipality level, as a technical consultant in General Coordination of Information and Epidemiological Analysis and in the General Coordination of Non-Communicable Diseases Surveillance, both at Health Surveillance Secretariat of Ministry of Health. During FETP, she conducted an investigation of diarrhea outbreak among indigenous populations, the implementation of national notification form for multisystem inflammatory syndrome in children associated with COVID-19, the first evaluation of arboviral neuroinvasive diseases surveillance system, and participated in a COVID-19 severity investigation caused by infection of Gama SARS-CoV-2 variant of concern.

ABSTRACT

Authors: Ms. Lais Relvas, Ms. Magda Duarte, Ms. Danielle Castanha, Ms. Maria Amelia Costa, Ms. Naila Juliana Araujo, Ms. Dihna Miranda, Mr. Marcio Henrique Garcia

Background: In early May 2020, an outbreak of unknown etiology was reported among male prisoners in a public state jail in Brazil. Initial diagnostic hypotheses included leptospirosis, exogenous intoxication, and water/foodborne diseases. Beriberi hypothesis (thiamine hypovitaminosis) was considered during fieldwork. We investigated the outbreak to confirm the disease etiology, identify risk factors associated to illness, and recommend control measures.

Methods: We conducted a descriptive followed by case-control study (1:1.5 ratio) based on medical records, available laboratory results, and a standardized interview questionnaire. Thiamine dosage nor therapeutic testing were possible. Cases were defined as inmates who met Beriberi suspected clinical criteria between 1 January–15 June 2020. Control was any inmate who did not meet case definition. We also described environments/routines related to etiological hypotheses, based on official jail’s documents.

Results: Among 656 inmates, 262 cases of the unknown disease were identified, only 2% (1/66) were confirmed for leptospirosis. The jail’s environments and routines description removed initial hypotheses by plausibility and temporality criteria, while we identified a menu with characteristics of food monotony, 15 hours intermittence between dinner and breakfast, a diet rich in simple carbohydrates and interruption in food remittance by relatives due to the COVID-19 pandemic. A total of 199 (76%) sick inmates met case definition of suspected Beriberi, of which 56 (28%) were hospitalized and 6 (3%) died. Paresthesia (n = 120; 60%), edema (n = 113; 57%) and numbness (n = 98; 49%) were the most frequent signs and symptoms. Physical exercise (OR 0.3; 95% CI 0.1–0.9; p = 0.03) and detention time longer than 6 months (OR 5.1; 95% CI 1.4–21.7; p = 0.02) were associated with illnesses.

Conclusions: Hypovitaminosis was the outbreak’s probable etiology, especially by thiamine deficiency. We recommended diversifying prisoners’ diet, including vitamins-rich foods; thiamine administration for all prisoners; clinical monitoring to check prognostic improvement and final classification of suspected beriberi cases; and offering rehabilitation when necessary.
**Authors:** Dr. Ryszhan Taubayeva, Dr. Ainur Maratova, Dr. Sayagul Nassyrova

**Background:** Outbreaks of COVID-19 have been reported in many occupational settings. By June 2020, Kazakhstan suspended two-third of the oilfield workforce after 2,661 cases of COVID-19 were reported despite implemented preventive measures. We assessed individual and environmental factors associated with the COVID-19 transmission in the facility.

**Methods:** Cases were employees of selected shift camps with the highest incidence who tested positive for SARS-CoV-2 during June–September 2020. We randomly selected controls from SARS-CoV-2-negative employees who concurrently lived at the same shift camps. Sociodemographic data, information on knowledge, attitude, practice towards COVID-19, working, and living environment were collected. In addition to descriptive epidemiology, bivariate and multivariate logistic regression analysis were performed with R software. Factors significant in the bivariate analysis (p<0.05) were considered in the multivariate analysis.

**Results:** The study had 296 cases and 536 controls with 627 (75%) men and 527 (63%) participants below 40 years of age. Of the 17 studied individual factors, rare antiseptic use (adjusted odds ratios [aOR 4.1; 95% confidence intervals [CI] 1.8–10.1), non-use at the workplace (aOR 2.96; 95% CI 1.24–7.62), travel before shift work (aOR 2.8; 95% CI 1.0–7.9), and social interaction outside of work (aOR 1.8; 95% CI 1.2–2.9) were associated with increased COVID-19 transmission. Belief that asymptomatic COVID-19 is contagious (aOR 0.5; 96% CI 0.3–0.8), belief that face masks protect in public places (aOR 0.4; 96% CI 0.2–0.8), and use of fabric face masks (aOR 0.3; 96% CI 0.2–0.5) appeared to be protective against COVID-19. Of the 19 environmental factors only air-conditioned premises (aOR 4.0; 95% CI 1.3–13.1) was associated with COVID-19 transmission.

**Conclusions:** Individual factors were the main drivers of COVID-19 transmission; environmental factors contributed little to the transmission. Communication messages should enhance workers’ individual responsibility and responsibility for the safety of others to reduce COVID-19 transmission.
Yousaf, Anna R.

Country: United States

Abstract Title: Household Transmission of SARS-CoV-2 from Children and Adolescents

Short biography: Anna Yousaf is an Epidemic Intelligence Service Fellow with the National Center for Immunizations and Respiratory Diseases, Division of Bacterial Diseases, Respiratory Diseases Branch at the U.S. Centers for Disease Control and Prevention. She received her medical degree from the University of Kansas City School of Medicine, completed residencies in Internal Medicine and Pediatrics at Tufts University/Baystate Medical Center, MA, and completed an adult infectious diseases fellowship at Brown University/Rhode Island Hospital, RI.

ABSTRACT

Authors: Mr. Eric Pevzner, Ms. Victoria T. Chu, Ms. Anna R. Yousaf, Ms. Karen Chang, Mr. Noah G. Schwartz, Mr. Clinton J. McDaniel, Ms. Christine Szablewski, Ms. Marie Brown, Ms. Kathryn Winglee, Mr. Scott H. Lee, Mr. Zhaohui Cui, Ms. Adebola Adebayo, Ms. Tiffany Aholou, Mr. Minal M. Amin, Mr. Peter Aryee, Ms. Cindy Castaneda, Mr. Trudy Chambers, Ms. Amy C. Fleshman, Ms. Christin Goodman, Mr. Tony Holmes, Mrs. Asha Ivey-Stephenson, Ms. Emiko Kamitani, Ms. Susan Katz, Ms. Jennifer Knapp, Ms. Maureen Kolasa, Ms. Maranda Lumsden, Ms. Erin Mayweather, Mr. Asfia Mohammed, Ms. Anne Moorman, Ms. Alpa Patel-Larson, Ms. Lara Perinet, Mr. Mark Pilgard, Mr. Deirdre D. Pratt, Ms. Shanica Railey, Ms. Jaina Shah, Ms. Dawn Tuckey, Mr. Emilio Dirlikov, Mr. Dale Rose, Ms. Julia Villanueva, Ms. Alicia M. Fry, Mr. Aaron J. Hall, Ms. Hannah L. Kirking, Ms. Jacqueline E. Tate, Ms. Cherie L. Drenzek, Ms. Tatiana M. Lanzieri, Ms. Rebekah J. Stewart

Background: A better understanding of SARS-CoV-2 transmission from children and adolescents is crucial for informing public health mitigation strategies.

Methods: We conducted a retrospective cohort study among household contacts of primary cases (i.e., children and adolescents aged 7–19 years with laboratory evidence of SARS-CoV-2 infection acquired during an overnight camp outbreak). Among household contacts, we defined secondary cases using the Council of State and Territorial Epidemiologists definition. We described secondary attack rates (SAR) and calculated odds ratios (OR) using generalized estimating equations to examine characteristics of primary cases and contacts associated with transmission.

Results: Among 526 household contacts of 224 primary cases, 48 secondary cases were identified (SAR 9%; 95% confidence interval [CI] 7%–12%). Age of the primary case was not associated with transmission (aged 7–10 vs. 16–19 years: adjusted OR [aOR], 0.7; 95% CI 0.2–2.9). Among primary cases, 33% always wore masks around contacts and 65% isolated (remained ≥6 feet apart from contacts, with a separate sleeping space and bathroom) during their infectious period; both behaviors increased with age. Mask use by primary cases was associated with decreased transmission in the univariable (OR, 0.2; 95% CI 0.1–0.6) and multivariable (aOR 0.5; 95% CI 0.2–1.3) models, although not significantly in the latter. Transmission decreased when primary cases isolated (aOR 0.4; 95% CI 0.1–0.9).

Conclusions: Children and adolescents can transmit SARS-CoV-2 in a household setting. Transmission decreased when primary cases isolated. When feasible, children and adolescents with COVID-19 should isolate to mitigate SARS-CoV-2 transmission.
**Photo Contest Awards**

The FETP International Nights Photo Contest is an annual tradition. It gives FETP trainees and graduates the opportunity to convey the impact of their work through compelling photographs taken in the field. A panel of judges from TEPHINET and CDC reviews the submissions and selects the first, second, and third place winners. A fourth place winner is determined via a popular vote on the TEPHINET Facebook page.

**Photo Contest Award Recipients**

**2020**

1<sup>st</sup> place: Abdul Shakour Karimi (Afghanistan)  
2<sup>nd</sup> place: Abdul Shakour Karimi (Afghanistan)  
3<sup>rd</sup> place: Jessica Asante (Ghana)

**2019**

1<sup>st</sup> place: Tamuno-Wari Numbere (Nigeria)  
2<sup>nd</sup> place: Kusnia Wati Rayahu (Indonesia)  
3<sup>rd</sup> place: Sanam Hussain (Pakistan)  
4<sup>th</sup> place (Facebook choice): Shimaa Abdallah Gebelly (Egypt)

**2018**

1<sup>st</sup> place: Fadhili Ngogo (Tanzania)  
2<sup>nd</sup> place: Maureen Anyanwu (Nigeria)  
3<sup>rd</sup> place: Kebkab Tilahun (Ethiopia)  
4<sup>th</sup> place (Facebook choice): Mariz Zheila Blanco (Philippines)

**2017**

1<sup>st</sup> place: Tambri Housen (Australia)  
2<sup>nd</sup> place: Nadougo Daniel Hanam (Chad)  
3<sup>rd</sup> place: Meru Sheel (Australia)
Jeffrey P. Koplan Award for Excellence in Poster Scientific Presentation

The Jeffrey P. Koplan Award for Excellence in Poster Scientific Presentation was established in 2014 in honor of Dr. Jeffrey P. Koplan, former director and 26-year veteran of the U.S. Centers for Disease Control and Prevention (CDC), for his outstanding contributions to improving public health globally and his commitment to excellence in scientific research, analysis, and presentation. The award is presented to the winner of the scientific poster presentation that most effectively emphasizes the results of an investigation and its impact on public health.

Dr. Koplan is a past-president of the International Association of National Public Health Institutes. He currently serves as vice president for Global Health at Emory University and is the former director of the Emory Global Health Institute, an organization created to advance Emory University's efforts to improve health around the world. Before assuming this position, Dr. Koplan was vice president, Academic Health Affairs, for Emory University's Woodruff Health Sciences Center, and director of CDC.

Dr. Koplan has served on many advisory groups and consultancies in the United States and overseas and has written more than 200 scientific papers. He served as a trustee of Yale University and is currently on the boards of the Marcus Family Foundation, Michael C. Carlos Museum, Kaiser Foundation Health Plan of Georgia, Inc., and HealthMPowers.

**Jeffrey P. Koplan Award Recipients**

**2019 PAKISTAN**
Munaza F. Complications Associated with XDR Typhoid Fever Cases in Hospitalized Patients of District Hyderabad, Pakistan, 2017–2018

**2018 SOUTH AFRICA**
Moema I. Outbreak of Culture-Confirmed *Candida auris* Bloodstream Infection in the Neonatal Unit of a Public-sector Hospital, South Africa, July–September 2017

**2017 ZIMBABWE**
Mugari, H. Hospital-acquired Neonatal Sepsis Outbreak in an Intensive Care Unit, Parirenyatwa Group of Hospitals, Zimbabwe, 2016

**2016 UGANDA**
Kihembo, C. Risk Factors for Podoconiosis: Kamwenge District, Western Uganda, 2015

**2015 CHINA**
Xuehui L. Case-control Study of Risk Factors of Avian Influenza A (H7N9) Transmission in Live Poultry Markets, Zhejiang Province, China, 2014

**2014 ETHIOPIA**
Kassa W. Dengue Fever Outbreak, Diredewa, Ethiopia, November 2013
William H. Foege Award for Excellence in Oral Scientific Presentation

The William H. Foege Award for Excellence in Oral Scientific Presentation was established in honor of Dr. William H. Foege, the renowned epidemiologist, Presidential Medal of Freedom recipient, and former director of the U.S. Centers for Disease Control and Prevention (CDC) credited with devising the global strategy that led to the eradication of smallpox in the late 1970s. The award is the highest FETP International Nights honor presented for the best oral presentation.

Dr. Foege is an Emeritus Presidential Distinguished Professor of International Health at Emory University and served as CDC director from 1977 to 1983. He founded The Task Force for Child Survival (later renamed The Task Force for Global Health) and served as its executive director from 1984-2000. Under Dr. Foege's leadership, The Task Force for Global Health developed and applied a model of collaboration that resulted in childhood immunization rates in the developing world increasing from 20 to 80 percent in just six years. He has also previously served as a senior fellow at the Bill and Melinda Gates Foundation and director at The Carter Center.

William H. Foege Award Recipients

2019 TANZANIA
Kokuhabwa I. Linkage Into Care Among Newly-diagnosed HIV-infected Individuals in Njombe Region, Tanzania, 2017–2018: A Prospective Cohort

2018 UGANDA
Alitubeera P. Food Poisoning Outbreak Caused by Poisonous Cassava Flour: Kasese District, Uganda, 2017

2017 INDIA
Sahu R. Outbreak Investigation of Acute Diarrheal Disease During a Religious Festival Associated with Drinking Contaminated Pipeline Water in Radhakund, Uttar Pradesh, India, 2016

2016 INDIA
Nayak P. Outbreak Investigation of Cutaneous Anthrax in Koraput, Odisha, India, 2015

2015 CHINA
Lai X. Case-control Study of Risk Factors of Avian Influenza A (H7n9) Transmission in Live Poultry Markets in Zhejiang Province, China, 2014

2014 ZIMBABWE
Bangure D. Effectiveness of Short Message Services Reminder on Childhood Immunization Program in Kadoma, Zimbabwe: A Randomized Controlled Trial, 2013

2013 CHINA

2012 NIGERIA
Ibrahim L. Factors Associated with Interruption of Treatment Among Pulmonary Tuberculosis Patients in Plateau State, Nigeria, 2011
<table>
<thead>
<tr>
<th>Year</th>
<th>Region</th>
<th>Description</th>
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<tbody>
<tr>
<td>2011</td>
<td>INDIA</td>
<td>Baral P. Hepatitis Outbreak Caused by Contaminated Tamarind Water Served in a Mobile Food Kiosk in an Affluent Urban School of Mayurbhanj, Orissa, India, September 2010</td>
</tr>
<tr>
<td>2010</td>
<td>CHINA</td>
<td>Han K. Shigelllosis Outbreak in an Elementary School in Sichuan Province, China, 7–16 June 2009</td>
</tr>
<tr>
<td>2008</td>
<td>CENTRAL ASIA</td>
<td>Sailybayeva G. et al. HIV Outbreak Investigation Among Hospitalized Children in Shymkent City, Kazakhstan, June–November 2006</td>
</tr>
<tr>
<td>2006</td>
<td>ITALY</td>
<td>Sala M. et al. High-level Beta-hexachlorocyclohexane Contamination in Dairy Farms in the Sacco River Valley, Latium, Italy, 2005</td>
</tr>
<tr>
<td>2005</td>
<td>CHINA</td>
<td>Zhang Y. et al. Large Outbreak of Waterborne Paratyphoid Fever Attributed to a Contaminated Well in a Rural Junior High School in Guangxi Province, China, 2005</td>
</tr>
<tr>
<td>2004</td>
<td>BRAZIL</td>
<td>Daufembach L. et al. Barium Toxicity After Exposure to Contaminated Contrast Solution in Goiás State, Brazil, 2003</td>
</tr>
<tr>
<td>2003</td>
<td>EPIET</td>
<td>Dürr U. et al. Outbreak of Aseptic Peritonitis Among Peritoneal Dialysis Patients Associated with the Use of Icodextrin in Extremadura, Spain, January–April 2002</td>
</tr>
<tr>
<td>2001</td>
<td>CANADA</td>
<td>Galanis E. et al. Oculo-respiratory Symptoms Associated with Influenza Immunization, Canada, 2000</td>
</tr>
<tr>
<td>2000</td>
<td>SPAIN</td>
<td>Pelayo T. et al. Study of Two Outbreaks of Mumps in Children Vaccinated with the Rubini Strain, Spain, 1999</td>
</tr>
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</table>
The Sara Lowther FETP Memorial Award provides support to a fellow or recent graduate of a Field Epidemiology Training Program (FETP) to conduct a project that makes significant contributions to infectious disease prevention and control in their country. The award honors the memory of Dr. Sara Lowther, who made significant contributions to public health and passed away in May 2020. She was the acting lead of the Epidemiology Technical Support Unit for FETP at CDC. She was passionate about FETP as a means to develop and mentor young field epidemiologists around the world and build global field epidemiology capacity. The award will be presented annually during the FETP International Nights.
The Director’s Award for Excellence in Epidemiology and Public Health Response* is presented in recognition of significant contributions toward successful responses to public health emergencies (natural and man-made disasters, disease outbreaks, etc.). Nominees can include FETP or FELTP resident advisors who have provided leadership working as part of a response and have been successful in overcoming challenging circumstances.

The award also recognizes excellence in epidemiologic practice or research and contributions that address a public health issue of major importance by applying epidemiologic principles and methods. Nominations can recognize accomplishments that improved human health, made a substantial reduction in burden of disease, or represented innovations to public health practice based on epidemiologic foundations or implementation of epidemiologic approaches. Recognized contributions should be practical, explicit, and applied rather than theoretical or implicit.

**Director’s Award Recipients**

**2018 BRAZIL**

**2017 UGANDA**

**2016 PAKISTAN**

**2015 NIGERIA**

*The Director’s Award is not necessarily given annually.*
Acknowledgments

The FETP International Nights committee would like to thank the oral and poster presenters and photo contest participants for their scientific research and efforts to make this event a success. We also thank the resident advisors, mentors, abstract reviewers, and volunteers for their time, expertise, and commitment to supporting this event and FETPs around the world.

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