FETP International Nights

2018

April 17 | 6:00pm – 8:30pm
April 18 | 6:30pm – 9:00pm

Hilton Atlanta
255 Courtland St NE, Atlanta, GA 30303

Improving Global Health Security through Field Epidemiology Training, Surveillance, and Outbreak Response
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Dear Colleagues,

It is my pleasure to welcome you to the 67th Annual Epidemic Intelligence (EIS) Conference and Field Epidemiology Training Program (FETP) International Nights.

FETPs have been training disease detectives around the world for more than 35 years in over 65 countries. Today, this training has produced a global cadre of experts who help keep the world safe from potential pandemics. Last year, we reached a significant milestone: more than 11,000 FETP-trained disease detectives are in the field, having gained critical skills through FETP’s Advanced, Intermediate, and Frontline programs. In 2017, a growing number of FETP-Frontline programs produced more than 1,800 new disease detectives in 40 countries.

As outbreaks threaten the world’s most vulnerable places, this highly trained workforce serves as our “boots on the ground.” Expanded FETP training is leading to faster, smarter response. FETP-Frontline trainees were among the first on the scene when Ebola struck a remote region in the Democratic Republic of Congo last May, helping stop the outbreak at only eight cases. In Liberia, newly trained disease detectives responded within 24 hours to an outbreak of deadly meningitis, helping contain the spread to just 31 cases. Recently, FETP fellows played a critical role in tracking and containing diphtheria in Vietnam; pinpointed a malaria outbreak affecting children in Tanzania; uncovered data that reduced tuberculosis in Sierra Leone; connected across borders to fight Lassa fever in Benin, Nigeria, and Togo… And the stories go on.

Those of us close to the program recognize what – or more exactly, who – stands behind these innumerable accomplishments. This is the reason we hold FETP International Nights each year: to celebrate the achievements of the individual FETP trainees and graduates who play such a critical role in strengthening global health security.

When outbreaks happen, we know we can count on FETP-trained disease detectives to respond. Every day, FETPs around the world are making a lasting impact while sustaining strong and invaluable relationships with ministries of health and other partners. Thank you to all of the FETP residents, graduates, resident advisors, and mentors for your outstanding commitment to public health. Your efforts are creating a safer and more secure world.

CAPT. Nancy Knight, MD
Director, Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
Dear Colleagues,

Greetings and welcome to the 67th Annual Epidemic Intelligence Service (EIS) Conference and Field Epidemiology Training Program (FETP) International Night.

International Night celebrates the remarkable work of FETPs around the world, and as per recent tradition, we actually have two International Nights this year, one night dedicated to poster presentations and one for oral presentations. Even with two nights, we can still only feature a fraction of the programs and their public health successes. This year, we could only accept 27 (~9%) of 307 abstracts submitted. These presentations feature 20 countries, from Kyrgyzstan to Uganda, Pakistan to Taiwan, Afghanistan to Germany, Australia to Cameroon, and many others. Investigations address diverse public health issues, such as challenges to HIV viral suppression, maternal mortality, vaccine preventable diseases, and emerging infectious disease outbreaks. As we congratulate this year’s featured presenters, we also recognize the hundreds of projects and many programs that advance public health and save lives around the globe but do not appear in your International Night program. Some of this impactful work can be visualized through the amazing photographs on display as part of the 2018 FETP photo contest, so please take time to explore these images.

FETP remains the cornerstone of public health workforce development globally and critical to achieving the core capacities in line with WHO’s International Health Regulations. CDC remains committed to supporting FETPs and has made great progress toward meeting workforce goals. CDC, alongside ministries of health and other partners, has helped train over 2700 FETP-Advanced, more than 800 FETP-Intermediate, and nearly 6600 FETP-Frontline/Basic graduates from over 65 countries. That’s more than 11,000 disease detectives preventing, detecting, and responding to public health threats around the world. In 2017 alone, FETP-trained disease detectives responded to over 570 outbreaks.

As we honor the collective work and accomplishments of FETP trainees tonight, public health threats persist and FETPs remain on the front lines of the response. Recent Lassa fever outbreaks, and the continued threat of MERS Coronavirus and avian influenza highlight the critical contributions of FETP trainees and graduates, not just to individual responses but to an ever-strengthening surveillance and response infrastructure around the world. Core capacities built by FETP remain central to our collective success in ensuring global health security.

Thank you for supporting our presenters and please enjoy International Night!

Kip Baggett, MD, MPH
Chief, Workforce and Institute Development Branch,
Division of Global Health Protection, Center for Global Health Centers for Disease Control and Prevention
Dear Colleagues,

On behalf of the Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET), the only global network of Field Epidemiology Training Programs (FETPs), I am honored to welcome you to FETP International Night 2018. For more than 15 years we have co-organized this extraordinary event with the Centers for Disease Control and Prevention (CDC). International Night is a special opportunity for the FETP family to showcase the critical work of trainees and recent graduates towards rapid and effective disease surveillance and outbreak response, non-communicable diseases, and other public health priorities. I am proud of this event as a demonstration of the great potential of a new generation of talented public health leaders to tackle some of the most challenging obstacles facing global health security.

Presenting to the International Night audience is the most competitive opportunity for the FETPs each year. This year, TEPHINET received 364 scientific abstracts from FETP trainees and graduates in 49 countries—the highest number of submissions in this event’s history—in consideration for six oral presentations and 21 poster presentations. Congratulations to the selected authors, and thank you to all who submitted abstracts for our consideration. We have witnessed a continuous rise in the number of abstracts submitted each year, which speaks to both increased interest in this event and increased capacity of FETPs to cultivate skilled field epidemiologists.

TEPHINET was formed more than 20 years ago as a mechanism for FETPs around the world to share resources and information. It is a pleasure for me to express my satisfaction with the results of our network, which has grown to include 69 member programs working in more than 100 countries. The TEPHINET Secretariat has 20 full-time staff supported by the 11 members of the global TEPHINET Advisory Board, which has representatives from each region as well as from the CDC, World Health Organization, and European Centre for Disease Prevention and Control. In total this year, the TEPHINET Secretariat has implemented more than 60 projects in more than 35 countries with the collaboration of more than 150 consultants.

Amidst all of this incredible activity, FETP International Night reflects our mission to empower and mobilize a competent field epidemiology workforce to serve all people through standardized training, experiential learning, training program quality improvement, mentoring, and knowledge exchanges in order to connect epidemiologists better, faster and with quality across the globe.

On behalf of the TEPHINET Secretariat and Advisory Board, I congratulate tonight’s participants for their commitment to public health and saving lives. I would also like to acknowledge the members of the event organizing team from TEPHINET and the CDC for all of your hard work as well as the CDC Foundation for their support of this event. Thank you for joining us and supporting the contributions of FETP towards a safer, healthier world.

Prof. Dionisio José Herrera Guibert, MD, FMS, MAE, PhD
Director of TEPHINET
2018 FETP International Night
Poster Presentation Session

Tuesday, April 17, 2018

5:00 pm - 6:00 pm  Refreshments will be served

5:00 pm - 6:00 pm  Photo contest entries available for viewing

6:00 pm  Welcome and Introduction of the Poster Presentations
Dr. Seymour Williams
Principal Technical Deputy, Workforce and Institute Development Branch
Division of Global Health Protection, Center for Global Health
U.S. Centers for Disease Control and Prevention

Posters Presentation Moderators
Reina Turcios-Ruiz MD, FIDSA
CAPT, USPHS
Medical Epidemiologist, Workforce and Institute Development Branch
Division of Global Health Protection, Center for Global Health
U.S. Centers for Disease Control and Prevention

Professor Mufuta Tshimanga, MD
Director/Coordinator, ZimFETP
Department of Community Medicine
University of Zimbabwe

6:05 pm – 7:55 pm  iPoster Presentations
see listing (pg. 6)

7:55 pm – 8:05 pm  Wrap Up
Dr. Robert Fontaine
Senior Advisor, Field Epidemiology Training Program (FETP)
Workforce and Institute Development Branch
Division of Global Health Protection, Center for Global Health
U.S. Centers for Disease Control and Prevention

8:05 pm – 8:15 pm  Certificate Ceremony
Dr. Kip Baggett
Chief, Workforce and Institute Development Branch
Division of Global Health Protection, Center for Global Health
U.S. Centers for Disease Control and Prevention

Dr. Dionisio Herrera
Director, Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET)
The Taskforce for Global Health

8:15 pm  Closing Remarks
Dr. Kip Baggett

*The Jeff Koplan Award for Best Poster will be given on Wednesday, April 18 during the award ceremony of International Night.

**Presenters please remain in the room for the photo session immediately following the closing remarks.
2018 FETP International Night
Oral Presentation Session

Wednesday, April 18, 2018

5:30 pm - 6:30 pm Refreshments will be served

6:30 pm Message from the CDC Foundation
Alison Thompson, MPA
Associate Vice President, Advancement

6:35 pm Welcome
Dr. Stephen Redd
Director, Office of Public Health Preparedness and Response
U.S. Centers for Disease Control and Prevention

6:40 pm Introduction of Moderators
Dr. Dionisio Herrera
Director, Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET)
The Taskforce for Global Health

Moderators
Dr. Nancy Knight
Director, Division of Global Health Protection, Center for Global Health
U.S. Centers for Disease Control and Prevention

Dr. Carl Reddy
Chair, TEPHINET Advisory Board and Director,
South Africa Field Epidemiology Training Program

6:45 pm – 8:45 pm Oral Presentations
see listing (pg.8)

8:50 pm Presentation of the 2018 FETP International Night Awards
Dr. Kip Baggett
Chief, Workforce and Institute Development Branch
Division of Global Health Protection, Center for Global Health
U.S. Centers for Disease Control and Prevention

Dr. Dionisio Herrera
Director, Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET)
The Taskforce for Global Health

9:00 pm Closing Remarks
Dr. Kashef Ijaz
Principal Deputy Director
Division of Global Health Protection, Center for Global Health
U.S. Centers for Disease Control and Prevention

**Presenters please remain in the room for the photo session immediately following the closing remarks.**
**Poster Abstract Listing**

Full abstracts are found on the designated page numbers.

**Aceng, Freda Loy – Uganda.** Outbreak of Gastrointestinal Anthrax Following Consumption of Beef of Suspicious Origin – Isingiro District, Uganda, 2017 (page 10)


**Dil, Saima – Pakistan.** An Outbreak Investigation of Brucellosis at Semen Production Unit, Sahiwal, Pakistan, August 2017 (page 12)

**Franck, Amabo – Cameroon.** Smoking Prevalence, Awareness, and Tobacco Cessation Training among Healthcare Professionals, Yaoundé – Cameroon (page 13)

**Jafaar, Ali – Iraq.** Assessment of Immunization Session Practices in Primary Healthcare Centers-Wasit Province, Iraq, 2016-17 (page 14)


**Katchy, Uche – Nigeria.** Cost-effectiveness Analysis of SMS and Home Visit Reminders in Reducing Missed Childhood Immunization Clinic Appointments in Rivers State – Nigeria, 2017 (page 16)

**Kumar, Davendra – India.** Outbreak Investigation of Anthrax – Sikoi Village, Gumla district, Jharkhand, India, September 2017 (page 17)

**Mamuye, Belay – Ethiopia.** Prevalence of Hepatitis B Virus Infection and Associated Factors among Pregnant Women Attending Routine Antenatal Clinics - West Hararghe Zone, Oromia Region, Ethiopia, August 2017 (page 18)

**Maramraj, Kiran Kumar – India.** Acute Diarrheal Disease Outbreak Due to Cross-contamination of Bore-wells in a Tribal Village – Telangana State, India, June 2017 (page 19)

**Moema, Itumeleng – South Africa.** Outbreak of Culture-confirmed Candida Auris Bloodstream Infection in the Neonatal Unit of a Public-sector Hospital, South Africa, July through September 2017 (page 20)

**Phan, Tan Dan – Vietnam.** Transmission of Neisseria Meningitidis at a Military Training Unit, Vinh Phuc Province, Vietnam - August 2017 (page 21)

**Riaz, Mahmood Riaz – Afghanistan.** Investigation of Measles Outbreak in Nari District, Kunar-Afghanistan-April 2017 (page 22)

**Ruscher, Claudia – Germany.** Communicating Prevention Messages in the Digital Age: Using Dating Applications and Mobile Websites to Reach Men who Have Sex with Men during an Outbreak of Hepatitis A in Berlin, 2017 (page 23)
Sikhosana, Mpho – South Africa. Presentation of Herpes Simplex Virus Type 1 in Paediatric Burn Patients in a Large Tertiary Hospital - Gauteng, South Africa, July 2017 (page 24)

Soy, Sokdaro – Cambodia. Adding Methanol to Rice Wine is a Risky Practice as Shown by an Outbreak Investigation in a Rural Commune in Central Cambodia, 2016 (page 25)

Tatiana, Djikeussi Katcho – Cameroon. Neisseria Meningitidis C Isolated during an Outbreak in a Prison: Investigation and Response - Cameroon, 2017 (page 26)

Temirbekov, Sanzharbek – Kazakhstan. Prevalence and Determinants of Delay in Seeking Medical Care among Newly Diagnosed Pulmonary Tuberculosis Patients, Bishkek City, Kyrgyzstan, 2016 (page 27)

Tolosa, Ximena – Australia. Influenza Vaccine Effectiveness in Australia, 2012-2017 (page 28)


Oral Abstract Listing

Full abstracts are found on the designated page numbers.

6:45 pm  Alitubeera, Phoebe Hilda – Uganda. Food Poisoning Outbreak Caused by Poisonous Cassava Flour: Kasese District, Uganda, September 2017 (page 31)

7:05  Fouila, Fatima Zahra Ben – Morocco. Measles Vaccine Effectiveness among Children – Morocco, 2017 (page 32)


7:45  Liu, Jaiye – China. Investigation of a Dengue Outbreak Caused by an Imported Case in Shandong Province, China, 2017 (page 34)

8:05  Sithole, Zvanaka – Zimbabwe. Viral Load Suppression among Adolescents on Anti-Retroviral Therapy, Harare City-Zimbabwe, 2017 (page 35)

8:25  Wu, Pei-Yuan – Taiwan. Hepatitis C Outbreak in a Respiratory Care Ward Associated with Frequent Unsafe Injections — Taiwan, 2017 (page 36)
Awards

Director’s Award for Excellence in Epidemiology and Public Health Response

This award is presented in recognition of significant contributions toward successful responses to public health emergencies (natural and manmade 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 is also to recognize 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.

Jeffrey P. Koplan Award for Excellence in Scientific Presentation

The Jeffrey P. Koplan Award for Excellence in 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, for his outstanding contributions to improving public health globally and his commitment to excellence in scientific research, analysis, and presentation. The Jeffrey P. Koplan 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 and 26 year veteran of CDC.

Dr. Koplan has served on many advisory groups and consultancies in the U.S. 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.

William H. Foege Award

This award was established in honor of Dr. William H. Foege, the renowned epidemiologist, Presidential Medal of Freedom recipient and former CDC Director credited with devising the global strategy that led to the eradication of smallpox in the late 1970s. The award is the highest FETP International Night honor and is presented to the best oral presentation.

Dr. William H. Foege is an Emeritus Presidential Distinguished Professor of International Health at Emory University and former CDC Director from 1977 to 1983. Dr. Foege founded The Task Force for Child Survival (later renamed The Task Force of Global Health) and served as its executive director from 1984-2000. Under Dr. Foege’s leadership, The Task Force 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 a Director at The Carter Center.
ABSTRACT

Authors: Dr. Miriam Nakanwagi, Ms. Leocardia Kwagonza, Mr. James Mwesigye, Dr. Alex Riolexus, Dr. Bao-ping Zhu, Dr. Freda Loy Aceng

Background: Gastrointestinal anthrax (GIA) is a rare but often-fatal disease caused by eating meat from anthrax-infected animals. In August 2017, Isingiro District, Uganda reported a suspected GIA outbreak with >40 cases. We investigated this outbreak to confirm the etiology, assess its scope and risk factors, and recommend control measures.

Methods: A suspected case-patient had acute-onset of diarrhoea or vomiting during 15–31 August 2017 and a resident of Kabingo Sub-county, Isingiro District (≥2 years). A confirmed case-patient was a suspected case-patient with a clinical specimen yielding Bacillus anthracis. We reviewed medical records and conducted active community case-finding. In a case-control study, we compared exposures between case-persons and matched neighborhood controls.

Results: We identified 50 suspected cases (including 3 confirmed; none died) with onset during 18-24 August. Symptoms included abdominal pain (94%), diarrhea (74%; 19% bloody diarrhea), vomiting (64%), and fever (50%). Of the 50 case-patients and 100 controls, 47 (94%) case-patients and 25 (25%) controls ate meat from a single cow purchased from Butchery X the week before the outbreak (ORM-H=55, 95%CI=6.7–454). Among those who ate meat from Butchery X, eating only boiled meat was protective (OR=0.19, 95%CI=0.050-0.75), while eating boiled and roasted meat was not associated with disease (OR=0.88, 95%CI=0.074-10), when compared to eating only roasted meat (which is often still raw inside). Butcher X sold the implicated meat at half the normal price. Initial PCR results (3 samples) showed pagA positive, capsule negative and second PCR results showed pXO1, chromosome positive; pXO2 negative. Culture growth (2 samples) revealed gram negative bacilli and a Stern strain of B. anthracis was isolated from one sample.

Conclusion: This GIA outbreak was due to eating meat from Butchery X. Boiling meat appeared to protect against anthrax infection. The discounted price of implicated meat suggests it might have come from an animal that had been sick or spontaneously died. We recommended inspection of all animals prior to slaughter and vaccination of livestock against B. anthracis.
Dapaa, Samuel

Country: Ghana

Abstract Title: Probable Pertussis Outbreak among Unvaccinated Population in Three Hard-to-reach Satellite Communities - Pru District, Brong Ahafo Region, Ghana-2017

ABSTRACT

Authors: Mr. Samuel Dapaa, Mr. Ernest Akyereko, Mr. George Kuma, Dr. Samuel Sackey, Prof. Edwin Afari, Dr. Donne Kofi Ameme, Dr. Ernest Dapaa

Background: Pertussis vaccine, a component of the pentavalent vaccine in Ghana’s routine childhood vaccination schedule is given in three doses at ages 6, 10 and 14 weeks. On 30th October 2017, Pru District surveillance office received report of clusters of unusual acute cough illness suspected to be pertussis among residents of three of its hard-to-reach satellite communities. No country-level laboratory capacity for confirming pertussis exists. We investigated to confirm the outbreak, determine its magnitude and implement control measures.

Methods: A suspected pertussis case-patient was any resident of Driver Akura, Wutideke or Brekente community, with cough illness and any of the following: paroxysms of coughing, inspiratory “whoop,” posttussive vomiting, or apnea from 1st October to 15th November 2017. We conducted active case search, interviewed case-patients and their caretakers, conducted clinical and vaccination records review for clinical features, contacts and vaccination history. We collected and shipped nasopharyngeal swab specimens and blood samples to international reference laboratory for diagnosis. Case-patients were treated empirically with Azithromycin and chemoprophylaxis administered to households and contacts.

Results: Among the 1,742 residents were 27 suspected case-patients (median age 9 years, range 0-65 years) giving overall attack rate (AR) of 1.5% with no death. Sex specific ARs were 2.0% (17/854) and 1.1% (10/888) for males and females respectively. Among children aged below 2 years, AR was 1.7% (3/174). Of the case-patients, 22.2% (6/27) had up-to-date (UTD) pentavalent vaccination; 40.7% (11/27) had subconjunctival haemorrhage and 22.2% (6/27) were admitted for severe disease. Nasopharyngeal swab from 69.2% (9/13) of case-patients showed gram-negative coccobacilli.

Conclusion: The outbreak was a probable pertussis outbreak affecting mostly residents without UTD pentavalent vaccination. Case-management, contact tracing and timely mop-up vaccination campaigns were control measures.
Dil, Saima

Country: Pakistan

Abstract Title: An Outbreak Investigation of Brucellosis at Semen Production Unit, Sahiwal, Pakistan, August 2017

ABSTRACT

Authors: Dr. Saima Dil, Dr. Zafar Hayat, Dr. Muhammad Abbas

Background: Brucellosis is an important zoonosis with global burden of 500,000 cases per year. Brucellosis is endemic in Pakistan. On 21st August 2017, two workers of Semen Production Unit (SPU) at district sahiwal were reported to have brucellosis. An investigation was initiated to assess the magnitude, evaluate risk factors and recommend control measures.

Methods: A case was defined as “intermittent fever and headache with or without profuse night sweating, fatigue and positive brucella antibodies on i-ELISA in a worker of SPU from 21st to 25th August 2017”. Epidemiological information was recorded on structured questionnaire. Controls were selected from workers, negative for brucella antibodies, without intermittent fever and headache. Cases and controls were matched by sex, age and locality (1:4). Samples collected for laboratory testing included blood (n=35) from SPU staff, semen (n=80) and blood (n=150) from animals. Frequencies were calculated and odd ratios were determined at 95% confidence interval with p value less than 0.05.

Results: A total of 7 cases were identified. Mean age of cases was 35 years (25-41). Attack rate was 43% among animal handlers/semen collector and 5% other staff. Amongst the cases 86% were animal handlers/semen collector and 14% were other staff. The most common complaints were fever (100%), headache (100%), night sweats (71%), fatigue (57%) and backache (57%). Animal handlers/semen collectors were more likely to have brucellosis (OR= 15; 95%CI=1.54-145.22; p=0.01) and workers taking personal protective measures were less likely to have brucellosis (OR= 0.11; 95%CI=0.01-1; p=0.04). Laboratory testing indicated 20% of workers and 1.3% of animals were positive for brucellosis.

Conclusion: The most probable cause of human brucellosis was exposure to infected semen and non-adherence to protective measures. Culling of infected animals, vaccination of calves, use of PPE, routine human and animals screening was recommended. The infected persons were referred for treatment and health department was notified.
Franck, Amabo

Country: Cameroon

Abstract Title: Smoking Prevalence, Awareness and Tobacco Cessation Training among Healthcare Professionals, Yaoundé – Cameroon

ABSTRACT

Authors: Dr. Amabo Franck Chi, Dr. Nansseu Jobert Richie, Dr. Pascal Magloire Awono, Dr. Seukap Elise Claudine, Dr. Els Mathieu, Dr. Etoundi Georges Alain

Background: Tobacco smoking is the leading cause of preventable deaths worldwide. As role models and facilitators of smoking cessation, it is important that healthcare professionals (HPs) incorporate positive health behaviors into their personal lifestyles. This study aimed to assess smoking prevalence, awareness, cessation training, and factors associated with smoking among HPs in Cameroon.

Methods: We conducted a cross-sectional study from February–July 2017 in 30 randomly-chosen health facilities in Yaoundé, Cameroon. Participants were HPs working in one of the study sites who were found at the site when investigators visited and who volunteered to be included. We used a self-administered questionnaire for data collection, and logistic regression analyses to assess factors associated with smoking.

Results: Overall, 749 HPs were included (response rate=79%). Ages ranged from 17–74 years with a median of 33 (IQR 28–40). The prevalence of current smoking was 6.5% (95% confidence interval (CI): 4.9–8.6); 97% of HPs were aware of the harmful effects of smoking. Compared to smokers, non-smokers were more likely to feel that HPs serve as role models (95% vs 89%; p=0.006) and that smokers have better chances of quitting when assisted by HPs (95% vs 84%; p=0.006). Most (79%) HPs had never received any formal training on techniques to help smokers quit. Smoking was associated with male sex (adjusted odds ratio (aOR) 2.5; 95%CI: 1.0–5.9), second-hand smoke exposure at home (aOR 2.5; 95%CI: 1.1–6.0) or in public places (aOR 21; 95%CI: 4.7–96), and residing in the Efoulan (aOR 7.5; 95%CI: 1.8–32) or Nkolbisson health district (aOR 6.2; 95%CI: 1.3–30).

Conclusion: HPs in Yaoundé smoke tobacco despite high awareness of its harmful effects. Most HPs are ill-prepared to help smokers quit. HPs should be continuously sensitized to quit smoking and trained in techniques to help smokers stop. Interventions should primarily target male HPs residing in Efoulan and Nkolbisson health districts.
Abstract Title: Assessment of Immunization Session Practices in Primary Healthcare Centers—Wasit Province, Iraq, 2016-17

ABSTRACT

Authors: Dr. Ali Jaafar, Dr. Faris al-Lami

Background: Annually, vaccines prevent more than 2.5 million child deaths globally. WHO and UNICEF estimates of immunization coverage in Iraq in 2016 revealed 63% for DTP3 and 66% for MCV1. Wasit is among governorates with a large number of under-immunized children, opening the door for many future outbreaks. Immunization session practices (ISPs), when maintained of high-quality, can ensure safer and more effective vaccination as well as higher coverage rates. The objective of this study was to assess ISPs in Primary Healthcare Centers (PHCs) in Wasit province.

Methods: We conducted this cross-sectional study on 24(44%) PHCs in Wasit province, selected by simple random sampling. Based on WHO and the national guidelines, checklists were developed to assess 58 ISPs that were grouped into seven domains: vaccine and diluent management, cold chain management, session’s equipment, communication with clients and caregivers, vaccine preparation and administration, card review and registration and waste management. The score (out of 100%) was calculated for each domain in all selected PHCs, then the average for all domains was calculated in each PHC. The assessment was made by direct on-job observation of immunization sessions, through a single visit conducted to each PHC.

Results: PHCs were ranging in their ISPs: 52-78%; with a mean of 67% (± 8%). The highest scores were for the following domains: session’s equipment (88%), waste management (82%) and card review and registration (81%). The least achieving domains were: communication with clients and caregivers (36%) and cold chain management (38%). Vaccine preparation and administration was scoring 69%, whereas the score for vaccine and diluent management was only 50%.

Conclusion: ISPs practiced in PHCs in Wasit province were far from the standard. National Expanded Program on Immunization should work on raising the capacity of vaccinators, particularly their communication skills with the clients and caregivers and the management of vaccines and cold chain.

Key Words: Immunization, Primary Healthcare, Practices, Iraq
Jameh, Anna

Country: Ghana

Abstract Title: Risk Factors Associated with Cervical Dysplasia among Women Living with HIV: Experience from a Low-resource Setting, Gambia-2017

ABSTRACT

Authors: Dr. Anna Jammeh, Dr. Ernest Kenu, Dr. Donne Kofi Ameme, Prof. Edwin Afari, Dr. Peter Adewuyi

Background: Cervical dysplasia, a precursor of cervical cancer, remains higher in women living with HIV than their non-HIV counterparts. In Gambia, there is unavailability of data characterizing the factors influencing cervical dysplasia in women living with HIV. This gap deprives programs of evidence for decision-making. We determined the risk factors associated with cervical dysplasia among HIV infected women attending at Hands-on care ART center at Brikama, Gambia.

Methods: A cross-sectional survey was conducted among women living with HIV aged 16 years and above. A systematic random sampling method was used to select participants. Structured questionnaire was used to summarize sociodemographic and clinical data. Visual inspection of the cervix with acetic acid for cervical dysplasia and cryotherapy for cervical dysplasia was performed on each woman. Cervical dysplasia was the presence of aceto-white lesion on the cervix. Risk factors associated with cervical dysplasia were assessed using multivariable logistic regression.

Results: Of 322 women living with HIV screened, all were on antiretroviral therapy. Mean age was 39 years (standard deviation ± 8 years). Prevalence of cervical dysplasia was 22.0% (71/322). Women aged between 26-35 years (adjusted odds ratio (aOR)=2.7; 95% confidence interval (CI)=0.3-23.6), those with coitarche at age 16-20 years (aOR=2.7; CI=1.2-6.1) and those with more than 3 children (aOR=16.6; CI=2.2-124.4) were more likely to have cervical dysplasia. Baseline CD4 count less than 200 cell/mm3 was not significant risk factor for cervical dysplasia (aOR = 1.7; CI = 0.9-3.1).

Conclusion: Considerable proportion of women living with HIV have cervical dysplasia. Being a young woman with early coitarche at 16-20 years and multiparity were significant risk factors for cervical dysplasia. The finding that risk factors of cervical dysplasia were similar among women living with HIV and general women population underscores the need for comprehensive reproductive care for women living with HIV.
Katchy, Uche

Country: Nigeria

Abstract Title: Cost-effectiveness Analysis of SMS and Home Visit Reminders in Reducing Missed Childhood Immunization Clinic Appointments in Rivers State – Nigeria, 2017

ABSTRACT

Authors: Dr. Uche Katchy, Dr. Abdulhakeem Olorukooba, Dr. Saheed Gidado, Dr. Muhammad Shakir Balogun, Dr. Patrick Nguku

Background: Vaccine-preventable diseases account for 22% of child mortality in Nigeria and vaccination dropout rate above 10% undermines vaccine coverage efforts. To improve coverage, home visits and SMS reminders have been recommended. With the expected decline in GAVI funding by 2020, any additional strategy should be cost-effective. We determined the cost-effectiveness of SMS and home visit reminders in reducing missed immunization clinic appointments.

Methods: We conducted a quasi-experimental, parallel, three-arm study. Cluster randomization was done at health facility level. We assigned caregivers presenting neonates for BCG immunization into either controls who received no reminder, reference home visit group; or experimental SMS group. We sent reminders a week and a day prior to pentavalent appointment at 6, 10 and 14 weeks. We defined missed appointment as inability to present for vaccination two weeks after schedule. We determined appointment status from the clinic register. We used a data collection form to obtain cost elements of reminders. We calculated risk ratios and incremental cost-effectiveness ratio (ICER) of reminder strategies.

Results: Of the 300 participants selected, 242 (80%) completed pentavalent vaccination appointment with higher values in reminder groups (87%, home visit; 85%, SMS) compared to 73% among controls. Pairwise comparison showed caregivers who received home visit or SMS reminders were at least 15 times less likely to miss appointments compared to controls (RR: 0.6; 95% C.I. 0.39-0.94 and RR 0.55; 95% C.I =0.34- 0.87). There was no significant association in appointment rates among SMS and home visit groups (RR 1.08; 95% C.I 0.74-1.58). The ICER of SMS reminders was 5.6 naira per missed appointment averted compared to 1,005 naira for home visit.

Conclusion: SMS and home visit reminders were equally effective in reducing missed clinic appointment but SMS was more cost-effective. We recommend SMS use in routine immunization services. After completion of study, we sent reminders to defaulters.

Key Words: SMS reminders, immunization, home visit, Port Harcourt, Nigeria
Kumar, Davendra

Country: India

Abstract title: Outbreak Investigation of Anthrax – Sikoi Village, Gumla District, Jharkhand, India, September 2017

ABSTRACT

Authors: Dr. Davendra Kumar, Dr. Raveesh P. M., Dr. Nataraju S. M., Dr. Rakesh Dayal, Dr. JP Sanga, Dr. Jyoti, Dr. Rajesh Kumar, Dr. Shah Hossain, Dr. Mohan Pappanna, Dr. Naveen Sodha, Dr. Samir Sodha, Dr. A. C. Aggarwal, Dr. A. C. Dhariwal

Background: Human anthrax occurs following exposure to infected animal products with case fatality rate of 20%-40% if untreated. In India, there were 59 reported anthrax outbreaks from 2013-2016. In August 2017, Jharkhand state reported three human deaths following animal deaths in Sikoi, a tribal village in Gumla district. We investigated to describe epidemiology, identify risk factors, and provide evidence-based recommendations.

Methods: We defined case as painless skin lesions (i.e. papule, vesicle, ulcer, or eschar) or death epidemiologically linked to sudden animal death in Sikoi village resident from June-September 2017. We identified cases by reviewing hospital records and house-to-house survey. We conducted retrospective cohort study to assess risk factors. We collected blood samples and wound swabs from cases, blood samples from ill animals and soil samples from affected areas for anthrax culture and Real-Time polymerase chain reaction (PCR). We conducted census of domesticated animals including data regarding vaccination and deaths.

Results: We identified 22 cases (91% male) with three deaths (case fatality rate=14%). Median age was 26 years (range: 12-65 years), and attack rate was 5% (22/479). Illness was associated with eating carcass meat (RR: 141.2, 95% CI: 19.3-1029.9), skinning carcass (RR: 36.3, 95% CI: 19.7-66.7), and butchering (RR: 33.7, 95% CI: 19.7-57.6). Only one wound sample was positive for anthrax by PCR. Among 1174 domesticated animals, none were vaccinated against anthrax. From June to August 2017, five animals (four ox, one cow) reportedly died suddenly with bleeding from natural orifices. Two were buried and three were butchered for consumption. During carcass disposal, personal protective measures were not used.

Conclusion: This was an outbreak likely due to anthrax with illness associated with consumption of carcass meat and handling of carcasses. We recommend building awareness among villagers to avoid butchering and consuming meat from carcasses, use of personal protective measures, and vaccinate animals against anthrax.
Mamuye, Belay

Country: Ethiopia

Abstract Title: Prevalence of Hepatitis B Virus Infection and Associated Factors among Pregnant Women Attending Routine Antenatal Clinics - West Hararghe Zone, Oromia Region, Ethiopia, August 2017

ABSTRACT

Authors: Mr. Belay Mamuye, Dr. Tesfaye Gobena, Dr. Tatek Bogale Anbessie

Background: Globally, about 350–400 million persons are chronically infected with hepatitis B virus (HBV). Mother-to-child transmission (MTCT) is responsible for more than half of chronic infections. Administration of hepatitis B vaccine at birth followed by timely completion of the vaccine series is 70%–95% effective in preventing MTCT. In Ethiopia, routine infant vaccination against hepatitis B was begun in 2007; however the birth dose and prophylaxis has not yet been introduced. The objective of the study was to estimate hepatitis B virus seroprevalence and associated factors among pregnant women attending antenatal clinics in West Hararghe public hospitals and to recommend ways to reduce the risk of perinatal transmission.

Methods: A cross-sectional study was conducted among 363 pregnant women attending routine antenatal care clinics in West Hararghe public hospitals during April-May, 2017. A systematic random sampling method was used to enroll participants. A structured questionnaire was used to collect information on risk factors. Blood samples were collected and tested for HBsAg by Enzyme-linked immunosorbent assay (ELISA). Descriptive statistical tests and binary logistic regression was used for analysis.

Results: The overall seroprevalence of HBsAg was 22/363 (6.1%; 95%CI 3.9-8.5) among pregnant women. History of abortion (aOR=4.32, 95%CI 1.28-14.95), traditional tonsillectomy (aOR=4.36, 95%CI 1.07-17.82), history of admission to health facility (aOR=4.41, 95%CI 1.15-16.89), having multiple sexual partners (aOR=6.30, 95%CI 1.69-23.44) and history of liver disease among family members (aOR=8.24, 95%CI 2.07-32.83) were independent risk factors associated with hepatitis B virus infection among pregnant women.

Conclusion: The prevalence of hepatitis B virus indicates a high-intermediate epidemic. We recommend scaling up screening of pregnant women for hepatitis B virus in all antenatal clinics, and proper counseling, care, and treatment of persons with hepatitis B infection. Strategies to prevent hepatitis B virus MTCT, including availability of prophylaxis and birth dose vaccine, should be adopted.
Maramraj, Kiran Kumar

Country: India

Abstract Title: Acute Diarrheal Disease Outbreak Due to Cross-contamination of Bore-wells in a Tribal Village – Telangana State, India, June 2017

ABSTRACT

Authors: Dr. Kiran Kumar Maramraj, Dr. G. Subbalakshmi, Dr. Mohammed Shahed Ali, Dr. Rajesh Yadav, Dr. Tanzin Dikid, Dr. Samir Sodha, Dr. C. S. Maramraj, Dr. A. C. Dhariwal

Background: In 2016, India reported 13.9 million acute diarrheal disease (ADD) cases and 709 ADD outbreaks (>25% of all outbreaks) with nearly one million cases from Telangana state. On June 26 2017, Pedda-Gujjul-Thanda, a tribal village in Telangana, reported an ADD outbreak. We investigated to describe epidemiology, identify risk factors, and provide evidence-based recommendations.

Methods: We defined a case as ≥3 loose stools within 24 hours in Pedda-Gujjul-Thanda residents from June 24-30, 2017. We identified cases by reviewing hospital records and house-to-house survey. We conducted a retrospective cohort study and collected stool samples for culture. We assessed drinking water supply and sanitation practices and tested water samples for fecal contamination.

Results: We identified 191 cases (65% females) with median age of 36 years (range 4-80 years) and no deaths. Village attack rate (AR) was 37%(191/512). Downhill colonies reported higher ARs (56%(136/243), p<0.001) than other colonies (20%(55/269)). Symptoms included diarrhea (100%), fever (17%), vomiting (16%) and abdominal pain (13%). In multivariate analysis, drinking water from bore-wells at bottom of downhill slope (aOR=12.5, [95% CI=7.4-21.2]) and illiteracy (aOR=5.4, [95% CI=3.2-9.0]) were significantly associated with illness. Handwashing (aOR=0.3, [95% CI=0.2-0.7]) and household pre-treatment of drinking water (aOR=0.4, [95% CI=0.2-0.7]) were protective. Two stool cultures were negative for Vibrio cholerae. Open defecation was practiced by 95%(95/100) of households. Among 23 bore-wells, five (22%) were downhill and near open defecation areas with multiple pipeline leakages. Heavy rainfall was reported from June 22-24. Five of six water samples collected from downhill bore-wells were positive for fecal contamination.

Conclusion: This was an ADD outbreak with high attack rate in a tribal village associated with drinking water from downhill bore-wells, likely contaminated via runoff from open defecation areas after heavy rains. Based on our recommendations, pipelines were repaired, open defecation areas distanced from water sources, and construction of house-hold and community latrines initiated.
Moema, Itumeleng

Country: South Africa

Abstract Title: Outbreak of Culture-confirmed Candida Auris Bloodstream Infection in the Neonatal Unit of a Public-sector Hospital, South Africa, July through September 2017

Authors: Mrs. Itumeleng Moema, Dr. Husna Ismail, Dr. Erika Van Schalkwyk, Ms. Liliwe Shuping, Prof. Nelesh P Govender

ABSTRACT

Background: *Candida auris* is a multidrug-resistant fungus causing invasive disease/healthcare-associated outbreaks. In September 2017, cases of *C. auris* candidemia were detected through surveillance in the neonatal unit of a public-sector hospital in Gauteng province, South Africa. Only one case of candidemia (*Candida albicans*, June 2016) had been diagnosed in this unit in the preceding 18 months. We describe the outbreak investigation and implementation of infection prevention and control (IPC) measures.

Methods: We defined a case as an infant admitted to the neonatal unit, 27 July-19 September 2017, with *C. auris* cultured from blood. We collected clinical and laboratory data using a standard medical chart abstraction tool. A cross-sectional survey was conducted among admitted infants (21 September 2017) to determine the prevalence of colonization, defined as *C. auris* cultured from an axilla/groin skin swab without corresponding clinical evidence of candidemia. After implementing IPC measures (isolation/cohorting of infants infected/colonized with *C. auris*, amphotericin B treatment of candidemia and environmental cleaning with hypochlorite-based disinfectants), a second survey was conducted (19 October 2017).

Results: We identified six cases; five were female. The median birth weight was 1205 g (IQR, 1190-1225) and median age at diagnosis 23 days (IQR, 19-27). Five cases were born prematurely with hyaline membrane disease. Prior to diagnosis, all cases received blood transfusions and empirical broad-spectrum antibiotics; five received total parenteral nutrition and fluconazole. Five were treated with amphotericin B after diagnosis. Two of six patients died. Ten of 31 (32%) admitted infants were colonized with *C. auris* in the first survey, two with concurrent *C. auris* candidemia. Only 1 of 26 infants was colonized in the second survey. No further cases occurred.

Conclusion: Information provided by colonization surveys, coupled with intensified IPC measures, were likely important factors in preventing further *C. auris* cases during this outbreak.
Phan, Tan Dan

Country: Vietnam

Abstract Title: Transmission of Neisseria Meningitidis at a Military Training Unit, Vinh Phuc Province, Vietnam - August 2017

ABSTRACT

Authors: Mr. Tan Dan Phan, Dr. Khanh Nguyen Cong, Dr. Hung Pham Ngoc, Mrs. Yen Le Hai, Mr. Trung Nham Sy Duy

Background: Invasive meningococcal disease caused by Neisseria meningitidis is a serious vaccine-preventable disease that negatively influences military troop readiness. In Vietnam, meningococcal vaccines are not included in routine immunization program and have not been used for military forces. On 18 August 2017, a case of suspected meningococcal meningitis was reported from company Z, military unit Y- a training company consisting of 136 recruits and eight officers. We conducted a case investigation and enhanced surveillance to identify opportunities for prevention.

Methods: We defined a suspected case of meningitis as any soldier who presented from 15 August through 15 September 2017 with sudden onset of fever, headache, and/or meningeal signs. We defined laboratory-confirmed meningitis as detection of N. meningitidis in cerebrospinal fluid by culture or polymerase chain reaction (PCR). We used a standard questionnaire to interview the index case and 36 close contacts who shared the same barracks or participated in the same training activities with the index case. Nasopharyngeal swabs were collected from all contacts for PCR evaluation.

Results: The index case occurred in a 19-year-old male who was diagnosed on August 18 with PCR-confirmed meningitis caused by N. meningitidis serogroup B. At the time of investigation, all 36 close contacts were male and healthy; 12 (33%) were smokers and none had received meningococcal vaccine. Swab samples from 24 (67%) contacts yielded DNA for N. meningitidis serogroup B. All contacts received chemoprophylaxis with azithromycin. On August 23 and 24, two close contacts presented with acute pharyngitis caused by N. meningitidis serogroup B. After implementing rigorous control measures, no additional cases of meningitis or pharyngitis were identified.

Conclusion: Meningococcal disease was successfully controlled following a single case of meningitis and two cases of pharyngitis. However, the high prevalence of nasopharyngeal bacterial carriage suggests widespread transmission. Vaccination with meningococcal vaccine may be indicated to maintain troop readiness.
Riaz, Mahmood Riaz

Country: Afghanistan

Abstract Title: Investigation of Measles Outbreak in Nari District, Kunar-Afghanistan-April 2017

ABSTRACT

Author: Dr. Mahmood Riaz Riaz

Background: In 2016, we investigated seven measles outbreaks with a total of 150 cases at five different Districts of Kunar Province. Of the seven outbreaks, five were laboratory-confirmed by ELISA-IgM, and two of them were clinically confirmed. In early 2017, a cluster of suspected measles cases was reported in April from Chreagal area located in Nari District, Kunar Province. We investigated the outbreak to confirm the etiology, identify risk factors, and make recommendations to prevent future outbreaks.

Methods: A measles case was defined as any person with fever, maculopapular rash and cough, coryza or conjunctivitis in the Chreagal area since 23 March. We reviewed medical records and surveyed the affected area for active case finding and vaccine coverage. Four blood samples were collected for testing by ELISA-IgM at the Central Public Health Laboratory in Kabul.

Results: A total of 118 children were surveyed and forty-eight (40.7%) measles cases were identified with a male to female ratio of 1.4:1. Three of the four samples tested positive for measles. No case died. The mean age of ill children was 4.0 years, median 3.5 years, and range 1-14 years. One-dose measles vaccination coverage among 1-5 year-olds was 62 of 118 (52.5%). Risk ratio [RR] of those vaccinated compared to those not vaccinated: 0.238, (95% CI 0.13-0.43). We vaccinated 961 children (male, 462 and female, 499) ranging in age from six months to ten years.

Conclusion: Low vaccination coverage was the likely cause of this outbreak. We recommended strengthening routine-immunization, including routine outreach-services for the surrounding area and periodic campaigns to ensure World Health Organization recommended 95% two-dose measles vaccination coverage.
Ruscher, Claudia

Country: Germany

Abstract Title: Communicating Prevention Messages in the Digital Age: Using Dating Applications and Mobile Websites to Reach Men who Have Sex with Men during an Outbreak of Hepatitis A in Berlin, 2017

ABSTRACT

Authors: Dr. Claudia Ruscher, Dr. Dirk Werber, Mr. Matthias Eckardt, Dr. Christian Winter, Dr. Daniel Sagebiel

Background: Hepatitis A virus (HAV), which is fecal-orally transmitted, causes an acute liver infection; sexual transmission among men who have sex with men (MSM) occurs. In a large European HAV outbreak among MSM, Berlin has been affected since early 2017. Patients frequently reported anonymous sex and use of dating applications. This hampered tracing and vaccination of contacts to stop onward transmission. To prevent further cases, we launched a campaign on three apps and eight mobile websites used for anonymous dating among MSM. We evaluated the effectiveness of different mobile platforms and formats to spread prevention messages among MSM who seek anonymous sex contacts in Berlin.

Methods: Ads in different sizes were placed from March 10 through April 1st, 2017, targeted at users whose mobile device was located within Berlin. Users were invited to click a link to a public health website for information about the outbreak, HAV transmission routes and vaccination recommendations. We computed frequencies of ads shown and click-through-rates (CTR), and investigated the independent effect of ad-size and placement on click numbers using a negative binomial regression model.

Results: Ads appeared 1,920,180 times and were clicked 8,831 times (CTR 0.46%): a daily average of 101,906 ads and 365 clicks. Most ads were placed (85%) and clicked (92%) on apps. CTR was higher for full-screen ads than smaller sized ads (6.00% vs. 0.24%). In the multivariable model, we found a significant increase in the numbers of clicks using one specific dating app (incidence rate ratio (IRR) 9.5; 95%-CI 7.7-12.2) and full-screen ads (IRR 3.1; 95%-CI 2.5-3.8).

Conclusion: Besides advertising cost, ad format and mobile platform do affect a campaign’s reach and should be considered beforehand. Mobile media, predominantly dating apps, provided a rapid means to reach a substantial number of MSM in Berlin and should complement traditional case-based contact tracing in sexually transmitted outbreaks.
Sikhosana, Mpho

Country: South Africa

Abstract Title: Atypical Presentation of Herpes Simplex Virus Type 1 in Paediatric Burn Patients in a Large Tertiary Hospital - Gauteng, South Africa, July 2017

ABSTRACT
Authors: Dr. Asma Salloo, Dr. Mpho Sikhosana, Dr. Monica Birkhead, Dr. Kerrigan

Background: Thermal injury-associated immunosuppression may predispose burns patients to primary infections or reactivation of latent infections. In July 2017, patients in a paediatric burns unit of a tertiary hospital developed a vesicular rash. The rash occurred within the burn wound in only one patient, and there was no orolabial involvement in any of the patients. Varicella was initially suspected, and we sought to confirm this diagnosis.

Methods: A suspected case was any patient in the paediatric burns ward who presented with a vesicular rash, with or without fever and coryza, during June-July 2017. A confirmed case was one in whom a laboratory-confirmed diagnosis was made. Medical records of patients meeting the case definition were reviewed. Blood and vesicular fluid samples were collected and submitted for electron microscopy, serology and polymerase chain reaction (PCR) testing using a herpes virus panel assay.

Results: A total of 5 patients were identified; three were female. The age range was 1 to 9 years (median 2.7 years). All patients had burn wounds covering <20% of the total body area. All of the patients in the ward shared a room where wound-dressing was done. Electron microscopy of the vesicular fluid showed viral particles of the herpesviridae family, however varicella was excluded based on negative serology and PCR testing. Herpes Simplex Virus type1 (HSV1) was diagnosed by PCR from blood samples in 3 of the patients. The other two patients were found from a review of the medical records.

Conclusion: We identified a cluster of five HSV1 patients in a paediatric burns unit. The HSV1 presentation was atypical because the rash occurred peripherally from the burn wounds in most of the patients and there was no orolabial involvement. Based on the patients’ ages, HSV1 reactivation is most likely, although primary nosocomial infection could not be ruled out.
Soy, Sokdaro

Country: Cambodia

Abstract Title: Adding Methanol to Rice Wine is a Risky Practice as Shown by an Outbreak Investigation in a Rural Commune in Central Cambodia, 2016

ABSTRACT

Authors: Mr. Sokdaro Soy, Mr. Puthik Long Hay, Mr. Buntha So, Dr. Savuth Thai, Dr. Vuthy Chan

Background: In December 2016, a local health authority alerted the Cambodian Communicable Disease Control Department of ten deaths and 43 hospitalized persons presenting with respiratory distress, abdominal pain, and blurred vision. We conducted an investigation to find the source of the outbreak and provide appropriate recommendations.

Methods: We performed a case-control study where cases were individuals living in the commune presenting with respiratory distress or convulsion or abdominal pain or blurred vision after 1 November 2016; controls were selected among asymptomatic persons living nearby. Cases and controls were interviewed about drinking habits and alcohol exposures. We analyzed data for odds ratio (OR) and 95% CI using EpiInfo. We collected rice wine samples for laboratory testing.

Results: There were 92 cases overall; and 23 cases and 19 controls in the case control study. The OR for drinking rice wine and consumption of rice wine ≥4 times/week was 49 (95% CI 7.2-331.8), and 4.9 (95% CI 1.3-18.7) respectively. Three rice wine samples were confirmed with high methanol concentration. The rice wine was contaminated with methanol by the sellers or wine producers to make the wine stronger and increase the volume. The local authorities temporarily closed the rice wine sellers.

Conclusion: Our investigation provides evidence that the practice of adding methanol to rice wine was the cause of this outbreak. Educating all rice wine producers and sellers may reduce this dangerous practice. Collaboration with all relevant organizations may strengthen food safety laws and regulations.
Tatiana, Djikeussi Katcho

Country: Cameroon


ABSTRACT

Authors: Dr. Djikeussi Katcho Tatiana, Dr. Franck Amabo Chi, Dr. Grace Alake, Dr. Nzouankeu Ariane, Dr. Paul Onambele, Dr. Kevin Nkem Efon, Mr. Donald TATIANA, Dr. Linda Essoh, Dr. Els Mathieu, Dr. Etoundi

Background: In March 2017, Cameroon’s Ministry of Health was informed that Central Prison in Yaounde crossed the epidemic threshold for meningitis, 05 cases /4600 inmates. We investigated to confirm the epidemic, characterize the pathogen, and establish control measures.

Methods: A suspected case was any inmate with fever >38.5ºC and one of the following: neck stiffness, altered consciousness, convulsions, or other meningitis signs during January 1–March 12, 2017. A case-control study was implemented with one case matched to two asymptomatic controls by age, sex, and prison quarter. We used a structured questionnaire to collect information on sociodemographic characteristics, medical history, risk factors, vaccine status, laboratory analysis, treatment, and outcome and to interview health staff. Cerebrospinal fluids (CSF) were cultured; isolate serogroup was identified through PCR.

Results: Sixteen suspected cases were identified in two quarters; all were males, aged 20–42 years (median=27 years); case-fatality rate was 50% (8/16). The attack rate was 0.35% (16/4,600). Compared to controls, a non-significantly higher proportion of cases consumed tobacco (25% vs 9%; OR=3.5, 95%CI: 0.6–19.8), lacked windows in cells (81% vs 69%; OR=2, 95%CI 0.5–8.5), consumed marijuana (56% vs 44%; OR=1.6; 95%CI: 0.4–6.6) and were in overcrowded cells (60% vs 63%; OR=3.2; 95%CI: 0.5–33.4). Prisoners shared a courtyard. No prisoner had documented vaccination against meningitis. Penitentiary health personnel were not aware of Integrated Disease Surveillance and Response (IDSR). Neisseria meningitidis serogroup C was detected by PCR in three of seven CSF samples tested. Chemo-prophylaxis with ciprofloxacin was administered to 5,598 inmates, penitentiary staff, and health staff. Tetravalent anti-meningococcal vaccine was administered to 6,174 (93%) exposed persons.

Conclusion: A meningitis outbreak due to Neisseria meningitidis serogroup C was confirmed in Yaounde prison. We recommend to introduce IDSR in prisons, educational programs to change at risks behaviors, and a national response strategy that includes availability of vaccines and advocacy to decongest prisons.
Temirbekov, Sanzharbek

Country: Kazakhstan

Abstract Title: Prevalence and Determinants of Delay in Seeking Medical Care among Newly Diagnosed Pulmonary Tuberculosis Patients, Bishkek city, Kyrgyzstan, 2016

ABSTRACT

Authors: Dr. Sanzharbek Temirbekov, Dr. Ekaterina Malikova

Background: Tuberculosis is a health problem in Bishkek city, the capital of Kyrgyzstan. During 2014-2015, the city annual notification rate (118/100,000) was higher than the overall country rate (98/100,000). Early detection of disease, especially symptomatic pulmonary tuberculosis (S-PTB), is essential in reducing further disease spread. In 2016, we conducted a study to estimate the prevalence and ascertain determinants of delay in attending for care in S-PTB adult patients in Bishkek so that appropriate recommendations can be made to improve timeliness of disease detection.

Methods: We surveyed all newly diagnosed S-PTB patients, aged ≥18 years who were identified in Bishkek during 2014-2015 (n=529). Patient’s delay was defined as ≥30 days between S-PTB disease onset and attending for care. We collected Information on possible delay-associated factors, disease manifestations, and dates of disease onset and attending for care. We used logistic regression to study the delay-risk factor associations.

Results: 35% (186/529) of all S-PTB study patients delayed in attending for care. The prevalence of delay was highest among: people who live alone (50% (40/80)), those with other chronic diseases (42% (39/91)), those who lack knowledge about TB (38% (102/266)), and those with only school education (35% (81/232)). In multivariate analysis, independent risk factors for delay were: living alone (OR 2.2, 95% CI 1.3-3.7) having history of chronic diseases (OR 1.5, 95% CI 1.0-2.6). Previous knowledge about TB was protective against delay (OR 0.6, 95% CI 0.4-0.9).

Conclusion: The prevalence of delay seems to be high in Bishkek, especially among patients who live alone or have chronic infections. Prior knowledge about TB seems to be protective. We recommend that, through well-designed and properly-targeted educational messages, people should be informed about the tuberculosis manifestations and the need for a timely attendance for care.
**Tolosa, Ximena**

**Country:** Australia

**Abstract title:** Influenza Vaccine Effectiveness in Australia, 2012-2017

**ABSTRACT**

**Authors:** Dr. M. Ximena Tolosa, Ms. Monique B. Chilver, Ms. Vivian K. Leung, Prof. Nigel P. Stocks, Dr. Sheena G. Sullivan

**Background:** Understanding the protection conferred by vaccination against community-acquired influenza assists experts to decide on the annual influenza vaccine strain composition. It also aids in planning strategies to protect vulnerable populations during severe seasons.

**Methods:** Data from the Australian Sentinel Practices Research Network were used to estimate the interim and final vaccine effectiveness (VE) against influenza A and B from 2012–2017 in Australia. We used the case test-negative design to calculate VE using data from individuals of known influenza vaccination status that presented to a sentinel general practitioner during the influenza season, met the national influenza-like illness (ILI) case definition and were tested for influenza by real-time reverse-transcription polymerase chain reaction. VE was estimated as \((1-OR)*100\%\) by logistic regression, where OR is the odds of being a vaccinated case over the odds of being a vaccinated non-case. We estimated interim (mid-season) and final (end of season) VE adjusting for age and time of consultation.

**Results:** Interim and final VE pairs were closest for 2015 [56% (95% CI 38–69; n=1,255) and 56% (95% CI 38–68; n=1,386)] and 2017 [38% (95% CI 19–53; n=1,534) and 37% (95% CI 21–50; n=2,357)] for all-age interim and final estimates, respectively. VE for A/H1 was higher than A/H3 in all years. VE for A/H3 was lowest in 2017. Consistency between interim and final VE estimates by subtype/lineage, age and target group for vaccination was poor and had low precision suggesting an insufficient sample size.

**Conclusion:** Influenza VE pair estimates for 2012-2017 were moderate and unstable. Our results support the need to expand national ILI surveillance to increase the reliability of VE estimates, particularly by subtype/lineage, age and target group.
ABSTRACT

Authors: Ms. Eunice Wachira, Dr. Jane Githuku, Prof. Fabian Esamai, Dr. Wangui Muthigani, Dr. Zeinab Gura

Background: Premature birth, defined as birth occurring before 37 completed weeks of gestation, is a major determinant of neonatal mortality. Kenya is ranked 15th among countries with highest burden of preterm births. We sought to identify maternal risk factors for preterm birth in selected health facilities in three counties, Central Kenya.

Methods: This was an unmatched hospital based case-control study with a ratio of two controls for each case. Case was defined as birth at <37 gestation weeks and control was a birth with ≥37 weeks. We collected information on socio-demographics, risk factors and clinical characteristics of mothers. Chi-square test, with Odds ratios (OR) and 95% confidence intervals (CI) used to identify associations between maternal characteristics and pre-term birth; T test used to test difference between mean of various characteristics of mothers with term and pre-term births. Logistic regression was used to identify factors associated with pre-term birth.

Results: We recruited 113 cases and 226 controls. There was no difference in mean age of the mothers; 25.3±5.9 years in cases and 25.1±6.3 years in controls (p-value 0.53). Among cases, 38 (33.6%) were not given micro-nutrient supplements and 84 (75%) not booked for high risk clinic. The difference in mean antenatal hemoglobin levels for cases (11.7±1.58) and controls (12.5±6.18) was significant (F-Statistic 4; p-value <0.001). Risk factors for preterm-births were: multiple gestation pregnancy (aOR 6.7; 95% CI 3–14), hypertension in pregnancy (aOR 4.6; 95% CI 1.8- 11.8) and previous pregnancy loss (aOR 2.4 95% CI 1.36 - 6.48). Micro-nutrient supplementation in pregnancy (aOR 0.2 95% CI 0.1 – 0.6) was protective against preterm birth.

Conclusion: We identified risk factors, some modifiable which led to the high burden of prematurity in the three facilities. We recommend that health workers in these facilities improve on identification of at-risk mothers and closely monitor pregnancy to improve outcomes.

Key Words: Risk factors, preterm births, micro-nutrient, Kenya
Worku, Yeshambel

Country: Ethiopia

Abstract Title: Acute Watery Diarrhoea Outbreak Investigation and Response at Andasa Holy Water in Bahir Dar Zuriya District, Amhara Region, Ethiopia, 2017

ABSTRACT

Authors: Mr. Yeshambel Worku, Mr. Melaku Kindie, Mr. Addissu Workneh, Mr. Getie Zeru

Background: Globally, Acute Watery Diarrhea (AWD) represents an estimated burden of 1.4 - 4.3 million patients. Recently, AWD is a public health problem in Ethiopia. West-Gojjam reported 574 AWD patients with 8(1.4%) case fatality rates from Andasa Holy Water started at 21/August/2016. The aim was to assess the magnitude of acute watery diarrhea outbreak and associated risk factors for appropriate control intervention at Andasa Holy Water in Bahir-Dar Zuriya District, Amhara-Region, 2017.

Methods: Unmatched Case-control study design was employed. A line lists was reviewed as per the WHO case definition. Cases were epidemiological linked to confirmed Vibrio cholera 01 serogroup in previous outbreak started at 21/August/2016. 144 patients and 144 controls were interviewed with structured questionnaires. Data was entered to Epi-Info™7 and analyzed by SPSSv20. AOR with corresponding 95% confidence interval was calculated to measure strength of association in multi-variable logistic regression.

Results: In outbreak, 144 cases were reported. Case fatality rate was 3.5%. 89(61.8%) of patients were males. 15-44 years aged population were most affected group. Epi-curve indicated that intermittent common source transmission and the response was poor. The index case was 26 years aged male came from Oromia region, Ermo zone and Gaba kebele. An index case got AWD disease after 18 days in holy water. Drinking river water[(AOR=13.34, C.I.=5.47–32.51)], hand washing after toilet[(AOR=0.28, C.I.=0.10–0.77)], hand washing before eating food[(AOR=0.03, C.I=.01–0.09)], contact with patients[(AOR=8.22, C.I.=3.57–18.92)], hand washing before cooking food[(AOR=0.053, C.I.=0.01–0.3)] and knowing AWD transmission mode[(AOR=0.137, C.I.=0.04–0.43)] were statistically significant associated factors.

Conclusion: The magnitude of outbreak was high. The response was weak. Drinking Blue Nile River water and contact with patient were risk factors to have AWD. Bahir-dar zuria district Health Office with collaboration of other concerned body is good to work on availability of safe water for holy water users by chlorination, water treatment chemicals, establish tape/pipe water and increase the awareness of hygienic practice.
**ORAL ABSTRACTS**

Alitubeera, Phoebe Hilda

Country: Uganda

**Abstract Title:** Food Poisoning Outbreak Caused by Poisonous Cassava Flour: Kasese District, Uganda, September 2017

**ABSTRACT**

Authors: Mrs. Phoebe Alitubeera, Ms. Patricia Eyu, Dr. Benon Kwesiga, Dr. Alex Ario, Dr. Bao-ping Zhu

**Background:** Cassava, a staple food in Africa, may contain lethal levels of cyanide if not properly scraped and soaked. On 8 September 2017, Kasese District, Uganda reported a suspected food poisoning outbreak involving ≥30 cases and 2 deaths after a funeral. We investigated to determine the cause and source of outbreak, and recommend control measures.

**Methods:** We defined a probable case as sudden onset during 1-9 September of vomiting or diarrhoea, plus muscle aches, rapid heart rate, dizziness, or altered mental state in a resident of the tri-subcounty area where the funeral occurred. We conducted medical-record review and active community case-finding. In a case-control study, we compared exposures of case-patients and age- and neighbourhood-matched controls. Eligible controls must have eaten cassava during outbreak period because all case-persons ate cassava. We conducted track-back investigation and tested implicated cassava for cyanide.

**Results:** We identified 98 probable cases; 2 (2.0%) died. Males (attack rate [AR]=1.2/10,000) and females (AR=1.5/10,000) were similarly-affected. Cases started at 8:00p.m. on 5 September, and peaked during 12:00a.m.-3:00am for three subsequent days diminishingly. Of 88 case-persons and 176 controls, 21 (24%) case-persons and 3 (1.7%) controls attended the funeral (ORM-H=40, 95%CI=5.4-298). All case-persons who attended the funeral ate cassava provided by wholesale supplier X, who purchased the implicated batch from Tanzania. Among 67 case-persons and 173 controls absent from the funeral, 67 (100%) case-persons and 137 (79%) controls bought cassava flour from Supplier X during outbreak period (ORM-H =∞, 95%CIFisher’s exact =4.3-∞). Cyanide levels in 5 implicated cassava samples (range=85-90mg/kg, mean=88mg/kg) were >8 times higher than safe level (< 10mg/kg).

**Conclusion:** Consuming food made with cyanide-contaminated cassava flour caused this outbreak. We recommend routine testing of commercial cassava flour (including that at border crossings) for cyanide, and safe cassava processing (peeling, scraping, and soaking for three days before drying).
Fouila, Fatima Zahra Ben

Country: Morocco

Abstract Title: Measles Vaccine Effectiveness among Children – Morocco, 2017

ABSTRACT

Authors: Dr. Fatima Zahra Ben Fouila, Dr. Mouad Merabet, Dr. Ahmed Rguig, Dr. Kawtar Kharti, Prof. Asmae Khattabi, Prof. Fatima Zahra Meski

Background: Measles are one of the leading causes of vaccine-preventable death among young children in the worldwide. In Morocco, vaccination against measles has been introduced into the National Immunization Program (NIP) since 1987, as a single dose at nine months old. A second dose has been introduced since 2003 as part of the elimination strategy. The purpose of our work was to evaluate the vaccine effectiveness of measles vaccination after the first and the second dose among children aged between 12 and 60 months, from 2010 to 2016 in Morocco.

Methods: We conducted a test negative design using data from the measles surveillance system. Only children aged 12-60 months with laboratory result recorded was included. The vaccine status (unvaccinated, vaccinated one dose, vaccinated two doses) was defined among cases: children who had confirmed infection (presence of IgM specific antibodies for measles) and controls: children who had negative lab result (absence of IgM specific antibodies for measles). Vaccine effectiveness (VE) was estimated using the formula \( VE = \left[ 1 - \frac{\text{odds ratio (vaccinated/ unvaccinated)}}{\text{1}} \right] \times 100 \).

Results: In total 897 children were included from January 2010 to December 2016. The mean age was 36 months. The male female sex ratio was 0.8:1. According to the vaccination status, 785 were vaccinated, 79% of them have received one dose and 21% have received two doses. Lab result was positive for 186 (21%) of 897 patients. VE was 87% (CI 95%: 82%-93%) after one dose and 97% (CI 95%: 93%-99%) after two doses.

Conclusion: The field assessment of vaccination effectiveness confirms that measles vaccine is an effective way to prevent measles especially with two doses. The NIP should be reinforced by more vaccination campaign to cover all children who have not received the second dose.
Hamed, Mahnaz

Country: Afghanistan

Abstract Title: Epidemiological Characteristics of Maternal Deaths in Kabul, Afghanistan, 2017

ABSTRACT

Author: Dr. Mahnaz Hamed

Background: Each day about 1,000 women die worldwide because of complications related to pregnancy and childbirth. Developing countries account for 99% of the deaths and have the highest maternal mortality ratio (MMR). The vast majority of these deaths would be avoidable if their causes were known and successful interventions implemented. The MMR in Afghanistan has been reduced from 1,300 per 100,000 live births in 1990 to 400 per 100,000 live births in 2016, still among the highest in the world, but the country still needs to reduce the ratio to meet the Millennium Development Goal (MDG) 5 target of 325 deaths per 100,000 live births. We determined the causes of maternal mortality in two large maternity hospitals in Kabul in 2017.

Methods: Prospective review of all death data among child bearing women in four hospitals from January 1-November 15, 2017. We used the WHO definition of maternal death.

Results: Fifty women died and the mean maternal age at death was 31 years. The leading causes of death were hemorrhage, 18 women (58/100,000), hypertensive events, 17 women (56/100,000) thromboembolic events, 5 women (16/100,000), septicemia, 5 women (16/100,000) and cardiac diseases, 3 women (10/100,000). The gestational age was more than 30 weeks in 40 women (80%); 30 women (60%) were prime gravida; deaths occurred among rural mothers in 39 women (78%); 44 women (88%) had no antenatal care; and 28 women (56%) had existing risk factors. The stages of death were during the postpartum period, 31 women (62%); the antepartum period, 10 women (20%); and labor, 9 women (18%). The MMR was 162 /100,000 live births.

Conclusion: The MMR was surprisingly low, suggesting Afghanistan can achieve the MDG goal in areas served by reasonable health care. The identification of risk factors will allow us to target specific risk factors with appropriate interventions.
Liu, Jaiye

**Country:** China

**Abstract Title:** Investigation of a Dengue Outbreak Caused by an Imported Case in Shandong Province, China, 2017

**ABSTRACT**

**Authors:** Dr. Jiaye Liu, Dr. Shujun Ding, Prof. Xiao Jing, Prof. Xuejun Wang, Dr. Julong Wu, Dr. Mingxiao Yao, Prof. Yumin Liu, Dr. Wenguo Jiang, Prof. Xianjun Wang

**Background:** 177 fever cases occurred in a village from August 5th to 26th 2017. CDC tested their specimens and found 35 were dengue IgM positive. From 2001, 68 dengue cases had been reported provincially, all imported. No dengue cases were ever reported from this county. We conducted an investigation.

**Methods:** Suspected cases were defined as onset with fever plus one of the following; headache, myalgia, arthralgia, orbital pain and/or rash among villagers in the township from May 20th to Oct 30th, 2017. Confirmed cases were suspected cases with dengue virus NS1 antigen, IgM or RNA positive. Hospital medical records were reviewed looking for cases. We took blood specimens to test serum for NS1 antigen, anti-dengue serum IgM by ELISA, and to detect RNA by real-time PCR.

**Results:** We identified 231 cases (84 suspected and 148 lab confirmed). Clinical characteristics included fever (100%), headache (63%) and fatigue (62%). The first suspected case occurred on May 28th. August 2nd there was a sharp increase in cases peaking August 17th-25th and decreased from Aug 26. 99% (229) of cases were in one village. A confirmed dengue case had returned from Saudi Arabia on June 30th. No other cases had a travel history to endemic areas. The Breteau index (BI, number of larvae positive containers per 100 houses) in this village was 107 on August 26th and the main mosquito species were Aedes albopictus. Killing mosquitos by insecticide spraying and disposal of water containers were carried out on August 27th. BI was below 20 on Aug 29th. 10 specimens from confirmed cases were DENV-1 positive.

**Conclusion:** This outbreak was likely caused by an imported dengue case. Spraying and disposal of water filled containers were effective. We suggested training health care providers to recognize dengue, initiate surveillance and control the density of Aedes mosquitos.
Sithole, Zvanaka

Country: Zimbabwe

Abstract Title: Viral Load Suppression among Adolescents on Anti-Retroviral Therapy, Harare City-Zimbabwe, 2017

ABSTRACT

Authors: Ms. Zvanaka Sithole, Dr. Prosper Chonzi, Dr. Elizabeth Mbizvo, Dr. More Mungati, Ms. Tsitsi Juru, Dr. Gerald Shambira, Mr. Notion Sithole, Prof. Mufuta Tshimanga

Background: Zimbabwe is on track towards achieving viral suppression among adults (87%). However, adolescents have only achieved 44% by 2016. In Harare city, 57% of adolescents had attained viral suppression after 12 months on ART compared to 88% among adults. We determined factors associated with viral suppression among adolescents (age 10-19 years) on antiretroviral therapy (ART) in Harare city.

Methods: We conducted a one to one unmatched case control study among 102 randomly recruited case:control pairs at the two main infectious disease hospitals in Harare. A case was any adolescent who presented with VL >1000c/ml after at least 12 months on ART. Interviewer administered questionnaires were used to collect data. Epi Info 7 was used to generate frequencies, means, proportions, ORs and p-values at 95% CI.

Results: We interviewed 102 case-control pairs. Poor adherence to ART [aOR=8.15, 95% CI (2.80-11.70)], taking alcohol [aOR=8.46, 95% CI (3.22-22.22)] and non-disclosure of HIV status [aOR=4.56, 95% CI (2.20-9.46)] were independent risk factors for virological failure. Always using a condom [aOR=0.04, 95% CI (0.01-0.35)], being on second line treatment [aOR=0.04, 95% CI (0.23-0.81)] and belonging to a support group [aOR=0.41, 95% CI (0.21-0.80)] were protective.

Conclusion: Poor adherence, alcohol consumption and non-disclosure increased the odds of virological failure. Based on these findings support should focus on behavior change and strengthening of peer to peer projects to help address issues related to disclosure and adherence. Further operational research should aim to define other components of effective adherence support for adolescents with virological failure.
**Wu, Pei-Yuan**

**Country:** Taiwan

**Abstract Title:** Hepatitis C Outbreak in a Respiratory Care Ward Associated with Frequent Unsafe Injections — Taiwan, 2017

**ABSTRACT**

**Authors:** Dr. Pei-Yuan Wu, Dr. Min-nan Hung, Dr. Hui-chen Lin, Dr. Chia-ping Su

**Background:** Healthcare-associated outbreaks of hepatitis C virus (HCV) infection has been identified in Taiwan, and poses serious risks of harm to patients. During May–July 2017, Taiwan FETP was notified of four patients with acute HCV infection in a respiratory care ward (RCW). We conducted an investigation to identify the transmission route and risk factors for infection to prevent further transmission.

**Methods:** We performed HCV testing for patients and staff in July 2017; all HCV-positive sera underwent phylogenetic analysis to examine genetic relatedness. We defined cases as patients who was hospitalized from November 2016 to April 2017 (6 months to 2 weeks before the first case was diagnosed) and had HCV seroconversion during hospital stay. We selected controls from patients who were hospitalized during the same period and had a negative HCV test. We reviewed medical records to collect types and times of parenteral medications and invasive procedures. We used Wilcoxon rank-sum test to compare the number of injections between cases and controls, and calculated hazard ratios to identify factors associated with infection by Cox proportional hazards model. We evaluated infection control via on-site observations of injection practice.

**Results:** Of 19 staff and 29 RCW patients, we identified four case-patients and a chronic hepatitis C patient with >99% genetic similarity. Compared to 12 control-patients, case-patients received a higher number of injections per day (3.86 vs 0.02, p =0.01). The hazard ratio of 100 injections for HCV infection was 1.6 (95% confidence interval 1.04–2.59). We found the RCW lacked a designated area and standardized workflow for injection preparation, which could possibly cause blood contamination of environment and medication vials.

**Conclusion:** We identified that the patient-to-patient transmission of HCV was associated with frequent injections and infection control lapses. Healthcare personnel should follow safe injection practices and reduce injection frequency to prevent HCV transmission.
Thank you

The FETP International Night committee would like to thank the oral and poster presenters and photo contest participants for their scientific research and efforts to make this evening 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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