Yemen Field Epidemiology Training Program

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وزارة الصحة العامة والسكان
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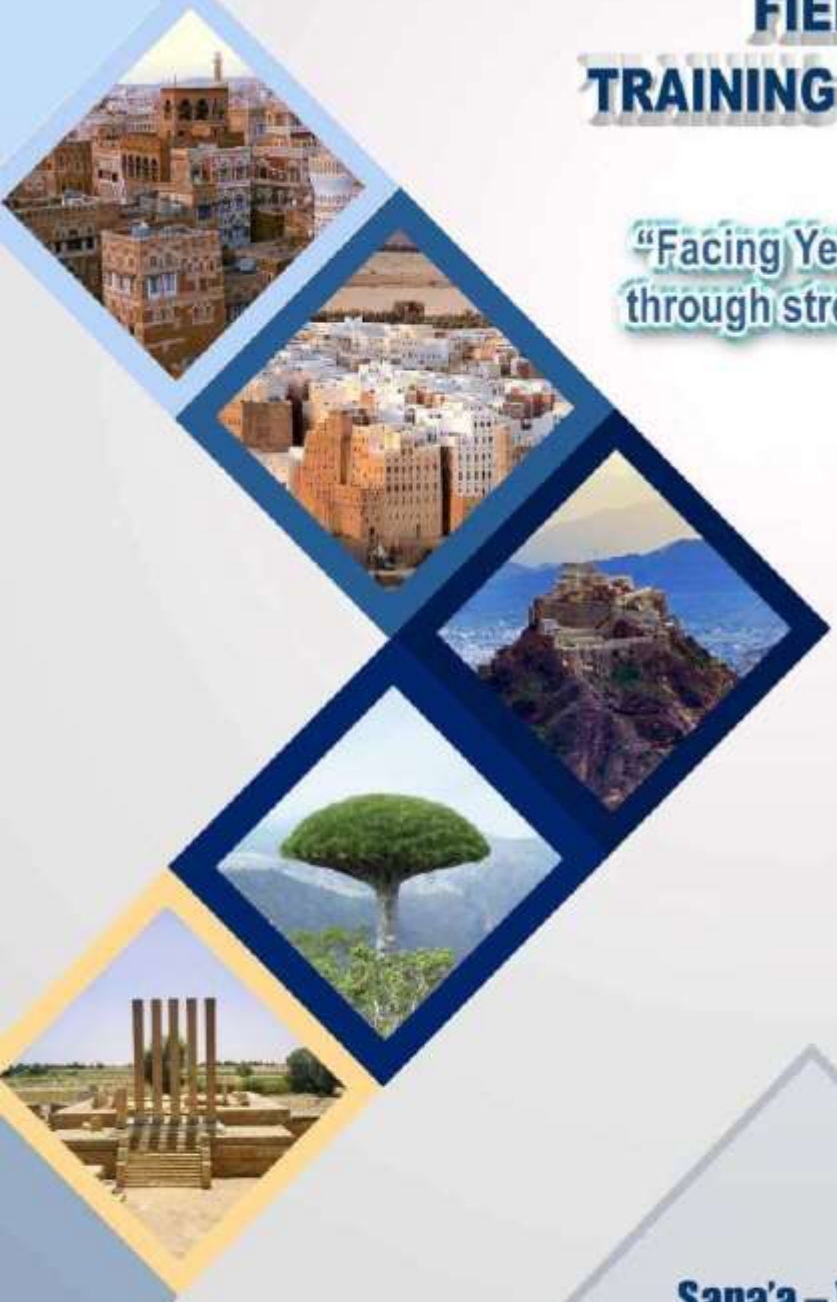
الإدارة العامة لمكافحة الأمراض والترصد

SECOND NATIONAL YEMEN FIELD EPIDEMIOLOGY TRAINING PROGRAM CONFERENCE

"Facing Yemen Public Health Challenges through strengthening Field Epidemiology"



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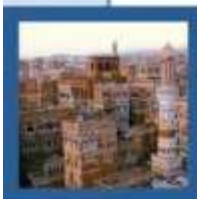
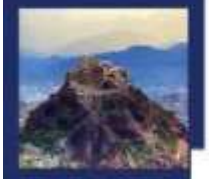
TEPHINET
Training Programs in Epidemiology and Public Health Interventions Network

Sana'a – Yemen
29 February 2016







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2016

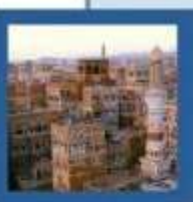




TABLE OF CONTENTS

1. Welcome messages

"Facing Yemen Public Health Challenges through strengthening Field Epidemiology"

Dear Conference Attendees

It is a pleasure for me to address the second conference for FETP and to congratulate the 2nd cohort for their graduation. They were selected after long process and passed all the evaluation steps to join this important training program. Building the national capacity is one of the top priorities in the national Strategy of the Ministry of Public Health and Population. Also, fighting and containing the communicable and non communicable diseases is another top priorities in that strategy. Therefore, to join these two strategies and to have a national training program in Yemen to provide the country with qualified Yemeni graduates that can help the country to control, eliminate or eradicate diseases is a great achieve. ment

As I know and you all know that this program was established in January 2011 and from that year till now, the country faced unbelievable crisis and hard situations in security, finance, power, fuel. -etc. I am very glad that this program was able to continue and keep following the residents and also to play important role in investigating outbreaks and give good recommendations to contain them

This program today is celebrating its 2nd cohort graduation and I strongly instruct the deputy minister for primary health care and the general directors in the sector as well as the general directors in the governorate heath offices to give the graduates from YFETP the first priority in disease control positions to get the highest benefit from the knowledge and experiences that they gained during their 2 years .of lectures and field work

I congratulate all the graduated residents and wish for Yemen and Yemeni people .the best future

Dr.Ghazi Ahmed Ismail
Minister of Public Health and Population
Republic of

Dear distinguished guests and participant

Yemen

"Facing Yemen Public Health Challenges through strengthening Field Epidemiology"

,Between 1994 and 2016

It is about 22 years, jn 1994, me, Dr.Mohammed Hajar, Mr.Mohammed Alfadheel, Dr.Abdulwahed Al Serouri, Dr Ali Assabri and some other public health specialists attended a short course in "outbreak investigation '" in the Central Public Health Laboratories CPHL The course was organized by CDC Atlanta. That was the first time I heard about FETP. In 1999, an international team for Stop Polio Transmission Initiative visited Yemen to help us to establish the disease surveillance system for Acute Flaccid Paralysis "AFP", I was surprised that among the team was a Yemeni lady from Rada'a, Albyadha governorate and she was working with CDC. Dr.Aisha Obad Joman is a name that YFETP will not forget because we together had a long discussion how to establish such important program in Yemen. The dream started in 1999 and we all now see how dreams became realities. Now in Yemen, we have 15 Yemeni holding FETP certificates. By today, the list -will include 8 more and 3 are expected to graduate in 6 months INSHA ALLAH

On 13th February, 10 new residents enrolled to the program. So, you can see that this program became a reality and one of the most important program in the ministry of Public Health and Population. Most of our graduates or residents are able to join any international conferences and compete with others for prizes. In the 4th Regional Conference for Eastern Mediterranean Public Health Net in Aqaba, Jordan in last September 2015, Dr.Eshraq Alfalahi from the 2nd Cohort was able to win the prize for best oral presentation in the .conference

These achievements would not have been without the strong political commitments from the minister and his deputy and the excellent technical and administrative team that I have -in this program
At the end I would like to thank our partners in this Journey from Dreams to Realities .namely CDC, WHO, EMPHNET and TEPHNIT

Abdulhakim Alkohlani
DG for Diseases Control and Surveillance
YFETP Director
Ministry of Public Health and Population
Republic of
Yemen

"Facing Yemen Public Health Challenges through strengthening Field Epidemiology"

Dear distinguished guests andparticipant

This is the 2nd cohort of the FETP which is started based on triple MOU between MOH, CDC and WHO. WHO consider this program is essential for Yemen to produce qualified staff in epidemiology. WHO is very proud of the high level of the professionalism of the graduates of the 1st cohort. The 2nd cohort is also given high level of tuition through the respected well qualified local tutors

WHO continues to oversight the field epidemiological training of the 2nd cohort and very supportive to complete their courses. WHO consider that this program merits to be very much supported especially amid this difficult prevailing situation and the country is in a dire need to continue equipping the participants of the due knowledge, skills and practice in the epidemiology especially that Yemen is experi.encing many different communicable disease outbreaks

WHO appreciates the level of the abstracts of the 2nd cohort which shows the .high level of training they receive

WHO is grateful for the administration and scientific coordinators of the FET P and .will not spare any efforts to support this program

Dr Shadoul, Ahmed
WHO Representative

Yemen

Aisha Obad Jumaan, PhD, MPH
consultant BEP/DOS
Coordinator Yemen Projects

I am delighted and honored to be writing about the graduation of the second FETP cohort. The Yemen FETP started in 2011 under very challenging times in Yemen and many expected that it would not succeed. However, the FETP thrived under the leadership of the Ministry of Public Health and Population, the technical expertise and administrative support of Yemeni nationals. Since March 2015, Yemen has endured a very sad and difficult period in the current Yemeni historywith the continuous bombing by Saudi and its allies, and a strangling blockade of Air, Land and Sea making daily activities for people in Yemen, including FETP staff and trainees a nightmare.

FETP program's staff and trainees had to work under very challenging environment including continuous electricity outages, fuel shortages, water shortages, and damage to basic infrastructure in Yemen including ports universities, electricity stations, water systems, schools, factories, roads, markets, communications towers, and food supplies. Moreover, the budget was limited during these hard times and prices for everything increased many folds. Some had their homes destroyed or damaged by airstrikes, others, had to move to relatively safer places, and some had to house internally displaces relative; over 2 million people are internally displaced, and all had to go to work under daily airstrikes . FETP officers had to continue to do their outbreak investigation in dangerous places and struggle to find fuel for their travel. Despite these unsurmountable challenges that would have broken any program, Yemen FETP survived and continued to do well, and in September 2015, launched its third cohort.

FETP officers in the second cohort completed their requirement with high excellence. This was reflected by the number of abstracts accepted at International and regional conferences. Nine abstracts were accepted in the highly competitive 8th TEPHINET Global Conference that took place in September, 2015 in Mexico. Due to the blockade and challenges in travel, FETP officers sent their video presentations. Nine abstracts were accepted for oral presentations at the 4th EMPHNET Regional Conference in Jordan, in November 2015. They attended the conference and Yemen FETP won two prizes, one for the best oral presentation and one for active participation. The technical advisor headed the Scientific Committee, presented a key note speech and led a roundtable discussion on Public Health in Emergency situations and presented a case study on Yemen current war situation

I salute the Yemen FETP program's staff and trainees for all the achievements that would not have taken places without dedication, resilience and commitment to the program of the staff and trainees. No program could have survived these hardships; yet the Yemen program did not just endure, but thrived and succeeded in competing with FETPs around the globe. Congratulations on your accomplishments. I know that Yemen will have a better future because you have proved that no matter the challenges, Yemeni spirit is able to defeat them and shine in the midst ofdarkness. I admire your spirit and resolve and wish you all the very best in your next endeavors.

Dr. Mohannad Al-Nsour
EMPHNET Executive Director

Dear Colleagues,

We at the Eastern Mediterranean Public Health Network (EMPHNET) are proud to see this conference come to life, as I believe that such conferences present a space for FETP residents, graduates, and public health professionals to share experiences, converse, and celebrate the significant achievements they have m

Furthermore, they present an opportunity for participants to discuss currently progressing public health issues and challenges in the region.

Therefore, I congratulate the Yemen FET P for the achievements they had made to date, and for their persistence to overcome all challenges they face.

Population health status in the EMR at large, and Yemen in particular is influenced by events and circumstances that challenge national health syst

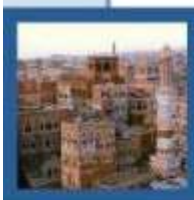
The high burden of non-communicable diseases, the spread of communicable diseases, the presence of emerging and re-emerging infections, and the growing threat to biosecurity are issues that challenge public health.

Furthermore, the presence of political conflict, humanitarian crises, natural disasters and other emergencies interfere with the provision and quality of healthcare services in most countries of our region, thus compromising population health outcomes and increasing the risk of disease outbreaks.

In times of increasing public health needs and diminishing reso to respond to public health challenges in the EMR and in Yemen in particular is essential. It requires enhanced public health capacity, which must be supported through collaboration and innovation among countries. EMPHNET is, therefore, proud to opportunity for information exchange that this conference provi the way forward towards better public health for the countries of this region.

It is my firm belief that we all learn from such exchanges. We revive our commitment to achieving excellence in public health for the EMR and global populations at large, and more importantly, we apply the knowledge and energy gained from such conferences to positively influence our missions in our countries.

I wish you all the success in your endeavors to come and I cong achievements you had made to date.








2. Yemen Field Epidemiology Training Program

a. Introduction

Yemen Field Epidemiology Training Program (Y-FETP)

Abdulwahed Al serouri, DTMH, M.Sc. Trop. Med, PhD
Y-FETP Technical Advisor

BACKGROUND

For more than 60 years, the U.S. Centers for Disease Control and Prevention (CDC) has been dedicated to protecting health and promoting quality of life, through the prevention and control of disease, injury and disability. Since 1980, CDC, through the Field Epidemiology Training Programs (FETP), has worked with ministries of health around the world, along with other partners, to strengthen national and local public health systems and to address the severe shortage of skilled epidemiologists worldwide. FETPs provide training in applied epidemiology to build a pool of public health workers able to use science and data to appropriately respond to public health threats, including polio, cholera, tuberculosis, HIV, malaria, and emerging infectious diseases of animal origin.

As part of their mission to strengthen public health systems globally, FET Ps also assist countries to meet their core capacity requirements for surveillance and response under the revised International Health Regulations (IHR, 2005).

FETPs are two year, in-service training programs modeled after the Epidemic Intelligence Service, an applied epidemiology training program created by CDC in 1951 . FETPs emphasize practical experience, with residents spending about 25% of their time in the classroom and the remaining 75% of time conducting mentored field work. The classroom instruction focuses on epidemiology, disease surveillance, outbreak investigation, and biostatistics. In the field, residents conduct epidemiologic investigations and field surveys, design and evaluate surveillance systems, collect and analyze data using appropriate statistical tools and METHODSs, report their findings to decision- and policymakers, and train other health workers- CDC typically helps support new programs by providing the Ministry of Health with an in-country resident advisor (RA) for 4 to 6 years. The RA provides essential mentorship and technical assistance and also develops curricula, teaches courses, and guides trainIng.

CDC has helped to establish over 41 FETPs that have trained more than 2,300 graduates from 61 countries. More than 80% of graduates stay in their home countries and many obtain leadership positions within the public health system.

Yemen FETP

The Yemen FETP program is a crucial program for the Ministry of Public Health and Population, The program started modestly with three trainees completing their second year in Yemen in 2011 after spending their first year in Jordan. The program

received strong support from the Minister of public Health and Population and a memorandum of understanding was signed by MOPHP, CDC and WHO paving the way for establishing the program in Yemen. Yemen FET P program was designed to develop the foundation for using epidemiological data for policy decision making.

The first cohort in Yemen of 12 officers started in February of 2012 after initial training in 2011. The cohort investigated many outbreaks leading to highlighting some of the emerging infectious diseases including dengue and chikungunya. They presented much of their work to the Minister and policy decision makers. They also analyzed surveillance data sets from multiple programs describing the epidemiology of the priority diseases in Yemen including malaria, measles, rubella, tuberculosis, schistosomiasis, rabies, cancer, and malnutrition, maternal and infant mortality. They submitted abstracts to scientific meetings, and presented at different international conferences (e.g. EMPHNET's Third Regional Conference held in Marrakesh, First Arab World Public Health Conference in Dubai, 7th TEPHNET, November 10-15, 2012 in Jordan), a testimony to the gained skills in scientific writings and communications. Finally, they developed and conducted research projects around Yemen answering important public health questions. They were successful in overcoming many challenges including the changes within Yemen, the lack of a resident advisor, and due to the frequent travel restrictions, inability to send in expert consultants to assist with the work. We are proud that many of them still supporting their successor Y-FETP residents and some of them become international consultants with WHO, and CDC-

The second cohort of 11 officers -who we are celebrating graduation of eight of them today and hope the remaining three who fled out of Sana'a due to the war will be graduated in the coming six months - started in January of 2014 after initial training in November 2011. This cohort has worked hard during some of the most difficult times in Yemen and managed to investigate many outbreaks leading to highlighting some of the emerging infectious diseases e.g. reporting of first case of Middle East Respiratory Syndrome Coronavirus (MERS-CoV) inApril 2014. They also presented much of their work to the Minister and policy decision makers. They also analyzed surveillance data sets from multiple programs describing the epidemiology of the priority diseases in Yemen including dengue, Leishmania, tuberculosis, schistosomiasis, rabies, cancer, and malnutrition. They submitted abstracts to scientific meetings, and presented at different international conferences (e.g. 8th TEPHINET Global Conference in Mexico, and 4th Regional EMPHNET Conference in Jordan) a testimony to the gained

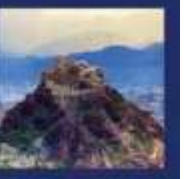
skills in scientific writings and communications. Finally, they developed and conducted research projects around Yemen answering important public health questions. We wish them bright future and to continue hard work to support their new fellows and Yemen health system-

Despite the current situation and difficult times all over the country, we are pleased to announce that the third cohort has been already enrolled in the program after their initial training in December 2015, and start their field placement from 1st of March

2015. We wish them best success in their placement and to build on what their colleagues of the 1st and 2nd Y-FETP cohort started.

Finally, I am proud to have been part of the extraordinary team including members from MOPHP, CDC, WHO, TEPHINET, and EMPHNET, without their support the Y-FETP would not be able to succeed or sustain in such difficult situation.
I am grateful for continuous support of dr. Abdulhakim Alkohlani, Y-FETP director and Aisha Obad Jumaan for their continuous support and backup. I would also like to mention dr Ali Assabri, the Y-FETP consultant epidemiologist the Yemen FET P administrative staff: Ms Nadhira Al-Saqquaf and Akram Ishaq, who provided support during some of the most difficult times in Yemen and who were behind the success of the Y-FETP.






b. SecondY-FETP cohort resident Photos

Awadh Mohammed Awadh Basaleh

Eshrak Naji Mohammed Al-Falahi

Fahd Mohammed Mohammed Al-Habel

Ghazi Saleh Awad Ba Shamakha

Mohammed Abdullah Manea Al-Amad

Mohammed Hasan Dhaif Allah Dahman

Nabil Mohammed Mahdi Al-Abhar

Qais Mojahed Morshed Jassar

Session f 2.40-13.00

Con erencePro am at lance

Monday 20 February 2016

	Description	Speaker
goo-0.05	O enin Ceremon	
u 05-0.10	V-FETP director	Dr. Abdulhakem Al Kohlani
0.10-0.15	Y-FETP residents representative	Dr. Eshrak Alfalahi/M.A1 Amad
0.15 -0.20	WHO Representative	Dr Shadoul, Ahmed
020-00.40	H.E. Minister of PHP	Dr. Ghazi Ismail
og,40 - to.oo	Graduation Ceremony	
10.00-11.20	Yemen Field Epidemiology Training Program Dr. A. W. Al Serouri	
	Session 1: Planned studies presentations (1)	
10 .OO-IO .20	Moderators: Abdul Salam Al Madani, Dr Abdulhakeem Al Kohlani, Prof Ali Assabri, Abdulnaser Al Robayi	
i 0.20-10.40	Pattern of road traffic injuries in Sana'a city, Yemen, 2015	Eshrak Alfalahi
0.40-11.00	2 Risk factors for defaulting from Severe Acute Malnutrition outpatient therapeutic centers, Sana'a city-Yemen, 2015	Mohammed Al Amad
-00-11.20	Knowledge and practices of Public health centers' physicians ou the National Policy for Anti-Malarial Drugs, Sana'a Capital, 2015	Fahd Mohammed M Al Habel
f I .20-lS 00	4, Knowledge and practice of biosafety among laboratory staff working in clinical laboratories in Sana'a city, Yemen, 201 5 es€ion anned studies presentations	Nabil Al-Abhar
1 120-11.40	Moderators:Dr. Nagiba A. Ghani,Prof. Ahmed Al Hadad, Dr. Ali Jahaf, Dr, Arwa Baidar	
i I -40-1 '2.00	5. Risk Factors for Breast Cancer in Hadramout Ghazi Ba Shameha Al Wadi-Vemen, 20M 2015.	
1 2.00-1 2.20	6 Risk factors of End-Stage Renal Failure (ESRF) Mohamed Dhanan among hemodialysis patients in Algomhory Hospitals- Saadah governorate-Yemen, 20/5	
f 2.20-12.40	Antibiotic Resistance: Knowledge, Attitude, Awad Basleh and Practices among Mukalla Hospitals Physicians, Hadhramout- Yemen, 2015	
	S Risk factors for acute lower respiratory tract Qais M. Jassar infection in under five children, Amran governorate hospital-Yemen, 2015 Closing	

3. Executive summaries by track

a. Descriptive Analysis of Public Health Surveillance Data

HINI Surveillance Data Analysis Yemen 2009-2013

Awadh Mohammed Ba Saleh
Site Supervisor: Ali Al Mahagry

During 2009, the World Health Organization declared the first influenza pandemic of the 21 st century. In Yemen, a country lab-based surveillance system for Influenza Like Illness (Il-I) and Severe Acute Respiratory Illness (SARI) with weekly sampling and reporting was established in 2009. This system was necessary for early detection of emerging novel influenza subtypes and timely response for influenza prevention and control. The aim is to describe the major epidemiological characteristics of H INI over the period of 2009-2013

We reviewed the surveillance data on influenza A (HI N 1) from 8/2009 to the 31/12 2013 where direct reporting and nasopharyngeal swabs collected from each suspected case and sent to National Public Health Laboratory Center in Sana'a. The following variables were collected: gender, governorate, nationality, date of taking swab, date of receiving swab, symptoms, result for both influenza A and HINI virus- The diagnosis was confirmed by RT-PCR.

4,347 samples were collected during 8/2009 to 31/12/2013. The attack rate dropped from 6.3/100.000 in 2009 to 0.3/100000 in 2013. Males to females ratio was 39, 47% were among age group 11-30 years, and 49% of cases from Sanaa governorate. The most common symptom were fever (23%) and cough (22%). 72% of total cases reported during months of October to December.

In conclusion, data confirm that HINI epidemic occurred in Yemen in 2009 that coincides with the international trends. The dropped after 2009 may reflects success of control measures and regression of pandemic however; recession of surveillance activities thereafter could not be excluded. Therefore, strengthening of ILI/SARI surveillance system is highly recommended and quality should be addressed to improve early outbreak detection and response. This can only be achieved through ensuring availability of the necessary human and logistical resources.

Intergraded Management of Childhood Health Program Training activities data analysis, Yemen, 2002-2014

Awadh Mohammed Ba Saleh
Site Supervisor: Najeb Alqubati

Integrated Management of Childhood (IMCI) strategy is an integrated approach to child health that was launched by WHO and UNICEF in the mid 1990s and focuses on the well-being of the children under five years of age. In Yemen, the IMCI strategy endorsed in 2000 and first facilitators training launched on Sep-Oct 2002. The purpose is to provide decision-makers with evidence-base data

on current IMCI training activities that will help establishing a new training strategy.

We analyze data on training available at the [MCI program from 1st Jan 2002 to 9th Sep 2014 by time, place, person, type of training and funding agency.

7 ,447 were trained during from 1st Jan 2002 to 9th Sep 2014. The trainings' trend shows wide fluctuation where only 2% trained in 2011 compared to 18% trained in 2008. Similarly, coverage of training activities is varied widely along governorates where it is highest in secure and accessible governorates (e.g. Taiz and Ibb) and lowest in remote and insecure governorates (e.g. Shabwah and Saadah)- Females constitute only less than one third of trained taskforce- The largest training funding share comes through UNICIF (42%) and Social Fund for Development (25%) compared to only one percent from the government.

In conclusion, IMCI program need to revisit its training targeting strategy in order to have to have a sound gender training targeting strategy that prioritize remote and insecure governorates. The fact that IMCI trainings are mainly funded through donors, may explain wide trend fluctuation and raise issues about the sustainability of these trainings activities as well as the IMCI program as a whole. Therefore, the MoPHP with donors' community should agree on a more sustainable financial plan that will enable the program to launch its new strategic plan with gradual withdrawal of donor support and taking-over by government.

Antibiotic Resistance Profiling of Blood Stream Bacterial Infection, National Center of Public Health Laboratories-Yemen, 2012-2014

Awadh Mohammed Ba Saleh
Site Supervisor: Ali Al Sumeny, Taqia Al Mwaid

Antibiotic resistance (AR) of blood stream bacterial infections (BSBI) remain a great growing public health concern as it may leads to treatment failure, increase mortality and cause outbreaks. In Yemen, there are reports about overuse/misuse of antibiotics, which can aggravate AR. The aim is to describe AR among cultured blood samples at the National Center of Public Health Laboratories (NCPHL).

Data on blood culture and sensitivity test results available at the Microbiology Unit at the NCPHL from 1st January 2012 to 1st January 2015 were analyzed.

Of the 2,375 blood cultures, 146 (6%) yielded bacterial growth. The most frequently found microorganisms were coagulase-negative Staphylococci (35%), Staphylococcus aureus (16%), Klebsilla (13%) Pseudomonas (9%) and Enterobacter (8%). Overall, the following five antibiotic have the highest resistance: Cefadroxil (91%), Cefixime (88%), Cefaclor (82%), Aztreonam (78%) and Ampicillin (76%). Coagulase-negative Staphylococci found to be mostly resistant to Cefixime (92%), Co-Trimoxazole (83%), Erythromycin (79%), Carbenicillin (78%) and Ceftriaxon (74%). Staphylococcus aureus found to be mostly resistant to Ceftizoxime (90%), Gentamicin (83%), Ampicillin (78%) Amoxicillin (78%) and Cefurexime (71%). Klebsilla is resistant to Augmentin (100%), Ceftazidime (100%), Piperacillin (100%), Cefapime (100%), Netilmicin (90%). Pseudomonas was resistant to: Carbenicillin (100%), Tobramycin (100%), Azlocillin (83%), Gentamicin (83%) and Co-Trimoxazole (80%). Enterobacter is also resistant to Co-Trimoxazole (100%), Ceftizoxime (100%), Cefotaxime (100%).
Findings highlight the increasing problem of AR in Yemen. Results should provide important information for guiding empirical antibiotic prescribing and emphasize the need for generating strategies for controlling resistance. It also underlines the need to establish a surveillance for BSBI and antibiotic stewardship to minimize selection pressure and spread. Infection control measures should strengthened especially at health facilities.

Analysis of four injury-reporting data sets at the Ministry of Public Health and Ministry of Interior -Yemen, 2012

Eshraq Nagi Alfalahi
Site Supervisor: Osan Ghazi

Injury is a leading cause of death worldwide. Globally more than nine people die every minute from injuries or violence and 5.8 million people of all ages and economic groups die each year from both unintentional and violence related injuries. In the Eastern Mediterranean region, injury is a leading cause of death, especially traffic collisions. Yemen has been included in the global status report on road safety 2013, where it recorded a mortality rate of 23.7 deaths per 100,000 populationl. Unfortunately, there were no data available for deaths by road-user category. There is no available valid data on the disabilities from the traffic collisions. The aim is to raise awareness about the size and importance of injury problem in Yemen and help decision makers to establish an integrated injury surveillance system.

Four different sets of data for the year 2012 analyzed, Two sets are from the Ministry of Public Health and Population (Ambulance Services on the Highways (ASH) and Violence Injury Prevention (VIP) program) and the other two are from the Ministry of Interior (Traffic Department (TD) and Security and Justice (SJD) Department). Although every system is reporting and recording separately and independently from each other, and different variables were collected (e.g. sex, place, severity of cases and type of injury-causing event), we tried to clean collected data in a comparable way as much as we can. Total accidents and casualties rates estimated per 100,000 population.

Deaths, severity rates estimated per 100 casualties, using population estimates of Yemen provided by the statistical yearbook 2012 by central statistical organization; estimated total population was 24,527,000 million.

There is clear conflict in the results from the different sets of data on which governorate has the highest rate of injury-causing events e.g. Abyan for the ASH Sana'a city for VIP, Mareb for the traffic department. However, there is an agreement among them that inter personal violence is the most affecting injury-causing event followed by traffic collisions. While it was difficult to decide, what is the most fatal event or what is the most affected age groups due to inconsistency on variables reported, according to VIP males and adults found to be more affected. There should be an integration between the two programs in the MOPHP, starting with unifying the reporting form and the source of data collection. There must be a multi-sectorial agency leaded by MOPHP with clear collaboration in the reporting mechanisms and the preventing protocols. The integrated program should hire experts in injury surveillance to help establishing scientific based system

20

Chronic Non-Communicable Diseases situation analysis, Yemen, 2014

Eshraq Nagi Alfalahi
Site Supervisor: Hatem Abo Hatem

Chronic Non-Communicable Diseases (CNCDs) are still at the top of the global concerns of this millennium. They rank the highest among different mortality causing conditions worldwide. Their global burden still in increase as they caused 67 8% of the total deaths worldwide in 2012 in comparison to 59.6% in 2000. The leading causes of CNCDs attributable deaths are Cardiovascular Diseases (CVDs) that is causing 31.4% of all global mortality and malignant neoplasms that is leading to 14.7%

We conduct a situation analysis to enlighten the CNCDs situation in Yemen by approaching a Strength, Weaknesses, Opportunities and Threats (SWOT) analySIS.

We reviewed local published studies, Yemen statistical yearbook of 2013, NCDs program documents, and financial documents of the Ministry of Public Health and Population (MOPHP) as well as documents of the main CNCDs in Yemen (i.e. CVDs registry, Cancer registry and Diabetes data) where it were analyzed into tables and figures to spot the current situation.

The situation analysis revealed many weak sides and challenges facing non-communicable diseases (NCDs) prevention and control. Most important one is that the program is not yet under the hierocracy of the Ministry of Public Health and Population (MOPHP) and depends completely on the technical and financial support of the WHO and El-J. There is absence of NCDs database at the MOPHP and poor documentation of the current situation. Furthermore, in spite of the scattered researches done, the results are non-conclusive and cannot be generalized as none of them was population based. One great opportunity for the program is the currently prepared national strategy for NCDs prevention and control as well as the upcoming STEPS national survey for the top NCDs.

This situation analysis is a key step in documenting the current situation of the NCDs in Yemen. It shows that the program is facing critical situation regarding achieving its objectives due to poor documentation. Therefore, further steps to enhance researches and conducting NCD national survey are prerequisites. The action plan for the NCD strategy should put in place and adopt a department for the NCDs prevention and control in the ministerial hierocracy instead of continuing to be a donor-driven program.

Pattern of Onchocerciasis (Sowda) -Yemen, 2010-2013

Fahd Mohammed Al Habel

Site Supervisor: Abdulhekem Al Kohlani

Onchocerciasis is one of the neglected tropical diseases. 37 million people are infected worldwide and another 100-120 million at risk. Although Yemen is the only country in the Eastern Mediterranean Region has Onchocerciasis, where over 75,000 persons are infected and over 400,000 at risk, still there is no national Onchocerciasis surveillance system. In Yemen, Onchocerciasis knows as Sowda, which is a severe reactive form of Onchocercal dermatitis. The aim is to assess the epidemiology of Onchocerciasis in Yemen using data available at Charitable Society for Social Welfare (CSSW) during 2010-2013.

A soft copy of the 2010-2013 Sowda data for the selected endemic areas in five governorates (Al Mahaweet, Hodeida, Sana'a, Hajja and Rema'a) obtained from CSSW. Data were available on sex, age, new/old manifestation, and number of distributed Ivermectin tablets.

During 2010-2013, the average rate of the new treated cases of Sowda is 63 per 1000 eligible population at the selected areas. New cases represent 20 % of total cases where the age group > 15 years is mostly affected with no gender difference. Al Mahaweet governorate is the most affected governorates. The old cases were receiving on average Ivermectin tablets, 2 - 3 times per year with one-fourth dropout during 2010 — 2012 compared to one-tenth in 2013.

In conclusion, Sowda is still an important neglected public health problem in the west south valleys. Piloting a new community based surveillance system with clear case definition is recommended. The Ministry of Public Health and Population should lead the Onchocerciasis eradication efforts in partnership with other governmental organizations and NGOs that are working at the community level via multi-sectorial corporation.

Pattern of animal rabies-Yemen, 2005-2013

Fahd Mohammed Al Habel
Site Supervisor: Abdul-Rahman Al-Khateeb

Rabies is a zoonotic acute viral infection of the central nervous system that causes encephalitis, with a human fatality rate of nearly 100%. Yemen is classified as endemic country for rabies where in 2013, 12,000 cases were reported to be bitten mostly by dogs with 48 deaths. The aim is to assess the epidemiology of animal rabies in Yemen using data available at the Central Veterinary Laboratory (CVL).

We analyzed data on animal brains samples tested at CVL in Sana'a, for the years 2005-2013. Data was available on animal brains samples' results, animal type, and

governorate name. The number of human and animal victims only available for 2010-2013.

Out of 4,362 animal brains samples tested, 76% found to be positive where the trend varies between 73% in 2005 and 86% in 2011. Dogs represent 97% of total tested animals of which 77% were stray. Positive brains samples was significantly higher among stray than domestic dogs (80% vs. 59%, P <0.0001) and in Amran (78%) and Sana'a and Dhamar (76%) governorates. The victim to animal ratio was 1.4 where humans represent 97% of the victims.

In conclusion, rabies is still an important neglected public health problem in Yemen where the surveillance data may only shows the tip of the iceberg. Strengthening rabies surveillance system and multi sectorial cooperation between veterinary and health authorities is a prerequisite for success of any rabies control strategy. It is essential to launch control strategy for stray dog and introduce vaccination for domestic dogs.

Descriptive analysis of Moderate Acute Malnutrition Program beneficiaries, Sana'a-Yemen: 2011-2013

Fahd Mohammed Al Habel
Site Supervisor: Lina Al Eryani , Khalid AL Kodemi .

Sixty percent of all under five children deaths is caused by malnutrition where two third of them occur in the first six months of life. Yemen is the world's eighth most food-insecure country and malnutrition rates among under five children is one of the highest rates in the world. The Ministry of Public Health and population considers malnutrition control the second priority in its strategies and policies.

We analyze 2011-2013 data on beneficiaries of the moderate acute malnutrition (MAM) Program by time, place and person. This will serve as base line to enhance further studies, strength surveillance and multi-sectorial coordination, and provide recommendations for decision makers to improve MAM Program outcomes.

During 2011-2013, 1,687,724 beneficiaries were received preventive and treatment foods where 89% of them was in Al Hudayda, Hajjah and Amran. The quantity of distributed food increased by two and half folds from 2011 to 2013. Out of the overall beneficiaries, 70% was children under five and the rest was pregnant and lactating women. The highest percentage of under 5 beneficiaries was in Al Hudayda (32%) and only 26% was suffering from MAM. 73% of targeted women beneficiaries was pregnant during 2011-2012.

In conclusion, MAM Programs through targeting under five children and pregnant and lactating women is providing key strategies for the child survival in Yemen. Therefore, it is important that its strategies should concentrate on preventive approach (e.g. early detection and intervention on MAM) that will

have more impact on decreasing morbidity and mortality. Improving targeting strategies and regular food distribution to guarantee coverage of all districts of the targeted governorates regularly should be a priority. Simplifying reporting system and improve its quality and collecting segregate data and outcome indicators are mandatory

Yemen Schistosomiasis Control Project Impact Evaluation survey analysis,

Sana'a, Yemen, 2014

Fahd Mohammed Al Habel

Site Supervisor: Abdulhakim Alkohlani, Sami Al Hidri, Adel Muaydh

Schistosomiasis remains a major public health problem where more than one billion is at risk, with almost 240 million infected, and more than 90% of them living in sub-Saharan Africa, requiring preventive chemotherapy- In Yemen, Schistosomiasis is a significant public health problem where three millions are infected. .6-year Yemen Schistosomiasis Control Project (SCP) was launched in 2010 We analyzed available SCP Impact Evaluation Survey (IES) data, 2014- The aim is compare both district prevalence and intensity of schistosoma infection to the Project Outcome indicators. Findings will help the decision makers in identifying .priorities and planning for further interventions

The prevalence of Schistosoma Mansoni (SM), Schistosoma Haematobium (SH) found to be 5.9%, 3.4% respectively. Both types are common among 10-14 years age group and significantly more prevalent among males. Out of the 37 surveyed districts, 26 districts found to have SM, 17 have SH and out of them 12 have both. While SM prevalence _is still high endemic in Al Nadirah district, mesoendemic in 6 districts and low endemic in 19 districts, SH is still mesoendemic in 5 and low endemic in 12. Regarding the intensity of infectiont 16 districts have moderate to .heavy SM infection compared to 12 districts that have heavy SH infection

In conclusion, the impact evaluation survey showed marked drop in prevalence of SH and SM, which most probably due to repeated mass chemotherapy campaigns that, was conducted by NSCP. However, still there are foci of high endemic and mesoendmic districts that needs further interventions. We recommend implementing Campaign-based Preventive Chemotherapy according to prevalence level and strengthening intersectorial coordination, IEC, Community mobilization, and -routine chemotherapy

Dengue Surveillance data Analysis, 2010-2013

Ghazi Saleh Bashamakha

Site Supervisor: Hamood Al Shameiry

Dengue fever (DF) described as a "neglected" tropical disease due to the lack of global coordination efforts, researches and political will. It's an acute viral infection transmitted to humans through the bite of an infected adult female Aedes aegyptic mosquito. Since 2002 outbreaks and sporadic cases of dengue reported in some governorates of Yemen, the DF was first confirmed in Shabwa governorate in early 2002

The analysis was carried out in January 2014 through revising records of all dengue cases from January 2010 - December 2013 available at the national dengue program, first cohort YFETP, national public health laboratory centers in Sana'a and its branches in Aden, Al Hodeiday Taiz, Al Mukalla and Seiyun, Which include: age, sex, governorate of residence, clinical picture, diagnosis and final laboratory confirmation. Blood samples were collected for lab confirmation using Elisa lgM and lgG. Data analysis performed using Microsoft - excel and EPI-INFO.

Total number of cases was 5,762 reported cases, 5,613 met criteria for dengue fever and 149 cases met criteria for dengue hemorrhagic fever. Dengue fever found to be significantly higher in males than females (57%: 43%), and among age group 16— 30 years. More cases reported from Aden, followed by Al Hodeida and Al Mukalla in Hadramout governorate. Annual incidence rate differs by years was 14 [100,000, 1/100,000, 6/100,000, 3/100,000, in 2010, 2011, 2012 and 2013 respectively.
Out of 1873 blood samples, 850 cases (45%) were lgM positive, 1183 cases (63%) were lgG positive and 120 cases (6%) were negative for both lgM + lgG.

In conclusion, dengue has shown a seasonal tendency evidenced by an increase in cases during the epidemiologic weeks 15 — 31 , coincides with rainfall & accumulation of water in containers in the last 4 years in Yemen. Outdoor biting is likely as more young males were affected. Aden recorded more cases due to large outbreak in 2010. Al Hodeida governorate is more affected with outgoing and large-scale outbreaks due to high vector circulation (Aedes Aegypti). Therefore, increasing awareness on the community level and training of doctors and health workers and DF must be considered as a differential diagnosis for any acute febrile illness. Training of physicians on dengue surveillance as well as diagnosis and treatment to avoid miss cases of dengue.

Head and Neck Cancer registry data analysis, National Oncology Center, 2012

Ghazi Saleh Bashamakha
Site Supervisor: Abdullwahhab Al Nehmi

Head and Neck cancer (HNC) is common in several regions of the world. In 2012 700,000 persons have been diagnosed and more than 370,000 died of HNC. In Yemen, oral cancer and nasopharyngeal cancer represent substantial national health burdens with different distribution across governorates.

We used the 2012 National Oncology Center (NOC) cancer registry to describe the epidemiological characteristics and disease burden of HNC by person, place and time. As the diagnosis was codded according to International statistical classification of disease and related health problems (ICD- 10) we translate these codes into full diagnosis name. Data analysis performed using Microsoft - excel and EPI-IN-

In 2012, the total number of HNC attended the NOC was 516 where males slightly accounts for more than half of cases. The median age at diagnosis was 55 years with inter-quarter range 41 — 66 year and two thirds of cases were 50 years and above. Nasopharyngeal cancer accounts for more than one third of total HNC and tongue cancer for more than one fifth. Squamous cell carcinoma account more than half of cases (55%) followed by carcinoma undifferentiated that account for 18%. Al Hodeida governorate accounts for one fifth of all HNC cases, followed by Hajjah that account for 12%. Less common affected governorates were Mareb and Shabwa. While oral cavity cancers is higher in Al Hodeida, Hajjah and Dhamar governorates, nasopharyngeal cancer is slightly higher in Taiz.
In conclusion, the NOC should consider HNC as priority and target those at higher risk (e.g. more than 50 years old in Al Hodeida, Hajjah governorates) through early detection and treatment as well as health education to stop bad smoking and chew: ing habits. A community based prevalence survey should be conducted- Setting up a surveillance system for cancer diseases is highly recommended where additional risk factor variables should be collected and included to data base. A case control study is worth to be conducted to identify risk factor of HNC-

27

Integrated Management of Childhood Illness Program Services Coverage,
Yemen, 2002 - 2014

Ghazi Saleh Bashamakha
Site Supervisor: NajeebAI Qobati

Globally, mortality among children below the age of five years reach ten million every year of which 70% were due to illnesses such as pneumonia, diarrhoea, measles, malaria or malnutrition. 70% of these deaths occur in developing countries. Yemen is still has a high CJ5MR of 53/11000 live birth as per 2013 mostly due to diarrhea, and respiratory infections.lntegrated Management of Childhood Illness (IMCI) is an integrated approach to child health that focuses on the well-being of the whole child and aims to reduce death, illness and disability, and to promote improved growth and development among children under five years of age. Yemen was among the first countries of EMRO, which implemented IMCI-

IMCI program data from 2002 to 2014 that contain variables such as demographic data of trainee, number of trained health facilities and year of trained was used. Data cleaning was performed through sorting different variables, removing duplication, filling missing data by revising hard copy and correcting some incorrect names of district and health facilities. Simple descriptive analysis by time, place and person was done using Excel and Epi Info.

By the end of 2014, out of 4208 health facilities3819 (91%) were implementing IMCI i.e- have at least one trained cadre. While 100% of health facilities in Taiz, Ibb, Hajja, Al Mahwit, Dhamar, Sana'a and Al Dhal'a are implementing 'MCI, only 29% in Sana'a city and 35% Al Jawf are. The highest number of health facilities that start implementing IMCI was 868 in 2008 compared to only 45 new health facilities in 2011. Out of 29, 606 health cadre, only 71772 (26%) were trained in IMCI of them two third are males. While one out of three males cadre was trained only around one in five femaleS cadre was- While Taiz (2,253) and Ibb (1 774) has the highest number of trainees (2,253 and 1,774 respectively), Al-Mahwit (67%) and Hajjah (51 %) have the highest percent of the trained cadre.

Therefore, the IMCI should update regularly its list for health facilities and cadre to monitor the coverage. During trainings, a form need to be filled for each trainee with all necessary variables (e.g. gender, facility name) to facilitate data entering and analysis. IMCI program should prioritize low coverage governorates by training- Program evaluation is worth to be conducted to assess the performances of trained health workers and health facilities implementing IMCI in Yemen.

Hepatitis B virus infection among blood donors and attendants screened at National Central Public Health Laboratory, Sana'a, Yemen, 2010-2013

Mohamed A. Al Emad
Site Supervisor: Ali Al Sumainy

More than 2 billion people are infected with hepatitis B virus (HBV) worldwide and approximately 240 million of them at risk of death from cirrhosis and hepatocellular carcinoma. In the Eastern Mediterranean Region 4.3 million people are estimated to be infected annually Yemen is one of the five countries of the region, which considered at high risk of HBV infection. Although many epidemiological studies reported varied hepatitis B prevalence ranged from low to high level in different Yemeni cities, still there is no national surveillance system for HBV in Yemen.

Data on HBV at the virology department in the National Central Public Health Laboratory (NCPHL) using HBsAg screening test results during the period of 2010 to 2013 is used.

45,404 HBsAg screening tests at Sana'a NCPHL were performed during 2010 to 2013 where three quarters were among NCPHL attendants screened and one quarter for blood donors. The overall HBsAg prevalence is 5.7%, which is significantly higher among NCPHL attendants screened than blood donors (7% vs. 2%, $P < 0.0001$), among adult (216 years) compared to children 15 years): 8% vs. 0.5%, $P < 0.0001$, and among males than females: 8% vs. 5 $^{0}/0$y $P < 0.0001$ respectively. There is 2% reduction in prevalence from 2010 to 2013 among all age groups with vanishing of HBsAg among children 1-15 years during the last two years
2012-2013.

Our findings shows that the overall prevalence of HBsAg lies within the moderate endemicity. The disappearance of HBsAg among children 1-15 years during the last two years 2012-2013 could reflects the positive impact of introducing HBV vaccination program during last decade. Establishment of HBV surveillance system and electronic network between NCPHL and its governorates' branches are recommended for the improvement of hepatitis B information system.

20

Severe Acute Respiratory infection surveillance analysisYemen, 2011-2014

Mohamed A. Al Emad
Site Supervisor: Ali Al Mahaqri

In 2010, influenza surveillance staned in Yemen after HINI influenza outbreak. Ministry of Health in collaboration with WHO and Naval Medical Research unit Number 3 (NAMRU3) established two sentinel sites for Severe Acute Respiratory Infection (SARI) at the Ovo main public hospitals in Sana'a and Aden. The aim is to describe SARI epidemiology and provide recommendations for improving its surveillance and preparedness.

From January 2011 to November 2014 SARI, epidemiological data of the two SARI sentinel sites was analyzed. SARI samples were tested by the Real-Time-PCR assay.

There are 1,665 SARI cases of which 64% from Aden, two thirds were below the age of two years, 48% were males, 24% has chronic diseases and 33% was admitted to the intensive care unit. Overall fatality rate was 10% which significantly higher among patients from Aden than Sana'a sites (14% vs. 3%, P <0.001). 1299 (78%) samples were tested where influenza viruses were confirmed in 67 (5%); of which 41 (61%) was type A and 27 (39%) was type B Non-influenza viruses were detected in 39% (509) of samples including 246 (48%) Respiratory Syncytial Virus and 99 (19%) was Adenovirus. The Non-influenza virus was significantly higher among females than males (59% vs. 41%, P <0.01) and in Aden than Sana'a (54% vs. 46 ^{0}/01 P value < 0.01 The case fatality rate among non-influenza cases was 11% compared to 6% among confirmed influenza.

Our findings showed that most SARI cases was of non-influenza type with higher mortality, which necessitate prompt diagnosis and treatment. Expanding SARI surveillance to include more public and private hospitals in different governorates is recommended to give more comprehensive picture. Further studies to better understand gender and geographical differences are needed.

Leishmania surveillance System Data Analysis, Yemen 2013

Mohammed H. Dahnan,
Site Supervisor: Ali Al-Mahaqri

In spite of the world annual estimated occurrence of cutaneous leishmaniasis (CL) of 1.1 million, CL is still considered as one of the neglected disease. In Yemen, the last decade witnessed progressive increase in CL incidence and several outbreaks reported from different governorates. The objective to describe the epidemiology and trend for CL in Yemen for the year 2005-2013.
We analyze the surveillance data available at the National Program for Leishmania Control (NPLC) for the year 2005 to 2012. The NPLC adapted the WHO leishmania case definition. Currently no electronic database for leishmania is available and only total numbers of cases are reported. Data on age and gender was only available for the year 2013 from some governorates. Population estimates were obtained from the Central Statistical Organization to calculate the incidence rates.

The overall CL incidence rate (IR) increased from 10 per 100,000 in 2005 to 13 in 2013. However, the highest IR found in some governorates where it coincides with reported outbreaks e.g. 156/100,000 at Rimah in 2006, 72 /100,000 at Shabwah in 2009, and 78/100,000 at Sayoun in 2011. 31312 cases were reported in 2013 where male to female ratio was 1.3 and the most affected group was 5-14 years. In 2013, Aldhale'e, Lahj, Sayoun, and Sa'sdah had the highest IR of 49, 42, 37, and 33 per 100,000 population respectively.

In conclusion, irregular reporting system where only aggregated numbers of cases are reported together with weak diagnostic capacities at the health facilities and laboratories are important challenges for Leishmania surveillance System. Therefore, improving reporting through frequent feedback and strong supervision, upgrading laboratory capacities, and training health workers on proper diagnosis are recommended. Including Leishmania in the Integrated Surveillance System and Response should be considered.

31

Analysis of the first pilot Student Health Records Sana'a-Yemen, 2014

Mohammed H. Dahnan
Site Supervisor: Bushra Mufdal

School health is crucial to build a healthy acting and responsible community. In Yemen, Student Health Records (SHR) for newly enrolled schoolchildren has been introduced in 2014 in three pilot governorates- The aim is to identify common health problems reported in SHRY weaknesses in documentation, and make recommendations for improvement before scaling up.

We randomly selected 10 schools out of 23 schools that launched SHR in Sana'a City. All SHR records from the selected schools were entered in a predesigned computer format, cleaned, coded and analyzed.

Among the 839 SHR, there was unexceptionally high recording of certain diseases e.g. two thirds found to have urinary tract infection and 63% have dental caries. Furthermore, out of 96% SHR records reported height and weight, 95% of schoolchildren found to be undenueight and out of 90% records reported Hemoglobin, 77% were anemic. Seven percent of schoolchildren had low visual acuity. Among the 89% of schoolchildren who had a stool analysis, 46% and 38% had giardiasis and amebiasis. Nevertheless, only 40% of SHR reported vaccination status, 11% recorded family history, and none reported hearing acuity.

Findings shows that despite that SHR is a corner stone in schoolchildren' health care, poor quality SHR recording together with improper anthropometric and laboratory measurements may limit greatly its value. Therefore, in order to get the best use of SHR and before scaling up, it is crucial to ensure proper quality recording as well as accurate measurements taking through training of responsible health workers. Upgrade laboratory capacities to ensure correct diagnosis (e.g. anemia, UTl) is an essential Developing a referral system for right diagnosis and correction of certain disorders (e.g. hearing and visual acuity disorders) is vital.

32

Analysis of sickle cell and thalassemia data at the National Central Public Health Laboratory-Yemen, 2013

Nabil Mohammed Al Abhar

Site Supervisor: Nadem Ismail

Sickle cell and thalassemia diseases are hereditary hemoglobin disorders that are widely spreading in Yemen and pose a remarkable health burden on health system and psychological burden on patients and their families. However, there is no national control program in Yemen for sickle cell and thalassemia or surveillance system.

The objective of the present analysis is to get a picture of sickle cell and thalassemia using the available data at National Central Public Health Laboratory (NCPHL) during 2013 and the aggregated data from 2007 to 2009 and 2012 to describe the trends of sickle cell and thalassemia anemia.

1858 patients were investigated for Hemoglobin electrophoresis during 2013. Prevalence of sickle cell major (HbSS) and sickle cell trait (HbAS) is 10 and 9% respectively. For thalassemia the prevalence is 2% for thalassemia major (HbF) and 3.7% for thalassemia trait (HbA2).). While sickle cell disease is higher in Al Hodeidah, Taiz, Raymah, Almahwit and Hajjah, thalassemia is higher in Hajjah and Raymah. Hodeidah.

In conclusion, sickle cell and thalassemia seems to be an important public health problem in Yemen that could lead to a significant mortality because it decreased survival to adulthood. Therefore, a National Control Program for sickle cell and thalassemia disease needs to be established. All data must be computerized and all variables must be completed in order to make analysis more accurate. In order to reveal the exact prevalence of sickle cell diseases and thalassemia and better designed the intervention there is a need to conduct a national community based survey. A pre marriage-screening test for sickle cell and thalassemia should be encouraged through awareness raising campaign and proper legalization

Comparison of the Integrated Diseases surveillance Response system and Communicable Diseases Surveillance system, 2013-014, Yemen

Nabil Mohammed Al Abhar
Site Supervisor: Moha Obadi

Yemen has adopted the Communicable Diseases Surveillance (CDS) system in the year 2000. However, some reports indicated that such system is inefficient due to weak reporting system. Therefore, Ministry of Public Health and Population (MoPHP) adopted an Integrated Disease Surveillance and Response (IDSR) strategy in 2014 to strengthen selected priority diseases surveillance system.

We compared the CDS and IDSR systems through analysis of the reported data for first 26 weeks (W) of the years 2013 and 2014 respectively.

The analysis shows an overall 70% increase in diseases reporting in IDSR compared to CDS where it reach its maximum in WI 5. However, the IDSR reporting dropped sharply after W 15 to reach less than 10% in W26 compared to WI 5. Furthermore, there are still lack of reporting from some governorates

e.g. Taiz and Adhali due to weak cooperation and security situation. Upper Respiratory Tract Infection (I-JRT l) was the first and Lower Respiratory Tract Infection (LRTI) was the third in IDSR, 2014 while it was not included in the reported diseases list in the CDS, 2013.
In conclusion, although the IDSR shows an overall increase at the beginning due to increasing notification sites and regularity of reportingy there was a drop in reporting after W 15. This may reflects poor supervision and feedback from the central level and lack of interest from peripheral level caused by delayed released of incentives together with time consuming reporting process due to long disease list. Therefore, we recommend that MoPHP supported by donor agencies (e.g. World Health Organization) should give more support and interest in the IDSR system through strengthen capacities in data analysis and information use for action with regular monitoring and use the lessons learned for scaling up. Strengthening supervision and feedback from central level is necessary together with more training for health facility staff. In order to strengthen the integration and unifying reporting, the list of reported diseases should be reviewed and agreed upon by different surveillance systems and vertical programs

Epidemiology of intestinal parasites and Schistosomiasis in schoolchildren- Yemen, 2014

Nabil Mohammed Al Abhar
Site Supervisor: Adel Muaydh, Sami Al Hidari

Recent studies suggest that intestinal parasitic infections negatively affect schoolchildren's cognitive functions and nutritional status mainly developing countries. In Yemen, Soil Transmitted Helminthes (ST H) and schistosomiasis are important public health problems among school age children (SAC) that could negatively affect their cognitive functions and nutritional status. In 2010, National Schistosomiasis Control Program (NSCP) reported a prevalence of 26% for ST H and 25% for schistosomiasis among SAC. In 2014, the National School-based Survey (NSBS) was conducted to monitor the prevalence and distribution to plan for future school-based interventions.

Data from the NSBS Was analyzed. The survey was a cross sectional survey where six essential schools were selected randomly form each of the 333 districts and 35 students from each school. Stool samples were examined for parasites using Kato-Katz technique and urine specimens analyzed using filtration method.

Out of 76,079 SAC surveyed, 9% had ST H; of them 0.5% had multiple infections. STH prevalence was significantly higher among females than males (11% vs. 8%, $P < 0.0001$) and among those below 14 years (9% vs. 7%, $P < 0.05$). A.lumbricoides had the highest prevalence (8.4%) followed by T.trichiura (1.6%) and hookworms (0.1 %). Aden had the highest STH prevalence (30%). Prevalence of schistosomiasis was 3.4% where it was higher among males (4% vs. 3%, P, < 0.0001) but no significant difference by age. The prevalence of Schistosoma

mansoni and Schistosoma haemtobium was 2.7% and 0.7% respectively. Taiz governorate had the highest schistosomiasis prevalence (18%).

In conclusion, the drop in prevalence of Schistosomiasis and STH compared to the 2010 previous figures may be attributed to the repeated mass chemotherapy and deworming campaigns conducted by the NSCP during the last five years. Targeted chemotherapy and deworming to high prevalence governorates should be continued to prevent long-term negative impact on SAC cognitive functions and nutritional status. The strategy of control should go on hand with education and awareness campaigns.

Sero-prevalence of RVF in Tahama Zone Yemen, 2014

Nabil Mohammed Al Abhar
Site Supervisor: Abdulalrahman AL- Khateeb, Sami Nassar

Rift Valley fever (RVF) is zoonotic disease that poses a threat to human health, animal health, and livestock production in the world. RVF is a per-acute or acute, febrile, mosquito-borne, zoonotic disease caused by a virus of the family Bunyaviridae, genus Phlebovirus.

We analyzed the 2014 RVF National Survey data to determine the Sero-prevalence of RVF in Tihama zone and provide recommendations to decision-makers to tailor a control strategy. The Sero-prevalenc for RVF includes AL-Hodeidah and Hajjah governorates that covered 217 cattle-shepherd villages and 252 cattle-shepherd villages. 5, 164 livestock's samples were tested for the RVF using RVF Competition Multi-species ID Screening test

Half of the cattle-shepherd villages are agro-pastoral where agro-pastoral is commoner at Hajjah (72%). 53% of the sheep/goats-shepherd villages are pastoral where pastoral is commoner at AL-Hodeidah (64%). Among both cattle-shepherd villages and sheep/goats-shepherd villages, some predisposing factors for RVF virus significantly (P 0.001) higher in Hajjah than AL-Hodeidah e.g. heavy rain, flooding and high number of mosquitos. Contrarily, indicators for epidemic RVF as abortion and died newborn were significantly higher in AL-Hodeidah than in Hajjah with ($P< 0.0001$). Knowledge about the RVF among both cattle-shepherd villages and sheep/goats -shepherd villages was significantly higher in AL-Hodeidah than Hajjah $P < 0.0001$. Regarding practices of the cattle-shepherd villages and sheep/goats -shepherd villages were rarely in burying the fetus and envelope, used disinfection and reporting the abortion to the veterinarian service. Out of the total samples, 33 (0.6%) were positive by RVF screening test where Hajjah has significantly higher prevalence than AL-Hodeidah (1.1% vs. 0.3 $P< 0.001$ Strengthening the RVF surveillance especially in Hajjah governorate and in the district where the RVF infection reported. Launch awareness raising camping regarding predisposing factors for RVF and importance of proper disposal of fetuses and envelops as well as disinfectiom Further RVF sero-surveys especially during rainy seasons and

floods. Further research is recommended in AL-Hodeidah governorate to search for possible causes behind high abortion rate in spite of low RVF prevalence.

Descriptive Analysis of Rift Valley Fever surveillance data-Yemen, 2003-2013

Qais Mojahed Jassar
Site Supervisor: Yasser AL Eryany, Abdarhman AL kateeb

Rift Valley fever (RVF) is a viral zoonosis that primarily affects animals but also has the capacity to infect humans. The disease also results in significant economic losses due to death and abortion among RVF-infected livestock. The reason to conduct this study is the seriousness of the disease Rift Valley Fever and negative impact to the overall health of humans, animals and the national economy. Describe the epidemiology of RVF in the Republic of Yemen by: Place, person and time. Describe the trends of RVF over years 2003 — 2013. Develop recommendations that help decision-makers to develop a strategy for RVF prevention and controL

This is a descriptive study, used epidemiological surveillance data from the general administration of livestock and veterinary health on Rift Valley fever for the period 2003 — 2013. All RVF cases of animals entered into the epidemiologic surveillance system from 2003 to 2013 were reviewed and analyzed to characterize the current incidence rate were calculated using the available data. All cases of animal used in this study were confirmed in a laboratory using the lgM, lgG antibody test.

Finding he incidence of RVF disease in (sheepy goats, cow) show decline during after the since outbreak 2000. This is probably after the initiation Malaria control program in 2000 which support the international activities.

The trend of the RVF disease in Yemen continue to decrease after the outbreak in 2000 „ but the RVF virus continue to circulate in the livestock afterwards

RVF virus was mostly common in animals, especially in goats and sheep. The age group of >5 years was the most affected followed by age group of 2-3 years. The infection was predominantly females in all years accept year 2007 and 2011. The majority of the cases were in Alhodeidah, Taiz and Hajjah govemorates.

37

b. Surveillance system evaluation

"Facing Yemen Public Health Challenges through strengthening Field Epidemiology"

Evaluation of electronic Diseases Early Warning System Yemen, 2014

Eshraq Nagi Alfalahi
Site Supervisor: Reema Alyosefi

Recently, the importance of introducing electronic system for diseases surveillance was emphasized regionally. In Yemen, WHO introduced a pilot electronic Disease Early Warning System (eDEWS) in March 2013 for early outbreak detection including immediate alert reporting and weekly electronic data collection on 16 priority infectious diseases in four Yemeni governorates, including 25 health facilities at Sana'a Capital. The program is running for over a year without evaluation. The purpose is to assess eDEWS performance in Sana'a Capital according to the system attributes.

Based on CDC surveillance evaluation guidelines, we conducted in-depth interviews with 24 eDEWS officers and eight stakeholders from Ministry and WHO. Additionally, the system documents, online dashboard, and system indicators were reviewed to assess different attributes e.g. usefulness, simplicity, acceptability, flexibility etc.

All eDEWS officers mentioned that the system is simple, acceptable and flexible. While the reporting completeness and timeliness were 100% and 92% consequently, alerts validation and investigation as a usefulness indicator was only 54%. Although all stakeholders agreed on the importance of eDEWS, misunderstandings about its objectives and uses found. While eDEWS and vertical ministry programs found to be integrated at peripheral level, integration was found to be weak centrally A concern about eDEWS sustainability was raised since it is donor-driven and exclusively dependent on WHO emergency fund. The system also encounters several technical obstacles regarding efficacy of the internet-connected phone reporting.

In conclusion, although the system found to be simple, acceptable and flexible, low alerts validation and investigation raised issues on usefulness of the data generated. Therefore, increase number of the eDEWS supervisors and their stipends should be considered. To ensure eDEWS sustainability and functionality, Ministry should take the lead on eDEWS and incorporate it within its hierocracy with clear integration mechanism especially at central level. The old phones should be replaced with new smart phones to overcome internet connectivity problems.

Measles Surveillance System Evaluation, Amran governorateYemen, 2014

Qais Mojahed Jassar
Site Supervisor: Nada Taqi

Measles is still a global threat especially among children where 355,000 cases and 158,000 deaths were reported in 2011. In Yemen, measles incidence rates have increased from three per 100,000 populations in 2008 to 13 in 2011. The Measles Surveillance System (MSP) was established in 2007 to predict epidemics and monitor progress towards eradication. The aim is to assess the MSP usefulness and evaluate performance according to its attributes.

Based on the CDC Guidelines for Evaluating Public Health Surveillance Systems, we conducted quantitative and qualitative MSP assessment where data was collected by in-depth interviews with Amran governorate and district coordinators as well as health facility focal points using semi-structured question-

Analysis shows the MSP usefulness as collected data makes possible to show the geographical distribution, trends, and identify/respond to outbreaks. According to focal points, the case definition and its application is easy which indicates the simplicity. The MSP is currently integrated with the Acute Flaccid Paralysis (AFP) and include rubella and it can accommodate change in case definition, which indicates its flexibility. However, the mean timeliness score was 61 % which is still far from the 80% target and only 45% of the public and private facilities are covered. Furthermore, only 30% of health facility focal points are trained and there is no a mechanism for feedback from the central to peripheral levels.

The MSP is providing important data for decision-making. Integration of the MSP with the AFP surveillance allows using minimum quantity of human and financial resources. However, the MSP representation and timeliness should be improved by targeting more public and private facilities, training focal points and establishing a mechanism for feedback.

c. Outbreak investigations

First case report of Middle East Respiratory Syndrome Coronavirus, Yemen, April 2014

Awadh M. Ba Saleh
Co-investigators: Ghazi Bashamkha G, Ali Jawal, Mohamed Al Amad

Middle East Respiratory Syndrome Coronavirus (MERS-COV) is a viral disease affecting respiratory system. Since April 2012, MERS-COV reported from the Middle East countries with high fatality rate (60%). MERS-COV never been before from Yemen. On April 2014, National Central Public Health Laboratory (NCPHL) reported receiving samples for suspected case of MERS-COV. Yemen field epidemiology training program team was deployed to investigate the case, detect possible other cases and to initiate control measurements.

We used CDC case definition and questionnaire to collect data from about the suspected case. We conducted active search for other cases and among contacts. We collected combined nose/throat swab from 26 closed contacts and serological investigation of 15 household, hospital and work place contacts and 80 from camels. Specimens were sent to National Central Public Health Laboratories (NCPHL).

The index case was A 44 year-old man who is aircraft maintenance engineer from Seiyun city, Hadramout governorate. He has no past history of underlying medical conditions. He has no travel history outside Yemen, but he was in Sana's one week before he developed symptoms and stayed in a hotel for transit passengers of locale and international airline trips. Also he worked at Seiyun airport that received at least two aircrafts from Saudi Arabia per week. In 9 March 2014, he developed fatigue and on 13 march he developed fever and cough. On 17 March, he visited emergency department at a local hospital complained of high fever and cough where he was given symptomatic treatment and went back home. As every weekend, On 20 March he visited his family at Shibam where his symptoms was worsened. On 22 March he was admitted to the local hospital ICU unit with fever, difficulty of breathing, productive reddish cough, shortness of breath and dizziness. Next day he developed hypoxia, respiratory distress, coma with renal and hepatic impairment and was put on mechanical ventilator. On 27 March, he was refered to Capital Sana'a and admitted to a private referral hospital -Sana'a, where coagulopathies diagnosed and peritoneal dialysis done. WBC count at first day of hospital admission was 11,000/mm3 and reached 25,000 103/mm3 at 27 March where condition deteriorated and he died on 1st April. Before he died, a nasopharyngeal swab was taken and sent to NCPH and was found to be positive for MERS-CoV lgM but negative for H IN 1. We traced and sampled 97 contacts from hospitals household contacts and work place. All contacts' lab samples found to be negative for lgM MERS COV as well as the camels 'samples.

In conclusion, this is the first MERS COV repotted from Yemen. Strengthen surveillance system for timely detection and reporting is necessary. Infection

control measures need to be closely observed especially at all health facilities and necessary protective personal equipments should be made available.

Dengue outbreak at Costal Hadhramout -Yemen, May, 2015

Awadh M. Ba Saleh
Co-investigators: Ghazi Bashamkha G, Ali Jawal, Mohamed Alhaddar

Dengue Fever (DF) is mosquito-borne viral disease. Since 2002, numerous dengue outbreaks has been occurred in Yemen especially in the coastal areas. At the end of May 2015 the surveillance coordinator in Mukalla district of Hadhramout governorate noted an increased number of fever cases suspected as a DF. Ministry of Public health and population (MoPHP) sent a team from Yemen field epidemiology training program to investigate the problem. The aim is to confirm the diagnosis, describe characteristic, and identify the source of outbreak.in addition to implement and recommend control and prevention measures.

WHO case definitions for dengue and other look like fever were used. Data collected from the suspected cases on a predesigned form. Data entered data into excel sheet and analyzed.

A total of 628 cases were reported mainly from three districts Ghail Bawazeer (57%), Mukalla (21%) and (17%) Broom with Attack Rate of 17/10000, 57/10000 and 40/1000 population respectively. Reporting cases started at week 10 and the peak of epi curve was at week 22 with no case fatality. Males to females ratio was 1.1:1.0 and half of cases among 20-39 years age group. 46 blood sample were collected for lab confirmation where 4 (9%) were lgM positive, 3 cases (7%) were lgG positive, 6 cases (13%) were positive for both. The results of the Entomological survey show abundant, presence of the vector.
In conclusion, although dengue outbreak has been confirmed, other types of fever (e.g. West Nile and chikungunya) can not be excluded due to limitations in diagnostic kits- Elimination of infected adult mosquitoes and their breeding sources was recommended. Enhance the laboratory capacities through providing diagnostic tools to enable exclusion of other possible causes for fever. Beside strengthen surveillance system, multi-sectorial coordination and increased community health workers awareness is crucial to prevent infection and transmission.

Suspected Swine flu outbreak in Hareb Baihaan district, Mareb, Yemen, August 2014

Eshraq Nagi Alfalahi
Co-investigators: Fuad Shamsan, Manal Baayees

On August 20, a community member from Hareb Baihan, informed the surveillance department at Ministry of Public Health and Population of a confirmed case of HI NI from Hareb who admitted to a private hospital on 9th and died on 13th August. The deceased's relatives are also experiencing flu like illness. On August 25, outbreak investigation team deployed to Baihaan aiming to confirm the outbreak existence and implement preventive measures.

A case control study was conducted, where 16 cases and 43 controls were identified. Probable case was defined as an individual with a clinically compatible illness or, who died of an unexplained acute respiratory illness and is epidemiologically linked to confirmed, which defined as an individual with laboratory confirmed H INI virus infection by at least one of the following: RT-PCR, Viral culture, Four-fold rise in HINI antibodies. The modified Influenza Like Illness questionnaire was used to interview cases and controls. Those who had flue like illness but did not meet the above definitions were considered as suspects. 13 nasopharyngeal swabs were collected for PCR. Controls are those with no symptoms.

Beside the known dead confirmed case, 10 cases were met probable case definition (of them two died) and five were suspects. Nine of probable cases are from Baihaan Al Qareah (residence of the dead confirmed case). 81% of cases were females and were > 15 years old. 38% had close contact with the confirmed case as had contact with animal. All cases had fever and cough. All collected samples found to be negative to HINI and H5N2 by RT-PCR but were sent to NEMRO-III for further confirmation.

Findings highlight challenges encounter outbreak investigation in Yemen. First, late reporting that comes from community indicates weak surveillance system. Second, late deployment of the investigation team more than two weeks after deceased admission underlines the weak response. Finally, lack of virus isolation capacities in Yemen could limit early outbreak confirmation and response. Therefore, strengthening surveillance system and laboratory capacities for early outbreak detection and response is highly recommended.

Scabies outbreak in Bani Qais-Hajja, Yemen, March 2015

Eshraq Nagi Alfalahi
Co-investigators: Najeeb Abdulaziz

On March 1, a call from the FETP program coordinator was received per request from the DG of diseases surveillance to go investigate a recurrent outbreak of scabies in a rural village in Hajja governorate with a preliminary assessment of 200 affected residents. The main objective was confirm the diagnosis and set the required recommendations to control the recurrent outbreak and prevent its ongoing spread.

A modified WHO definition for cases was used. A questionnaire was designed including all the required attributes for scabies outbreaks. Active house-to-house search was conducted. Suspected case was defined any resident of BaniQais district, who have been experiencing a current manifestation of scabies infestation, severe itching especially at night, rash or blisters with the diagnostic linear burrows in the affected body part and has no clear contact with a confirmed case lor a confirmed affected animal. A probable one is any suspected case with close contact with another confirmed case or animal. Findings were analyzed into tables and figures using excel.

123 were identified after visiting 20 households in Bani Qais district. The outbreak started in Bani Sawd in Alhavge quarter in October 2014. Five index cases identified from the different villages visited. Three of them were illegal travelers to Saudi Arabia and lived in poor hygienic and crowded environment. Almagthola village reported 26% of the cases. Young children and infants accounted for 50% of the cases. Infants less than 1 year accounted for 7.3% with equal male to female ratio. Findings highlight challenges encounter outbreak investigation in Yemen. First, late respond and inadequate intervention to the first episode of the outbreak implies the poor coordination between the health office and the MOPHP. It also implies the lack of adequate resources in the MOPHP to fight such nuisance outbreaks. An urgent collaboration between the local and governmental authorities in Hajja governorate is highly recommended to contain the outbreak.

Fauvism outbreak after charitable food distribution in Al Dhalae governorate - Yemen, April 2014

Fahd M. Al I-label,
Co-investigators: Ali Bin-Break, Ahmed A. Saleh

Glucose 6 Phosphate Dehydrogenase deficiency (G6PDD) is affecting 400 Million person in Africa, South Asia and Middle East resulting in hemolytic anemia (HA) known as fauvism. At 31 March 2014, Ministry of Health received reports on patients attended hospitals in Al Dhalae suffering from HA where one patient died and another had acute renal failure. MOH sent a team to characterize the outbreak, confirm diagnosis, and recommend control measures.

Cases defined as any patient from Al Dhalae who complained from eye/skin yellowish discolorations, dark urine with or without generalized weakness and abdominal pain during March/April 2014. Active case search conducted in

hospitals where data collected from records and face-to-face interviews. Before blood transfusions, venous blood were drawn from five patients and sent to Central Public Health Laboratory in Sana'a for G6PDD testing.

54 cases of HA met case definition, 78% were males and 87% were S14 years. 89% of cases occurred in Al Dhalaey Al Azariq and Jahaf districts. All cases gave a history of eating fava beans that were distributed by a charitable organization one week before appearance of first case on 29th of March. Al Dhalae district had the highest incidence rate of 13/10,000- Half of cases occurred in 2— 4 April and last case occurred in 8 April. Three out of five (60%) collected blood samples found positive for G6PDD.

In conclusion, occurrence of HA in liable persons after eating the distributed fava beans with positive G6PDD test confirm diagnosis of fauvism. Community based research about prevalence of G6PDD in Al Dhalae is needed. Distribution of cards to G6PDD positive cases with health education on how to avoid fauvism in the future are recommended.

Dengue Fever Outbreak at Al ganaws district, Al Hodeida, Yemen 2014

Ghazi S Bashamakha
Co-investigators: Ali Jawal, Hammod Al shameiry

Dengue Fever (DF) has emerged as public health problem in Yemen where 14 out 23 governorates has reported outbreaks since 2002. In January 2014, the surveillance coordinator in Al ganaws district, Al Hodeida governorate reported an increased number of suspected DF and the Ministry sent a team to characterize the outbreak, confirm the diagnosis and prevent future spread.

A suspected DF defined as an acute febrile illness 2-7 days with two or more of the followings: severe headache, retro-orbital pain, muscle/ bone/ joint pain and negative malaria test. We conducted face-to-face interview to collect data on age, gender, residence and symptoms/signs. Blood specimens were collected from 55 suspected cases. Vector surveillance was also conducted Data entered and analyzed using EPI INFO.

During 1st January — 28th February 2014, 138 met DF case definition of which 73 cases (53%) from deer Al zaher. 54% of cases were among males and three quarters within 5-25 years age group. The attack rate was 15/10,000 and case fatality was 2.2%. Out of 55 specimens tested, 3 (5%) were lgM positive, 31 (56%) lgG positive and 15 cases (27%) positive for both. The most frequently reported symptoms were fever (100%), headache, joint pain, muscle pain (99% each), and retro-orbital pain (94%). No hemorrhagic manifestations were identified. Vector surveillance show presence of the vector (Aedes Aegypti), with 23% house index and 25% container index.

In conclusion, the investigation confirmed DF outbreak in Al ganaws district with presence of the vector. The high burden of disease among males and young adults suggests outdoor infection. Vector control by insecticide spraying and fogging to eliminate the breeding place is recommended- Improve dengue surveillance system is the corner stone for early outbreaks detection and control.

Measles Outbreak at Al Jawf Governorate, Yemen, March 2015

Ghazi Bashamakha
Co-investigators: Mohammed Al Amad

In mid-February 2015, the surveillance coordinators in Al Matamma and Al Matoon districts at Al Jawaf Governorates reported an increased number of fever cases with skin rash suspected as a measles cases. Al Jawaf Governorate is one of the remote northern governorates that suffers from fragmented power structures and overall instability. The purpose is to characterize the outbreak, and make recommendation for control.

Suspected cases defined as fever illness and rash that does not meet criteria for any other illness. We conducted face-to-face interview with caretakers to collect socio-demographics, history of illness, signs and symptoms. 46 blood samples were collected for lab confirmation using Elisa

A total of 93 cases were reported from 1st January to March 17, 2015. Mostly cases reported within February and March 2015 with the peak in week 10. Two third of Al Jawf districts were affected with case fatality rate 2%. The disease is more prevalent among males than females (1.4:1.0) and around two thirds of cases below 5 years. All cases had fever and rash, 78% had conjunctivitis, 71% had cough and 38% had runny nose. 84% of cases were among unvaccinated children. Among those who were partially vaccinated, two thirds were vaccinated only during campaigns and all of them received only first dose of measles vaccine- 33 cases (72%) of found to be lgM positive

In conclusion, large measles outbreak has been confirmed in two thirds of districts at Al Jawf governorate mainly among un-vaccinated children due to parents' refusal. Health education campaign was launched and mass vaccination of under five children was recommended.

Dengue Fever Outbreak at Meifa'ah District - Shabwa Governorate, June 2015

Ghazi Bashamakha
Co-investigators: Ali Jawal, Awadh M. Ba Saleh

Dengue Fever (DF) is the most rapidly spreading mosquito-borne viral disease. DF is endemic in Yemen and all coastal areas are at high risk of epidemic of DE In May 2015 the surveillance coordinator in Meifa'ah district of Shabwa governorate noted an increased number of fever cases suspected as a DF, Shabwa surveillance coordinator sent a team to do investigation in Meifa'ah district. In June 13, 2015, the Ministry of Public health and population (MoPHP) sent a team of Field Epidemiology Training Program to characterize the outbreak, confirm the cause and source and start preventive measures.

CDC case definition was adapted. We conducted active case findings and collected socio-demographics, history of illness, signs and symptoms, and possible sources of infection from the identified cases. 34 blood sample were collected for lab confirmation using Elisa.

A total of 395 cases were reported and 54 cases were interviewed. Cases reporting started at week 17 and the peak of epi curve was at week 23- The attack rate in Meifa'ah district was 7/1000 population with no fatility: 16% of cases was reported from Al Sooq (16%), 15% from Jool Al Reida, 8% from Jool Al Masoon. The disease is more prevalent among males than females (1.3:1 -O) and two thirds of cases were among 10-29 years age group. Out of 34 blood sample that were collected, 35% were lgM positive, 50% were lgG positive, and 15% were positive for both.
The results of the Entomological survey show abundant, presence of vector (Aedes Aygptic), with house index of 43% (13/30) and container index of 32% (16/50).
In conclusion, the investigation confirmed DF outbreak in Meifa'ah district with presence of the vector. The high burden of disease among males and young adults suggests outdoor infection. We recommend vector control by insecticide spraying and fogging to eliminate the breeding place. Strengthening dengue surveillance is the corner stone for early outbreaks detection and control.

Measles outbreak at Al Zeliah village, Hodeida governorateYemen, November 2014

Mohammed Abdullah Al Amad
Co-investigators: Mohammed Qaseem

On October 12, 2014, the surveillance coordinator in Al Tuhita district notified about 17 suspected measles cases with eight deaths at Al Zeliah village. On 2 November, a team sent for further investigation of the outbreak. The aims were to determine the outbreak extent, identify source, and recommend control and preventive measures.

The team reviewed the surveillance records and used the CDC case definition where suspect case defined as: fever illness and rash that does not meet criteria for any other illness, probable as a case meeting clinical case definition without lab confirmation, and not epidemiologically linked to a confirmed case, and

confirmed as a case that is laboratory confirmed or meets the clinical case definition and epidemiologically linked to a confirmed case. Active house-to-house search conducted and 18 blood samples were taken for lab confirmation.

Seventy-four cases reported from 29th September to 6th November 2014. All cases were unvaccinated due to documented parents' refusal. The attack rate was 15/100 population with a case fatality rate of 16%. 51% were males and 84% were children 10 years. Out of the 18 blood samples collected, 15 (83%) were lgM positive. Four cases needed admission due to the severe complication where two cases had pneumonia, one had blindness, and one had meningoencephalopathy.

In conclusion, measles outbreak with high mortality has been confirmed in Al Zeliah village due to vaccine refusal. Therefore, health education to tackle refusal with an urgent measles immunization campaign and vitamin A supplementation had recommended. For the long-term measles prevention, strengthening the routine and outreach immunization services with awareness rising is crucial. Qualitative research to study reasons behind refusal in this community is prerequisite.

Measles Outbreak in Sa'adah Governorate, 6th-10th of March 2015

Mohammed H. Dehnan
Co-investigators: Nabil Al Abhar

During January and February 2015 the surveillance coordinators of Sa'adah governorate noted an increased number of fever cases with skin rash suspected as a measles cases- On March 4, 2015, The (MoPHP) send a team of FETP to field to investigate the problem.The aim of this investigation was to confirm the outbreak, the cause and source of the outbreak.

We adapt the CDC case definition for Measles. We conducted house to house search for cases where the caretakers interviewed with a predesigned questionnaire that cover Socio-demographics, history of illness, signs and symptoms. Serum samples were collected for laboratory confirmation.

A total of 260 cases were reported from December 31 , 2014 to March 8, 2015. The most cases reported in the second half of January and February 2015 and the peak of epi curve was at week 7.Two third (11 districts) of Sa ʸadah districts were affected where most cases were from Razih (28%), Qataber (22%) and Sahar (13%) - 70% of cases were between (1 - 5) years old, 23% were below 1 year and 58% among males. 97% of cases were unvaccinated. 13 blood samples were collected for lab confirmation using Elisa, 12 cases (92%) of them were lgM positive, 1 case (8%) negative

Measles outbreak was confirmed in Sa'adah where very low immunization cover: age and a weak community awareness played a major role- Therefore, health education campaign about importance of vaccine was lunched and urgent measles immunization campaign with ongoing routine and outreach immunization services are recommended Strengthening surveillance system in order to detect and report cases early is mandatory.

Measles outbreak in Ibb-Yemen, 2014

Nabil Al Abhar
Co-investigators: Basil Obaid, AbdoTajalden

Measles is one of the most infectious human diseases that can cause serious illness and lifelong complications lead to death. Ibb surveillance officer reported increasing number of measles cases since early 2014. The aims were to identify the outbreak, determine its extent and recommend control measures.

We conduct a retrospective analysis of measles cases reported to the Surveillance Department from all Ibb hospitals and health centers from 1st January to 30th October 2014. We adopted WHO measles case definition where a suspected case defined as a case with fever illness and rash that does not meet criteria for any other illness, probable case is a case meeting the clinical case definition without lab confirmation and not epidemiologically linked to a confirmed case, and confirmed cases is a case that is laboratory confirmed or meets the clinical case definition and epidemiologically linked to a confirmed case.

Out of 511 suspected measles cases that were reported from 1st January-30th October 2014, 30 cases (6%) met probable case definition with an incidence rate of 11.5/1,000,000. 53% was among <5 years age group and 40% among 5-10 years with females representing 53%. 70% of cases were vaccinated against measles of which 50% received 2 two doses. All cases had fever and skin rash but cough, runny nose and conjunctivitis were reported in 58%, 51% and 46% of cases respectively. 20 (67%) has positive lgM for measles and 7 (35%) positive for both measles and rubella lgM
In conclusion, prolonged measles outbreak has confirmed in Ibb with high incidence among vaccinated children. As recent measles vaccination and other rash illnesses (e.g- due to parvovirus, rubella, dengue) can cause a falsely positive lgM result, virus isolation (by PCR or Culture) should be introduced in Yemen for confirmation. Meanwhile, immunization cold chain should be thoroughly

Mumps outbreak in Beit Tawaf, Amran governorate, February-March 2014

Qais M. Jassar
Co-investigators: Fuad Shamsan

Mumps outbreaks are still reported from many countries. In Yemen, where mumps vaccine is not yet part of the Expanded Program on Immunization (EPI), the virus still circulating among children and adults and recurrent outbreaks have been reported. This investigation was undertaken in response to an outbreak of mumps at Beit Tawaf in Amran governorate to confirm the outbreak and recommend preventive measures.

We initiate active case finding in Beit Tawaf (550 population) between Marchl 7-28, 2014 using WHO case definition where a probable case defined as an acute parotitis or other salivary gland swelling lasting at least 2 days, or orchitis or oophoritis unexplained by another more likely diagnosis, in a person with epidemiologic linkage to another probable or confirmed case. The cases/guards were interviewed and the following variables were collected: age, gender, data of onset, symptoms.

Sixty-nine cases met the case definition of probable mumps. The overall attack rate and the <15 years age specific attack rate were 12 and 26/100 population respectively. 43% were among 5 — 9 year and 54% were males. The index case was identified as a student of a primary school who had no travel history and could not recall any contact with a suspected mump case before onset of symptoms. The index case appeared to be the source of the outbreak, and there were four outbreak waves. The outbreak started in 8th epidemiological week, the peak of the outbreak was in 14th epidemiological week.
Finding suggested that mumps general immunity is still low among general population. Therefore, introducing mumps vaccine to routine EPI needs to be considered in Yemen. We recommended launching a community awareness camping on mumps and asked school headmasters to exclude affected students from schools for 20 days. Improving surveillance system for timely detection and prompt response is highly recommended.

4. Abstracts by track

a. Abstracts of the planned studies

Antibiotic Resistance: Knowledge, Attitude, and Practices among Mukalla Hospitals Physicians, Hadhramout, Yemen 2015

Awadh M. Ba-Saleh1, Bashrahil K., Al Serouri A.W.

Background:

The growing problem of antibiotic resistance(ABR) becomes a worldwide public health critical challenge to health care systems, with a substantial economic and clinical burden. In Yemen, the ABR is a major concern like many other developing countries where study in Hadhramout found that 66% of prescriptions contain antibiotics The aim is to assess knowledge attitude, and practices of physicians working in Al Mukalla- Hadhramout hospitals regarding to the ABR as corner stone towards designing an intervention.

Methods:

A cross sectional survey conducted where all physicians available at survey day in the six main public and private hospitals, in Mukalla were filled a pretested structured questionnaire. Data were entered and analyzed using frequencies and percentage as well as searching for possible associations with knowledge where P <0.05 was considered statistically significant.

Results :

172 physicians filled the questionnaire with a mean age of 33 ± 7 years and equal male to female ratio. 81% works in public hospitals and 24% have specialization. Only 43% of public hospitals' staff are governmental employee and 70% of those who works at private hospitals are government employee. Commonest sites for prescribing antibiotics is outpatients department (91 two thirds of physicians are prescribing antibiotics for 40-79% of their patients, and 41% of them agree that they find it hard to select correct antibiotic, two thirds prescribing antibiotics without requesting culture and sensitivity test, and 80% did not receive any training on antibiotic. The pamphlet enclosed with antibiotic was the commonest source of information and only 11% who benefited from Yemen national essential drug list (YNEDL) and 7% from Yemen national standard treatment guidelines. The main factor influence antibiotics prescribing are: patients' demands for antibiotics (80%) and more than 90% of physicians mentioned that self-medication, patients' not completing treatment, and overuse of antibiotics are the commonest factors contributing to antibiotic resistance. Knowledge about antibiotic was low (mean score 4.3 out of total 8 ± 1.2) where only specialized physicians found to have better knowledge than those general physicians: 4.6 vs. 4.2, P < 0.05 Recommendations

Training and educational programs is highly recommended to improve knowledge and practice. Dissemination of local antibiotic resistance information and YNEDL and YNSTG guidelines is needed.

Pattern of road traffic injuries in Sana'a city, Yemen, 2015. A hospital based study.

Eshrak Alfalahi, Assabri A.

Background:
Around million people die each year on world's roads. The cost of dealing with consequences of road traffic crashes (RTCs) runs to billions dollars. There is no well-established surveillance system in Ministry of Public Health and Population (MOPHP) to address exact burden of RTCs in order to set required strategies for prevention. The aim is to present time-limited trial surveillance in two referral hospitals to describe the Pattern of RTls in Sana'a capital city. It addressed different associated factors with RTCs. The results of this study can be used by MOPH for injury surveillance planning.
Methods:
A hospital-based study conducted in two of Sanaa city hospitals, from 24 August to 8 October 2015- A sample size of 156 casualties was calculated using open-epi- All road traffic injuries cases presented to Emergency Departments (ED) during 2 months were studied and analyzed. Data were collected everyday by trained data collectors in ED. A pretested questionnaire modified from WHO injury surveillance form was used.
Results
Of our sample, 82% were males and 18% were females. The highest percent (34%) were among age group 20-29. There were 28% children below 16 years of age and 2% aged 60 and above. The highest percent of injuries was among vehicles occupants (38%). Pedestrians constituted 32%, of them 48% were injured by four wheelers- While motorized two wheelers injured 32%. None used seat belt nor helmet. 15% of 2-wheeled riders aged less than 18 years. Risky driving behaviors contributed in 85% of the casualties. Furious driving represented 37% of these behaviors, with significant relation with severity (chisquare=24, df=12, P=O.02). Head injuries represented the highest percent among drivers and passengers of 4-wheeled cars (43% and 46% respectively), Lower limbs injuries represented the highest among motorcycles riders and passengers (44% and 53% respectively). Case fatality rate of 6.8/100 casualties was recorded. Recommendations
Establishment of a multi-sectorial integrated injury surveillance system is a must. It is time to consider road classification for different road users. There is a need to improve access to adequate pre-hospital and hospital trauma care for victims. There is an urgent need for traffic laws enforcements.

Knowledge and practices of Public health centers' physicians on the National Policy for Anti-Malarial Drugs, Sana'a Capital, 2015

Fahd MAI Habel, Al Kohlani AH, AW Al Serouri

Background:
Malaria transmission occurs in all six WHO regions where 198 million cases of malaria occurred globally in 2013 and the disease led to 584 000 deaths. In Yemen, 102,885 cases of confirmed malaria occurred in 2013 and the disease led to 55 reported deaths (1029 estimated deaths). National Policy for Anti Malaria Drugs

(NPAMDs) is an efficient guideline for treating different malaria categories aiming to decrease morbidity and prevent both mortality and drugs resistance. The aim is to assess knowledge and practice of Public Health Centers (PHCs) physicians regarding to NPAMDs at Sana'a Capital.

Methods:

We carried a cross sectional health facilities-based survey targeting the whole physicians in all Public Health Centers (PHCs) at Sana'a Capital. Selfadministered questionnaire was used where the physicians report knowledge and practice regarding National Policy for Anti-Malarial Drugs (NPAMDs). The questionnaire also covered demographic and occupation characteristics. Data collector filled an observation checklist for availability of anti-malarial drugs, malarial tests, NPAMDs guideline, and posters/brochures.

Results :

Only 34% of physicians heard about NPAMDs, 17% had its guidelines and 9% trained on it- Compared to NPAMDs, only 8% and 3% of physicians knows the 1st and 2nd line drug for Simple Malaria (SM)y vs. 11% who prescribed according to it. Similarly, only 17% of physicians knows drugs for Severe Malaria (SEM) compared to 52% who practice. For SM malaria during pregnancy, only 8% of the physicians knows the drugs for SM treatments in the 1st trimester (FT) compared to 12% who prescribed. Similarly, only 3% know drugs for 2nd and 3rd trimesters (S&TTs) compared to 4% who prescribed. Similarly, for SEM malaria during pregnancy, only 10% of the physicians knows the drugs for SEM in the FT compared to 14% who prescribed according NPAMDs- Similarly, only 4% know drugs for the S&TTs compared to 11% who prescribed. None of the PHCs has the drug for SEM northe 2nd line drug for SM compared to only 8% that has 1st line drug for SM. Although 90% of PHCs had malaria tests, none has posters or brochures.

Recommendations :

Distribution and training physicians on NPAMDs guidelines together with providing NPAMDs drugs and educational materials (e.g. posters, broachers etc.) to PHCs Sana'a Capital are mandatory. The National Malaria Control program should considered Sana'a Capital in its future activities.

Risk Factors for Breast Cancer in Hadramout Al Wadi, Yemen, 2011-2015

Ghazi Bashamakha, Bin Sumait I-I, Bashamakha M. Al Serouri AW.

Background:

Breast Cancer (BC) is the most common cancer in women where it account16% of all female cancers and it is the leading cause of cancer related death in women worldwide. BC is the most common cancer among Yemeni females where it constitutes about 21% from all types. The aim of study to assess risk factors of BC among women at HadramoutAl Wadi-

Methods:

The study was conducted at Hadramout Al Wadi Oncology Center (HAWOC) where 105 cases were matched with 210 controls for district, age ± 5 and year of diagnosis. Cases were women registered at HAWOC during 2011-2015 as having BC and the diagnosis confirmed by mammography and histopathology'. Controls were women registered at HAWOC as having no BC as confirmed by negative mammography. Data was entered and analyzed using frequencies and percentage as well as searching for possible associations using odds ratio (OR) with 95% confidence interval (Cl) and where P <0.05 was considered statistically significant.

Results:

Lack of breast-feeding, single/divorce/widowed and post menopause were found to be significantly associated with BC while contraceptives use for 36 months found to be protective. Other known risk factors previously reported such as firstdegree relative family history of BC, oral contraceptives, age at marriage and menarche were found to be not significantly associated with BC in this study.

Recommendations:

There is a need to increase public awareness regarding BC and its possible risk factors as well as importance of regular screening. Future larger scale research should be conducted to investigate other known reproductive risk factors that were found not to be a risk in this study.

Risk factors for defaulting from Severe Acute Malnutrition outpatient therapeutic centers, Sana'a city, Yemen, 2015

Mohamed A. Al Emad, AL Eryni L., Al Serouri A.W.

Background:

Severe acute malnutrition (SAM) is a major global public health problem where it affects 18.7 million children under 5 years in 2013 and is responsible for over half a million deaths per year. High default rate is still a major challenge for any SAM programs as children who default have 6.6 risk of death compared to children who completed treatment. In Sana'a city, available data indicated 59% defaulter rate among SAM children treated at outpatient therapeutic centers (OTCs) during 2013. The aim is to identify reasons for such high default rate in order to take action to overcome.

Methods:

A prospective cohort facility based study was conducted for SAM children aged 659 months who newly admitted to OTPs at Sana'a city during August and September 2015. A pre-tested structured questionnaire used for collecting data through face to face interview with caretakers both at admission and after discharge from the program. The magnitude of the association between dependent (defaulting) and independent variables (factors related to patients, their caretaker,

OTP access, staff, treatment system e.g. gender, level of education, distance etc.) was measured using odds ratio (OR) with 95% confidence interval (Cl).

Results:

Among 339 SAM children who admitted to Sana'a OTPs during August to September 2015 and followed up until discharge, the default rate found to be 55%. The following risk factors for default were identified: poor accessibility (e.g. unavailability of OTP in the resident area), poor satisfaction with staff and system (e.g. long waiting time, poor confidence in staff, and unavailability of Plumpy Nut/ medications), treatment related (e.g. Child did not gain weight, did not like Plumpy Nut), and poor acceptability of OTP services (e.g. difficulty in attending OTP in weekly basis, unsuitable working time, and lack of family support), Recommendations:

Regular monitoring of defaulter rate and establishing a mechanism for follow up of defaulters through community mobilization and increase community awareness about importance of completing follow up visits is a must. Furthermore, expansion of OTP services, ensure regular supply of OTPs by medications and Plumpy Nut and Train OTPs staff on communications skills and SAM treatment protocols are perquisites.

Risk factors of End-Stage Renal Failure (ESRF) among hemodialysis patients in Algomhory HospitalsSaadah governorate Yemen

Mohammed H. Dehnan, Almahdi A., Assabri A.M.

Background:

End-stage renal failure (ESRD) is the irreversible loss of kidney function that becomes a major public health problem. More than 1.4 million patients are receiving renal replacement therapy (RRT) globally, with an annual incident rate reaching 8%. In Yemen 7000 new ESRF every year are diagnosed with estimated annual incidence of ESRF in Sana'a region is 385 per million population. The aim of study is to identify the risk factors of ESRF in Sa'adah governorate of Yemen and provide recommendations to prevent occurrence.

Methods:

A hospital based case control study of ESRF patients attending Aljomhory Hemodialysis center in Sa'adah city was conducted. We interviewed with a predesigned questionnaire 86 cases attending HD center for regular hemodialysis and 263 control who are healthy persons. Statistical analysis was peiormed using Epi Info where odds ratio (OR) with 95% confidence interval (Cl) were calculated and P <0.05 was considered statistically significant.

Results:

The mean age for the cases and control was 43.3 ± 17 7 and 32.3 ± 12.98 years respectively, with slight male predominance among cases 55%.49% and 38% of the cases and control respectively were illiterate: OR 2.13 (95% Cl, 1.28-3.55)Hypertension was 49%, 10% among cases and control respectively: OR 8.3

(95% Cl, 4.5-14.9). Diabetes mellitus was 13%, 5% among cases and control respectively: OR 3.05 (95% Cl, 1.2-7.32)- Urolithiasis was 41%, 3% among cases and control respectively OR: 21.87 (95% Cl, 9.6-49.9). Recurrent infections of kidney/urinary tract were 79%, 28% among cases and control respectively OR 9.64 (95% Cl, 5.34-17.31). Family History of ESRF 29%, 5%, among cases and control respectively OR=7.88 (95% Cl, 3.81-16.29) Recommendations:

Since hypertension, diabetes mellitus, recurrent urinary tract infection, and urolithiasis were found potential risk factors for ESRD in Sa'adah governorate, early diagnosis and treatment of these diseases is mandatory. Raising awareness among community about importance of possible avoiding risk factors for those diseases will help to prevent consequent ESRF.

60

Knowledge and practice of biosafety among laboratory staff working in clinical laboratories in Sana'a city, Yemen, 2015

Nabil Al-Abhar, Al Hababi A, AL-Gunaid E, Moghram G, Al Serouri AW.

Background:

Biosafety is an important concern in laboratories worldwide especially in developing countries where standard operating procedures (SOPs) are lacking. In Yemen, a limited attention was paid for investigating LS understanding and compliance to standard biosafety precautions.

Methods:

Across-sectional survey conducted on all LS who involved in handling the processing laboratories' samples at the main public and private clinical laboratories at Sana'a city. Data collection was done using a semi-structured questionnaire based on available standards. The Quality Control Officer at each laboratory was trained to distribute the questionnaires and ensure proper filling. After reviewing, coding and cleaning the questionnaires, data was entered and analyzed using frequencies and percentage as well as searching for possible associations where $P < 0.05$ was considered statistically significant.

Results:

A total 362 respondents participated of them 18% receive the biosafety manual, 39% received biosafety training, 38% has good biosafety knowledge, and 32% has good practice. While knowledge and practices was significantly influenced by receiving the biosafety manual and training, only practices found to be better in private laboratories. Although 60% reported injury while working in laboratories, only 55% received first aid and 76% was vaccinated for Hepatitis B virus (HBV). Both vaccination coverage and receiving first aid found to be significantly higher among private LS and those who received the biosafety manual.

Recommendations:

There is a need to strengthen biosafety program through guaranteeing decision makers' commitment and mobilizing necessary resources and policies in all public and private laboratories, and increase adhesiveness to Laboratory Standard Precautions (LSP), Strengthening supervision, legalizations of HBV vaccination to all LS, and raise awareness regarding laboratory work injuries and importance of first aid treatment are prerequisites.

61

Risk factors for acute lower respiratory tract infection in under five children, Amran governorate hospital, Yemen, 2015

Qais M. Jassar, Alquhoum M., Assabri Ali

Background:

Acute lower respiratory tract infection (ALRTI) is a leading cause of mortality in children below five years of age especially in developing countries where 120— 156 million cases occur globally with approximately 1.4 million resulting in death. In Yemen around 1.3 million children at risk of ALRTI but there are scarcities of information especially at Amran governorate. The aim of the study is to assess the risk factors for ALRTI in under five children, in Amran governorate hospital, Yemen.

Methods:

A hospital based case control study, was conducted in Amran general hospital. The sample size was calculate using Epi Info 7, to be 325 of them 113 cases and 212 controls. Face-to-face interviews with caretakers, using a predesigned questionnaire. Statistical analysis was performed using Epi Info where odds

ratio (OR) with 95% confidence interval (Cl) were calculated and P <0.05 was considered statistically significant.

Results:

We recruited 325 under five children, of them 113 cases, 212 control were 54.7% were males and 45.3% were females. Children whose mothers are illiterate found to be at greater risk: OR: 1.9 (95 Cl 1.2-3.2). Those children who have past history of ALRI also at greater risk than those who did not: 51.8% vs. 24.6%, OR: 3.29 (95% Cl 2.01-5.39). using biomass and using wood for cooking found to be significant risk factors for ALTRI: OR = 2.78 (95% Cl=l .724.47) and 2.53 (95%Cl=1.49-4.29) respectively. Gendery age and parents smoking was not found to be significant risk factors for ALRTI.

Recommendations:

Increase mother awareness about the risk of exposure of children to indoor environmental pollutants like biomass and using wood may help to reduce ALRI. Further research at community level is recommend-ded to assess for other ALRTI known risk factors that were found not to play a role in this study.

b. Conferences Oral Presentations




H1N1 Surveillance systems data analysis, 2009-2013, Yemen

Awadh M. Ba Saleh 1, Al Mahaqri A., Qayad M. 2, Al Abhar N.3

Presented at Yemeni International Congress on Infectious Diseases University of Science & Technology Hospital, Sana'a-Yemen, 16-18 December 2014

Background:

During 2009, the World Health Organization declared the first influenza pandemic of the 21st century. In Yemen, a country lab-based surveillance system for Influenza Like Illness (ILI) and Severe Acute Respiratory Illness (SARI) with weekly sampling and reporting was established in 2009. This system was necessary for early detection of emerging novel influenza subtypes and timely response for influenza prevention and control. This study aims to describe the major epidemiological characteristics of H1N1 over the period of 2009-2013.

Methods:

We reviewed the surveillance data on influenza A (H1N1) from 8/2009 to the 31/12 2013 where direct reporting and nasopharyngeal swabs collected from each suspected case and sent to National Public Health Laboratory Center in Sana'a. The following variables were collected: gender, governorate, nationality, date of taking swab, date of receiving swab, symptoms, result for both influenza A and H1N1 virus. The diagnosis was confirmed by RT-PCR.

Results:

4,347 samples were collected during 8/2009 to 31/12/2013. The attack rate dropped from 6.3/100.000 in 2009 to 0.3/100000 in 2013. Males to females ratio was 3:2, 47% were among age group 11-30 years, and 49% of cases from Sanaa governorate. The most common symptom were fever (23%) and cough (22%). 72% of total cases reported during months of October to December.

Conclusion:

Data confirm that H1N1 epidemic occurred in Yemen in 2009 that coincides with the international trends. The dropped after 2009 may reflects success of control measures and regression of pandemic however; recession of surveillance activities thereafter could not be excluded. Therefore, strengthening of ILI/SARI surveillance system is highly recommended and quality should be addressed to improve early outbreak detection and response. This can only be achieved through ensuring availability of the necessary human and logistical resources.

Key Words: H1N1, epidemic, Surveillance, Yemen

Dengue surveillance Data Analysis, 2010-2013

Ghazi S. Bashamakhal, Al shameiry H., Al Serouri AW

Presented at Yemeni International Congress on Infectious Diseases
University of Science & Technology Hospital, Sana'a-Yemen, 16-18 December 2014

Background:
Dengue is a global health threat affecting 3.6 billion people living in more than 125 countries in tropics and subtropics. Since 2002, dengue reported in 16 Yemeni governorates. The aim is to describe trend and epidemiology of dengue over 2010 -2013.

Methods:
The analysis was carried out in January 2014 through revising records of dengue cases available at the National Dengue Surveillance, Yemen Field Epidemiology Training Program and National Central Public Health Laboratory in Sana'a and its branches in Aden, Al Hodeida, Taiz, Al Mukalla and Seiyun from 1st January 2010 — 31st December 2013.

Results:
From 1st January 2010 to 31st December 2013, a total of 5,762 dengue cases were reported of which 3,315 (58%) were in 2010. Only 149 (3%) met the diagnosis of dengue hemorrhagic fever. Annual incidence rate varied from 14 /100,000 in 2010, to 3/100, 000 in 2013. 57% of cases were among males and 61% among the 16-30 years age group. 1,873 blood samples were collected for lab confirmation, where 566 (30%) were lgM positive, 431 cases (23%) lgG positive, 284 cases (15%) positive for both. More than half of cases reported from Aden, Al Hodeida and HadramoutAl Sahel. Dengue has shown a seasonal tendency as evidenced by an increase in cases during the epidemiologic weeks 15 — 31.

Conclusion:
Dengue is shown to be an important health problem in Yemen however; this may represent only the tip of the iceberg. Therefore, launching a national program for hemorrhagic fever and strengthening surveillance system should be the first step. The seasonal tendency as evidenced by an increase number of cases that coincides with rainfall and accumulation of water in containers should call for vector control during rainy seasons. Outdoor biting is likely as more young males were affected therefore, targeting them with awareness raising is recommended. Key Words: Dengue, Surveillance, Yemen.

Hepatitis B virus infection among blood donors and attendants screened at National Central Public Health Laboratory, Sana'a, Yemen, 2010-2013

Mohamed A. Al Emad, Al Someni A., Al Akoa'a S., Al Serouri A.W.

Presented at Yemeni International Congress on Infectious Diseases

University of Science & Technology Hospital, Sana'a-Yemen, 16-18 December 2014

Background:

Although Yemen is one of the five countries of the Eastern Mediterranean Region classified by WHO as Hepatitis B Virus (HBV) high-risk area, still there is no national surveillance system for HBV in Yemen. The aim is to describe the HBsAg prevalence and trend over 2010-2013 among blood donors and attendants screened for HBV at Sana'a National Central Public Health Laboratory (NCPHL).

Methods:

A soft copy of the 2010-2013 HBsAg data was obtained from the NCPHL statistical department that contain data on attendants screened for HBsAg by gender and age group but only aggregated numbers of blood donors screened. It also includes HBsAg tests results that conducted using Enzyme linked Immunosorbent Assay (ELIZA).

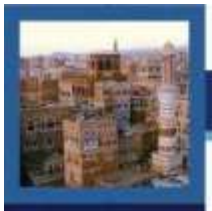
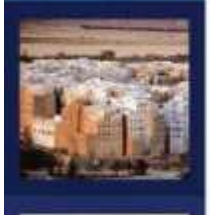
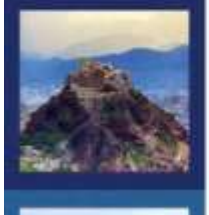
Results:

45,404 HBsAg screening tests were performed during 2010 to 2013 at Sana'a NCPHL. Three quarters were attendants screened for different purposes (e.g. suspected cases, employment, travelers, and checkup) and the other quarter was blood donors who routinely screened for HBsAg. The overall HBsAg prevalence is 5.7%, which was significantly higher among screened attendants than blood donors (7% vs. 2%, $P < 0.0001$). Among screened attendants, adults (216 years) had significantly higher prevalence than children 15 years: 8% vs. 0.5%, $P < 0.0001$, and males than females: 8% vs. 5%, $P < 0.0001$. There is 2% reduction in prevalence from 2010 to 2013 among all age groups with no single case of positive HBsAg reported among children during the last two years.

Conclusion:

Our findings shows that the overall prevalence of HBsAg lies within the moderate endemicity. The disappearance of HBsAg among children <15 years during the last two years may reflects the positive impact of introducing HBV vaccination into the routine immunization. Establishment of HBV surveillance system and electronic network between NCPHL and its governorates branches are recommended for improvement of hepatitis B surveillance.

Key Words: HBV, prevalence, blood donors, Attendants screening, Yemen


Leishmania surveillance System Data Analysis, Yemen 2013

Mohammed H. Dahnan, Al-Mahaqri A., Al Serouri A.W.

Presented at Yemeni International Congress on Infectious Diseases University of Science & Technology Hospital, Sana'a-Yemen, 16-18 December 2014

Background:

In spite of the world annual estimated occurrence of Cutaneous Leishmaniasis (CL) of 1.1 million, CL is still considered as one of the neglected disease. In Yemen, the last decade witnessed progressive increase in CL incidence and several outbreaks reported from different governorates. The objective to describe the epidemiology and trend for CL in Yemen for the year 2005-2013.

Methods:

We analyze the surveillance data available at the National Program for Leishmania Control (NPLC) for the year 2005 to 2012. The NPLC adapted the WHO leishmania case definition. Currently no electronic database for leishmania is available and only total numbers of cases are reported. Data on age and gender was only available for the year 2013 from some governorates. Population estimates were obtained from the Central Statistical Organization to calculate the incidence rates.

Results:

The overall CL incidence rate (IR) increased from 10 per 100,000 in 2005 to 13 in 2013. However, the highest IR found in some governorates where it coincides with reported outbreaks e.g. 156/100,000 at Rimah in 2006, 72 /100,000 at Shabwah in 2009, and 78/100,000 at Sayoun in 2011. 3,312 cases were reported in 2013 where male to female ratio was 1.3 and the most affected group was 5-14 years. In 2013, Aldhale'e, Lahj, Sayoun, and Sa'sdah had the highest IR of 49, 42, 37, and 33 per 100,000 population respectively.

Conclusion:

Irregular reporting system where only aggregated numbers of cases are reported together with weak diagnostic capacities at the health facilities and laboratories are important challenges for Leishmania surveillance System. Therefore, improving reporting through frequent feedback and strong supervision, upgrading laboratory capacities, and training health workers on proper diagnosis are recommended. Including Leishmania in the Integrated Surveillance System and Response should be considered.

Key Words: Leishmania, Surveillance, Incidence, Yemen

Comparison of the Integrated Diseases surveillance Response system and Communicable Diseases Surveillance system, 2013-014, Yemen

Nabil M. Al Abhar, Obadi M., Al Kader K. , Al-Ashmory S., Al Serouri A.W

Presented at Yemeni International Congress on Infectious Diseases
University of Science & Technology Hospital, Sana'a-Yemen, 16-18 December 2014

Background:
Yemen adopted the Communicable Diseases Surveillance (CDS) system in 1998 however, the system thought to be inefficient due to poor reporting quality. In 2014, Yemen has launched the Integrated Disease Surveillance and Response (IDSR) to strengthen selected priority diseases surveillance. We compared both surveillance systems to describe diseases pattern, identify strengths and weakness, and provide recommendations to improve surveillance.
Methods:
We used the CDS and IDSR data softwares for the first 26 epidemiological weeks (W) for 2013 and 2014 respectively. As some disease categories differs in CDS and IDSR, we incorporated similar diseases under one diagnostic category to facilitate analysis e.g. Hepatitis A and Hepatitis B+D under hepatitis. Results:
Although there was an overall 70% increase in diseases reporting in IDSR compared to CDS for the same period, reporting dropped to reach less than 10% in W26 compared to W15. The first five most commonly reported disease in CDS were: acute diarrhea, typhoid/paratyphoid, bloody diarrhea, malaria, and chickenpox compared to upper respiratory tract infection (URTI), acute diarrhea, lower respiratory tract infection (LRTI), malaria, and typhoid/paratyphoid in IDSR. Some governorates e.g. Taiz and Adhali still not reporting in IDSR. URTI and LRTI that ranked the first and the third in IDSR were not included in the CDS reported diseases list.
Conclusion:
Although, IDSR shows reporting increase at the launching due to increasing notification sites and regularity of reporting, the later drop may reflects poor supervision and feedback from the central level and fading of interest from peripheral level caused by lack of incentives together with time-consuming reporting procedure. Therefore, strengthening supervision and feedback from central level together with more training for health facility staff is necessary to ensure timely and quality reporting. Strengthening IDSR capacities in data analysis and information dissemination and use with regular monitoring and feedback should be prioritized. To simply reporting and strengthen the integration, the list of reported diseases should be unified and agreed upon by different surveillance systems and vertical programs.

Key Words: Injury, Reporting programs, Analysis, Yemen

68

HINI Surveillance systems data analysis, 2009-2013, Yemen

Awadh M. Ba Saleh 1, Al Mahaqri A., Qayad M. 2, Al Abhar N.3

Presented at Yemeni International Congress on Infectious Diseases
University of Science & Technology Hospital, Sana'a-Yemen,
16-18 December 2014

Background:

Measles is one of the most infectious human diseases that can cause serious illness and lifelong complications lead to death. Ibb surveillance officer reported increasing number of measles cases since early 2014. The aims were to identify the outbreak, determine its extent and recommend control measures.

Methods:

We conduct a retrospective analysis of measles cases reported to the Surveillance Department from all Ibb hospitals and health centers from 1st January to 30th October 2014. We adopted WHO measles case definition where a suspected case defined as a case with fever illness and rash that does not meet criteria for any other illness, probable case is a case meeting the clinical case definition without lab confirmation and not epidemiologically linked to a confirmed case, and confirmed cases is a case that is laboratory confirmed or meets the clinical case definition and epidemiologically linked to a confirmed case.

Results:

Out of 511 suspected measles cases that were reported from 1st January-30th October 2014, 30 cases (6%) met probable case definition with an incidence rate of Il -5/1 53% was among <5 years age group and 40% among 5-10 years with females representing 53%. 70% of cases were vaccinated against measles of which 50% received 2 two doses. All cases had fever and skin rash but cough, runny nose and conjunctivitis were reported in 58%, 51% and 46% of cases respectively. 20 (67%) has positive lgM for measles and 7 (35%) positive for both measles and rubella lgM.

Conclusion:

Prolonged measles outbreak has confirmed in Ibb with high incidence among vaccinated children. As recent measles vaccination and other rash illnesses (e.g. due to parvovirus, rubella, dengue) can cause a falsely positive lgM result, virus isolation (by PCR or Culture) should be introduced in Yemen for confirmation Meanwhile, immunization cold chain should be thoroughly reviewed.

Key Words: Measles, Outbreak, Yemen, Vaccinated children

60

Mumps outbreak in Beit Tawaf, Amran governorate, February-March 2014

Qais M. Jassar, Shamsan E, Qayad M., Alabhar N.

Presented at Yemeni International Congress on Infectious Diseases University of Science & Technology Hospital, Sana'a-Yemen, 16-18 December 2014

Background:

Mumps outbreaks are still reported from many countries. In Yemen, where mumps vaccine is not yet part of the Expanded Program on Immunization (EPI), the virus still circulating among children and adults and recurrent outbreaks have been reported. This investigation was undertaken in response to an outbreak of mumps at Beit Tawaf in Amran governorate to confirm the outbreak and recommend preventive measures.

Methods:

We initiate active case finding in Beit Tawaf (550 population) between Marchl 728, 2014 using WHO case definition where a probable case defined as an acute parotitis or other salivary gland swelling lasting at least 2 days, or orchitis or oophoritis unexplained by another more likely diagnosis, in a person with epidemiologic linkage to another probable or confirmed case. The cases/guards were interviewed and the following variables were collected: age, gender, data of onset, symptoms.

Results:

Sixty-nine cases met the case definition of probable mumps. The overall attack rate and the <15 years age specific attack rate were 12 and 26/100 population respectively. 43% were among 5 — 9 year and 54% were males. The index case was identified as a student of a primary school who had no travel history and could not recall any contact with a suspected mump case before onset of symptoms. The index case appeared to be the source of the outbreak, and there were four outbreak waves. The outbreak started in 8th epidemiological week, the peak of the outbreak was in 14th epidemiological week.

Conclusion:

Finding suggested that mumps general immunity is still weak among general population. Therefore, introducing mumps vaccine to routine EPI needs to be considered in Yemen. We recommended launching a community awareness camping on mumps and asked school headmasters to exclude affected students from schools for 20 days. Improving surveillance system for timely detection and prompt response is highly recommended. Key Words: Mumps, outbreak, Yemen

Pattern of Onchocerciasis (Sowda) -Yemen, 2010-2013

Fahd Mohammed. Al Habel, Al kohlani A.H., Qayad

Presented at First International Conference for Medical Research 48 Hospital, Sana'a-Yemen, December 29, 2014

Background:

Onchocerciasis is one of the neglected tropical diseases. 37 million people are infected worldwide and another 100-120 million at risk. Although Yemen is the only country in the Eastern Mediterranean Region has Onchocerciasis, where over 75,000 persons are infected and over 400,000 at risk, still there is no national Onchocerciasis surveillance system. In Yemen, Onchocerciasis knows as Sowda, which is a severe reactive form of Onchocercal dermatitis. The aim is to assess the epidemiology of Onchocerciasis in Yemen using data available at Charitable Society for Social Welfare (CSSW) during 2010-2013.

Methods:

A soft copy of the 2010-2013 Sowda data for the selected endemic areas in five governorates (Al Mahaweet, Hodeida, Sana'a, Hajja and Rema'a) obtained from CSSW Data were available on sex, age, new/old manifestation, and number of distributed Ivermectin tablets.

Results:

During 2010-2013, the average rate of the new treated cases of Sowda is 63 per 1000 eligible population at the selected areas. New cases represent 20 % of total cases where the age group > 15 years is mostly affected with no gender difference. Al Mahaweet governorate is the most affected governorates. The old cases were receiving on average Ivermectin tablets, 2 - 3 times per year with one-fourth dropout during 2010 — 2012 compared to one-tenth in 2013.

Conclusion:

Sowda is still an important neglected public health problem in the west south valleys. Piloting a new community based surveillance system with clear case definition is recommended. The Ministry of Public Health and Population should lead the Onchocerciasis eradication efforts in partnership with other governmental organizations and NGOs that are working at the community level via multi-sectorial corporation.

Key Words: Onchocerciasis, Sowda, CSSW, Ivermectin, Yemen

Severe acute malnutrition indicators compared to Sphere minimum standards- Yemen, 2011-2013

Mohammed A. Al Emad, H. Al Muntaser, L. Al Eryani, A.W. Al Serouri.

Presented at 8th TEPHINET Global Conference
Mexico City, 7-11 September 2015

Background:

In Yemen, more than 250,000 children suffer from Severe Acute Malnutrition (SAM) who are nine times more likely to die than well-nourished children are. In 2006, Ministry of Health supported by UNICEF established three inpatients SAM therapeutic feeding centers (TFCs) that reached 1,483 by 2013. The aim is to describe the TFCs SAM indicators compared to the Sphere minimum standards and provide recommendations for improvement.

Methods:

We calculated the 2011-2013 SAM TFCs indicators and compared it to the Sphere minimum standards. The Central Statistical Organization data on under five population was used to calculate the admission and coverage rates.

Results:

From 2011 to 2013, there is an increase in SAM admission rate from 6 per 1000 to 26 and in the treatment coverage from 7% to 28%. During the same period, there is an increase in the cure rate from 52% to 61 % (Sphere minimum standard > 75%), decrease in defaulter rate from 44% to 36% (Sphere minimum standard <15) and decrease in death rate from 2% to 04% (Sphere minimum standard <10). Urban governorates found to have lower admission, coverage and cure rates as well as high defaulter rate.

Conclusion:

Admission, coverage, cure, defaulter and death rates have improved from 2011 to 201 that indicates better access and management. Nevertheless, cure and defaulter rates are still far below the Sphere minimum standards. Furthermore, although the death rate met the Sphere minimum standards, this may be confounded by the high defaulter rate and lack of death registration at the community. We recommend improving cases management and follow up at the TFCs. Further studies are required to explain reasons behind low cure and high defaulter rates in urban governorates.

Key Words: SAM, Therapeutic Feeding Centers, Indicators, Sphere minimum standards, Yemen

Epidemiology of Soil Transmitted Helminths and Schistosomiasis in schoolchildren- Yemen, 2014

Nabil M. Al-Abhar, A. Muaydh, S. Al-Haidari A.W. Serouri

Presented at 8th TEPHINET Global Conference
Mexico City, 7-11 September 2015

Background:

In Yemen, Soil Transmitted Helminthes (ST H) and schistosomiasis are important public health problems among school age children (SAC) that could negatively affect their cognitive functions and nutritional status. In 2010, National Schistosomiasis Control Program (NSCP) reported a prevalence of 26% for STH and 25% for schistosomiasis among SAC. In 2014, the National School-based Survey (NSBS) was conducted to monitor the prevalence and distribution to plan for future school-based interventions.

Methods:

Data from the NSBS was analyzed. The survey was a cross sectional survey where six essential schools were selected randomly form each of the 333 districts and 35 students from each school. Stool samples were examined for parasites using Kato-Katz technique and urine specimens analyzed using filtration method.

Results:

Out of 76,079 SAC surveyed, 9% had ST H; of them 0.5% had multiple infections. STH prevalence was significantly higher among females than males (11% vs. 8%, P < 0.0001) and among those below 14 years (9% vs. 7%, P <0.05). A-lumbricoides had the highest prevalence (8.4%) followed by T.trichiura (1.6%) and hookworms (0.1%). Aden had the highest STH prevalence (30%). Prevalence of schistosomiasis was 3.4% where it was higher among males (4% vs. 3%, P, < 0.0001) but no significant difference by age. The prevalence of Schistosoma mansoni and Schistosoma haemtobium was 2.7% and 0.7% respectively. Taiz governorate had the highest schistosomiasis prevalence (18%).

Conclusion:

The drop in prevalence of Schistosomiasis and ST H compared to the 2010 previous figures may be attributed to the repeated mass chemotherapy and deworming campaigns conducted by the NSCP during the last five years. Targeted chemotherapy and deworming to high prevalence governorates should be continued to prevent long-term negative impact on SAC cognitive functions and nutritional status. The strategy of control should go on hand with education and awareness campaigns.

Key Words: Schoolchildren, ST H, Schistosomiasis, Deworming, Yemen

Integrated Management of Childhood Health Training Activities: Are current targeting strategies efficient? Yemen, 2002-2014

A. BaSaleh, N. Abhar, B. Obaid, N. Alqubati, A. Serouri Presented at 4th EMPHNET Regional Conference Aqaba-Jordan, September 28 — October 1, 2015

Background:

Integrated Management of Childhood (IMCI) strategy is an integrated approach to child health that was launched by WHO and UNICEF in the mid 1990s and focuses on the well-being of the children under five years of age. In Yemen, the IMCI strategy endorsed in 2000 and first facilitators training launched on SepOct 2002. The purpose is to provide decision-makers with

evidence-base data on current IMCI training activities that will help establishing a new training strat-

Methods:

We analyze data on training available at the IMCI program from 1st Jan 2002 to 9th Sep 2014 by time, place, person, type of training and funding agency.

Results:

7,447 were trained during from 1st Jan 2002 to 9th Sep 2014. The trainings' trend shows wide fluctuation where only 2% trained in 2011 compared to 18% trained in 2008. Similarly, coverage of training activities is varied widely along governorates where it is highest in secure and accessible governorates (e.g. Taiz and Ibb) and lowest in remote and insecure governorates (e.g. Shabwah and Saadah). Females constitute only less than one third of trained taskforce. The largest training funding share comes through UNICIF (42%) and Social Fund for Development (25%) compared to only one percent from the government.

Conclusion:

While female cadre is the main IMCI services providers there are less targeted by training, which necessitate development of a sound gender training targeting strategy. Such strategy should also focuses on remote and insecure governorates. The fact that IMCI trainings are mainly funded through donors, may explain wide trend fluctuation and raise issues about the sustainability of these trainings activities as well as the IMCI program as a whole. Therefore, the MoPHP with donors' community should agree on a more sustainable financial plan that will enable the program to launch its new strategic plan with gradual withdrawal of donor support and taking-over by government. Key Words: 'MCI, Training, targeting strategies, Yemen

Evaluation of the Electronic Diseases Early Warning SystemSana'a Capital-Yemen, 2014.

Eshraq Alfalahi, F. Dureab, R. Alyousefi, A. Alsamee, M. Qayad, A. Al Serouri

Presented at 4th EMPHNET Regional Conference Aqaba-Jordan, September 28 — October 1 , 2015

Background:

Recently, the importance of introducing electronic system for diseases surveillance was emphasized regionally. In Yemen, WHO introduced a pilot electronic Disease Early Warning System (eDEWS) in March 2013 for early outbreak detection including immediate alert reporting and weekly electronic data collection on 16 priority infectious diseases in four Yemeni governorates, including 25 health facilities at Sana'a Capital. The program is running for over a year without evaluation. The purpose is to assess eDEWS performance in Sana'a Capital according to the system attributes.

Methods:

Based on CDC surveillance evaluation guidelines, we conducted in-depth interviews with 24 eDEWS officers and eight stakeholders from Ministry and WHO. Additionally, the system documents, online dashboard, and system indicators were reviewed to assess different attributes e.g. usefulness, simplicity, acceptability, flexibility etc.

Results:

All eDEWS officers mentioned that the system is simple, acceptable and flexible. While the reporting completeness and timeliness were 100% and 92% consequently, alerts validation and investigation as a usefulness indicator was only 54%. Although all stakeholders agreed on the importance of eDEWS, misunderstandings about its objectives and uses found. While eDEWS and vertical ministry programs found to be integrated at peripheral level, integration was found to be weak centrally. A concern about eDEWS sustainability was raised since it is donor-driven and exclusively dependent on WHO emergency fund. The system also encounters several technical obstacles regarding efficacy of the internetconnected phone reporting Conclusion:

Although the system found to be simple, acceptable and flexible, low alerts validation and investigation raised issues on usefulness of the data generated. Therefore, increase number of the eDEWS supervisors and their stipends should be considered. To ensure eDEWS sustainability and functionality, Ministry should take the lead on eDEWS and incorporate it within its hierocracy with clear integration mechanism especially at central level. The old phones should be replaced with new smart phones to overcome internet connectivity problems.

Key Words: eDEWS, Evaluation, stakeholders, attributes, Yemen

Analysis of four injury-reporting data sets at the Ministry of Public Health and Ministry of Interior -Yemen, 2012

Eshraq Alfalahi, A. Esmaeel, M. Qayad, A. Al Serouri, A. Assabri

Presented at 4th EMPHNET Regional Conference Aqaba-Jordan, September 28 — October 1, 2015

Background:

Globally more than nine people die every minute from injuries or violence. In Yemen, the total number of traffic casualties in 2012 was 11,598 with 2,382 deaths and an estimated material damage of 10 million US$ but no statistics on other burdens. Currently there are two injury-reporting programs at the Ministry of Public Health and Population (MoPHP): Ambulance Services on Highways (ASH) and Violence Injury Prevention (VIP). Furthermore, two departments at the Ministry of Interior (Mol), the Traffic Department (TD) and Security and Justice Department (SJD), are reporting as well. The purpose is to analyze the 2012 injury reporting data sets from both MoPHP and Mol.

Methods:

The 2012 different injury-reporting data sets were collected, cleaned and analyzed. Casualties' rates estimated per 100,000 population and mortality rates per 100 casualties.

Results:

Although it was difficult to make comparison among different data sets as each reports different variables, inter personal violence found to be the most injurycausing event in SJD and VIP (61/100,000 and 37/100,000 respectively). While VIP reported that Sana'a city has the highest traffic collisions' casualties' rate of 134/100,000, according to TD Sana'a came the second (97/100,000). Regarding the mortality rates (MR), while Aljawf in ASH recorded the highest rate (71%) from all casualties, Shabwah reported the highest (49%) from traffic collisions only according to TD Conclusion:

The conflicting results with increase duplication possibility and inconsistencies in variables reported by each injury reporting data set make _reaching conclusion on the actual injury burden difficult and questions both the efficacy of the current reporting and efficiency of using limited resources. Therefore, it is crucial to establish a multi-sectorial integrated and unified injury surveillance system leaded by MoPHP to assess the current burden and plan for interventions.

Key Words: Injury, Reporting programs, Analysis, Yemen

Explosive Measles Outbreak among unvaccinated children due to parent refusal, in Al Jawf Governorate, Yemen, March 2015

Ghazi Bashamakha, Al Emad M, Taqi N.,AI Serouri AW

Presented at 4th EMPHNET Regional Conference Aqaba-Jordan, September 28 - October 1, 2015

Key Words:

Background:

In mid-February 20151 the surveillance coordinators in Al Matamma and Al Matoon districts at Al Jawaf Governorates reported an increased number of fever cases with skin rash suspected as a measles cases. Al Jawaf Governorate is one of the remote northern governorates that suffers from fragmented power structures and overall instability. The purpose is to characterize the outbreak, and make recommendation for control.

Methods:

Suspected cases defined as fever illness and rash that does not meet criteria for any other illness. We conducted face-to-face interview with caretakers to collect socio-demographics, history of illness, signs and symptoms. 46 blood samples were collected for lab confirmation using Elisa.

Results:

A total of 93 cases were reported from 1st January to March 17, 2015. Mostly cases reported within February and March 2015 with the peak in week 10. Two third of Al Jawf districts were affected with case fatality rate 2%. The disease is more prevalent among males than females (1.411.0) and around two thirds of cases below 5 years. All cases had fever and rash, 78% had conjunctivitis, 71% had cough and 38% had runny nose. 84% of cases were among unvaccinated children. Among those who were partially vaccinated, two thirds were vaccinated only during campaigns and all of them received only first dose of measles vaccine. 33 cases (72%) of found to be IgM positive.

Conclusion:

Large measles outbreak has been confirmed in two thirds of districts at Al Jawf governorate mainly among un-vaccinated children due to parents' refusal. Health education campaign was launched and mass vaccination of under five children was recommended.

Measles, Outbreak, Al Jawf, Yemen

c. Conferences Poster Presentations

HINI outbreak in Hareb Baihaan district, Mareb, Yemen: The challenges and lessons learned, August 2014

Eshraq N. Alfalahy, Baayees M., Shamsan E, Al Abhar N., Al Serouri A.W.

Presented at Yemeni International Congress on Infectious Diseases
University of Science & Technology Hospital, Sana'a-Yemen, 16-18 December 2014

Background:

On August 20, a community member from Hareb Baihan, informed the surveillance department at Ministry of Public Health and Population of a confirmed case of HINI from Hareb who admitted to a private hospital on 9th and died on 13th August. The deceased's relatives are also experiencing flu like illness. On August 25, outbreak investigation team deployed to Baihaan aiming to confirm the outbreak existence and implement preventive measures.

Methods:

A case control study was conducted, where 16 cases and 43 controls were identified. Probable case was defined as an individual with a clinically compatible illness or, Who died of an unexplained acute respiratory illness and is epidemiologically linked to confirmed, which defined as an individual with laboratory confirmed H INI virus infection by at least one of the following: RT-PCR, Viral culture, Four-fold rise in HINI antibodies. The modified Influenza Like Illness questionnaire was used to interview cases and controls. Those who had flue like illness but did not meet the above definitions were considered as suspects- 13 nasopharyngeal swabs were collected for PCR. Controls are those with no symptoms.

Results:

Beside the known dead confirmed case, 10 cases were met probable case definition (of them two died) and five were suspects. Nine of probable cases are from Baihaan Al Qareah (residence of the dead confirmed case). 81% of cases were females and were > 15 years old. 38% had close contact with the confirmed case as had contact with animal. All cases had fever and cough. All collected samples found to be negative to HINI and H5N2 by RT-PCR but were sent to NEMRO-III for further confirmation.

Conclusion:

Findings highlight challenges encounter outbreak investigation in Yemen. First, late reporting that comes from community indicates weak surveillance system. Second, late deployment of the investigation team more than two weeks after deceased admission underlines the weak response. Finally, lack of virus isolation capacities in Yemen could limit early outbreak confirmation and response. Therefore, strengthening surveillance system and laboratory capacities for early outbreak detection and response is highly recommended.

HINI, outbreak, challenges, Yemen

"Facing Yemen Public Health Challenges through strengthening Field Epidemiology"

Dengue Fever Outbreak at Al ganaws district, Al Hodeida, Yemen 2014

Ghazi S Bashamakha, Jawal A., Al shameiry H., Qayad M.

Presented at Yemeni International Congress on Infectious Diseases
University of Science & Technology Hospital, Sana'a-Yemen, 16-18 December 2014

Background:
Dengue Fever (DF) has emerged as public health problem in Yemen where 14 out 23 governorates has reported outbreaks since 2002. In January 2014, the surveillance coordinator in Al ganaws district, Al Hodeida governorate reported an increased number of suspected DF and the Ministry sent a team to characterize the outbreak, confirm the diagnosis and prevent future spread.

Methods:
A suspected DF defined as an acute febrile illness 2-7 days with two or more of the followings: severe headache, retro-orbital pain, muscle/ bone/ joint pain and negative malaria test. We conducted face-to-face interview to collect data on age, gender, residence and symptoms/signs- Blood specimens were collected from 55 suspected cases. Vector surveillance was also conducted. Data entered and analyzed using EPI INFO.

Results:
During 1st January — 28th February 2014, 138 met DF case definition of which 73 cases (53%) from deerAl zaher. 54% of cases were among males and three quarters within 5-25 years age group. The attack rate was 15/10,000 and case fatality was 2.2%. Out of 55 specimens tested, 3 (5%) were lgM positive, 31 (56%) lgG positive and 15 cases (27%) positive for both. The most frequently reported symptoms were fever (100%), headache, joint pain, muscle pain (99% each), and retro-orbital pain (94%). No hemorrhagic manifestations were identified. Vector surveillance show presence of the vector (Aedes Aegypti), with 23% house index and 25% container index.

Conclusion:
The investigation confirmed DF outbreak in Al ganaws district with presence of the vector. The high burden of disease among males and young adults suggests outdoor infection. Vector control by insecticide spraying and fogging to eliminate the breeding place is recommended. Improve dengue surveillance system is the corner stone for early outbreaks detection and control.

Dengue, outbreak, Al Hodeida

Measles outbreak with high mortality among non-vaccinated children, Al Zeliah village, Hodeida governorate, November 2014

Mohamed A,Alamad, Qasee m,AI serouri

Presented at Yemeni International Congress on Infectious Diseases
University of Science & Technology Hospital, Sana'a-Yemen, 16-18 December 2014

Key Words:

"Facing Yemen Public Health Challenges through strengthening Field Epidemiology"

Background:
On October 12, 2014, the surveillance coordinator in Al Tuhita district notified about 17 suspected measles cases with eight deaths at Al Zeliah village. On 2 November, a team sent for further investigation of the outbreak. The aims were to determine the outbreak extent, identify source, and recommend control and preventive measures.

Methods:
The team reviewed the surveillance records and used the CDC case definition where suspect case defined as: fever illness and rash that does not meet criteria for any other illness, probable as a case meeting clinical case definition without lab confirmation, and not epidemiologically linked to a confirmed case, and confirmed as a case that is laboratory confirmed or meets the clinical case definition and epidemiologically linked to a confirmed case. Active house-to-house search conducted and 18 blood samples were taken for lab confirmation.

Results:
Seventy-four cases reported from 29th September to 6th November 2014. All cases were unvaccinated due to documented parents' refusal. The attack rate was 15/100 population with a case fatality rate of 16%- 51 % were males and 84% were children 10 years. Out of the 18 blood samples collected, 15 (83%) were lgM positive. Four cases needed admission due to the severe complication where two cases had pneumonia, one had blindness, and one had meningoencephalopathy.

Conclusion:
Measles outbreak with high mortality has been confirmed in Al Zeliah village due to vaccine refusal. Therefore, health education to tackle refusal with an urgent measles immunization campaign and vitamin A supplementation had recommended. For the long-term measles prevention, strengthening the routine and outreach immunization services with awareness rising is crucial. Qualitative research to study reasons behind refusal in this community is prerequisite.

Measles, outbreak, unvaccinated, mortality, Yemen

Antibiotic Resistance Profiling of Blood Stream Bacterial Infection, National Center of Public Health Laboratories-Yemen, 2012-2014

"Facing Yemen Public Health Challenges through strengthening Field Epidemiology"

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Accepted at 8th TEPHINET Global Conference
Mexico City, 7-11 September 2015

Background:

Antibiotic resistance (AR) of blood stream bacterial infections (BSBI) remain a great growing public health concern as it may leads to treatment failure, increase mortality and cause outbreaks. In Yemen, there are reports about overuse/misuse of antibiotics, which can aggravate AR. The aim is to describe AR among cultured blood samples at the National Center of Public Health Laboratories (NCPHL).

Methods:

Data on blood culture and sensitivity test results available at the Microbiology Unit at the NCPHL from 1st January 2012 to 1st January 2015 were analyzed.

Results:

Of the 2,375 blood cultures, 146 (6%) yielded bacterial growth. The most frequently found microorganisms were coagulase-negative Staphylococci (35%), Staphylococcus aureus (16%), Klebsilla (13%) Pseudomonas (9%) and Enterobacter (8%). Overall, the following five antibiotic have the highest resistance: Cefadroxil (91 %), Cefixime (88%), Cefaclor (82%), Aztreonam (78%) andAmpicillin (76%)- Coagulase-negative Staphylococci found to be mostly resistant to Cefixime (92%), Co-Trimoxazole (83%), Erythromycin (79%), Carbenicillin (78%) and Ceftriaxon (74%). Staphylococcus aureus found to be mostly resistant to Ceftizoxime (90%), Gentamicin (83%), Ampicillin (78%) Amoxicillin (78%) and Cefurexime (71 Klebsilla is resistant to Augmentin (100%), Ceftazidime (100%), Piperacillin (100%), Cefapime (100%), Netilmicin (90%). Pseudomonas was resistant to: Carbenicillin (100%), Tobramycin (100%), Azlocillin (83%), Gentamicin (83%) and Co-Trimoxazole (80%). Enterobacter is also resistant to Co-Trimoxazole (100%), Cefiizoxime (100%), Cefotaxime (100%).

Conclusion:

Findings highlight the increasing problem of AR in Yemen. Results should provide important information for guiding empirical antibiotic prescribing and emphasize the need for generating strategies for controlling resistance. It also underlines the need to establish a surveillance for BSBI and antibiotic stewardship to minimize selection pressure and spread. Infection control measures should strengthened especially at health facilities.

Key Words: Antibiotic resistance, Blood stream bacterial infection, Yemen

Key Words:

Fauvism outbreak after charitable food distribution in Al Dhalae governorate Yemen, April 2014

Fahd M. Al I-label, A. Bin-Break, A. Saleh, M. Qayad
Accepted at 8th TEPHINET Global conference
Mexico City, 7-11 September 2015

Background:
Glucose 6 Phosphate Dehydrogenase deficiency (G6PDD) is affecting 400 Million person in Africa, South Asia and Middle East resulting in hemolytic anemia (HA) known as fauvism. At 31 March 2014, Ministry of Health received reports on patients attended hospitals in Al Dhalae suffering from HA where one patient died and another had acute renal failure. MOH sent a team to characterize the outbreak, confirm diagnosis, and recommend control measures.

Methods:
Cases defined as any patient fromAl Dhalae who complained from eye/skin yellow: ish discolorations, dark urine with or without generalized weakness and abdominal pain during March/April 2014. Active case search conducted in hospitals where data collected from records and face-to-face interviews. Before blood transfusions, venous blood were drawn from five patients and sent to Central Public Health Laboratory in Sana'a for G6PDD testing.

Results:
54 cases of HA met case definition, 78% were males and 87% were s14 years. 89% of cases occurred in Al Dhalae, Al Azariq and Jahaf districts. All cases gave a history of eating fava beans that were distributed by a charitable organization one week before appearance of first case on 29th of March- Al Dhalae district had the highest incidence rate of 13/10,000. Half of cases occurred in 2— 4 April and last case occurred in 8 April. Three out of five (60%) collected blood samples found positive for G6PDD

Conclusion:
Occurrence of HAin liable persons after eating the distributed fava beans with positive G6PDD test confirm diagnosis of fauvism. Community based research about prevalence of G6PDD in Al Dhalae is needed. Distribution of cards to G6PDD positive cases with health education on how to avoid fauvism in the future are recommended.

Key Words: Hemolytic Anemia, Fauvism, G6PDD, Fava beans, Al Dhalae, Yemen

Pattern of animal rabies-Yemen, 2005-2013

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Accepted at 8th TEPHINET Global Conference
Mexico City, 7-11 September 2015

Background:
Rabies is a zoonotic acute viral infection of the central nervous system that causes encephalitis, with a human fatality rate of nearly 100%. Yemen is classified as endemic country for rabies where in 2013, 12,000 cases were reported to be bitten mostly by dogs with 48 deaths. The aim is to assess the epidemiology of animal rabies in Yemen using data available at the Central Veterinary Laboratory (CVL).

Methods:
We analyzed data on animal brains samples tested at CVL in Sana'a, for the years 2005-2013. Data was available on animal brains samples' results, animal type, and governorate name. The number of human and animal victims only available for 2010-2013.

Results:
Out of 4,362 animal brains samples tested, 76% found to be positive where the trend varies between 73% in 2005 and 86% in 2011. Dogs represent 97% of total tested animals of which 77% were stray. Positive brains samples was significantly higher among stray than domestic dogs (80% vs. 59%, P <O.OOOI) and in Amran (78%) and Sana'a and Dhamar (76%) governorates. The victim to animal ratio was 1.4 where humans represent 97% of the victims.

Conclusion:
Rabies is still an important neglected public health problem in Yemen where the surveillance data may only shows the tip of the iceberg. Strengthening rabies surveillance system and multi sectorial cooperation between veterinary and health authorities is a prerequisite for success of any rabies control strategy. It is essential to launch control strategy for stray dog and introduce vaccination for domestic dogs.

Key Words: Rabies, Animals, dogs, Yemen

Measles Surveillance System Evaluation- Amran governorate, Yemen, 2014

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Accepted at 8th TEPHINET Global Conference
Mexico City, 7-11 September 2015

Background:
Measles is still a global threat especially among children where 355,000 cases and 1581000 deaths were reported in 2011. In Yemen, measles incidence rates have increased from three per 100,000 populations in 2008 to 13 in 2011. The Measles Surveillance System (MSP) was established in 2007 to predict epidemics and monitor progress towards eradication. The aim is to assess the MSP usefulness and evaluate performance according to its attributes.

Methods:

Based on the CDC Guidelines for Evaluating Public Health Surveillance Systems, we conducted quantitative and qualitative MSP assessment where data was collected by in-depth interviews with Amran governorate and district coordinators as well as health facility focal points using semi-structured questioner.

Results:

Analysis shows the MSP usefulness as collected data makes possible to show the geographical distribution, trends, and identify/respond to outbreaks. According to focal points, the case definition and its application is easy which indicates the simplicity. The MSP is currently integrated with the Acute Flaccid Paralysis (AFP) and include rubella and it can accommodate change in case definition, which indicates its flexibility- However, the mean timeliness score was 61% which is still far from the 80% target and only 45% of the public and private facilities are covered. Furthermore, only 30% of health facility focal points are trained and there is no a mechanism for feedback from the central to peripheral levels.

Conclusion:

The MSP is providing important data for decision-making. Integration of the MSP with the AFP surveillance allows using minimum quantity of human and financial resources. However, the MSP representation and timeliness should be improved by targeting more public and private facilities, training focal points and establishing a mechanism for feedback.

Key Words: Measles surveillance program, Amran, Yemen

Severe Acute Respiratory Infections associated with influenza and noninfluenza respiratory pathogens -Yemen, 2011-2014

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Accepted at the 17th International Conference of Infectious Diseases Hyderabad-Yemen, March I — 4, 2016

Background:

In 2010, influenza surveillance started in Yemen after HINI influenza outbreak. Ministry of Health (MOH) established two sentinel sites for Severe Acute Respiratory Infection (SARI) at the two main public hospitals in Sana'a and Aden with the support of NAMRU3, where SARI samples tested for influenza and non-influenza viruses by the Real-Time-PCR assay. The aim is to describe the SARI severity as indicated by intensive care unit (ICU) admission and fatality as well as associated influenza and non-influenza viruses among hospitalized patients of the two sentinel sites in order to provide recommendations for improving SARI surveillance.

Methods:

Data of hospitalized patients of the two SS who meet WHO SARI case definition from January 2011 to November 2014 obtained from MOH. Data was cleaned and analyzed using SPSS program where P value < 0.05 was the cut point for significance.

Results:

1,665 met SARI cases definition during January 2011 — November 2014 of which 64% from Aden, two thirds were below the age of two years, 48% were

males, 24% has chronic diseases and 33% was admitted to the ICU. Overall fatality rate was 10% which significantly higher among patients from Aden than Sana'a (14% vs. 3%, P <0.001). 1299 (78%) samples were tested where influenza viruses were confirmed in 67 (5%); of which 41 (61 %) was type A and 27 (39%) was type B. Non-influenza viruses were detected in 39% (509) of samples including 246 (48%) Respiratory Syncytial Virus and 99 (19%) was Adenovirus. The influenza viruses was significantly higher in Sana'a than Aden (63% vs 37% P value < 0.01) while the Non-influenza virus was significantly higher in Aden than Sana'a (54% vs. 46%, P value < 0.01). The case fatality rate among non-influenza was 11% compared to 6% among influenza cases but the difference was not statistically significant.

Conclusion:

Our findings showed that most SARI cases was of non-influenza type with high mortality that necessitate prompt diagnosis and treatment of suspected cases. Expanding SARI surveillance to include more public and private hospitals in different governorates is recommended to give more comprehensive picture. Further studies to better understand the geographical differences are needed. Key Words: SARI, Sentinel surveillance, influenza viruses, Non-Influenza, Yemen

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