MINISTRY OF HEALTH UGANDA

UNIPH Epidemiological Bulletin

Volume 2| Issue 4| Sept 2017

Quarterly Epidemiological Bulletin of the Uganda National Institute of Public Health, Ministry of Health

July - September 2017

Dear Reader,

Welcome to the fourth volume of Issue 2 of the Uganda National Institute Public Health (UNIPH) Quarterly Epidemiological Bulletin.

This bulletin aims to inform the district, national, and global stakeholders on the public health interventions, evaluation of surveillance systems and outbreak investigations undertaken in disease prevention and control by Ministry of Health.

In this issue, we present highlights on from the National TB prevalence survey, Uganda Population Based HIV Impact Assessment (UPHIA) mysterious deaths caused by consumption of adulterated alcohol, and a falsely reported cluster of tumors among others. These studies generated evidence and results which will be used to inform planning and interventions in the country and beyond.

For any further information regarding the articles, feel free to contact us at: *riolexus@gmail.com OR akuzehilda@musph.ac.ug*

We welcome any feedback regarding the content and general outlook of this issue and look forward to hearing from you. We hope this will be both an enlightening and pleasurable reading for you.

Thank You

Inside this issue:

The Uganda Public Health Program (Advanced FET), the way to go for FETPs: Highlights from the 9th International TEPHINET Global Scientific conference, Chiang Mai, Thailand

By Alitubeera Phoebe, Epidemiology Fellow, Uganda Public Health Fellowship Program

Field Epidemiology Training Program (FETP) fellows and their supervisors had the pleasure of attending the 9th International TEPHINET Global Scientific conference in Chiang Mai, Thailand from 7th to 11th August 2017. The conference theme was "Building on 20 years of Applied Epidemiology Training to Advance Disease Surveillance, Response and Sustainable Development."

There was a total of 1159 oral presentations and poster presentations from 66 countries which participated, and Uganda had the third largest number of accepted abstracts for presentation after China and Nigeria. Of the 20 abstracts from Uganda, 7 were oral and 13 were iPoster presentations. I made an oral presentation on "Post Exposure Prophylaxis among Health Workers with Occupational Percutaneous Injuries: Kampala, Uganda, 2016."

Several pre-conference workshops were lined up for participants to attend such as: birth defects surveillance, science and art for epidemiologists to influence policy makers, field epidemiology capacity building for strengthening public health institutes, measuring timeliness of outbreak detection and reporting.

I attended the field epidemiology capacity building for strengthening public health institutes (PHI) workshop which discussed if FETP curriculum prepares individuals for institutional capacity of PHI. The Uganda PHFP_FET program was highlighted as case-study for its ability in preparing Fellows in this regard as they are hosted at priority departments in the ministry of health. Opportunities for active participation in on-going activities such as creation of health related bills, policies and programming are abundant. It was noted that other FETP programs being mainly didactic and masters awarding level were not as effective as the Uganda PHFP-FET which is post-masters and skill oriented.

In addition, we discussed how FETP should evolve from focus on communicable disease and outbreak investigation to non-communicable diseases (NCDs) and other public health priorities such as maternal health. The Uganda PHFP-FET model was again noted as already addressing this through having Fellows not only participate in outbreak investigations but also be hosted and participate in program activities at Ministry of Health departments of NCDs, reproductive health, trauma, injuries and disabilities. I used my FETP experience as an example and informed members that my host site at Ministry of Health is the Mental Health and Substance Abuse control division. I therefore had opportunity to participate in workshops to draft the tobacco and alcohol control bills, policies and strategic plans among others. I also used Ministry of Health surveillance data to descriptively describe the burden of common mental neurological disorders which formed the basis for a policy brief on maternal depression which was a priority output for my host institution. All this while actively participating in outbreak investigations of cholera, leptospirosis and anthrax in various parts of the country.

It was also agreed that Fellows should be known and introduced as such or residents rather than students or interns. Being referred to as students undermines Fellows and their work yet they actively participate in various public health activities. In a bid to ensure Fellows are not perceived as students, it was suggested that FETP should be known as Field Epidemiology Service (FES) instead.

We also discussed the career structure post FETP. It was noted that in some countries like Nigeria, Fellows tended to revert back to their former positions before they joined the fellowship and did not remain in active public health practice which negates the purpose of FETP. It was suggested that positions be created at national and district levels for Field Epidemiologists to ensure Fellows are retained in public health practice.

Participants from Uganda during the 9th International TEPHINET Global Scientific conference, Thailand

Finally, we discussed funding sources for FETP where the CDC director noted that given the change of political environment, the funding future for FETP remains uncertain and advised FETP programs to target additional funds. It was agreed that Fellows should be guided by their secretariats to write and win grants for extra funds.

This narrative clearly illustrates how the TEPHINET conference provides a platform for Fellows, students of public health and other researchers to not only show case their work but also provides a think tank for constructive dialogue to tackle public health challenges across the world.

HIGHLIGHTS OF THE 2016 UGANDA POPULATION HIV IMPACT ASSESSMENT (UPHIA)

By Miriam Nakanwagi, *Epidemiology Fellow, Uganda Public Health Fellowship Program*

The 2016 UPHIA was conducted by the Ministry of Health in collaboration with ICAP at the Columbia University. It was a nationwide survey aimed at providing estimates of HIV incidence, HIV prevalence, viral load suppression, syphilis, hepatitis B infection, and other important HIV/AIDS program indicators. The assessment was conducted from August 2016 to March 2017.

Continued from page 2

Data were collected in all districts of the country from a sample of households, representative of the Ugandan population. A total of 12,483 households were surveyed and participation rates were over 95% for both interviews and blood draws.

Preliminary results indicate that the current prevalence of HIV among adults aged 15 – 49 years in Uganda is 6%, lower than the previous 7.3% (The 2011 Uganda AIDS Indicator Survey). The HIV prevalence among young people 15 – 24 years was 2.1% (0.8% in men and 3.3% among women). Among children aged less than 14 years, prevalence was 0.5%. The total number of adults and children of all ages living with HIV in Uganda was estimated to be approximately 1.3 million. Adult HIV prevalence was higher among women at 7.5% versus 4.3% among men. Among adults, HIV prevalence is lowest in those 15-19 years. It is highest among men aged 45 to 49, at 14.0%.It was also higher among residents of urban areas (7.1%) versus 5.5% in rural areas. Regionally, the highest prevalence was at 7.7% in South Western region, 6.6% in Kampala and the lowest was 2.8% in West-Nile, a similar finding to the 2011 Uganda AIDS Indicator Survey.

Overall, HIV prevalence has declined across sub population groups and across the country. These declines in HIV prevalence may be attributed to decreasing number of new infections in recent years, a result of the intensified HIV prevention and treatment services in the country. This applauds the support from development partners such as PEPFAR, the Global Fund and other programs and the effort of the Government of Uganda's HIV/AIDS program. The country is steadily making progress towards the UNAIDS goal of 90:90:90.

TB more prevalent in Uganda than previously estimated: Highlights of the Uganda National TB prevalence survey 2014 - 2016

Robert Majwala [1,2] , Frank Mugabe[1]
*[*1]National TB and Leprosy Program, Ministry of Health*
[2]Uganda Public Health Fellowship Program

On 24 August 2017, the Ministry of Health released findings of the national TB survey. Until 2016 the true burden of tuberculosis in Uganda was unknown. WHO estimated prevalence of 159 per 100,000 in 2014 based on health facility data and modeling [1]. A cross sectional national population based survey of persons in selected clusters was conducted between 2014 and 2015 to determine the prevalence of bacteriologically confirmed pulmonary TB (PTB) in the population aged ≥15 years and associated factors.
Participants' were screened using a combined TB symptoms' and chest x-rays (CXR) strategy. Those with positive screening submitted two sputum samples which were subjected to TB laboratory tests (smear, GeneXpert and culture). A panel of TB experts ascertained the TB status of suspected patients using TB symptoms, CXR and laboratory findings. A total of 70 clusters located in 57 districts of Uganda with a sample size of 41,154 were screened for TB. Of these, 12.5% had either chest x-ray signs or symptoms suggestive of TB (screen positives).

The prevalence of bacteriologically confirmed TB among individuals aged ≥15 years was 401/100,000(95% Confidence Interval (CI) = 292 – 509). TB was more prevalent in urban 504/100000 (95% CI=355 – 652) than rural areas 370/100000 (95% CI = 237 – 504) and 4 times more prevalent in males 734/100000 (95% CI=554 – 914) than females 178/100000 (95% CI=109 – 247). On adjusting for age, bacteriologically negative and extra pulmonary TB, prevalence of PTB in Uganda was estimated at 253/100000 (95% CI=191 – 315). Tuberculosis is more prevalent than previously thought. About half of all the expected TB patients are missed. Government of Uganda, donors, partners and all stakeholders should support Ministry of Health to design and implement robust a strategic plan to tackle the TB epidemic in Uganda.

Reference

1. World Health Organization: **Global Tuberculosis Report 2015**, 20th edn. Geneva: World Health Organization; 2015.

Mysterious Deaths Caused by Consumption of Alcohol Adulterated with High Concentrations of Methanol, Wakiso District- Uganda, June 2017

Doreen Birungi[1], Patricia Eyu[1], Denis Okethwangu[1], Claire Biribawa[1], Susan Kizito[1], Benon Kwesiga[1]

[1]Uganda Public Health Fellowship Program

Summary: *On the 23rd June, 2017, Ministry of Health was notified of mysterious deaths in Wakiso District, Central Uganda. We conducted an epidemiological investigation to determine cause of mysterious deaths, identify risk factors for mysterious deaths, and recommend preventative measures. We identified 15 case-persons of which (12) twelve were males. The median age was 43.4 years (IQR: 36-55). 12 deaths and 3 survivors were registered (CFR; 80%). 13/15 (87%) cases reported having last drunk locally distilled alcohol (waragi) from a bar that was supplied by a salesman denoted as X before onset of symptoms compared to 15/84(18%) controls who had also drunk from the same (OR=29.9; 95% CI: 6.1- 146.6). 14/15 (93%) cases compared to 39/84 controls (46%) usually drunk waragi (OR; 16.2; 95% CI: 2.03-128.5). Toxicological findings on locally distilled alcohol revealed high levels of methanol above the recommended safe level of 50mg/l. Deaths in Wakiso district were caused by consumption of locally distilled alcohol adulterated with methanol. We recommended enforcement of laws and policies that governs sale of alcohol to the public.*

Introduction: On the 23rd June, 2017, Ministry of Health through the Public Health Emergency Operations Centre was notified of mysterious deaths in Wakiso District, Central Uganda. Sudden deaths involving seven persons from Maganjo Parish in Nabweru sub-county were reported. The case-persons presented with history of sudden onset of headache, vomiting, loss of sight, sudden loss of consciousness resulting into death.

Continued from page 3

Following this alert, a team from Ministry of Health was constituted to conduct an epidemiological investigation to determine the cause of the mysterious deaths, identify risk factors for mysterious deaths, and recommend control measures for the outbreak.

Methods: We defined a suspected case as onset of acute loss of sight, and any of the following symptoms: vomiting, headache, nausea, dizziness, loss of consciousness in a resident of Nabweru or Nangabo sub-counties, Wakiso District from 1st June, 2017 onwards. We carried out active case finding with the help of local council leaders and VHTs. We reviewed medical records at Ruth Gaylord Hospital in Kawempe B, Trinah Medical clinic in Ttula where the case-persons were admitted. We interviewed survivors, and persons at the homes where deaths occurred as well as held focus group discussions with the local leaders in the affected villages. A total of 15 case-persons were line listed. We conducted descriptive analysis to generate a hypothesis as stated, "Consuming contaminated locally distilled alcohol was associated with the deaths in Wakiso district". We conducted a case-control study to test the hypothesis in which one case was matched to 4 controls by residence, and alcohol drinking status. We defined a control person as an asymptomatic adult (>18years) living in Nabweru, and Nangabo sub-counties, Wakiso district who consumes alcohol. We submitted samples of locally distilled alcohol from the implicated drinking joints, and from the supplier of the bars to the Government Analytical Laboratory (GAL) for toxicological analysis. In addition, we collected blood samples the three survivors and submitted to GAL for toxicological analysis. We also reviewed post- mortem results for one of the cases. Together with the Police authorities, we collected locally distilled alcohol samples from supplier X, and from the implicated drinking joints. We followed the trail of the implicated alcohol to identify the source.

Results: A total of 15 cases were identified of which 12 were males. The median age was 43.4 years (IQR: 36-55). A total of 12 deaths and 3 survivors were registered (CFR; 80%). Attack rate was highest among males (7.6%) compared to females (2.1%).

Two sub-counties of Nabweru and Nangabo in Wakiso district were affected. Four zones (equivalent to a village), Ttula –Kidokolo, Kawempe A, Kawempe B and Kizingiza were affected. The most affected zone was Ttula-Kidokolo (AR 9.26/10,000). Ttula –Kidokolo had the lowest CFR (3/6) (50%), compared to Kawempe A (3/3) (100%), Kawempe B (4/4)(100%), Kizingiza (2/2) (100%).

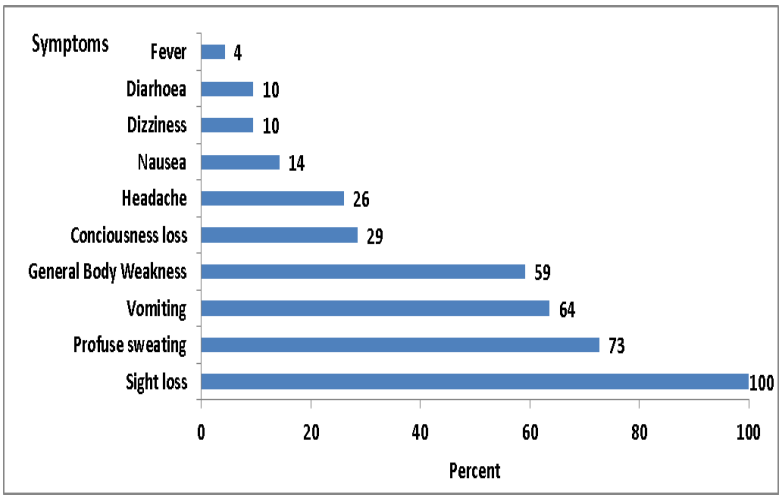


Figure 1: Distribution of symptoms among cases of methanol poisoning in Wakiso, June 2017

The symptoms were consistent with methanol poisoning. All cases had a history of acute loss of sight (Fig 1).

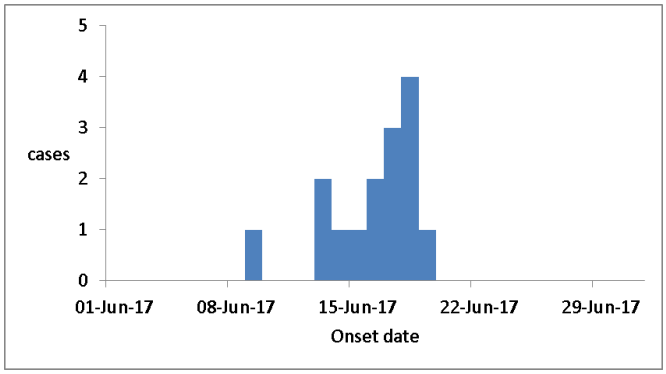


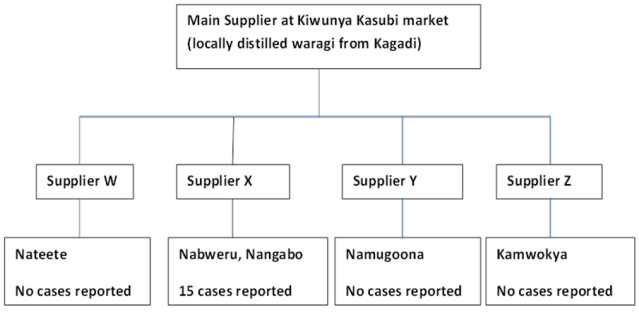
Figure 2: Epi- curve showing date of onset of symptoms among cases of methanol poisoning, Wakiso district, June, 2017

The first case developed symptoms on 9th June, 2017, followed by a sharp rise in cases from 13th June to 19th June, 2017. The average latent period (time between ingestion and development of symptoms) for all cases was one day. The median time between onset of symptoms and death was 19 hours (Fig 2).

Laboratory and Post Mortem results: The locally distilled alcohol contained methanol quantities above the recommended safe levels of 50mg/L. The average methanol in alcohol samples tested was 1200.27mg/L (77.16mg/L- 2711.2mg/L). In 20% (2/10) of the samples, Esters of 45.096 mg/L and 34.188mg/L which are above the recommended safe level of 30mg/L were detected. Similarly, volatile acidity of 86.76mg/L and 56.684mg/L which are also above the recommended safe level of 50mg/L were detected. Post mortem was carried from National Referral Hospital (Mulago) immediately after death occurrence and results for one of the case-person showed broncho-pneumonia.

Environment Assessment: The implicated alcohol was locally distilled from Kagadi district and brought to Kiwunya Kasubi for sale. It was sold to various parts of Kampala and Wakiso districts which did not report any cases of methanol poisoning, apart from Nabweru and Nangabo supplied by supplier X (Fig 2).

Figure 4: Source trace back of implicated Alcohol in Wakiso district, June, 2017



Case- control study findings: 13/15 (87%) cases reported that they had last drunk local waragi from a bar that was supplied by salesman X, before onset of symptoms compared to 15/84(18%) controls who had also drunk from the same (OR=29.9; 95% CI: 6.1- 146.6).

Continued from page 4

In addition, 14/15 (93%) cases, compared to 39/84 (46%) controls usually drink locally distilled gin (waragi), (OR; 16.2; 95% CI: 2.03-128.5). 14/15(93%) cases drunk alcohol packed in sachets compared to 49/84 (58%) controls, (OR; 10; 95% 1.3-79.6). Drinking beer was not a significant risk factor (OR; 0.3; 95% CI: 0.1-1.1).

Discussion: Methanol poisoning is a relatively rare but potentially serious medical emergency. Toxicity results when methanol is oxidized to formaldehyde and formic acid. In Uganda, deaths over years have been caused by methanol poisoning some of which include; 7 deaths in Kasana, Kampala in 2009, 5 deaths in 2005 in Kasese, 40 deaths in 2007 in Kampala (ProMED-EAFR, 2009). Drinking locally distilled alcohol was a risk factor for this outbreak. Though still uncertain how locally distilled alcohol was contaminated, amounts of methanol that are toxic were found in the implicated alcohol. Trace amounts of methanol are usually found naturally in fruit juices and this is non-toxic (WHO, 2014). Methanol is also a product of fermentation and is found in both alcoholic and non-alcoholic drinks in concentrations that are not harmful. Problems arise when higher concentrations are formed during incorrectly managed distillation processes, but more particularly when methanol is deliberately added to fortify informally-produced spirits and illicit alcoholic drinks (WHO, 2014). In this outbreak, there is a high suspicion that industrial methanol which was added to alcohol intended for sale.

The case fatality rate for this outbreak was 80%, this is above rates of other outbreaks that see a case fatality rate of 30%. This can be attributed to the fact that victims sought medical care after a significant delay. Late medical care contributes to the high level of morbidity and mortality seen in many methanol poisoning outbreaks. (Hovda, 2005).

Conclusions and Recommendations: Sudden deaths in Wakiso District were caused by consumption of locally distilled alcohol adulterated with high concentrations of methanol. We suspect supplier X to have adulterated the alcohol. We recommended enforcement of laws governing alcohol distillation and production. Public health campaigns should be put in place to promote awareness of the dangers of informally produced and illicit alcoholic drinks**.** Uganda National Bureau of Standards should conduct impromptu quality control checks of locally distilled alcohol.

References

1. Kraut, 2016 Approach to the Treatment of Methanol Intoxication. American Journal of Kidney diseases
2. Hantson P, WitteboleX , Haufroid V . Ethanol therapy for methanol poisoning: duration and problems. Eur J Emerg Med 2002; 9: 278 – 279
3. Hovda, KE et al. Methanol outbreak in Norway 2002-2004: epidemiology, clinical features and prognostic signs. Journal of Internal Medicine. 2005; 258:181-190.
4. ProMED-EAFR. (2009). Undiagnosed fatalities - Uganda - Methanol poisoning suspected.
5. WHO. (2014). Methanol Poisoning Outbreaks. World Health Organization

Evaluation of the Surveillance System in Bidibidi Refugee Settlement, Yumbe District, Uganda, Mar 2017

Jimmy Ogwal[1], Susan Kizito[1], Benon Kwesiga[1], Alex Riolexus Ario[1]

[1]Uganda Public Health Fellowship Program

Summary: Influx of refugees from Southern has stressed a fragile public health system leading to poor sanitation/ hygiene, insufficient safe drinking water, and an increased risk of disease outbreaks and malnutrition. We evaluated the disease surveillance system in Bidibidi refugee settlement in Yumbe District to identify strengths, weaknesses, and recommend areas for improvement. We evaluated the surveillance system attributes using the updated CDC guidelines for public health surveillance. Only 4% of health workers were trained on Integrated Disease Surveillance and Response (IDRS) guidelines by Ministry of Health with 12% of health facilities having treatment guidelines. There were 64 suspected cases of cholera but only 4 were notified for investigation as per Integrated Disease Surveillance and Response (IDRS) guidelines. Positive predicative value was 50%. We found weak surveillance system in terms of flexibility, acceptability, simplicity, sensitivity, timeliness and poor completeness. We recommended IDSR trainings for the DRRT; availing of standard MoH surveillance tools and strengthening of case investigation and reporting.

Introduction

Fresh political clashes in South Sudan in June 2016 led to a large influx of refugees to Uganda through various entry points in Northern Uganda. According to UNHCR, at the peak of the influx, approximately 2218 refugees arrived daily(6). In response to the growing need, Uganda's Office of the Prime Minister (OPM) and the UNHCR identified several locations for additional refugee camps and one of these was Bidibidi settlement camp located in the Yumbe District in Northern Uganda with a capacity of 180,000 refugees. Influx of refugees from Southern has stressed a fragile public health system leading to poor sanitation/hygiene, insufficient safe drinking water, and an increased risk of disease outbreaks and malnutrition. Although international standards for establishment of health surveillance in an emergency setting are available, we needed to assess the existing surveillance system, identify gaps and recommend areas of improvement

Method: We conducted the study in Bidibidi settlement camp located in the Yumbe District, in the West Nile region of Northern Uganda. We evaluated the surveillance system attributes using CDC guidelines for public health surveillance(1). 24 clusters (Villages) were selected from the 5 zones using sampling proportionate to size.

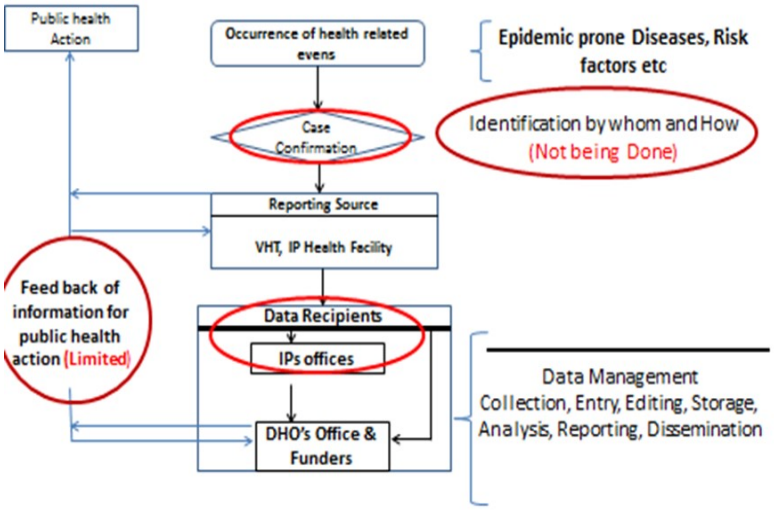
All Village Health Teams from the selected clusters and health facility in-charges were interviewed using structured questionnaires. Facility registers and reports were reviewed for availability and quality.

Continues to page 6

Continued from page 5

Results: The available system does not provide the opportunity for disease notification at community level, confirmation and response to outbreak as the health facilities do not report their data to the national DHIS2.

Fig 1. The flow chart for the surveillance system in Bidibidi settlement camp in Yumbe District between August 2016 and March 2017



Simplicity and acceptability: There are multiple reporting tools being used for reporting. UNHCR and its implementing partners used tools that were different from the standard IDSR tools approved by Ministry of Health. This affected the simplicity and acceptability of the surveillance since there were multiple reporting tools and structures being used.

Flexibility: Given that different tools were being used by different health facilities for data capture and reporting with different variables, the system was not flexible. Age grouping was different across the facilities and from that of Ministry of Health recommended tools.

Sensitivity: The system does not fit the WHO four steps of integrated disease surveillance and response of detection, reporting, investigation and public health actions. The diseases or conditions were being diagnosed without reference to the IDSR case definitions.

Representativeness: The analysis of the data was not being done at the facility level and occurrences of the diseases of epidemic nature at the community level were not being reported. The aggregation of conditions by location and time was not possible. This left the representativeness of the system on the distribution of disease inadequate.

Predictive value positive: This emphasizes the confirmation of cases reported through the surveillance system. The positive predicable value (PPV) for cholera is 50% and 5 cases of measles where suspected but none was reported either to Yumbe District or the DHIS2. The case fertility rate for cholera was 31 per 1000 people.

Table 1: Positive Predictive Value (PPV), case fertility rate and death for suspected and reported cases of notifiable diseases in Bidibidi settlement camp in Yumbe District between August 2016 and March 2017

Attributes	Suspected	Confirmed	Reported	Deaths	CFR/1000	PPV
Measles	5	0	0	0	0	0
Cholera	64	4	2	2	31	50
Guinea Worm	2	0	0	0	0	0
Dysentery	109	22	0	0	0	0
Bacterial Meningitis	12	3	0	0	0	0

Quality: In the camp facilities, 16% respondents were trained in outbreak investigations. 84% of the health facilities do not have both clinical and integrated disease surveillance and response guidelines. 75% do not have the required laboratory supplies necessary for sample taking and transportation.

Timeliness: Health care providers in the settlement (76%) send their data first to their head offices (partner agencies) before submission to the district health office. For diseases which are supposed to be reported immediately, like cholera and measles for public health action, it takes more than two days to reach Yumbe district health office.

Discussion: The available surveillance system in Bidibidi settlement camp demonstrated inability to detect, control, prevent and response to public health emergencies. A useful surveillance system contributes to the prevention and control of adverse health events especially in emergency settings with over stretched health and social services. Increased sensitivity may afford a greater opportunity for identifying epidemics and understanding the natural course of health events in a community. Similarly improved timeliness allows control and prevention activities to be initiated early. Having a representative surveillance system will better characterize the epidemiologic characteristics of a health event in a defined population(12). In Bidibidi settlement camp, more emphasis has been put on the care and treatment of events by the various implementing partners with very limited emphasis on surveillance. As a result many outbreaks were never noticed such the most recent measles outbreak where no case was reported but captured in the registers.

Conclusion

The surveillance system in Bidibidi settlement camp is not in line with the WHO standards which are being used by Ministry of Health. It does not provide room for detection, prevention and control of public emergencies. The system was found not to be simple, insensitive and with limited flexibility to achieve the surveillance goals.

We recommend that the surveillance system in the camp should be harmonized with that of ministry of health through proper coordination to facilitate timely detection, reporting and investigation of public health events.

Malaria morbidity following Indoor Residual Spraying in Eastern and Northern Uganda: A comparative analysis of IRS and non-IRS districts 2013-2016

Joselyn Annet Atuhairwe[1], Jimmy Opigo[2], Bosco Bekiita Agaba[2], Damian Rutazaana[2], Daniel Kyabayinze[2], Claire Biribawa[1], Alex Riolexus Ario[1], Daniel Kadobera[2] ,Adoke Yeka[3]

[1] *Uganda Public Health Fellowship Program*
[2] *National Malaria Control Program Uganda*
[3] *Makerere University School of Public Health*

Summary: *Indoor Residual Spraying (IRS) with insecticides has proven to be effective against malaria morbidity. Districts in Northern and Eastern part of Uganda have implemented IRS since 2014. Up to now, there has been paucity of information on the effectiveness of IRS on malaria morbidity in those districts. We therefore analysed malaria morbidity surveillance data from 2013-2016 comparing IRS and non-IRS districts to evaluate the effectiveness of IRS. The number of confirmed malaria cases in five IRS districts declined by 22% between 2013 and 2016. Non-IRS districts registered 137% increase in the total number of malaria between 2013 and 2016. The modelling results showed that, in reference to 2013, IRS districts had 47% fewer confirmed malaria cases compared to the non-IRS districts by 2016 (Incidence Rate Ratio [IRR] = 0.53; 95% CI=0.43-0.66).IRS application was associated with a significant reduction in malaria morbidity. We recommend that IRS should be used as one of the key strategies for malaria control in endemic areas in Uganda.*

Introduction: Malaria poses the greatest burden on Uganda's health care system and is responsible for most of the morbidity and mortality in all age groups (1, 2). About half of the entire outpatient visits, almost a quarter of hospital admissions and three in every twenty deaths in Uganda are due to malaria (2). Significant progress in malaria control has been realized in the last decade due to increased access to proven interventions such as Long Lasting Insecticide Treated Nets (LLINs), treatment with Artemisinin based Combination Therapies (ACTs), Intermittent Preventive Therapy (IPT) for high risk groups and IRS (3).

Despite this progress, Uganda was among the top thirteen countries accounting for 75% of the global death due to Malaria in 2015(3). Uganda has embraced Integrated Vector Management including Indoor Residual Spraying of houses with insecticides as one of the strategies for malaria control(4). IRS was first introduced in Uganda in 2006 in the epidemic prone districts south west of the country. Between 2009 and 2013 IRS was implemented in 10 northern Uganda districts where it led to a reduction of the malaria prevalence from 40% to less than 7%(2). In 2014, following mass distribution of LLINs, IRS was withdrawn from the ten Northern Uganda districts and introduced to 14 new districts in eastern and northern Uganda. The need for evaluation of malaria control interventions has been highlighted by many researchers (3, 5, 6). Studies that have attempted to evaluate the impact of IRS in Uganda have shown temporal association between malaria morbidity and IRS implementation and have the strength of patient level data use (7,8). However no study has done a comparison between IRS and non IRS districts to determine whether the observed reduction in malaria cases is significantly different between two groups.

We therefore evaluated the impact of IRS on malaria morbidity in five districts in comparison to five non-IRS districts

Methods: We conducted a retrospective comparative analysis of malaria surveillance data captured in the HMIS electronic database (DHIS2) for the period 2013-2016.

Data was analysed for 5 IRS and 5 non-IRS districts. The IRS districts were Dokolo, Kaberamaido, Lira, Otuke and Tororo while the non-IRS districts were Abim, Amuria, Bukedea, Iganga and Kamuli. The IRS districts included in the study started IRS in December 2014 with similar insecticide sprays (Bendiocarb for the first three rounds and Actellic for the fourth round) and spray dates for the remaining spray rounds. Non-IRS districts were from the same regions as the 5 IRS districts hence similar climatic conditions and have never implemented IRS at whatever scale between 2013 and 2016. Additionally, their malaria incidences were comparable to those of the 5 IRS districts in the baseline year (2013).

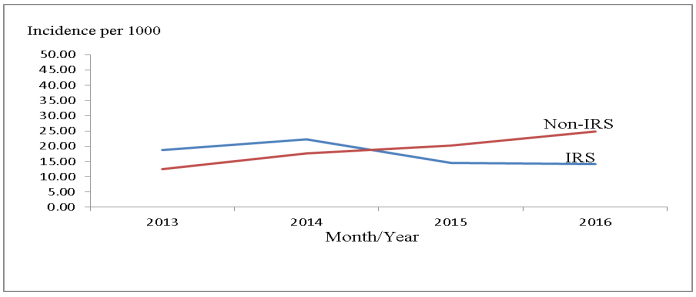
Population data was also obtained from the 2002 and 2014 census reports (UBOS). An annual population growth rate of 3% was used to compute the 2013 population while a 3.03% population growth rate was used to compute the 2015 and 2016 population. The data was cleaned, collated, merged, coded and used to compute other variables that were relevant for the analysis.

To study the trends in malaria incidence in 5 IRS districts and 5 non-IRS districts, we computed incidence using the formula: Incidence=(Confirmed malaria cases (microscopy + RDT))/ Population*1000. Graphs of incidence against time were then plotted with spray dates superimposed to help interpret the results.

To compare the changes in the confirmed malaria cases among 5 IRS and 5 non-IRS districts, we fit a negative binomial regression model to total confirmed malaria cases reported in IRS and non IRS districts. We used natural log of population as the offset to cater for differences in population, and included rainfall level, monthly district reporting rates, Monthly Blood Examination Rate (MBER) and the 2013 (baseline) confirmed malaria cases as covariates. Modelling was done at annual levels.

Results: Malaria incidence in the IRS districts was slightly higher than that of the non-IRS districts at baseline (2013) and in the first year of IRS implementation. After IRS introduction in the intervention districts, malaria incidence dropped below that of the non-IRS districts. This trend was consistent throughout the IRS implementation period.

Figure 1: Annual Trends in Malaria incidence in IRS and Non-IRs districts 2013-2016



Continued to page 8

Continued from Page 7

Monthly trends in malaria incidence in IRS and non IRS districts 2013-2016

Malaria trends in the two study areas seem to follow a seasonal pattern with peaks around June and August. Despite this seasonal trend, malaria incidence in the non-IRS districts was higher than the IRS districts ever since IRS was first introduced as a malaria control intervention.

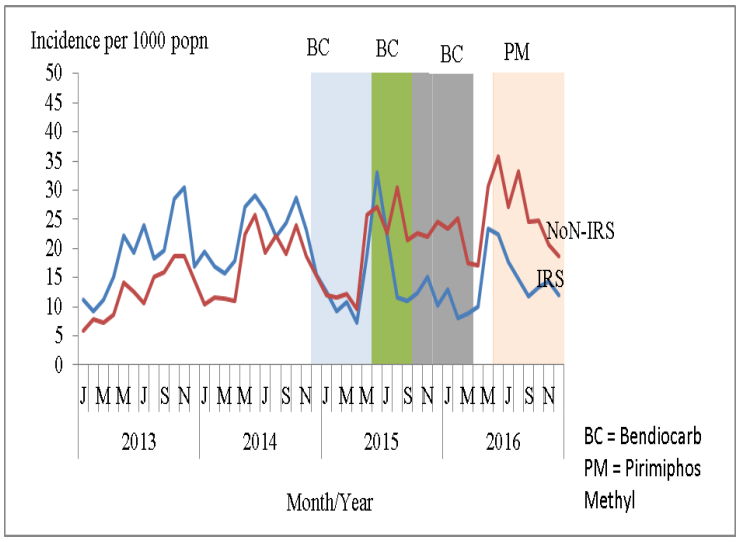


Figure 2: Monthly trends in malaria incidence in IRS and non IRS districts 2013-2016

Trends of confirmed malaria cases in IRS and Non IRS districts 2013 - 2016

Compared to the baseline, IRS districts registered a progressive reduction in the number of confirmed malaria cases in 2015 (18%) and 2016 (22%). Non-IRS districts however registered an increase in the number of confirmed malaria cases in all the years with the highest being registered in 2016 where it more than doubled the baseline (137%).

Table 1: Trends in confirmed malaria cases in IRS and Non IRS districts 2013-2016

	IRS districts		Non-IRS districts	
Year	Malaria cases	% change	Malaria cases	% change
2013	306016	0	219239	0
2014	362014	18	335645	53
2015	251485	-18	395729	81
2016	239459	-22	519446	137

Changes in number of confirmed malaria cases in IRS and Non-IRS districts

Though IRS and Non-IRs districts had comparable numbers of confirmed malaria cases at baseline, significant differences between the two groups were first noted two years after introduction of IRS. By 2016, the IRS districts had 47% fewer confirmed malaria cases compared to non-IRS districts in reference to the baseline year (IRR= 0.53; 95% CI= 0.39-056) after accounting for rainfall, MBER, reporting rates, differences in the number of malaria cases at baseline and offsetting differences due to population.

Table 2: Multivariate Negative binomial regression showing changes in number of confirmed malaria cases in IRS and Non-IRS districts

Year of intervention	Variable	IRR (95% C.I)
Baseline (2013)	IRS Districts	1.1(1.0-1.3)
	Non-IRS Districts	1
Year 1 (2014)	IRS Districts	1.0 (0.9-1.1)
	Non-IRS Districts	1
Year 2 (2015)	IRS Districts	0.8 (0.7-0.9)
	Non-IRS Districts	1
Year 3 (2016)	IRS Districts	0.53 (0.43-0.66)
	Non-IRS Districts	1

Discussion

We found that implementation of IRS was associated with a significant reduction in morbidity due to malaria. Two years following introduction of IRS, IRS districts registered 22% reduction in the number of confirmed IRS districts while the non-IRs districts experienced a 137% increase. At the same time, the number of confirmed malaria cases in IRS districts were 47% fewer than those in the non-IRS districts in reference to the baseline year.

Studies conducted in Northern Uganda found that IRS was followed by reduction in slide positivity rate of up to 9.5% point (7-9). While these studies looked at a before after scenario, they did not have a comparative group of non-IRS district similar to this study. The challenge for malaria control remains sustaining the gains achieved by the control interventions. Studies have showed that the benefits of IRS waned off four months after IRS followed by increase in slide positivity rate (SPR) while withdraw of IRS was followed by a malaria epidemic (7-10). There is need for a detailed study into residual malaria transmission; associated factors, vectors responsible including evaluation of new tools so as to target the residual transmission of malaria transmission (11). Our study did not evaluate the effect of the different insecticides.

Conclusion and recommendations

IRS application was associated with a significant reduction in malaria morbidity. We recommend that IRS continues to be used as one of the key strategies for malaria control in endemic areas in Uganda. Further studies should analyse the effect of different classes of insecticides on malaria morbidity and conduct investigations into residual malaria transmission.

References

1. MoH. <AHSPR FY 2015-16.pdf>. 2015/2016.
2. UBOS. Uganda Malaria Indicator Survey 2014-152015.
3. WHO. <World Malaria Report .pdf>. 2016.
4. MoH. <The Uganda Malaria Reduction Strategic Plan 2014-2020.pdf>2014.
5. Yeka A, Gasasira A, Mpimbaza A, Achan J, Nankabirwa J, Nsobya S, et al. Malaria in Uganda: Challenges to control on the long road to elimination. Acta Tropica. 2012;121 (3):184-95.

Leptospirosis outbreak in Kabale District; Uganda, March-July 2017

Phoebe Alitubeera[1], Claire Biribawa[1], Benon Kwesiga[1]

[1]Uganda Public Health Fellowship Program

Summary

Between March 2017 and July 2017, 11 cases of leptospirosis were reported among residents of Kabale and Rubanda districts, Uganda. These cases were detected by an acute febrile illness surveillance system which tests all children under five years with fever for other infections including leptospirosis. We conducted an investigation to identify the source and determine scope of the leptospirosis outbreak, its associated risk factors and recommend evidence based control measures. A probable case was any suspected case with Leptospira immunoglobulin M (IgM) confirmed by enzyme-linked immunosorbent assay.

We identified 11 cases and all met the probable definition. Males (attack rate = 5.4/100,000) were more affected than females (attack rate = 5.4/100,000). 64% were under 5 children. The case-control study which involved 11 cases and 44 controls showed that 55% (6/11) of cases compared to 18% (8/44) of controls reported having had skin wounds or small cuts (OR=5.2, 95% C.I: 1.2-23.1). 100% (11/11) of cases and 48% (21/44) of controls had contact with animals (chi-2: 0.001). Environmental assessment revealed evidence of rodents and domestic animals in most homes. This cluster of leptospirosis cases was associated with exposure to domestic livestock among people with wounds or cuts. We recommended a leptospirosis surveillance system among adults with fever that is not due to malaria.

Background

Leptospirosis is a bacterial zoonotic disease caused by genus *Leptospira* that is often self-limiting [1, 2]. Clinical illness lasts from a few days to 3weeks or more. 2 phases of illness. Acute phase occurs in the first week and is characterized by abrupt high fever, muscle pain, headache (frontal, retro-orbital), nausea, vomiting, abdominal pain, diarrhea, cough and redness of conjunctiva [1]. Second phase is characterized by prolonged fever, jaundice, bleeding, respiratory insufficiency with or without coughing blood, low blood pressure and mental confusion [1]. Case fatality for severe illness is between 5-15% [1]. Confirmation is by *Leptospira* immunoglobulin M (IgM) in enzyme-linked immunosorbent assay (ELISA) detection kits or polymerase chain reaction assays [1]. Leptospirosis is endemic in tropical areas and is a result of interaction between people, animal reservoirs and environment [1]. Transmission is by non-intact skin or mucous membrane contact with contaminated soil or vegetation or water or urine of infected animals [1]. Incubation period ranges from 2-30 days [1]. In Uganda, the prevalence of leptospirosis is approximately 35% [4]. The morbidity caused by leptospirosis can be controlled by health education of at risk populations, access to safe water, improved sanitation and rodent control. Infectious Diseases Research Collaboration (IDRC) and its partners instituted a pediatric surveillance system for acute febrile illnesses among children under 5 in 24 districts in Uganda including Kabale and Rubanda districts.

The guidelines for this surveillance system stipulate that blood samples from patients who have had fever for more than five days but are negative for malaria undergo investigation for leptospirosis plus culture and sensitivity tests for other specified bacteria. Leptospirosis is not routinely screened for in the Uganda health system.

On 7/04/2017, the Uganda Ministry of Health and the Public Health Fellowship Program (PHFP) received notification of 4 confirmed cases and 2 suspected cases of leptospirosis in Kabale district. Presenting complaints of the case persons included: fever, cough, difficulty in breathing, loss of appetite, vomiting, diarrhea and muscle spasms. We therefore set out to conduct an investigation to determine the source and scope of the leptospirosis outbreak, its associated risk factors and recommend evidence based control measures.

Methods

We conducted this study in Kabale district which is found in south-western Uganda. We defined a suspected case as having abrupt onset of fever but negative for malaria, with any of muscle pain, headache, cough, flu, swelling of the periorbital region, nausea, abdominal pain, vomiting, diarrhea, respiratory insufficiency or mental confusion from 4/01/2017 in a resident of Kabale or Rubanda districts. A probable case was any suspected case with *Leptospira* immunoglobulin M (IgM) confirmed by enzyme-linked immunosorbent assay. A confirmed case was any probable case with positive polymerase chain reaction (PCR) for *Leptospira.* We actively sought out and interviewed case-persons using a case investigation form. Furthermore, we interviewed parents, caretakers, siblings of the case-persons who met the suspected case definition and proceeded to have them tested for *Leptospira* IgM using ELISA test kits with the help of a lab technician. We got a total of 11 cases from Kabale and Rubanda districts. We then conducted descriptive analysis using time, place and person characteristics and generated hypotheses. We conducted a case-control study selecting neighborhood controls for the cases at a ratio of 1:4 to test the hypotheses. We collected venous blood samples in vacutainers from the suspected case persons. Using enzyme-linked immunosorbent assay for *Leptospira* immunoglobulin M (IgM), we tested the samples.

Results

Males (attack rate = 5.4/100,000) were more affected than females (attack rate = 5.4/100,000). 64% were under 5 children (age specific attack rates not calculated- no population estimates). The median age was 3 years (IQR: 8) and the average age was 5.9 years (S.D: 7.2).

Majority of the case persons reported having had fever, cough and difficulty breathing while slightly less than half reported swelling of eyes and severe tiredness (Figure 1). Case persons were managed on antibiotics: ceftriaxone and gentamicin.

10 (attack rate= 4.3/100,000) were from Kabale district and 1 (attack rate= 0.8/100,000) from Rubanda district. Kabale district had an attack rate 5times that of Rubanda district

Continues to page 10

Continued from page 9

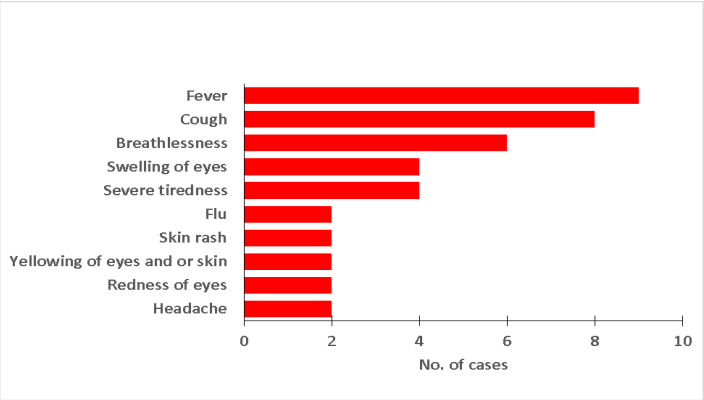


Figure 1 Distribution of symptoms among 11leptospirosis probable case-persons in Kabale and Rubanda districts, Uganda, March-July 2017

The primary case was identified in March. During April there was an increase in cases which was sustained up to June. In July, there was a drop in cases (Figure 2).

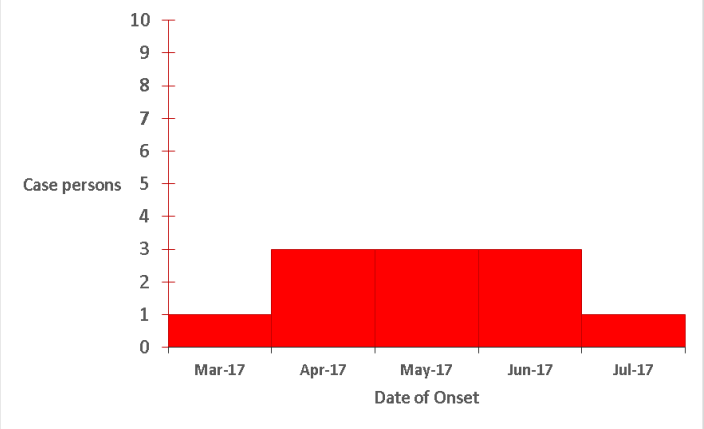


Figure 2: Distribution of symptom onset dates among leptospirosis case persons in Kabale and Rubanda, Uganda, March-July 2017

All case-persons had participated in activities that brought them into contact with soil and over half had had wounds in the preceding 3 months (Table 1).

Table 1 Distribution of possible exposure factors among 11 probable leptospirosis case persons in Kabale and Rubanda, Uganda, March-July 2017

Exposure	Number (n=11)	Percent
Rodents in the house	10	91%
Contact with animals	11	100%
Had cuts or wounds	6	55%
Activities that bring them into contact with soil	9	82%
Source of water- stream	10	91%
-rain	1	9%
Boil drinking water	3	27%

Cases were more likely to have had wounds. Furthermore, cases were just as likely as controls to have rodents in the house (Table 2).

Discussion

Cases had a high likelihood of having had wounds and having contact with animals. This finding is consistent existing knowledge on transmission of *Leptospira* [1].

Children were the largest contributor to the count of cases because the surveillance system for acute febrile illness is pediatric centered. Empirical evidence shows that prevalence of leptospirosis does not differ by age [4]. Furthermore, there is no similar surveillance system among adults and therefore the count of cases among adults may be underestimated. The complexity of Leptospirosis and its non-specific clinical presentation make diagnosis difficult thus significantly contributing to underestimation of its burden [6]. The months of March to May comprise part of the wet season for Kabale but due to changing climatic patterns the dry season persists up to now. Therefore there were no reported episodes of flooding in the recent past. In addition, while majority of cases had contact with stream water, this particular exposure was protective. This intriguing finding may be because Leptospirosis has a large variety of exposure factors which interact for infection to occur [6]. It is worth noting that both cases and controls were similarly exposed to rodents. Although rodents are notable reservoirs, Leptospirosis is a complex disease with a wide array of hosts [1, 6]. Fever was the commonest symptom among the cases. Leptospirosis is increasingly recognized as an important cause of non-malarial fever [7].

Conclusion

This cluster of leptospirosis cases was associated with exposure to domestic livestock among people with wounds or cuts. Leptospirosis is increasingly significant as a cause of non-malarial fever. There is no leptospirosis surveillance system among adults, the existing leptospirosis surveillance system is only among children under five years.

Public health actions and recommendations

We informed the District Health Team of our findings and emphasized avoidance of animal contact especially when one has skin wounds or cuts e.g. by using protective gear while farming. We also encouraged health education about leptospirosis among both health workers and the affected communities. We recommend a leptospirosis surveillance system among adults with fever that is not due to malaria. A community case definition for leptospirosis should be included in the routine Integrated Disease Surveillance Guidelines.

References

1. Heymann, D.L., *Control of communicable diseases manual*. 6442: American Public Health Association.
2. Pagès, F., et al., *Investigation of a leptospirosis outbreak in triathlon participants, Réunion Island, 2013.* Epidemiology & Infection, 2016. **144**(3): p. 661-669.
3. de Vries, S.G., et al., *Leptospirosis in Sub-Saharan Africa: a systematic review.* International Journal of Infectious Diseases, 2014. **28**: p. 47-64.
4. Dreyfus, A., et al., *Leptospira Seroprevalence and Risk Factors in Health Centre Patients in Hoima District, Western Uganda.* PLoS neglected tropical diseases, 6450. **10**(8): p. e0004858.

A Falsely Reported Cluster of Tumors in Isingiro District

Joy Kusiima[*], Claire Biribawa[1], Deogratious Mwaka[2], Atek Kagirita[2], Bernard Lubwama[2], Peter Kizza[2], Sam Kwesiga[3], Benon Kwesiga[1]

1: Uganda Public Health Fellowship Program

2: Ministry of Health, Uganda

3: Isingiro District Local Government

Summary

In March 2017, WHO regional office for Africa notified the Uganda Ministry of Health about a cluster of patients presenting with life-threatening tumors in Isingiro district. On behalf of the Ministry of Health, the Public Health Fellowship Programme investigated these claims to determine the magnitude and likely tumor exposure factors. A case suspect was a resident of the study area who presented with an abnormal swelling in the head and/or neck region and a confirmed case was a suspected case with confirmed histopathology results. The team actively looked for cases, obtained venous blood samples for laboratory investigations and reviewed facility records. We identified five suspected cases who developed symptoms between 1995 and 2009. Of these two were males. Cases were distributed in the villages of Kikooma (1) and Bihingi (2) in Mbaare sub-county and Kashwojwa (2) in Kashumba sub-county. No common exposures were identified. There was no cluster of tumor presentation in the district. We recommend strengthening of district cancer surveillance systems.

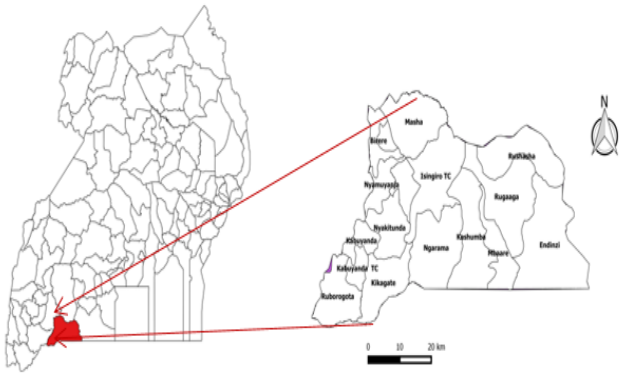
Introduction: On 15th March 2017, Uganda Ministry of Health received notification from WHO regional office for Africa of a cluster of patients presenting with an unusual type of life-threatening tumors in Isingiro district. These patients were reported to be residents of Rugagga sub county, Kikunyu village. They were identified during an outreach medical camp, which was organized by the Peninsula Community Church on 14 September 2016.The patients travelled a 7-hour distance to attend the outreach camp, which was held in Bombo, Luwero District. The reports indicated that the tumors were mostly in young patients aged 2 years and above. The alert also highlighted verbal reports of many other people and animals in Kikunyu village with similar growths. A team made up of oncologists, epidemiologists, clinicians, laboratory technologist and district surveillance officer investigated these claims to; confirm the tumor outbreak, determine the magnitude and describe possible sources of exposure.

District Profile: Isingiro district (Fig.1), located in south-western Uganda has a population of 500,000 people (Census 2014). The district borders Tanzania to the south, Rakia in the east, Kiruhura in the northeast, Mbarara northwest and Ntungamo in the west. The district has 4 HCIV, 20HCIII and 55 HCII and the main activities in the area are banana farming, fishing and cattle raring.

Methodology: This investigation was conducted in; Rugaaga, Mbaare and Kashumbi subcounties. A suspect case was a resident of any of the sub-counties who had an abnormal swelling in the head and/or neck region. A confirmed case was a suspected case with confirmed histopathology results. We actively searched for cases in the community and reviewed hospital records from health facilities, in order to generate a line list.

We collected information on; social demographic characteristics, signs and symptoms for the disease, and likely exposure factors given suspected tumor types. We obtained venous blood samples for laboratory investigations including; full blood counts (FBC), HIV serology, HCV, electrolytes, liver function tests especially ALP and albumin, TSH, T3, T4, Vitamin D levels and parathormone. In addition, clinicians conducted thorough physical examinations to describe the tumors.

Figure 1 Map of Isingiro district



Results: We identified five case suspects (two males and three females) who developed symptoms over a period of five years (1995 to 2009). The two males aged 19 and 21 yrs. had facial tumors. The 19yr old had a facial deformity from birth and the 21 yr. old developed mouth swelling at 13yrs of age. Among the females, two females aged 17yrs and 30yrs developed swelling in the earlobes following ear pricking process for cosmetic purpose and the third female, 20yrs of age had a swelling of lower lip since birth.

Of the five patients, three were involved in only cultivation while the two were involved in both livestock keeping and cultivation. None of those who kept livestock reported any abnormal swelling in the animals. Four case patients used water drawn from a well for household water use. All the five respondents had swelling on the head. The most affected sites were the palate, mouth and cheek. Of these, two swelling were keloids, one was a hemangioma and three were suspected to be malignant. The five cases scattered in different villages; Kikooma (1), Bihingi (2) and Kashwojwa (2).

Health facility records for patients seen between 2015-2017 showed that there were two cases of head and neck tumors (burkitt's lymphoma). Significantly, none of the identified cases had been tracked in any of the health facility. Two of the people in the notification report were not interviewed; one died on 16/12/16. The deceased was a resident of Kajumbura village, Rugaaga sub county. He had had a swelling on the lower jaw, which latter extended to the face, head. The second patient had a swelling in the jaw and had had successful treatment at Mulago National Referral Hospital.

Continued on page 12

Continued from page 11

Discussion: The team evaluated five cases of tumors in Isingiro district that fit the case definition. The cases identified were from two sub-counties; Mbaare and Kashumba. There was no clustering of cases in any particular villages. There were no cases found in Kikunyu village as earlier mentioned in the notification report. The team found that a pastor, resident in Kikunyu coordinated the transfer of these patients to the Bombo outreach camp. The pastor's village therefore became the point of reference for these patients. The tumors identified were of a varying spectrum; ranging from what looked benign to probable malignancy and what would clearly fit congenital or birth related abnormalities and acquired disorders. Of the five cases, two cases could be having malignant tumors and require biopsy for histological confirmation. The team could not obtain tissue biopsies in the field because the lesions were highly vascular and therefore susceptible to uncontrolled bleeding. There is need to obtain samples in a hospital setting where facilities are available to control bleeding in the event of uncontrolled bleeding. These procedures are best carried out by maxillofacial surgeons based at Mulago National Referral Hospital. Two of the cases evaluated in this investigation admitted to having significant number of animals reared. However, there was no history of abnormal growths in animals in this study area. Despite the fact that these patients actively sought for treatment from Bombo, the surveillance system in the district did not capture the cases evaluated in this report showing a weakness in the system.

Conclusion: There was no clustering of cases in any village nor evidence of common exposure to account for the tumor occurrence. Likewise, no abnormal growths were reported in the animals. Therefore we recommend strengthening of cancer surveillance systems in the district.

POLICY BRIEF

Utilization of Comprehensive Health Promotion Packages Targeted for Refugees in Northern Uganda

By Susan Nakubulwa,

Epidemiology Fellow, Uganda Public Health

SUMMARY: *In July 2016, there was a large influx of refugees from South Sudan to Northern Uganda through Elegu border in Adjumani district. The Ministry of Health conducted a Rapid Health Assessment in the district and the results revealed that the refugees had poor hygiene practices and a negative attitude towards health services. Recommendations were; the development of comprehensive health promotion packages specifically targeting refugees in Northern Uganda and translation of the health promotion messages into refugee local languages. The Ministry of Health conducted a Rapid Health Assessment in the district .*

Results revealed that the refugees had poor hygiene practices and a negative attitude towards health services. Recommendations were; the development of comprehensive health promotion packages specifically targeting refugees in Northern Uganda and translation of the health promotion messages into refugee local languages.

Introduction

From 8th to 12th August, 2016, the Ministry of Health conducted a Rapid Health Assessment of among Refugees in Adjumani district, Northern Uganda. This was a public health response following the huge influx of over 40,000 refugees to Uganda from Southern Sudan in July 2016 through Elegu border in Adjumani district. Resources such as shelter, water and human waste facilities were overstretched thus there was potential for outbreaks of communicable diseases. The assessment aimed: to assess the general health status of the refugees, identify service delivery gaps and potential public health threats posed by the arriving refugees and recommend public health actions for rapid response.

Approaches and results

The assessment focused on refugees who arrived in Uganda from June to August 2016 at the refugee reception centers namely – Elegu border post, Pagirinya 1, Pagirinya 2 and Nyumanzi. Information was collected using the WHO Standardized Health Assessment Checklist, individual level questionnaire, observations and interviews with key service providers. Existing reports were reviewed to corroborate information. Poor hygiene practices were observed amongst the refugees. Open defecation was rampant at the reception centers and near the river. There was use of unsafe water from the river at Pagirinya 1. By 11th August 2016, there was a cholera outbreak in Adjumani district with 16 suspected cases. 131 (66.5%) of 197 refugees interviewed had health problems, 62.6% had accessed general health care. Medical workers reported negative attitude by refugees towards health services, mainly, HIV prevention and care. Refugees detested condom use, rejected HIV test results and those who sought HIV care were highly stigmatized. Mothers avoided Elimination of Mother-To-child Transmission of HIV (eMTCT) services and only returned to health facilities when very ill. Expectant mothers who needed emergency caesarian sections delayed to consent for the operations unless their husbands also consented. Mothers who gave birth opted for self-disposal of the placentas for cultural reasons. The observed health promotion messages were in English. Efforts were made by community workers and interpreters, to convey health promotion messages to the refugees using local languages.

Conclusion

There were poor hygiene practices and negative attitudes towards HIV/AIDS and Maternal Child Health services among the refugees. Much as health services were available, some of the refugees who reported health problems did not seek them. The health messages available were in English and less useful to majority who could not read English.

Recommendations

Refugees have health challenges specific to them as a community. Although there are health promotion messages in place, there is need for the development and utilization of comprehensive health promotion packages targeted for refugees in Northern Uganda. The health messages should be translated to the refugee languages for comprehension.