Food and Agriculture Organization of the United Nations

AFRICA SUSTAINABLE LIVESTOCK 2050

Zoonotic diseases spotlight

NIGERIA

The case for an expert elicitation protocol on zoonoses

Federal Republic of Nigeria

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ASL 2050

ZOONOTIC DISEASES SPOTLIGHT

THE CASE FOR AN EXPERT ELICITATION PROTOCOL IN NIGERIA

1. INTRODUCTION

In rapidly changing societies such as Nigeria, it is imperative that decision makers at all levels acknowledge the current and future impact of the livestock sector on public health, the environment and livelihoods. This would allow them to take actions now that will a ensure sustainable development of the livestock sector in the coming decades – a development that benefits producers, consumers and society in general – with limited negative effects on public health and the environment. Indeed, the systematic misuse and overuse of antimicrobials in human, animal and food production have put every nation at risk. There is lack of accurate data and information on the antimicrobial use (AMU) and antimicrobial resistance (AMR) in the most of the sub-Saharan countries including Nigeria.

Good and accurate quality data are essential to formulate policies, strategies and programmes that support sustainable development of the livestock sector. However, livestock stakeholders, particularly the ministries in charge of animal and public health, often face what is referred to as "the zoonotic disease and antimicrobial resistance (AMR) information trap". As there is little robust evidence to quantify the negative impacts of zoonotic disease and AMR on society, stakeholders find it hard to sufficiently demonstrate the returns of programmes and investments that tackle zoonoses and AMR. This, in turn, makes it difficult to secure resources to tackle zoonotic diseases and AMR, and to create the necessary partnerships between the government and the governed to address issues that cross all sectors of society.

This brief provides a snapshot of the information system on zoonotic diseases and AMR in Nigeria. It then makes the case for implementation of an expert elicitation protocol to assemble data on the impact of zoonoses and AMR on society. Results from implementing such a protocol can contribute to break the "zoonotic disease and AMR information trap", thereby allowing Nigeria to enter a virtuous circle of information gathering, policy reforms, knowledge generation and sharing, which is essential to address current and emerging zoonotic and AMR issues successfully.

2. ZOONOTIC DISEASES AND ANTI-MICROBIAL RESISTANCE INFORMATION SYSTEM

Zoonotic diseases and livestock-driven AMR negatively impact society, for example by reducing the quantity and value of the produce from livestock; worsening the trade balance; decreasing labour productivity; and making households and the government use resources to treat sick animals and humans rather than for productive purposes. When zoonoses become pandemics, their impact on society escalates and can be devastating, as the experiences of highly pathogenic avian influenza in Asia and the Ebola virus epidemic in West Africa has shown. AMR is an emerging global threat and its toll on human society is on the increase. For example, the World Health Organization (WHO) reports that, among new cases of tuberculosis in 2014, an estimated 3.3 percent were multi-drug resistant (WHO, 2016).

Beyond the availability of human and financial resources, the capacity of livestock holders (starting with the government) to manage and contain zoonotic diseases and livestock driven AMR depends on access to good quality data and information. These enable assessment of the current and potential effects of zoonotic diseases and AMR on society, and the ability to measure the returns on investments for their containment and management. Good quality data and information should be available on:

- the incidence and prevalence of zoonotic diseases by livestock production system (e.g. intensive vs. semi-intensive vs. extensive);
- the use of antibiotics in livestock, disaggregated by production system;
- the incidence and prevalence of zoonotic diseases in humans, by category of people (e.g. farmers vs. market operators vs. consumers);
- the use of antibiotics and antimicrobial resistance in humans, by category of people;
- the reduction in the quantity and value of livestock production due to zoonoses, for example because of death and morbidity in animals; the reduction in labour productivity (zoonotic diseases can affect labourers in any sector of the economy); and the value of private and public resources used to deal with zoonoses, preventing their allocation for more productive purposes;
- the causes of zoonotic disease emergence and spread, which include inadequate vaccination coverage, inefficient biosecurity and biosafety measures as well as lack of advocacy. Causes of AMR, for example, include non-therapeutic usage of antibiotics in animal production. These causes should be the target and focus of policy actions as investing resources to measure zoonoses and AMR, without information on their root causes, is of little help for decision makers;
- the feasibility – in terms of financial resources and technical competencies – of possible interventions to tackle the root causes of the emergence and spread of zoonoses and of livestock-driven AMR. This information helps identify actionable interventions and estimate their different returns, in other words to allocate available resources to maximise the benefits for society.

In Nigeria, stakeholders have identified several priority zoonotic diseases, from bovine tuberculosis through brucellosis, anthrax, highly pathogenic avian influenza to salmonellosis, cysticercosis etc. Stakeholders also included Anti- microbial resistance (AMR) pathogens due to the potential transmission of AMR microbes from livestock to humans.

From the livestock perspective, the Department of Veterinary and Pest Control Services of the Federal Ministry of Agriculture and Rural Development relies on two data reporting forms to gather data on animal diseases, including zoonoses (Appendices 2 and 3). These are the monthly Disease reporting form and the Disease Outbreak form that State Veterinary Officers at the Local Veterinary Clinics use to report animal disease outbreaks to the Chief Veterinary Officer (CVO) of the Federal government including the type of disease, location of outbreak, number of animals affected and at risk, measures applied including treatment and so on. However, the necessary evidence to design effective policies, strategies and investments to tackle zoonotic diseases is lacking and tends to focus more on emerging and re-emerging rather than endemic diseases.

First, the public data reporting mechanism for zoonoses in animals does not include bovine tuberculosis (TB), brucellosis or salmonellosis, nor does it contain information on the use of antibiotics in animals.
Second, when diseases are included in the reporting mechanism, the quality of the data is poor and can be contentious; and there are concerns the figures are not representative due to under-reporting. For example, the information on HPAI outbreaks in poultry can be biased by delayed payment of government compensation, which is a possible source of farmers' under-reporting. Third, even when

information on disease prevalence exist, national data on the socio-economic consequences of zoonotic diseases in livestock systems are rarely available, and usually have a small regional scope. For example, estimates of the socio-economic impact of HPAI outbreaks and bovine tuberculosis are available but on only some parts of the country (see examples in text boxes below).

From the human health perspective, the Federal Ministry of Health collects data and information on zoonotic diseases in humans from the integrated District Surveillance and reporting system (IDRS) and a periodic reporting system. However, the public data reporting mechanism does not cover information on several zoonoses. For example, New Castle Disease, brucellosis, cysticercosis, botulism, Escherichia coli, campylobacteria and swine influenza are not regularly reported in humans. Also, data on AMR in humans and on the socio-economic consequences of zoonoses in humans are not available, such as expenditures on bovine TB treatment at household and national levels.

The current information system makes it difficult for the Ministries in charge of livestock and public health in Nigeria to generate accurate estimates of the incidence and prevalence of zoonoses and livestock-related AMR; demonstrate the returns of programmes and investments for their management and control; and create that necessary partnership between the government and citizens to address issues that interweave public and private dimensions. This results in the design of policies and investments that not necessarily tackle zoonoses and livestock related AMR issues efficiently.

3. AN EXPERT ELICITATION PROTOCOL FOR ASSEMBLING INFORMATION ON ZOONOSES AND AMR

When existing data is insufficient or unreliable, or when data is either too costly or physically impossible to gather, expert elicitations are a promising tool to obtain good quality information. There is a scientific consensus methodology to get experts' judgements on the distribution of the variables and parameters of interest, including those whose value is either unknown or uncertain. An important feature of expert elicitation is that experts not only provide information on the unmeasured parameters but can also suggest values that differ from the ones in the scientific literature or from official statistics (the official knowns), if they for example believe that some causal linkages are underestimated or that certain issues have been underreported. The public sector, but more frequently private parties, have used expert elicitations for a multitude of purposes, such as to investigate the nature and extent of climate change; the cost and performance of alternative energy technologies; and the health impact of air pollution (Morgan, 2014). The World Health Organization has used an expert elicitation to estimate the global burden of foodborne diseases (WHO, 2015).

The Africa Sustainable Livestock 2050 initiative (ASL2050) has developed an expert elicitation protocol to assemble quantitative information on zoonoses and AMR in Nigeria. As the Nigerian livestock sector is heterogeneous, it was agreed to start designing and testing the protocol for two different livestock species, four zoonoses and AMR. The two livestock species are cattle and poultry (with a focus on chicken), while the four zoonoses are bovine tuberculosis and brucellosis for cattle; and salmonellosis and highly pathogenic avian influenza (HPAI) for poultry. These were selected because of their relevance not only for Nigeria but also for other ASL2050 countries implementing the protocol, including Burkina Faso, Egypt, Ethiopia, Kenya and Uganda, which in the medium-term will facilitate cross-learning.

3.1 Brucellosis

Brucellosis is a highly infectious, chronic disease in livestock and humans caused by Brucella bacteria. The major clinical signs in cattle are repetitive abortions, and the symptoms in humans are a profuse undulant fever with muscle and bone pain, etc. The disease can be detected through cell colouring, serological tests or bacterial culture. Brucellosis transmission from cattle to humans is usually from ingesting unpasteurised dairy products or raw meat, and direct contact with infected blood, vaginal discharge or other secretions. Animal to animal transmission is usually from direct contact with infected bodily secretions. The economic consequences of brucellosis are a significant reduction in livestock productivity due to decreased milk production because of appetite loss, loss of young, as well as the impact of severe trade restrictions imposed on affected farms and countries.

Box 1 Brucellosis in Nigeria: Evidence

A study conducted between 2010 and 2013 in the Northern, Southern and South-Western region found an overall prevalence rate of 3.9 percent of Brucellosis among the sample of 8 105 unvaccinated slaughtered cattle (Akinseye *et al.*, 2016). Mai *et al.*, 2012 performed a study in Adamawa, Kaduna, and Kano in Northern Nigeria, finding seroprevalence rates of 45.1 percent (nomadic), 22 percent (seminomadic), 23.8 percent (zero-grazing), and 15.9 percent (commercial) using the Rose-Bengal plate-agglutination test (RBPT). Using a c-ELISA kit for further testing, overall 34.5 percent of these results were shown to be false positives. Maurice *et al.*, 2013 reported prevalence rates of 11.6 percent and 3.1 percent for extensive and intensive systems respectively in Plateau State (North Central Nigeria). Esuruoso, G.O, 1979 calculates annual financial losses at a total of 140.8 million NGN (223.9 million USD at the exchange rate of the time of the study), of which most (111 million NGN) come from reduced milk production. Ducrotoy *et al.*, 2014 review 127 studies of Brucellosis in Nigeria and conclude that information is scarce and fragmented, but an increasing risk of re-emergence of the disease seems to be appearing.

3.2 Bovine tuberculosis

Bovine tuberculosis (bTB) is a chronic infectious disease in animals and humans caused by *Mycobacterium bovis* (*M. bovis*) of the *M. tuberculosis* complex. It is widely distributed throughout the developing world. In humans, tuberculosis caused by *M. tuberculosis* as well as by *M. bovis* has become increasingly important due to its association with HIV/AIDS. Symptoms in humans include fever, weight loss, night sweats, and in the most common form of pulmonary tuberculosis, coughing and blood-stained sputum. The clinical signs in animals are coughing, dyspnea, gastrointestinal problems, bone deformation, and emaciation. Diagnostic methods include direct staining of tissue, sputum or other secretions, bacterial culturing, or DNA amplification by PCR. The intradermal tuberculin test is the main diagnostic tool used in control programmes of bovine TB. The principal route of human infection with *M. bovis* is by ingestion of contaminated products such as infected milk. The economic impacts of bTB in humans result from treatment costs while in livestock economic impacts are related to production losses, such as reduced milk yield, weight loss, impaired draught power, comprised genetic improvement program among others, and the cost of surveillance and control programmes, such as complete or partial condemnation of carcasses, animal culling, and trade restrictions/barriers.

Box 2 Bovine TB in Nigeria: Evidence

Abubakar *et al.*, 2011 reviewed the available literature on bovine TB in the past 30 years in Nigeria and found that the prevalence of the disease due to *M. bovis* ranged from 2.5 percent in 1976 to 14 percent in 2007, suggesting an increase in prevalence of over the years. Ofukwu, 2006 estimate that 5 percent of all TB cases in humans and up to 3 percent in children younger than 5 years old are due to *M. bovis*.

Ejeh *et al.*, 2014 studied the effects of bovine TB in abattoirs of Makurdi from 2008 to 2012: they found a disease prevalence in cattle ranging from 0.9 percent in 2008 to 4 percent in 2012. More than 3 tonnes of edible organs were condemned within this period, valued at 2.9 million NGN (18 200 USD). Oluwasile *et al.*, 2013 revealed a prevalence rate of *M bovis* of 1.78 percent and an economic loss of 1.2 million NGN (7 367 USD) between July 2011 and June 2012 at Lafenwa abattoir Abeokuta in Southwestern Nigeria. Kwaghe *et al.*, 2015 estimated economic losses due to bovine TB in Maiduguri at nearly 350 million NGN (1.75 million USD). The direct loss due to condemnation of organs accounted 1.4 percent of all losses with reduced animal weight accounted for 98.6 percent of all losses. Adedipe, 2014 calculated a total loss of 509 million NGN (3.3 million USD) in Ibadan at the Bodija abattoir, direct losses at 188 million NGN (1.3 million USD) and indirect losses at 315 million NGN (2.1 million USD).

The scope of the cited studies is small (usually one abattoir) but already reveal great losses due to bovine TB.

3.2 Avian influenza

Avian influenza viruses are highly contagious, extremely variable viruses that are widespread in water birds. Wild birds in aquatic habitats are thought to be their natural reservoir hosts, but domesticated poultry are readily infected. Highly pathogenic avian influenza (HPAI) viruses, by definition, cause severe illness in chickens and turkeys, killing up to 100 percent of the flock. Common clinical signs can range from decreased feed and water intake, to other nonspecific systemic, respiratory and/or neurological signs including depression, oedema and cyanosis of the un-feathered skin, diarrhoea, ecchymosis on the shanks and feet, and coughing, but no signs are pathognomonic. Sometimes the first sign of infection is sudden death. Human infections with HPAI virus are rare, they usually occur after prolonged close contact with infected poultry, but can result in severe illness, pneumonia, respiratory failure and death. A combination of virus isolation, serological tests, and direct antigen detection is used to diagnose HPAI infection in flocks. HPAI can spread rapidly between flocks, devastating the sector and resulting in severe trade restrictions.

Box 3 Avian influenza in Nigeria: evidence

Over 3.7 million birds have been culled and over 4 million birds have been exposed to highly pathogenic avian influenza (H5N1) from January 2015 to May 2017, affecting 2.5 percent of the total poultry population (Kwaghe *et al.,* 2017).

Kwaghe *et al.* 2017 calculated the total cost of HPAI at 8.2 billion NGN. Birds for a value of about 8.1 billion NGN (26.6 million USD) were lost to the disease; the eggs destroyed were valued at 68.9 million NGN (0.2 million USD) and the estimated cost of feed destroyed at 0.9 million NGN (3 thousand USD). An additional 1.55 billion NGN (5 million USD) loss was calculated the value of foregone egg production. An OIE (2007) commissioned report estimated the total losses for the poultry sector associated to HPAI between January and October 2006 at USD 8.4 million. UNDP reports that that due to the HPAI outbreak in 2006 poultry feed sales dropped by 82 percent, which resulted in reduced flocks countywide and losses for traders and other actors along the value chains, including restaurants (UNDP, 2006).

Fasina *et al.*, 2008 developed an economic model to calculate HPAI losses considering the value of birds and chicks lost, price dynamics in the market place, replacement costs, downtime cost for facilities, destruction costs and government spending. They estimate that, if 10 percent of the commercial poultry population were infected, the total economic loss would amount to around 244 million USD. They ran the same estimates assuming a 70 percent prevalence, in this case losses would amount up to 690 million USD.

3.3 Salmonellosis

Salmonellosis is a foodborne zoonotic disease caused by the Salmonella bacteria. It is transmitted from both animals to humans and vice versa. The symptoms in humans include acute abdominal pain, diarrhoea, nausea, fever, and sometimes vomiting. When present, clinical signs in animals are similar – diarrhoea, fever and vomiting – but infection in animals is often asymptomatic. Diagnosis is based on clinical signs and isolation of the pathogen from the faeces, blood or tissues of affected animals or humans. Transmission from animals to humans is usually through contaminated food products of animal origin such as meat and eggs, or contaminated plant material such as lettuce. The socioeconomic impacts both in livestock (mainly in young stock) and in humans arise from losses in productivity due to sickness. Other economic impacts include public sector costs resulting from the investigation of cases, and healthcare costs.

Box 4 Salmonella in Nigerian poultry: Evidence

Fagbamilla *et al.,* 2017 assessed the prevalence of salmonellosis in 523 commercial poultry farms located throughout Nigeria. Litter, dust, faeces, feed and water were collected from each visited farm:14.1 percent of the collected samples were found to contain Salmonella. Abdoulaye (2012 investigated salmonella prevalence in live birds in extensive farming systems sold and in dressed birds in retail markets. He estimated a prevalence of 15 percent. Salihu *et al.*, 2014 reported a seroprevalence rate of salmonella of 8.5 percent in extensive poultry systems in Nasarawa state.

3.5 The ASL 2050 Expert Elicitation Protocol

The ASL2050 Expert Elicitation Protocol comprises five sections: bovine tuberculosis, brucellosis, highly pathogenic avian influenza, salmonellosis and AMR. Each zoonotic disease section includes questions regarding animals and humans as follows:

For cattle and poultry, questions are asked for each zoonosis on the:

- number of animal cases;
- number of animal deaths;
- number of salvage slaughters;
- number of animal culls;
- percentage of underreporting in number of cases in animals;
- percentage of underreporting in number of deaths in animals.

An important feature is that questions are asked by the different cattle and poultry production systems, as defined by stakeholders, including intensive, semi-intensive and extensive for cattle; and intensive (broilers and layers) and free range for poultry. Getting information by production system helps illuminate where major issues reside, i.e. where to focus policy attention.

For human beings, questions are asked for each zoonosis on the:

- number of human cases;
- number of human deaths;
- number of working days lost per household per case;
- average age of person affected
- percentage of females affected out of total number of cases;
- household expenditure per case;
- government expenditure per case;
- percentage of underreporting in number of cases in humans;
- percentage of underreporting in number of deaths in humans.

Questions are asked by category of people: livestock keepers by production system; and consumers. Again, information by category of people helps narrow down the policy focus.

Finally, the Expert Elicitation Protocol includes a section on livestock-driven AMR. Questions are asked on the:

- proportion of cattle and poultry farms using antibiotics, by production system;
- trends on use of antibiotics in cattle and poultry farms, by production system;
- trends in antimicrobial resistance in humans;
- experts' concerns on antimicrobial resistance in humans.

While asking questions is straightforward, the successful implementation of an expert elicitation depends on several factors. The selection of experts is crucial; the introduction of the purpose of the protocol to the experts, who should well understand they are supposed to provide their opinion and not to report the dominant narrative or official statistics; and the way questions are formulated. In addition, it is important to interpret results from protocol implementation keeping official statistics and available scientific evidence in mind, and to consult with stakeholders. Indeed, it is only when done well that expert elicitations provide a valuable contribution to informed decision-making.

4. CONCLUSIONS

Livestock stakeholders in Nigeria, including the government, find it challenging to design and implement zoonotic disease and AMR-related policies because of gaps in available evidence. There is neither systematic information on the incidence and prevalence of zoonotic diseases in animals and humans, nor on the use of antibiotics in animals and on anti-microbial resistance in humans. Additionally, there is no dataset to quantify the returns of investments for containing and managing zoonoses and AMR, such as measured in animal and labour productivity growth.

The Nigeria Ministries in charge of animal and public health face what has been referred to here as "the zoonotic disease and AMR information trap": they do not have information on zoonoses and AMR to make the compelling case for getting resources for their control and management and to engage stakeholders in this endeavour. However, the importance of assembling information on zoonotic diseases and AMR to start designing effective policies and programmes cannot be overstated, given the anticipated growth of livestock in Nigeria – and the expected increased interactions between animals, humans and wild animals. The government should prepare now to deal with emerging public health challenges to ensure that possible outbreak and spread of zoonotic diseases and AMR do not cripple the development of the entire country, as the avian influenza and Ebola crises of the region serve to warn us. The implementation of an expert elicitation protocol on zoonoses and AMR, if well done, represents a first step in this direction.

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APPENDIX

Appendix 1: List of zoonosis reported in Nigeria

N°	DISEASES	ANIMAL HEALTH	HUMAN HEALTH
	Bacteria		
1	Bovine tuberculosis	X	X
2	Brucellosis	X	
3	Anthrax	X	X
4	Buruli ulcer		X
5	Q fever		
6	Plague		X
7	Botulism	X	
8	Leptospirosis	X	
9	Listeriosis	X	
10	Shigellosis	X	X
11	Campylobacteriosis	X	
12	*Escherichia coli*	X	
13	Tetanus (neonatal)	X	X
14	Tularemia	X	
15	Lyme Disease		
	Viruses		
16	Rabies	X	X
17	Highly pathogenic avian influenza	X	
18	Rift Valley Fever		X
19	Lassa Fever	X	X
20	Ebola	X	X
21	Marburg Hemorrhagic Fever		
22	Swine influenza	X	
23	MERS-CoV		
24	Nipah/Hendra Virus		
25	Crimean-Congo Hemorrhagic Fever		
26	SARS		X
27	Dengue	X	X
28	Chickungunya		
29	Yellow Fever	X	X
30	West Nile Virus		
31	Zika virus		X
	Parasites		
32	Cysticercosis	X	
33	Toxoplasmosis	X	
34	Leishmaniasis	X	X
35	Trichinellosis	X	
36	Echinococcosis	X	
37	Schistosomiasis	X	X

38	Rickettsioses/Spotted Fever		
39	Dracunculiasis		X
40	Lymphatic filariasis	X	X
41	Malaria	X	X
42	Trypanosomiasis	X	X

Appendix 2: Monthly Disease Reporting Form

NATIONAL ANIMAL DISEASES INFORMATION AND SURVEILLANCE (NADIS) / EPIDEMIOLOGY UNIT
FEDERAL DEPARTMENT OF LIVESTOCK
FEDERAL MINISTRY OF AGRICULTURE AND WATER RESOURCES ABUJA-NIGERIA

MONTHLY REPORT FORM FOR SURVEILLANCE AGENTS

Month ______ Year ______

Name of Surveillance Agent ______ State ______ LGA ______ Tel. No. ______

Location Code ______ Name of Location ______ Longitude ______ Latitude ______

Communication Activities Organised

S/N	Location	Type of Activity	Objective/Topics Discussed	No. of People Present

Surveillance Activity - Summary of Suspicions for the month

S/N	Species	Disease Suspected	No. of Animals Sampled	No. of Samples Submitted

Sampling Materials Available

Name of Item	Qty.

Additional Comments, Remarks, Problems

Date Report Prepared ______ dd/mm/yyyy Date Report Submitted to DVS ______ dd/mm/yyyy Date Report Sent to NADIS ______ dd/mm/yyyy Signature ______

This form is to be completed by the Surveillance Agent at Livestock Market, Farms and Control Points, etc ans distributed as follows:
Original to NADIS Federal Epidemiology Office; Duplicate to State DVS; Triplicate - Book Copy

Appendix 3: Disease Outbreak Reporting Form

NATIONAL ANIMAL DISEASES INFORMATION AND SURVEILLANCE (NADIS) / EPIDEMIOLOGY UNIT
FEDERAL DEPARTMENT OF LIVESTOCK
FEDERAL MINISTRY OF AGRICULTURE AND WATER RESOURCES ABUJA-NIGERIA

DISEASE OUTBREAK / SUSPICION REPORT FORMS

Form No.

Name of Surveillance Agent State LG Date Tel. No.

Name of Abattoir/Farm/Market/CP Location of Outbreak Longitude Latitude

Name of Owner of Animal Source of Animals Date of Purchase or Introduction intoFlock or Herd of Animals

Does Farmer Practice Transhumance (Y/N) Animal Movement: Form To

Total No. of Animals No. Affected No. Dead Sanitary /Control Measures

Data from Live Animals or Ante-mortem Inspection

S/N	Species	Sex	Age Group	Clinical Signs Observed	Suspected Disease	Samples Taken	Sample ID
1							
2							
3							

Data from Dead Animals or Post-mortem Inspection

Organs Affected	Lesions Observed	Suspected Disease	Type of samples Collected	Sample ID

Date Report was Prepared ____ dd/mm/yyyy Date Report Sent to DVS ____ dd/mm/yyyy Date Report Received at NADIS ____ dd/mm/yyyy

Date Samples Sent to Lab ____ dd/mm/yyyy Means of Transport ____ Name of Officer Sending Samples to Lab ____ Signature ____

FOR LAB USE ONLY

Date Sample arrived lab ____ Name of Officer receiving samples at lab ____ Signature ____

Condition of samples ____ Tests carried out ____

Result ____ Final diagnosis ____

Other remarks

This form is to be completed by the Surveillance Agent at the Surveillance point of outbreak and distributed as follows:
Original to NADIS Federal Epidemiology Office; Duplicate to State DVS; Triplicate to NVRI; Quadruplicate - Book Copy

Appendix 4: Routine Monthly Notification Form – IDSR 003

(HARD COPIES HARD COPIES HARD COPIES TO BE COMPLETED IN DUPLICATES)

LGA LEVEL
ROUTINE MONTHLY NOTIFICATION FORM: IDSR 003

Reporting LGA ______ State ______ Total No. of Health Facilities (HFs) ______ LGA Reporting Status ______

Reporting Month ______ Year ______ HFs Reporting Timely ______ HFs Reporting Late ______ HFs Not Reporting ______

SN	DISEASE	Cases out-patients								Cases in-patients								Total cases in & out patient	DEATHS							
		0-28 days	1-11 months	12-59 months	5-9 years	10-19 years	20-40 years	>40 years	Total	0-28 days	1-11 months	12-59 months	5-9 years	10-19 years	20-40 years	>40 years	Total		0-28 days	1-11 months	12-59 months	5-9 years	10-19 years	20-40 years	>40 years	Total
1	Buruli Ulcer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	CSM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Cholera	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Diarrhoea with dehydration (< 5yrs)	0	14	10	0	0	0	0	24	0	2	4	0	0	0	0	6	30	0	0	0	0	0	0	0	0
5	Diarrhoea (with blood)	0	0	6	0	4	0	2	12	0	4	6	0	1	1	0	12	24	0	0	0	0	0	0	0	0
6	Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Dracunculiasis (Guinea Worm Disease)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8a	Hepatitis A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8b	Hepatitis B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8c	Hepatitis C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Human African Trypanosomiasis (HAT)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Lassa fever (Viral hemorrhagic fever)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Leprosy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Lymphatic Filariasis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13a	Malaria	4	17	32	26	4	42	19	144	0	16	12	34	0	6	8	76	220	0	0	0	0	0	0	0	0
13b	Malaria (severe)	0	10	0	4	1	12	6	33	1	2	4	0	1	4	3	15	48	0	0	0	0	0	0	0	0
13c	Malaria (Pregnant Women)	0	0	0	0	19	24	3	46	0	0	0	0	0	2	0	2	48	0	0	0	0	0	0	0	0
14	Measles	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
15	Neonatal Tetanus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	New HIV/ AIDS cases	0	0	0	0	2	3	0	5	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
17	Onchocerciasis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Pertussis	0	2	4	0	0	0	0	6	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0
19	Pneumonia (< 5yrs)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	AFP/Polio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20a	AFP	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
20b	Confirmed Polio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Rabies (Human)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Severe Acute Respiratory Illness (SARI)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Schistosomiasis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Sexually Transmitted Infections (STIs):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24a	Vaginal discharge	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
24b	Genital Ulcer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24c	Urethral discharge	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
24d	Others STIs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Trachoma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Tuberculosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note