



MASS DOG VACCINATION CAMPAIGN

SHARING THE NIGERIAN EXPERIENCE

PRESENTED BY

FEDERAL MINISTRY OF AGRICULTURE & RURAL DEVELOPMENT

DEPARTMENT OF VETERINARY & PEST CONTROL SERVICES

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AT WORLD RABIES DAY 2020 WEBINAR

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OUTLINE

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INTRODUCTION

- COUNTRY PROFILE
- ROLES OF THREE TIERS OF GOVERNMENT IN ANIMAL DISEASE CONTROL
- INSTITUTIONS RELATED TO VETERINARY SERVICES /DISEASE REPORTING CHANNELS

REVIEW OF RABIES OUTBREAKS IN THE LAST FIVE YEARS: 2015 - 2019

REVIEW OF MASS DOG VACCINATION CAMPAIGNS IN THE LAST FIVE YEARS: 2015 - 2019

DISCUSSIONS

- OUTBREAKS
- MASS DOG VACCINATIONS: PLANNING AND LOGISTICS, TEAM SET UP, COLD CHAIN, MOBILITY, TIME OF VACCINATION, COST, COORDINATION, IMPACT ON HUMAN HEALTH, IMPACT ON ANIMAL HEALTH
- SWOT ANALYSIS
- CHALLENGES
- WAY FORWARD

CONCLUSIONS



INTRODUCTION

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General

- Rabies is a very fatal viral disease of all warm-blooded animals
- It can kill 100% of its infected victims without timely and efficient post-exposure prophylaxis (treatment)
- It is 100% vaccine preventable
- Majority of the death (about 95%) occur in poor countries of Africa and Asia
- Rabies is on the increase and is responsible for over 70,000 deaths (WHO)
- Dogs account for 99% of human deaths resulting from rabies
- Vaccination of 70% of dogs over 3 consecutive years is necessary to eliminate rabies in endemic countries
- Rabies requires multisectoral and multidisciplinary collaborations
- Global initiative to end dog mediated human rabies by the year 2030
- Active global and regional rabies platforms exist



INTRODUCTION CONTD

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Nigeria

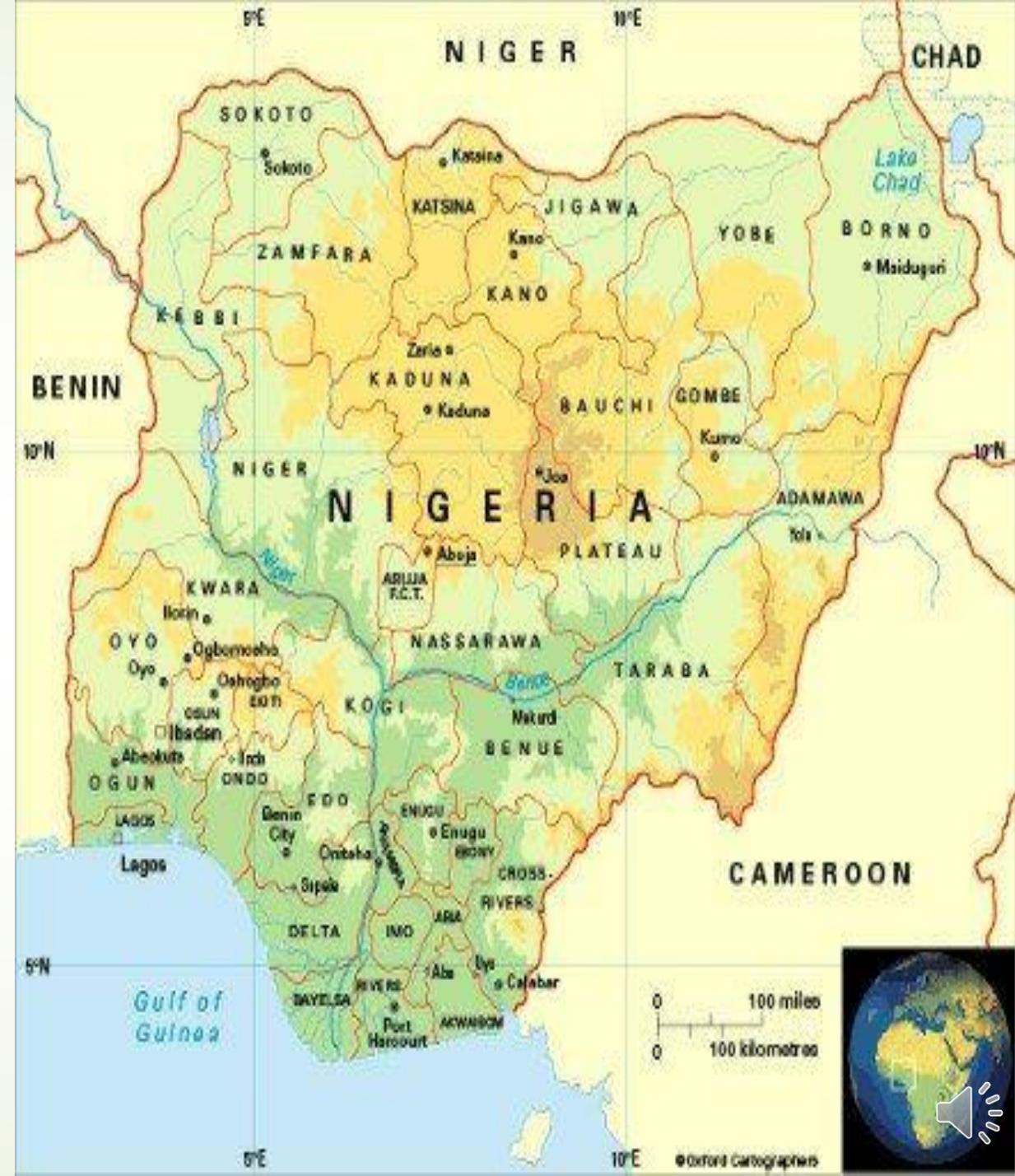
- Rabies was first reported in Nigeria in 1912
- 4 serotypes present: Classical, Lagos bat, Mokola and Duvenhage virus
- About 10,000 annual human cases reported (NCDC)
- The disease is mostly neglected and under-reported
- Majority of dogs are unlicensed, unvaccinated and allowed to roam freely
- Most of the dogs referred to as stray are actually owned
- Cases of latent rabies have been documented (1)
- Projected estimates of dog population at approx. 7m (NBS 2008), unrealistic
- Based on several uncoordinated research studies and recent pilot dog population studies carried out in Nasarawa, Nigeria (2) and other states an estimate of 20m dogs (1:10 dog to human ratio) seems appropriate
- National strategic OH plan for rabies control developed
- National OH platform established



COUNTRY PROFILE

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- Nigeria is located in West Africa with land borders on the west by Benin Republic, North by Niger, North East by Chad and East by Cameroun in Central Africa. It is bordered on the south by the Atlantic ocean
- Covers an area of 923,768 sq km
- Made up of 36 Federating States and a Federal Capital Territory
- 3 tiers of government at Federal, States and Local Government Area councils
- Projected human population using the last census NBS 2006 is approx. 200million
- Dogs are kept for security, hunting, companionship and food purposes
- Zoos and wildlife parks across the country



ROLES OF THREE TIERS OF GOVERNMENT IN ANIMAL DISEASE CONTROL

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Federal Government through the Department of Veterinary and Pest Control Services (DVPCS) develop and coordinate National animal health policies

States control and prevent diseases and report to DVPCS

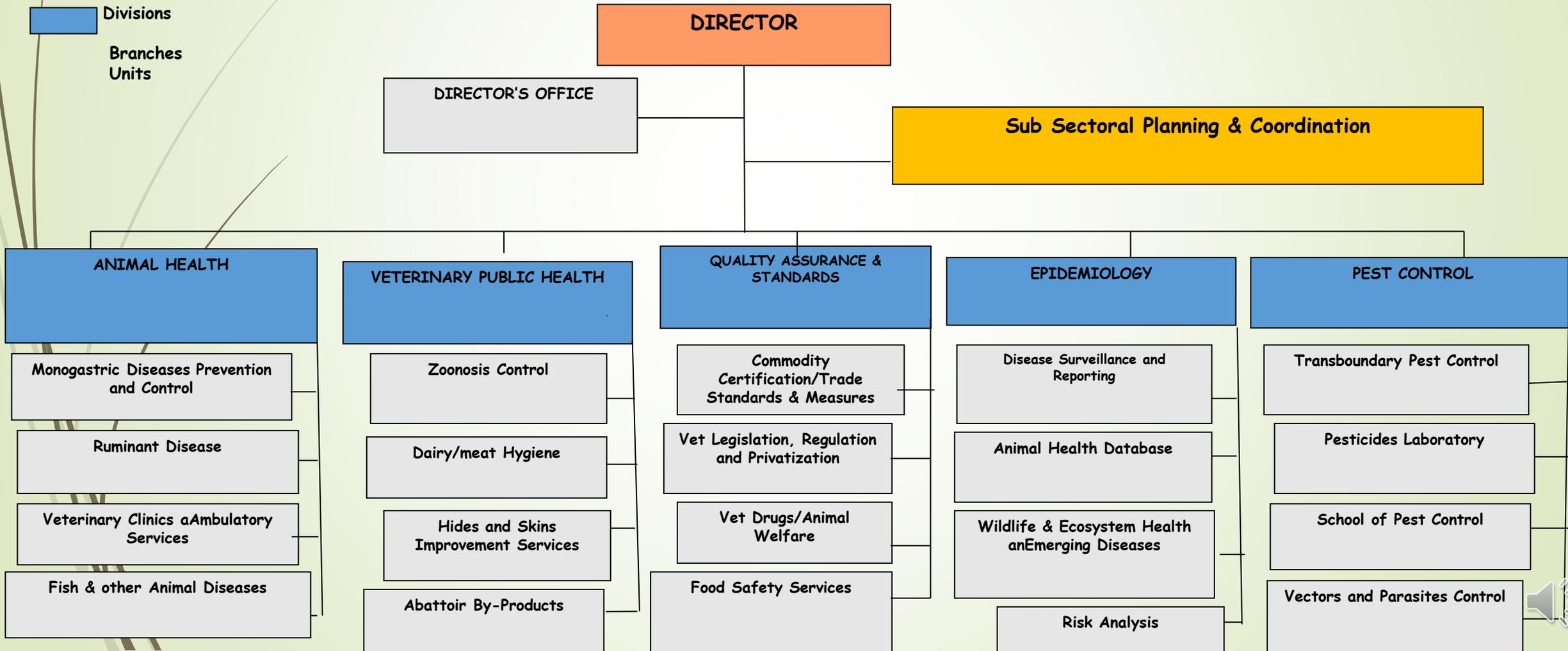
Local Governments are the lowest administrative levels where disease surveillance points exist



Department of Veterinary and Pest Control Services organogram

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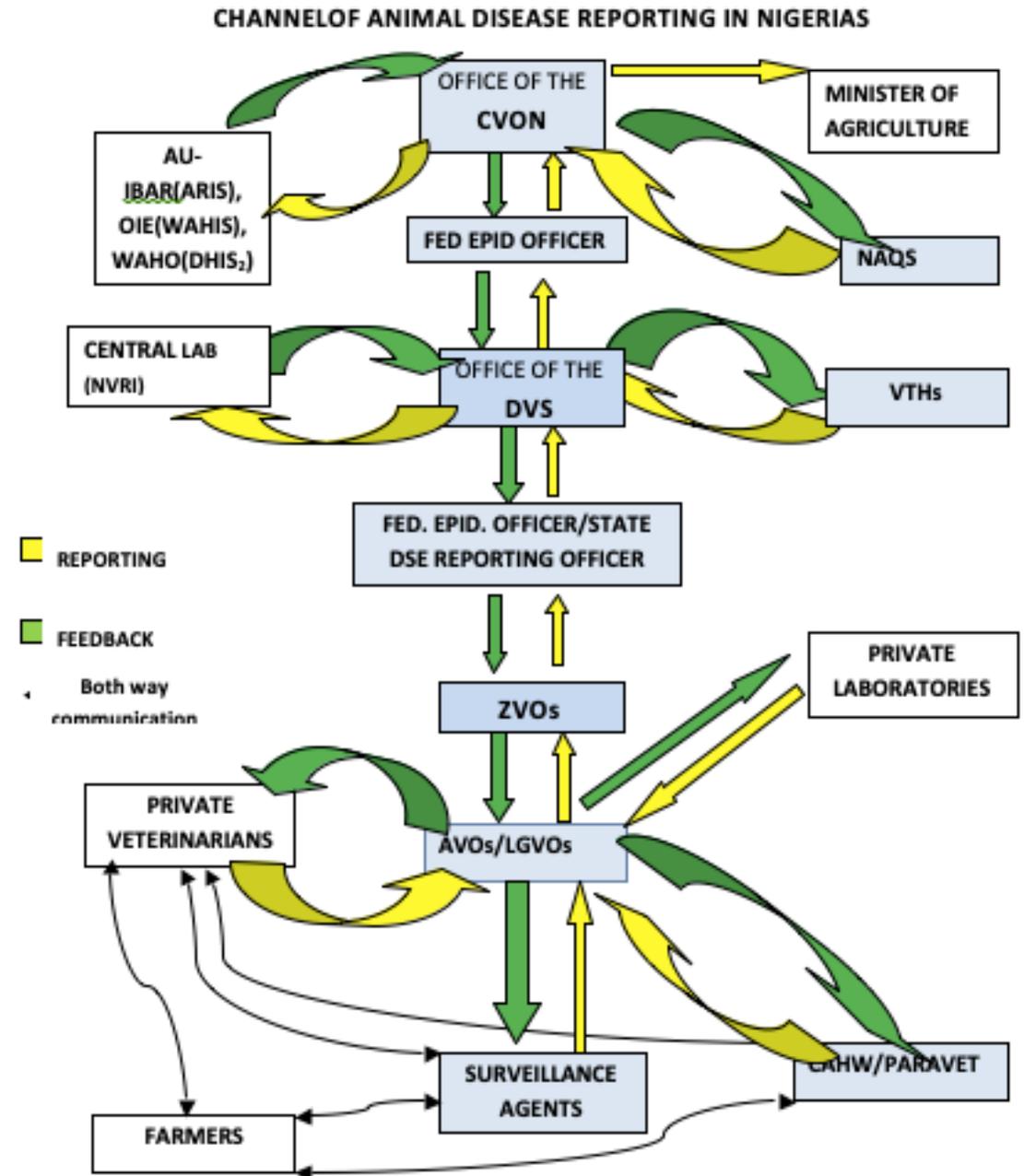
Divisions
 Branches
 Units



INSTITUTIONS RELATED TO VS

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- **The National Veterinary Research Institute (NVRI)**
 - National reference laboratory
 - Regional centre for TADs (HPAI)
 - Vaccine production and testing
- **The Veterinary Council of Nigeria (VCN)**
 - Regulates Veterinary training and Practice
- **The Veterinary Teaching Hospitals (VTH)**
 - attached to University Veterinary faculties (8)
- **Nigeria Agricultural Quarantine services (NAQS)**
 - Border control for animals and animal products



Review of rabies outbreaks in the last 5 years (2015-2019)



Suspected / confirmed cases of rabies from 2015 – 2019 source- States data

State	Dog popn	Suspect	Confirmed										
	0	2015		2016		2017		2018		2019		Total	
Adamawa	40,350	0	0	0	0	0	0	0	0	0	0		
Bauchi	24,278	0	0	0	0	0	0	1	1	10	5		
Bayelsa	5000	0	0	0	0	0	0	0	0	4	2		
Anambra	105500	0	0	0	0	0	0	0	0	0	0		
Borno	500,000	49	0	67	0	71	0	57	0	54	0		
Benue	-	0	0	0	1	0	3	0	0	0	0		
CRS	1,918,806	47	3	32	8	8	2	14	2	13	4		
Delta	9000	0	0	0	0	0	0	0	0	5	1		
Ebonyi	-	4	1	2	0	2	0	1	0	3	1		
Edo	121,010	30	0	12	0	56	0	93	0	600	3		
Enugu	10,000												
Gombe	3800	15	6	4	0	10	2	9	1	11	3		
Imo	36120	5	0	4	0	7	0	3	0	5	0		
Kaduna	286,810	32	7	12	8	18	2	15	10	17	8		
Kano	-	0	0	36	0	32	5	0	0	0	0		
Katsina	34,200	5	2	0	0	0	0	0	0	7	2		
Kebbi	47,200	46	0	62	0	58	0	71	0	86	5		
Kwara	19250	3	1	8	0	3	1	0	0	3	1		
Ogun	14,291	0	0	0	0	0	0	0	0	0	0		
Ondo	20000	0	0	0	0	0	0	0	0	1	0		
Osun	2,067,158	0	0	4	0	2	0	0	0	12	1		
Rivers	22400												
Taraba	2,765,227	12	0	3	0	8	0	15	0	2	0		
Zamfara	14,830	3	1	5	0	7	2	4	0	8	3		
FCT	-	5	3	3	1	1	1	0	0	1	1		
	8,065,230 (20	256	24	254	19	283	21	283	14	842	40	1,918	118



SUMMARY OF SUSPECTED AND CONFIRMED CASES OF RABIES (STATES)

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Summary of Annual Suspected and Confirmed cases of rabies (states record)

Year	Suspected	Confirmed	Total No. of States reporting
2015	256	24 (9.38%)	13
2016	254	19 (7.48%)	16
2017	283	21 (7.42%)	16
2018	283	14 (4.95%)	11
2019	842	40 (4.75%)	18
Total	1918	118 (6.15%)	20 + FCT



Summary - Annual Outbreak/ CASES Reported from 2015-2019 source NADIS

Year	No of Reported Outbreaks	Months of outbreak	Reporting states	Total confirmed cases
2015	2	Jan, Nov	Osun, Adamawa	5
2016	1	Oct	Sokoto	1
2017	51	Jan, June, July, Aug, Sept, Oct	Bauchi, Benue, Kaduna, Kano, Kwara, Plateau	52
2018	91	Every month	Adamawa, Bauchi, Bayelsa, Benue, FCT, Kaduna, Kano, Kebbi, Kwara, Plateau	99
2019	71	All months except Aug	Bauchi, Bayelsa, Edo, FCT, Kaduna, Kano, Katsina, Kebbi, Kwara, Osun, Plateau, Yobe	88
Total	216		15 out of 36 states +FCT	245

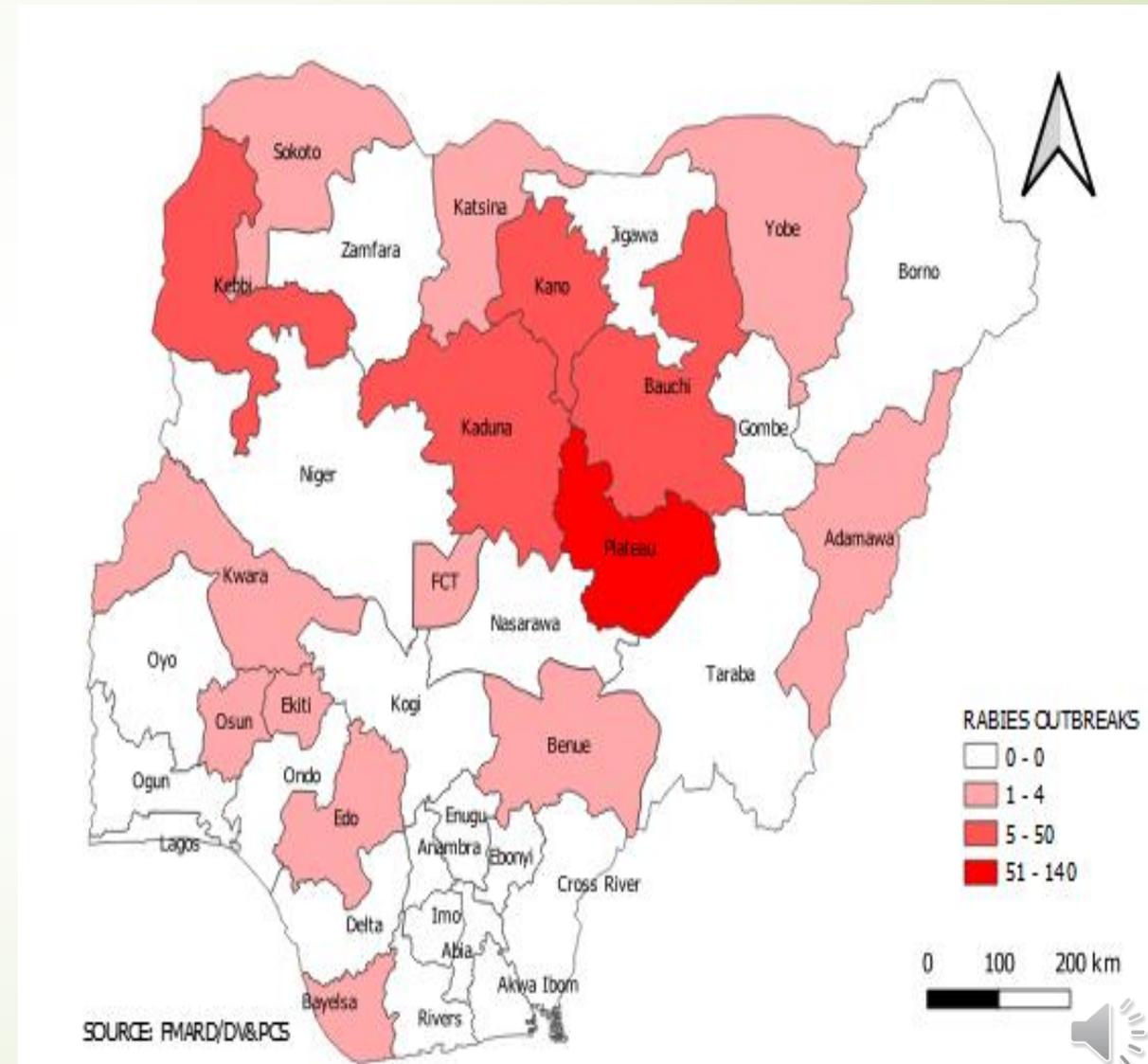


SUMMARY OF NUMBER OF OUTBREAKS BY REPORTING STATES FROM 2015 TO 2019

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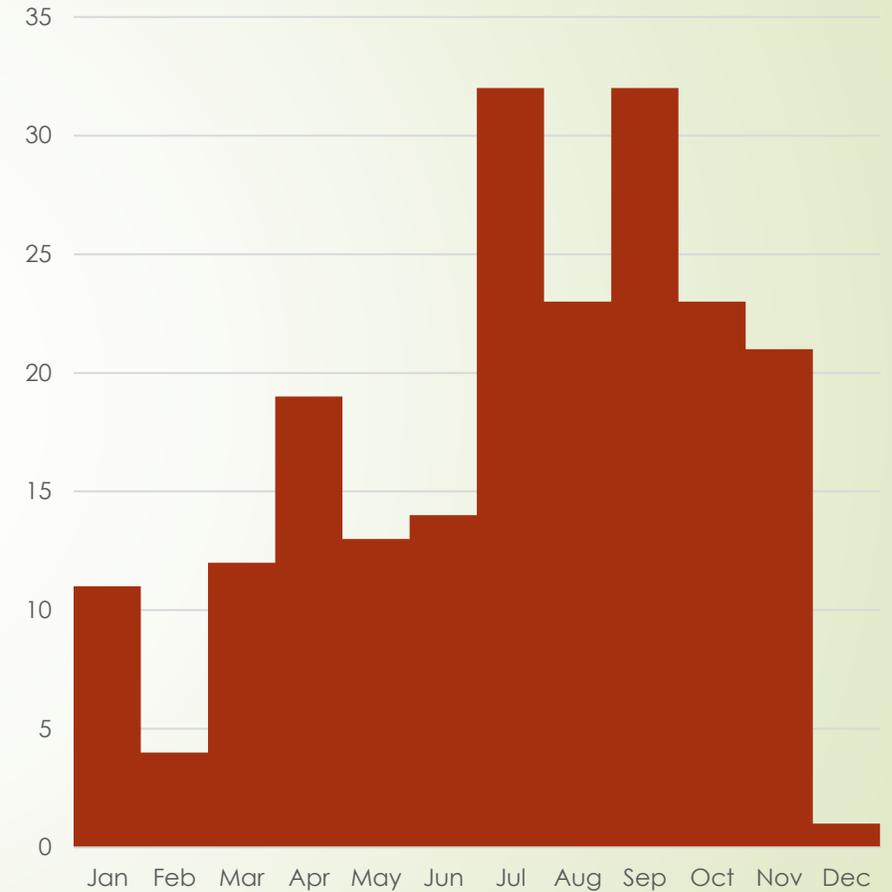
2015 TO 2019

STATE	2015	2016	2017	2018	2019	TOTAL
ADAMA WA	1			1		2
BAUCHI			4	3	6	13
BAYELSA				1	3	4
BENUE			1	2		3
EDO					1	1
KADUNA			7	8	7	22
KANO			2	7	3	12
KATSINA					1	1
KEBBI				8	1	9
KWARA			1	1	1	3
OSUN	1				1	2
PLATEAU			36	59	45	140
SOKOTO		1				1
YOBE					1	1
FCT				1	1	2
	2	1	51	91	71	216



Month	No. of Outbreaks	States
J	14	Adamawa, Kaduna, Kwara, Plateau, Osun
F	4	Plateau
M	12	Bauchi, Kano, Plateau
A	19	Kaduna, Kano, Plateau
M	13	Bauchi, Bayelsa, Plateau
J	14	Kaduna, Kano, Plateau
J	32	Bauchi, Benue, Kaduna, Kano, Plateau
A	23	Bauchi, Bayelsa, Kaduna, Kwara, Plateau
S	32	Bauchi, Benue, Edo, FCT, Kaduna, Kano, Plateau
O	23	Bauchi, Bayelsa, FCT, Kaduna, Kano, Katsina, Kebbi, Plateau, Sokoto, Yobe
N	32	Adamawa, Bauchi, Bayelsa, Kaduna, Kano, Kebbi, Kwara, Plateau
D	1	Bauchi
TOTAL	216	15 out of 36 states + FCT

Outbreak distribution by Month-2015-2019 extracted from epid data



Review of Mass Dog Vaccination Campaigns in the last 5 years (2015-2019)



Mass vaccination (v) and Routine vaccination records from reporting states from 2015 to 2019

State	Dog popn	2015		2016		2017		2018		2019		Total	Est av cost
	6	Mass v	Routine	Mass v	Routine	Mass V	Routine	Mass v	Routine	Mass v	Routine		
Adamawa	40,350	0	10,200	0	9800	0	11000	0	12,100	0	10100		
Bauchi	24,278	0	6	0	39	0	65	0	45	600	120		
Bayelsa	5000	150	240	0	265	261	187	0	305	336	654		
Anambra	105500	4000	8400	3500	8820	4000	11550	0	0	0	0		
Benue	-	0	0	0	0	0	0	0	0	0	0		
Borno	500,000	0	0	0	0	0	0	0	0	0	0		
CRS	1,918,806	0	723	5450	739	6230	780	0	510	0	595		
Delta	9000	0	532	2350	665	0	753	2974	964	3621	1170		
Ebonyi	-	0	13	0	12	0	15	0	7	0	10		
Edo	121,010	0	70	280	3280	0	1700	0	3000	0	7130		
Enugu	10,000	700	300	1000	500	1500	500	2000	800	1500	500		
Gombe	3800	2000	352	0	480	0	744	1000	529	0	1517		
Imo	36120	3120	3980	0	5280	0	4920	3860	4140	4771	5229		
Kaduna	286,810	4809	1877	3000	2300	1000	875	0	730	0	800		
Kano	-	0	0	0	112	1000	253	0	0	7182	820		
Katsina	34,200	1050	600	0	0	0	0	0	0	3000	1800		
Kebbi	47,200	0	118	300	124	500	136	500	130	24,500	168		
Kwara	19250	0	0	750	350	700	450	0	0	0	0		
Ogun	14,291	0	345	45	460	2450	1426	654	932	0	899		
Ondo	20000	0	233	0	168	1000	113	500	127	500	719		
Osun	2,067,158	0	524	0	491	0	612	0	560	0	722		
Oyo	-	0	0	120	0	200	0	80	0	350	0		
Rivers	22400												
Niger	253,556												
Taraba	2,765,227	0	3474	0	2825	0	1341	243	923	0	521		
Zamfara	14,830	83	23	87	15	91	31	98	27	2171	19		
FCT	-	7050	2000	7750	1750	8920	2600	-	0	10000	4050		
Total	8,318,786	22,962	34,010	21,132	38,475 of	27,852 of	40,051 of	11,909 of	25,829 of	58,531 of	37,543 of	142,386	175,908
	from 21 states	from 8 of 25 states	from 19 of 25 states	OF 11	21	13	21	10	17	12	20		
		56.972		59.607		67.903		37.738		96.074		318,294	



Summary of Dog vaccination records from states

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- Total reporting states were 25
- 4 out of the 25 did not report any mass vaccination during this period
- 142,386 vaccinated during mass vaccination in 21 states
- 175,908 vaccinated during routine vaccination in clinics
- Total vaccinated = 318,294 (<10% of total dog population from the states)
- Approximately 65% of vaccination was done using NVRI Flurry vaccines while the rest used foreign vaccines
- Cold chain was available and adequate in all except 3 states

Summary of Vaccination records from states- () no of states

YEAR	MASS V	ROUTINE V	TOTAL
2015	22,962 (8)	34,010 (19)	56,972
2016	21,132 (11)	38,475 (21)	59,607
2017	27,852 (13)	40,051 (21)	67,903
2018	11,909 (10)	25,829 (17)	37,738
2019	58,531 (12)	37,543 (20)	96,074
TOTAL	142,386	175,908	318,294

Estimated Dog Population from 21 states 8,318,786



Mass Vaccination Team Set up by States

Year 18	Government only	Government + NVMA	One Health Partners	Community Leaders
2015	2	3	-	3
2016	4	5	-	2
2017	3	7	1	2
2018	1	7	1	1
2019	1	9	2	-

➤ Traditional, Religious and Youth leaders formed part of the team in some states

➤ Staff of Human Health and Environment ministries were part of the teams in only 2 states starting from 2017



Comparison of NVRI Vaccine Production and Usage

19 NVRI VACCINE PRODUCTION AND SALES RECORD		PROCUREMENT		
YEAR	PRODUCTION FIGURES	STATE/FCT/MINISTRY NO OF VIALS	PRIVATE VET/OTHERS NO OF VIALS	TOTAL
2015	46,892	23,930	22,962	46,892
2016	43,193	33,800	9,393	43,193
2017	45,210	22,550	22,660	45,210
2018	23,810	2,500	21,310	23,810
2019	50,200	11,800	14,873	26,673
	209,305	94,580	91,198	185,778
	209,305			23527 C/O TO 2020

- 209,305 vaccines were produced between 2015 and 2019
- Total usage in that time was 185,778
- Total procured by different states and DVPCS was 94,580
- Private veterinarians and firms procured 91,198



DISCUSSIONS:

OUTBREAKS

MASS DOG VACCINATIONS: PLANNING AND LOGISTICS, TEAM SET UP, COLD CHAIN, MOBILITY, TIME OF VACCINATION, COST, COORDINATION, IMPACT ON HUMAN HEALTH, IMPACT ON ANIMAL HEALTH

SWOT ANALYSIS

CHALLENGES

WAY FORWARD

CONCLUSIONS

VACCINATION



Outbreaks

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- Rabies is endemic in all 36 states of the Federation and the FCT
- Rabies occurs through out the year with most outbreaks occurring between July to November
- Several cases not reported through official channel and so not captured in the national data
- Majority of suspected cases are not subjected to further investigation
- Reported cases not necessarily a true picture of the country situation
- NVRI is the only lab currently recognized to carry out the confirmatory tests
- Distance and cost of transportation of specimen to the reference lab may contribute to the unwillingness to confirm suspected cases
- Data from states, NVRI and NADIS need harmonization
- Increased surveillance and reporting observed from 2017
- Non- canine cases reported from 3 states



Mass Dog Vaccination

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- Mass dog vaccination is one of the crucial activities for a successful rabies control program
- The first and last successful national Mass dog vaccination campaign in Nigeria took place in 1982
- Another National campaign started in 2006 but aborted due to insufficient funding with coverage of 18 States and over 50,000 dogs vaccinated between Dec 2006 to April 2007
- States conducted routine vaccination of dogs in public and private clinics and occasionally organized mass dog vaccinations around WRD and following outbreaks



Mass Dog Vaccination contd

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- ▶ **The Nigeria Veterinary Medical Association (NVMA) supports states in vaccination campaigns**
- ▶ **Vaccination campaigns were often preceded by massive enlightenment campaigns to create awareness and mobilize dog owners for the exercise**
 - ▶ **Planning and logistics:** Over 90% of States that conducted Mass dog vaccination in the past 5 years planned it around the WRD in partnership with the NVMA with support in terms of vaccines, IEC materials and other logistics from the Federal Government. Vaccination was done in Veterinary clinics at the Local Government councils or the chief's palace or other convenient open spaces
 - ▶ **Team set up:** Teams were made up of Veterinarians in the public and private sectors. youth leaders, Traditional and religious leaders were carried along during vaccination. Rarely were Human Health and Environment Staff carried along
 - ▶ **Cold chain:** Most Vet. clinics are equipped with refrigerators for vaccine storage. Coleman boxes with ice packs were used to transport vaccines to vaccination venues



Mass Dog Vaccination contd

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- **Mobility:** Rural communities were often targeted for mass vaccination. The team assembled at the vaccination venue in their vehicles. The dog owners often walked from their homes to vaccination centres. In some instances door to door vaccination was carried out covering almost 100% of dogs in the community including unhoused dogs
- **Time of vaccination:** Vaccination started in the morning and continued till 2pm as long as there were dogs to vaccinate everyday. Duration of vaccination varied from 1 week to 3 months
- **Costs:** The budget for vaccination exercises vary from state to state. On the average, it costs between 3-4 USD to vaccinate one dog (all logistics inclusive) using the NVRI Flurry vaccine
- **Coordination:** In the absence of a national program, the coordination of the state campaigns are done by the state Directors of Veterinary services with the state chapters of NVMA in collaboration with the Federal Government
- **Mass media engagement** was a key component of each successful mass dog vaccination exercise



Mass Dog Vaccination contd

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- **Impact of mass dog vaccination on rabies incidence in humans:** There are many documented and undocumented cases of dog bite victims and confirmed cases of rabies in humans in Nigeria. However, in the absence of a comprehensive national data, this information can not be provided
- **Impact of mass dog vaccination on rabies incidence in animals:** There is no baseline data to be able to measure or evaluate the impact of increased vaccination on the incidence of rabies in animals



SWOT ANALYSIS FOR MASS DOG VACCINATION

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TOWARDS ELIMINATION OF RABIES

Strength

- Existing veterinary networks across the country
- Adequate manpower
- Existing One Health platform
- OH strategic plan
- Available capacity for diagnostics

Weakness

- Poor legislation
- Stray and hunter dogs
- Poor linkages
- Inadequate data / Underreporting
- Poor intersectoral collaboration
- Poor laboratory network

Opportunity

- Global partner interest and support
- Access to free communication materials

Threats

- Risk of wildlife infection
- Certain cultural habits



CHALLENGES

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- Lack of awareness
- High cost of vaccine
- High stray dog populations
- Cultural practice (consumption of dog meat)
- Weak linkages between the private and public sector and across sectors
- Under reporting
- Poor legislative framework
- Parallel disease investigation and reporting systems
- Porous international land borders
- Inadequate funding for animal health activities
- Poor laboratory network



WAY FORWARD

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- **Massive awareness creation**
- **More Government support for sustained free vaccination**
- **Advocacy to improve linkages for improved surveillance and reporting**
- **Enactment of a Dog Control Act**
- **Strengthen the OH platforms at different levels of government**
- **Regional collaborations across international borders**
- **More partner support to implement National strategic plan**
- **Strengthen sample transportation and laboratory networking**



**INCREASED SURVEILLANCE
AND REPORTING
DOG POPULATION STUDIES
ROUTINE AND MASS DOG
VACCINATION
2015 - 2019**

**ENHANCED PUBLICITY
TARGETTED 70% MASS
DOG VACCINATION
2020 -2025**

**SUSTAINED
VACCINATION,
MONITORING AND
EVALUATION
2026 - 2030**

**ELIMINATION OF
DOG MEDIATED
RABIES**

2030



CONCLUSION

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- ▶ Mass dog vaccination is key to any rabies control program
- ▶ It is very expensive and usually exceeds the budgetary allocation for animal health in most states
- ▶ Data is essential for informed planning,
- ▶ Nigeria is concurrently generating data, increasing awareness and carrying out mass dog vaccination campaigns towards controlling rabies
- ▶ Massive awareness creation has resulted in responsible dog ownership and increased routine dog vaccination while mass vaccination campaigns are targeted at poor rural communities
- ▶ A national OH strategic plan towards the elimination of rabies has been developed subject to review
- ▶ Conducted pilot dog population study in Nasarawa state with plans to step it down to other states (2)
- ▶ National One Health platform in place
- ▶ Nigeria has the Technical and Organizational capabilities to eliminate rabies by the year 2030 with the political will and adequate regulatory provisions and funding





*Thank
You*



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