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Original Research Article

Lymphatic Filariasis Transmission Surveillance Survey (TAS-3) in Cameroon

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Abstract: ***Background*:** The elimination of lymphatic filariasis remains a priority for the Cameroonian government and its partners. Monitoring the interruption of transmission in communities where this disease is endemic remains ongoing through surveys called TAS (Transmission Assessment Survey). The present study aimed to detect the resurgence of transmission of lymphatic filariasis caused by *Wuchereria bancrofti* more than 5 years after the cessation of mass treatment, in 47 Health Districts grouped into 21 evaluation units (EU) in 06 regions of the Cameroon (Adamaoua, Center, East, Far North, North West and South West). ***Methodology*:** We conducted a cross-sectional analytical study with prospective data collection, from May 1 to 31, 2024 in schools and communities in 47 Health Districts in 06 regions of Cameroon (Adamaoua, Center, East, Far North, North West and South West), grouped into 21 assessment units, having already passed the TAS-2 survey in 2021 and selected by cluster sampling. The study population consisted of children aged 6 to 7 years, residing in the study area for at least 1 year and having parental authorization. The participants were enrolled in the schools and communities of these evaluation units. Our main objective was to search for the presence of the *Wuchereria bancrofti* antigen in each of these participants using FTS (Filariasis Test Strip) kits. The data were collected using a questionnaire set up on a tablet with the ODK application. Analyses were carried out with Microsoft Excel 2019 software. ***Results*:** A total of 32,815 children were enrolled in 673 clusters during the survey period, with a predominance of the female gender (51.30 %). Two (02) positive cases (0.006 %) of lymphatic filariasis in *Wuchereria bancrofti* were recorded in the Kolofata Health District (locality of Kerawa) in the Far North Region. A single case of lymphatic filariasis in *Loa-loa* (Loasis) was registered in the Nanga-Eboko Health District (locality of Bibey) in the Center Region. However, the Loiasis' case was considered a false positive because it did not fit the purpose of the study. ***Conclusion*:** The TAS-3 survey identified 02 positive cases of lymphatic filariasis, representing a prevalence of 0.006 %. However, this value was lower than that of the critical threshold values of between 8 and 20, thus reflecting the low risk of the disease in the 47 Health Districts which were the subject of the TAS-3 survey. Continuous monitoring of the interruption of lymphatic filariasis transmission in these endemic areas will provide a stage for the complete eradication for the disease in Cameroon.

Keywords: Lymphatic Filariasis, Transmission Assessment Survey 3 (TAS3), *Wuchereria bancrofti*, Neglected Tropical Disease, Filariasis Test Strip.

INTRODUCTION

Lymphatic filariasis is parasitic infection that affect the lymphatic system. In man, three main filarial worms (nematodes) are responsible of the disease: *Wuchereria bancrofti* (also known as Bancroft filariae), *Brugia malayi* (Malaisia filariae) and *B. timori* among these species, W. brancofti is the most common in

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Africa. Its main transmission vector is the culex mosquitoe (especially *Culex quinquefasciatus)* (WHO, 2011). It is among the most widespread neglected tropical diseases in the world. According to the World Healtth Organisation (WHO), nearly 1.4 billion people are at risk of being infected, 120 million are actually infected and about 40 million of them have disabling complications, making this condition one of the leading causes of disability in the world (WHO, 2012). Due to this impact of the disease, the fiftieth WHO Assembly resolved to eliminate lymphatic filariasis as a public health problem (WHO, 1997). To respond to this call, in 2000 the WHO launched the Global Program for the Elimination of Lymphatic Filariasis (GPELF), whose roadmap set the year 2030 as the target for the elimination of this disease (WHO, 2011).

Since the 1910s, surveys have revealed that the northern part of Cameroon (North and Far North Regions) harbored the largest outbreaks of lymphatic filariasis with prevalences of up to 20% (Boussinesq, 1999). In 2007, surveys providing data on the prevalence of lymphatic filariasis and parasitic loads for the implementation of mass treatment in the North and Far North regions were carried out (WHO, 2012). From 2010 to 2012, mapping surveys were carried out in the other 8 regions of the country. Following these mapping surveys, mass treatments for lymphatic filariasis based on Ivermectin and Albendazole were gradually implemented in all 144 endemic health districts (DS). As a result, mass treatments began in 2009 in the Far North region and in 2011 in the Adamaoua, Center, East, North West and South regions. West. Following these treatments, health districts having completed 5 rounds of treatment with therapeutic coverage rates greater than 65% benefited from impact evaluation surveys carried out progressively from 2015 through Pre-TAS surveys (PNLO, 2021).

In 2017 and 2018, 143 health districts, including 47 districts in the regions of Adamaoua (Meiganga, Tignere and Ngaoundere-Urbain), Center (Esse, Okola, Evodoula, Ngog-Mapoubi and Nanga-Eboko), East (Bertoua, Betare-Oya and Lomie) North West (Bamenda, Bamenda North, Kumbo West, Oku, Bafut, Mbengwi, Ndop, Tubah, Benakuma, Njikwa, Wum, Funding, Nkambe, Ako, Bali, Batibo, Santa, Kumbo East, Ndu and Nwa) and South West (Buea, Mbongue, Muyuka, Ekondo Titi, Kumba, Kumba East, Mundemba, Bangem, Fontem, Konye, Nguti, Eyumojock, Mamfe, Limbe and Tiko) and the district of Kolofata in the Far North region had successfully passed TAS-1 (using FTS kits) leading to the cessation of treatment against lymphatic filariasis in all these health districts (PNLO, 2021).

Thus, during the post-treatment cessation surveillance period, the Ministry of Public Health carried out transmission evaluation surveys (TAS-2 and TAS-3) under the cover of its National Onchocerciasis and Lymphatic Filariasis Control Program (PNLO), which aimed to assess whether the infestation has been reduced to a sufficiently low level so that it is unlikely that transmission will continue. These surveys were to be repeated at least twice after stopping mass treatment, within two to three years, to ensure that disease transmission is considered interrupted. During the period from October 2021 to January 2022, a first post-cessation of mass treatment surveillance survey (TAS-2) confirmed the absence of an upsurge in lymphatic filariasis in these health districts. Therefore, as recommended by the GPELF (Global Program for Elimination of Lymphatic Filariasis) launched in the year 2000, a series of two post-mass treatment surveillance surveys should be carried out approximately 2 to 3 years after the previous one to assess if an upsurge has occurred. Thus, three years after the cessation of mass treatments in the health districts mentioned, it was imperative for the Ministry of Public Health through the National Onchocerciasis and Lymphatic Filariasis Control Program (PNLO), to conduct this surveillance survey (TAS-3) post cessation of mass treatment, aimed at detecting a possible resurgence in the transmission of lymphatic filariasis at the various evaluation units of the health districts in the six regions (Adamaoua, Center, East, Far North, North West and South West) of Cameroon.

MATERIALS & METHODS

Design and Study Location

A cross-sectional analytical study with prospective data collection, from May 1 to 31, 2024 was conducted in schools and communities in 47 the Health Districts of the 06 regions of Cameroon (Adamaoua, Center, East, Far North, North West and South West). The health districts were grouped into 21 evaluation units, having already successfully passed the TAS-2 survey in 2021. These evaluation units were selected based on their epidemiological profile and their geographical location by cluster sampling in the 06 regions targeted by the survey.

Study Population

The study population consisted of children aged 6 to 7 years, residing in the study area for at least 1 year and having parental authorization.

Sample Size

The total population of the 47 Health Districts of the 06 regions of Cameroon targeted for the TAS-3 survey in 2024 was estimated at 3,987,849 people (Figure 1). Eligible participants for this survey were children of both sexes, aged 6 to 7 years, residing in the study area for at least 1 year. According to the final BUCREP report made in 2010, children aged 6 to 7 years represent 10% of the general population (BUCREP, 2010). By combining this information with the gross education rates of the regions targeted by the survey, we were able to estimate its sample size at 31,744 participants.

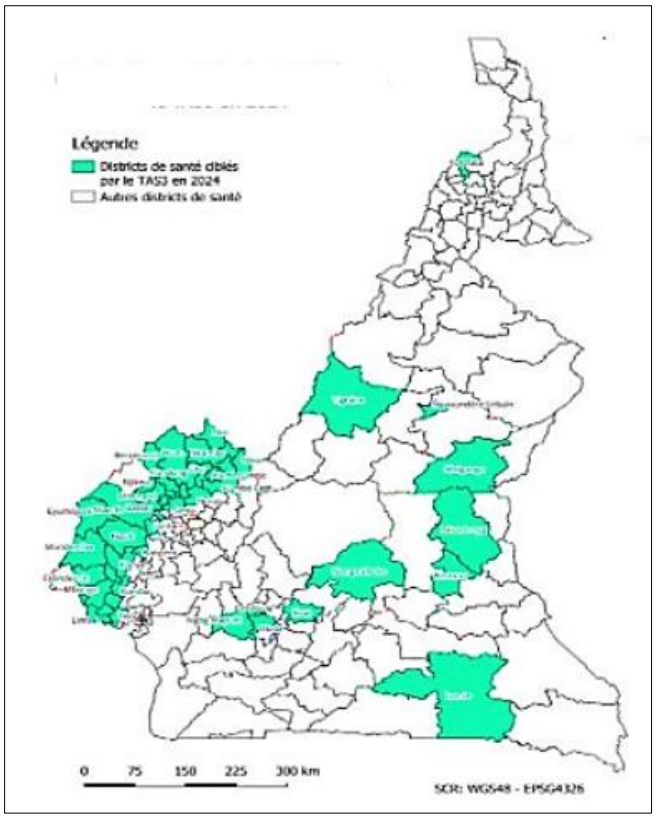

Figure 1: Spatial distribution of health districts targeted by the TAS-3 survey in 2024

Selection of Evaluation Units (EU)

The 47 health districts concerned for the survey (TAS-3) have been grouped into 21 Evaluation Units (EU) not exceeding 500,000 inhabitants since the survey (TAS-1) carried out in 2018. The description of these evaluation units is represented in table 1 below.

Table 1: Description of Evaluation Units

EU	Strategy	Region	UI (DS)	Number of UI (DS)	Total villages (ZD)	Total population 2024	Children aged 6 to 7
EU40	Community	Adamaoua	Meiganga	1	248	184275	18427
EU41			Tignere	1	128	133968	13397
UE42			Ngaoundere-Urbain	1	312	400140	40014
EU43	School	Center	Esse; Okola	2	83	89669	8967
EU44			Evodoula; Ngog-Mapoubi	2	178	84035	8404
EU45			Nanga-Eboko	1	155	72330	7233
EU46		East	BelaboBetare-Oya	2	111	236954	23695
EU47			Lomie	1	37	50403	5040
EU48	Community	Far North	Kolofata	1	102	134673	13467
EU23		Northwest	Bamenda;Bamenda North	2	82	183351	18335
EU24			Kumbo West; Oku	2	116	145233	14523
EU25			Bafut; Mbengwi; Ndop; Tubah	4	278	295744	29574
EU26			Benakuma; Njikwa; Wum	3	150	119925	11993
EU27			Funding; Nkambe; Ako,	3	216	221080	22108
EU53			Bali; Batibo; Santa	3	178	125925	12592
EU54			Kumbo East; Ndu; Nwa	3	253	187428	18743
EU31		Southwest	Buea; Mbongue; Muyuka	3	289	254075	25407
EU32			EkondoTiti; Kumba North; Kumba South; Mundemba	4	295	242564	24256
EU33			Bangem; Fontem; Konye; Nguti	4	323	165572	16557
EU34			Eyumojock; Mamfe	2	167	85253	8425
EU55			Limbe; Tiko	2	353	575252	57525
				47	**4054**	**3987849**	**398682**

UI : Intervention per unit, **DS:** Health district, **ZD:** Enumeration zone, **EU:** Evaluation Unit.

Sampling Technique

Once the list of enumeration zones (villages) of each evaluation unit (UE) was obtained, a serial number was assigned to each enumeration zone (ZD). Using the SSB (Survey Sample Builder) software, random numbers were generated and enumeration areas (EAs) whose numbers matched the generated numbers were selected for the survey. From these data and the information generated by the sample builder SSB, while assuming that the non-response rate was 15% (including absentees and refusal cases) and that the main vector was Anopheles, the sample size and number of clusters to be investigated were calculated by the SSB sample builder. The table below contains the results obtained.

Table 2: Sample size and number of clusters to investigate per evaluation unit

EU	Sample size	Number of clusters	Sampling fraction	Sampling interval	The critical threshold value	Children of 6 to 7 years
EU40	1552	30	0.720081041	1.388733	18	18427
EU41	1540	30	0.577084422	1.732849	18	13397
UE42	1552	30	0.514879792	1.942201	20	40014
EU43	1532	30	0.555986766	1.798604	18	8967
EU44	1532	30	Survey all children aged 6 to 7 years	1	18	8404
EU45	1524	30	Survey all children aged 6 to 7 years	1	18	7233
EU46	1552	30	0.285131884	3.507149	18	23695
EU47	696	37	0.1625	6.153846	8	5040
EU48	1540	30	0.457473825	2.185917	18	13467
EU23	1552	30	0.272215253	3.673563	18	18335
EU24	1548	30	0.484830958	2.062575	18	14523
EU25	1556	30	0.573722414	1.743003	18	29574
EU26	1540	30	0.755440674	1.323731	18	11993
EU27	1552	30	0.594680659	1.681575	18	22108
EU53	1540	30	0.85	1.77	18	12592
EU54	1552	30	0.821600953	1.217136	18	18743
EU31	1556	30	0.69	1.44	18	25407
EU32	1556	30	0.74	1.35	18	24256
EU33	1548	36	Survey all children aged 6 to 7 years	1	18	16557
EU34	1532	36	Survey all children aged 6 to 7 years	1	18	8425
EU55	1692	30	0.41	2.46	18	57525
	31876	**655**				**398682**

EU: Evaluation Unit

Thus at least 31,876 children from 655 clusters of targeted evaluation units were to be examined.

Strategy for the Selection of Children in Schools

For school-based surveys, all children enrolled in the first or second year of primary school aged 6 to 7 years were considered eligible for survey participation after obtaining parental consent. The children were lined up to be counted and assigned a sequential number. Children were selected based on the numbers on the list until the next number on the list was greater than the total number of children in the school's targeted classes.

Strategy for the Selection of Children in Communities

For community household surveys, children aged 6 to 7 were selected from the cluster, taking into account data from the national census office (BUNEC, etc.). In each community targeted by the survey, the data collection team worked with the community distributor to estimate the number of households through the different registers used by health programs. Subsequently, a serial number was assigned to each eligible household. Eligible children from households identified in the community and for whom parental authorization had been obtained were taken to an assembly point at the village chief's office for the sample.

Quality Control

The lymphatic filariasis (FTS) test kits were received on April 18, 2024 by the National Onchocerciasis and Lymphatic Filariasis Control Program and were subject to quality control. All the tests in this supply came from lot No. 788544 with reference 625-430, with manufacturing date of 03-2021 and expiry date of 09/28/2024.

Interpretation of FTS Lymphatic Filariasis Test Results

FTS kits ((Filariasis Test Strip) served as diagnostic tools after blood samples were taken. As indicated in the protocol for using these tests, the interpretation of the result obtained was done 10 minutes after the blood was spread on the test sample pad.

Table 3: Interpretation of FTS test results (Filariasis Test Strip)

1st FTS Test	2nd FTS test	Interpretation	Action
Positive	Positive	Positive	Provide treatment
Positive	Negative	Undetermined	Exclude from sample and provide treatment
Positive	Invalid	Positive	Provide treatment
Invalid	Positive	Positive	Provide treatment
Invalid	Invalid	Undetermined	Exclude from sample and provide treatment
Invalid	Negative	Negative	Negative

Preparatory Activities for the TAS-3 Investigation
Awareness

Information letters signed by the Minister of Public Health were sent to all Regional Public Health Delegates of the six (06) regions targeted for the survey. The latter transmitted the information to their field collaborators (district heads, heads of health areas) for disclosure at the level of the villages selected for the collection of survey data. Community mobilizers subsequently helped inform the children's parents and those responsible for secondary education and schools. The Governors of the 06 regions targeted for the survey also developed information letters for the Senior Divisional officers (SDOs) asking them to take measures to enable the smooth running of the data collection. In response to the Governors, the SDOs instructed the Divisional Officers (DOs) to mobilize the communities through messages sent to traditional leaders. All these letters were presented to community members before the start of the mobilization of targeted children and the sampling. In certain evaluation units (UE), meetings with traditional leaders were held for better community mobilization.

Training of Investigators

The training of investigators took place in the Regional Public Health Delegations of each region concerned by the investigation. It was provided by national trainers assisted by experienced laboratory technicians for handling the FTS kits. Regional supervisors and laboratory technicians from different health districts took part. The training began with a pre-test and its aim was to transmit to the investigators (Laboratory technicians) the information and skills necessary to understand the issues of the TAS-3 investigation and to successfully complete the data collection stage. During the theoretical phase, the facilitators from the central level reviewed the generalities on lymphatic filariasis and the organization of work in the field. The practical phase was the opportunity to simulate the electronic collection of data via smartphones on which the ODK Collect application was installed for downloading forms. During this practical phase, a senior laboratory assistant who was part of the panel of trainers, conducted exercises relating to the production of the Filariasis Test Strip (FTS), and then the level of mastery of the participants was evaluated through a post-test.

Data Collection

At each data collection site, after registering the child and obtaining the results of the tests carried out on each child, a form developed under Open Data Kits (ODK) for data entry through android smartphones was completed. The data from each cluster was then uploaded before the end of the day to a platform designed for this purpose (ONA.io). For each evaluation unit (UE), this entry was carried out by a recorder recruited and trained for this purpose. The search for *Wuchereria bancrofti* antigen was carried out on survey participants using FTS (Filariasis Test Strip) kits.

Data Analysis

The data collected during our study were analyzed using Excel 2019 and SPSS version 22.0 software. The results of their analysis were expressed as a percentage and compared using the Chi-square and Fisher statistical tests with a significance threshold set at 5%.

Ethical Considerations

The protocol for this study was approved by the National Ethics Committee for Human Health Research (CNERSH) of Cameroon and registered under the reference N°2024/06/*1681*/CE/CNERSH/SP. Once in the field, the information notices containing information on the objectives of the survey, the sampling procedures and the benefits of the survey were read and explained to the authorities at different levels and as well as to parents and guardians. Children who participated in the survey before obtaining their informed consent.

RESULTS

Clusters Visited during the TAS-3 Survey Period

A total of 673 clusters out of the 655 planned were visited during the survey period. An increase of 18 additional clusters contained in the additive lists, thus increasing the number of participants tested to 32,815 children. An increase of 3.37% compared to the sample size planned at the start of the survey (Table 4).

Spatial Distribution of Communities and Schools Visited During the Survey Period

The map below (Figure) presents the spatial distribution of communities and schools visited during the survey period. We recorded 669 GPS points among the 673 clusters visited. 04 clusters did not have GPS coordinates due to difficulties linked to network coverage in certain areas surveyed and insecurity in others. These GPS coordinates were taken from at least 1 child per cluster (generally the first child registered in the community or school).

Table 4: Distribution of evaluation units and clusters visited by region based on the number of participants tested during the TAS-3 survey period.

Regions	Evaluation unit (EU)	Districts	Minimum sample size	Number of children tested	Number of schools/villages to visit	Number of schools/localities visited
Adamaoua	EU40	Meiganga	1552	1604	30	33
	EU41	Tignere	1540	1560	30	31
	UE42	Ngaoundere-Urbain	1552	1590	30	30
Center	EU43	Esse; Okola	1532	1563	30	31
	EU44	Evodoula; Ngog-Mapoubi	1532	1533	30	33
	EU45	Nanga-Eboko	1524	1550	36	38
East	EU46	BelaboBetare-Oya	1552	1607	30	30
	EU47	Lomie	696	973	37	37
Far North	EU48	Kolofata	1540	1594	30	30
Northwest	EU23	Bamenda; Bamenda North	1552	1649	30	30
	EU24	Kumbo West; Oku	1548	1585	30	31
	EU25	Bafut; Mbengwi; Ndop; Tubah	1556	1584	30	31
	EU26	Benakuma; Njikwa; Wum	1540	1586	30	31
	EU27	Funding; Nkambe; Ako,	1552	1558	30	30
	EU53	Bali; Batibo; Santa	1540	1611	30	31
	EU54	Kumbo East; Ndu; Nwa	1552	1555	30	31
Southwest	EU31	Buea; Mbongue; Muyuka	1556	1598	30	31
	EU32	EkondoTiti; Kumba, Mundemba	1556	1568	30	31
	EU33	Bangem; Fontem; Konye; Nguti	1548	1729	36	37
	EU34	Eyumojock; Mamfe	1532	1525	36	36
	EU55	Limbe; Tiko	1692	1693	30	30
Total			**31.744**	**32.815**	**655**	**673**

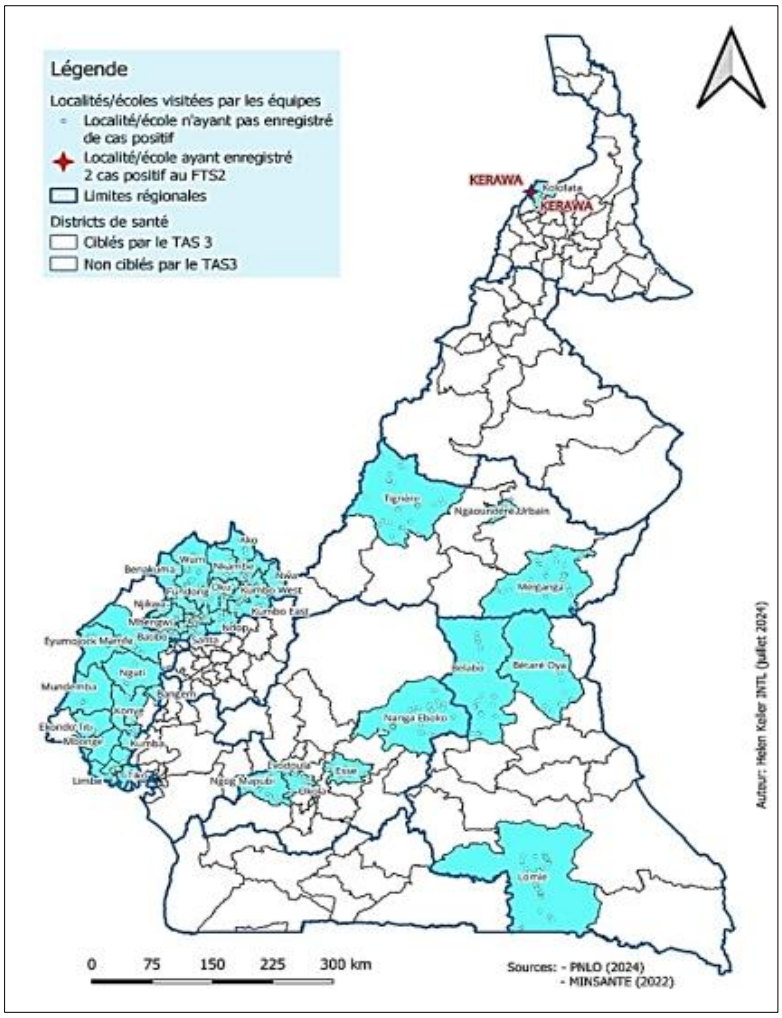

Figure 2: Map of the spatial distribution of clusters in the evaluations units (EU).

Sociodemographic Characteristics (Sex and Age) of Survey Participants

The sex ratio (F/M) was 0.94 to the detriment of the female sex, which was the most represented with a number of 16,835 participants representing 51% of the total number of participants in the survey (Figure 2). The difference in proportions was not statistically significant with a p value = 0.86.

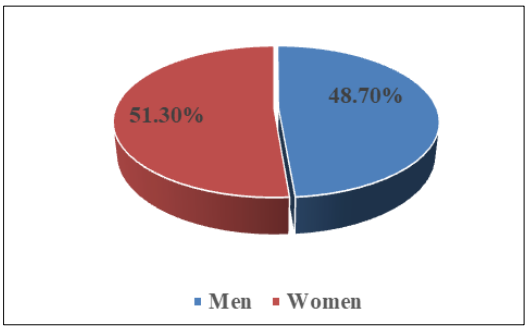

Figure 3: Graphical distribution of survey participants according to gender.

The average age of the participants was 6±1.35 years with extremes between 6 and 7 years. Participants aged 6 were the most represented with 50.40 % (Table 5). The difference in proportions was not statistically significant with a p value = 0.91.

Table 4: Distribution of participants according to age

Age	Numbers	Percentages (%)
6 years	16540	50.40
7 years	16275	49.60
Total	32.815	100

The Lymphatic Filariasis Test (FTS)

The lymphatic filariasis test (FTS) was carried out on 32.815 children, including 04 cases of lymphatic filariasis were diagnosed, including 02 positive cases confirmed in the Kolofata Health District (Kerawa), Far North Region and also 02 doubtful positive cases in Nanga-Eboko Health District (Bibey), Central Region. This positive case value found was lower than that of the critical threshold values between 8 and 20 (Table 6).

Table 6: Distribution of lymphatic filariasis test (FTS) results based on the number of participants tested per evaluation unit (EU).

Regions	Evaluation unit	Districts	Nº of children tested	Nº of positive cases	Critical threshold value	Localities having recorded positive cases
Adamaoua	EU40	Meiganga	1604	0	18	/
	EU41	Tignere	1560	0	18	/
	UE42	Ngaoundere-Urbain	1590	0	20	/
Center	EU43	Esse; Okola	1563	0	18	/
	EU44	Evodoula; Ngog-Mapoubi	1533	0	18	/
	EU45	**Nanga-Eboko**	**1550**	**2**	**18**	**Bibey**
East	EU46	BelaboBetare-Oya	1607	0	18	/
	EU47	Lomie	973	0	8	/
Far North	**EU48**	**Kolofata**	**1594**	**2**	**18**	**Kerawa**
Northwest	EU23	Bamenda;Bamenda North	1649	0	18	/
	EU24	Kumbo West; Oku	1585	0	18	/
	EU25	Bafut; Mbengwi; Ndop; Tubah	1584	0	18	/
	EU26	Benakuma; Njikwa; Wum	1586	0	18	/
	EU27	Funding; Nkambe; Ako,	1558	0	18	/
	EU53	Bali; Batibo; Santa	1611	0	18	/
	EU54	Kumbo East; Ndu; Nwa	1555	0	18	/
Southwest	EU31	Buea; Mbongue; Muyuka	1598	0	18	/
	EU32	EkondoTiti; Kumba, Mundemba	1568	0	18	/
	EU33	Bangem; Fontem; Konye; Nguti	1729	0	18	/
	EU34	Eyumojock; Mamfe	1525	0	18	/
	EU55	Limbe; Tiko	1693	0	18	/
Total	/	/	32.815	4	/	/

Confirmatory Testing of Doubtful Positive Cases of *Wuchereria Bancrofti* Lymphatic Filariasis

It is important to point out that out of the 04 positive cases identified during the TAS-3 investigation, we recorded 02 doubtful positive cases in the central region, District of Nanga-Eboko (Bibey), which were the subject of a confirmation test at the Higher Institute of Scientific and Medical Research (ISM) in Yaounde. The results of the confirmation test carried out on microscopic observation of thick calibrated drops (TCD), revealed that one of the two preparations (UE45-03-73) was positive for Loiasis (*Loa-loa* lymphatic filariasis), with a microfilarial load of 7,020 mf/mL. *Mansonella perstans* and *Wuchereria bancrofti* microfilariae were not found on any of these preparations (Table 7).

Table 7: Distribution of the results of the confirmation test of the 02 doubtful positive cases of *Wuchereria bancrofti* lymphatic filariasis (Nanga-Eboko Health District)

Participant ID	Age	Date and time of collection	TCD Results
UEU5-19-18	Age: not specified	05/15/24 Time: 10 p.m.	*Loa loa*: 0 mf/mL *Mansonella perstans*:0 mf/mL *Wuchereria bancrofti*:0 mf/mL
UEU5-03-73	7 years	05/16/24 Time: not specified	*Loa loa*: 7,020 mf/mL *Mansonella perstans*:0 mf/mL *Wuchereria bancrofti*:0 mf/mL

ID=Identification; **TCD**= Thick Calibrated Drops.

DISCUSSION

The TAS-3 2024 survey was carried out in 47 health districts in the regions of Adamaoua, Center, East, Far North, North West and South West Cameroon. A total of 673 clusters were visited, which is 18 additional clusters compared to the 655 clusters planned.

A sample size of 32.815 children were tested, among which we identified 02 positive cases (0.006%) of lymphatic filariasis in Wuchereria Bancrofti, in the Kolofata Health District (locality of Kerawa), Far North Region and 01 case of lymphatic filariasis in Loa-loa (Loase), recorded in the Nanga-Eboko Health District (locality of Bibey), Central Region. But Loiasis' case was considered a false positive because it did not fit the purpose of the study. The number of positive cases was below the critical threshold values between 8 and 20 in the surveyed assessment units. This observation confirmed the absence of an upsurge in lymphatic filariasis in these districts already observed in 2021. This absence of an upsurge in the transmission of the disease would result not only from well-conducted mass treatment campaigns but probably also from the impact of the various vector control activities carried out by Cameroon as part of the fight against malaria by facilitating universal access of populations to mosquito nets impregnated with long-lasting insecticide (LLIN).

The results reported by our survey are similar to those found in the TAS survey conducted *by Kima and his colleagues* in 2021 in 04 health districts of Burkina Faso, which had also reported 04 positive cases of lymphatic filariasis on a sample size 1,649 children aged 6 to 7 years old (Kima A *et al.,* 2021). This positive case value reported in this investigation was also below the critical threshold value. On the other hand, the TAS investigation carried out by *Dorkenoo and his colleagues* in 2015 in 7 health districts of Togo, reported 13 positive cases of lymphatic filariasis in a sample size of 6,380 children aged 6 to 7 years (Dorkenoo A *et al.,* 2015). But the 13 children found positive in the Immunochromatographic Test (ICT) in this investigation were subsequently subjected to 02 other different diagnostic methods (thick blood smear for nocturnal microfilaremia and ELISA for the search for the Og4C3 antigen), which gave data negative lymphatic filariasis test results. Therefore, these were false positives because the specificity and sensitivity of the Og4C3 ELISA test seemed to be higher than those of the Immunochromatographic Test (ICT) (Nuchprayoon *et al.,* 2003) (Wattal S *et al.*, 2007).

According to WHO recommendations and despite the difficulties encountered in the field such as: Carrying out the survey in the rainy season making access to certain data collection sites difficult and leading to additional expenses in terms of rental motorcycles, payment of costs to villagers to get stuck cars back on the road, the reluctance of certain parents to have their children tested, the difficulties linked to taking GPS coordinates in certain evaluation units (EU) because of the insecurity and poor coverage of the telephone network, insufficient student numbers in certain schools, insufficient awareness of school principals and Insecurity in certain communities in the South-West and North-West. This TAS-32 024 survey conducted in 47 health districts in the regions of Adamaoua, Center, East, Far North, North West and South West Cameroon, was the last TAS survey to be done in these health districts. However, passive surveillance activities must not only be implemented but also complemented by other operational research such as studies of the prevalence of anti-*Wuchereria Bancrofti* antibodies in special populations (recruitment of military personnel, refugees, etc.) and entomological studies to explore the transmission status in the vector agent.

CONCLUSION

The TAS-3 2024 survey targeted 47 health districts grouped into 21 assessment units. We recorded

02 positive cases of lymphatic filariasis in *Wuchereria Bancrofti*, among the 32,815 children tested. No assessment unit had a number of positive cases above the critical threshold. This evaluation of the transmission of lymphatic filariasis carried out more than 5 years after the end of mass treatment campaigns, in accordance with the criteria defined by the WHO, showed that the risk of resumption of the disease was very low in the 47 districts surveyed. Indeed, all the intervention zones evaluated have successfully passed this evaluation and in turn, post-validation surveillance should continue in these zones.

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