

Epidemics begin and end in communities

Community-Based Surveillance - a case study

Eyewitness testimony

“Rabies kills. When a six-year-old girl from Guélandeng district was bitten by a rabid dog, Oumar knew from his surveillance training that he had to act fast. As the Community Health Worker, he called on the help of the District Epidemiologist and Surveillance Focal Point. They found out everything they could about the attack, checked the child’s injury and vaccination card. She had received just one dose of anti-Rabies serum; not enough to save her life. When the father learned that his daughter needed four more doses, the problem became money. Anti-Rabies treatment costs 75,000 XAF (£120) and the family was very poor. Oumar explained that the man couldn’t wait to see if his daughter developed symptoms because, by then, it would be too late. Thankfully, they persuaded the father to take the girl to Guélandeng district hospital where the Chief Medical Officer examined the case and managed to arrange for the extra serum doses to be provided for free. Persuading the girl that the injections were good for her was another matter – but I am glad to say she survived.”

Dr. Carmen Camino

Technical lead for data, surveillance and evidence



Introduction

The story of the girl from Guélandeng district illustrates one of the many health security challenges Chad faces. The country is highly vulnerable to disease outbreaks and has relatively limited capacity to respond to them.¹ Less than 50% of Chad’s population has access to the health system. Often, people do not seek medical help because health centres are too far away, staff or medication are not available, or they cannot afford to pay for care.² These factors can combine to deadly effect. Diseases can spread unnoticed where surveillance relies on health facilities to spot outbreaks. Public health events are under-reported, meaning decision-makers lack the information they need, when they need it, in order to mount effective, rapid responses. Localized outbreaks escalate to become epidemics, causing widespread suffering for too many people.

Vigilance is required across the whole of society to combat the spread of potentially deadly diseases. Tackling Deadly Diseases in Africa (TDDA) is supporting Chad to develop a Community-Based Surveillance (CBS) system for this reason. CBS strengthens detection, reporting and timely responses by enlisting the help of the community - through existing networks of community health volunteers - to act as an early warning system. CBS particularly benefits those with limited access to the health system, such as women, people with disabilities, and the extreme poor.

Surveillance challenges in Chad

CBS is not a magic bullet. It is important to acknowledge the complexities involved - and Chad faced more surveillance challenges than any of the other countries with whom we work. Whereas others had CBS systems that we were able to help refine, Chad was starting from scratch.³

When we began supporting the government to strengthen surveillance, Chad had just started out on the path of adopting the World Health Organization (WHO) framework for integrated disease surveillance and response (IDSR-3). Communities were not involved in active surveillance, decision-making or response planning. The country was interested in incorporating CBS into mainstream surveillance but needed support to develop the necessary policies, plans, tools, training, implementation and management procedures.

¹ Chad is considered “high risk” according to the Index for Risk Management, a global, open-source risk assessment for humanitarian crises and disasters that uses over 50 indicators to measure hazards, people’s vulnerability, and the resources available to a country to cope with them.

² Health care services are not free in Chad although there are some exceptions, at the discretion of the health centre, depending on district finances, and for certain groups (e.g., the extreme poor) and conditions (e.g., pregnancy).

³ Based on TDDA’s baseline surveys, 2019-2020.

Moving towards change

Chad's aspiration to implement IDSR-3 meant there was an opportunity for TDDA to be a catalyst for change. There was scope to help the government design and put in place the foundations for a more effective surveillance system built around community.

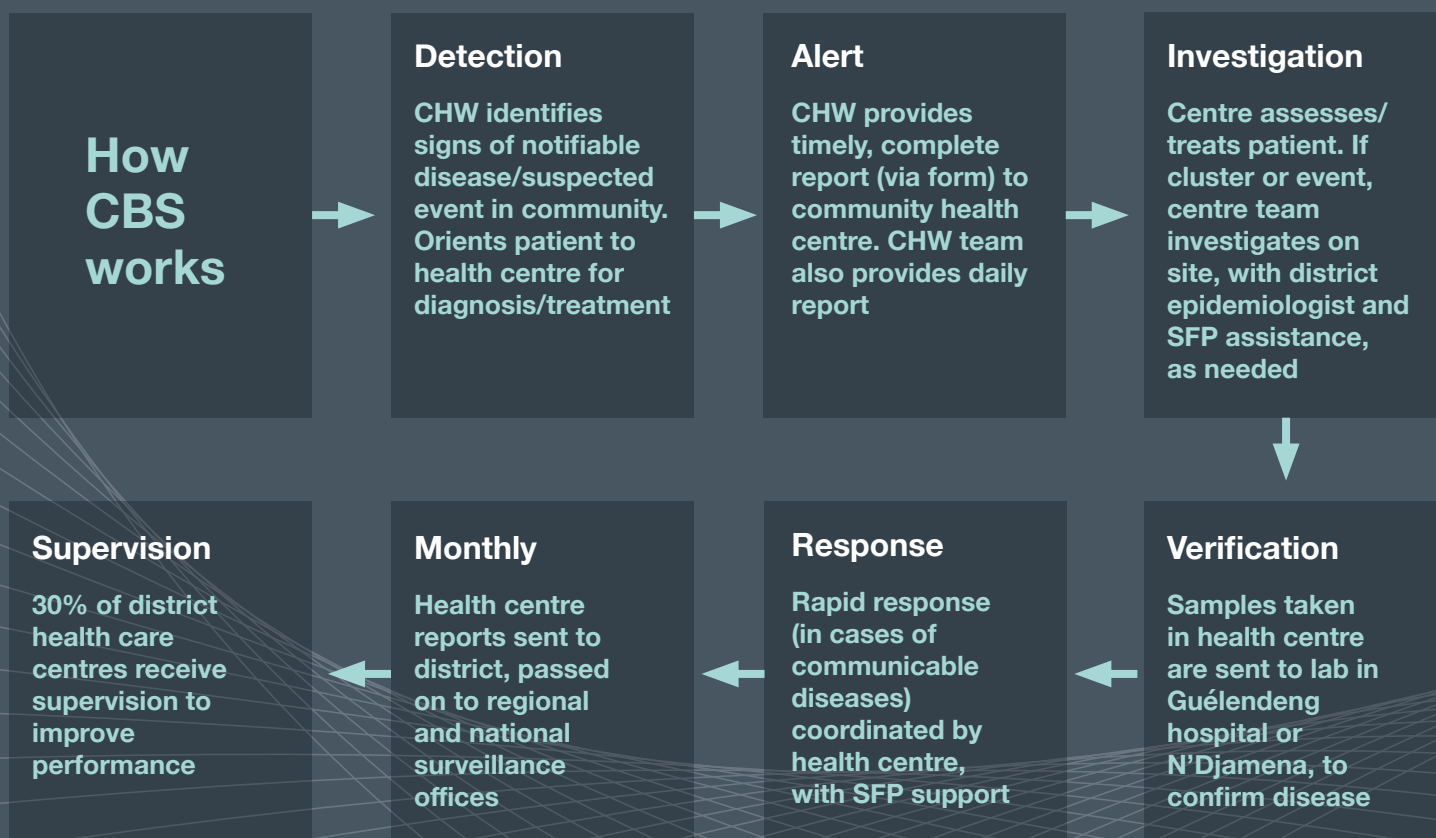
Central government, alongside provincial and district teams, selected Guélandeng in Mayo Kebi East region as a pilot. Our baseline survey showed the district to be low performing. Guélandeng had a Surveillance Focal Point (SFP) but they were untrained.

The reporting rate for public health events was low (50%). Reports were incomplete and only half of them arrived on time. The district also did not hold coordination meetings.

Guélandeng did, however, have the benefit of motivated district staff including community health workers (CHWs), prepared to walk long distances to conduct active surveillance, and leadership from its knowledgeable and committed District Chief Medical Officer, Dr. Gaston Nehoulne.

What TDDA did

- Designed our CBS strategy for Chad (2021) based on our baseline survey, documents and learnings from other countries, and discussions with stakeholders, to help the MOH develop a step-by-step implementation plan.
- Assisted the government to complete all initial documentation - including a national legal framework, strategic plans and guidelines, monitoring model, and training modules - and supported training of national trainers.
- With the MOH, we conducted a multi-sectoral meeting to discuss and agree on an implementation plan with Guélandeng district and regional officers, health staff and community leaders.
- Helped the district team adapt the alert system to the local language (a version of Chad Arabic), as well as to community needs and risks.
- Provided technical and financial support to MOH training for health care staff from 12 district health centres and 24 CHWs to cover all 12 sub-districts of Guélandeng (two CHWs per facility). Seven women and 23 men took part.
- Supported implementation of CBS pilot operations (May/June 2022), providing data collection tools, phone credit to transmit alerts, financial compensation for CHWs, and supervision support.
- Participated in the district's first supervision and coordination meeting (July 2022) to provide advice on CBS implementation and guidance on future meetings.





Photos (L to R): Guélandeng rabies case investigation, TDDA representative Carmen Camino meeting Guélandeng women trained in CBS

Guélandeng pilot results

The performance of the district is improving over time, according to our surveys and MOH data. Evaluation of the Surveillance Focal Point's training showed improved knowledge in seven of the 10 modules (further strengthening was needed on understanding of task definitions, certain investigations and risk analysis).

MOH data (Jan-Jun 2022) show:

- **No outbreaks were found to have gone undetected since CHWs were deployed. Previously, community-level CBS data were not collected or transmitted. There are accounts of measles outbreaks in 2021 but data, where present, were unreliable.**
- **Reporting rate of 100% for 11 out of 12⁴ sub-district health centres.**
- **Completeness of health centres' reports increased from 50% before the pilot to 96% in mid-2022. The WHO standard is 80%.**
- **Daily communication is taking place between CHWs and health care centres (except for Diaio sub-district) and all sub-districts are submitting weekly reports.**
- **Number of cases detected increased for all but one of the priority diseases under surveillance.⁵ For instance, 11 cases of Yellow Fever were detected vs three cases in 2021, acute flaccid paralysis (AFP) cases detected increased from one to 12, and malnutrition numbers went from 3,250 to 5,398.**
- **Time from alert to response reduced to within 24 hours (down from 48 hours in 2019) to meet WHO standards. 100% of alerts sent by CHWs to health centres were investigated and, where necessary, samples were sent to laboratories within 48 hours.**
- **Rate at which the community sought medical help via health centres, according to nursing staff reports, increased by 10-20% from a baseline rate of 26%.**

These results are most encouraging. If the piloted approach is sustained, the health of the community in Guélandeng will improve as diseases will be promptly detected and resolved, resulting in fewer outbreaks. If CBS were rolled out across Chad, the current level of morbidity and mortality, particularly in children under five, will be reduced. We would anticipate similar results to those achieved in neighbouring Niger where, with the deployment of CHWs, the child mortality rate was reduced from 134.7 to 45.6 as a result of better attention paid to childhood diseases through CBS implementation.

An additional observation

A point of note was that patients expected services to be free after the CHW had directed them to a health facility. Unfortunately, this is not the case in most instances. The health facilities and health district embraced CBS both for the earlier diagnosis and treatment it enabled, and the increase in patients (and thus revenue) that it generated. While this revenue increase was largely at the cost of the sick, they benefited directly, receiving timely medical care and avoiding further costs associated with longer illness and potential hospitalization. With the MOH, we recommended that CHWs provide clear information on likely payments for care but also advise on disease risks (especially in children, given the high level of malnutrition in the district), as well as emphasizing the benefits of seeking medical help. The cost of attending a traditional healer is 5-10,000 XAF higher than the consultation in the health care centre (2-5000 XAF) so the issue is not always affordability but the lack of confidence in the care and response from providers.

⁴ As of Jun 2022, Diaio sub-district's rates of report completeness and timeliness have reached only 50%. This was due to communications challenges associated with remoteness.

⁵ Only malaria cases numbers dropped, probably due to the timing of the rainy season.

What next?

Our analysis of the pilot, working alongside MOH and district management teams, offers insights into how CBS running costs might be funded across Chad. TDDA invested around £36,000 to establish CBS in Guélandeng, after which we estimate current running costs at 1,820,000 XAF (£2,360) per month.⁶

- **Integration of surveillance into MOH's wider community health initiative is planned but not yet operational. Adding CBS to the CHW "toolkit" would increase coverage and offers potential to tap into other resources from partners such as the Global Fund for HIV, Malaria and TB.**
- **Diagnosis and treatment of patients directly raises district revenue. District Management Committees could allocate a portion of these funds to CBS. This could be spent on training more CHWs, increasing active surveillance in priority sub-districts and/or widening exemptions to improve access for those who cannot afford to pay for care.**
- **Payment-for-performance: Chad's incoming National Health Development Plan includes a payment-for-performance component for districts. With CHWs encouraging more patients to visit health centres, performance-related payments should increase, improving the district's capacity to fund CBS.**

TDDA will present these findings to partners and stakeholders, with the aim of securing funding support until payment-for-performance or district funds can support CBS.

⁶ Monthly running cost breakdown (estimates at Jul 2022, XAF): CHW payments, set by MOH (24 x 25,000); CHW telephone credits (24 x 7,000); management team (5 x 7,000), monthly supervision for 4 sub-districts (1,027,000). Quarterly coordination meeting (3,100,000).

Challenges in building sustainable CBS systems everywhere

Local adaptation

Every district has its own surveillance challenges. The choice between a high-tech and a low-tech alert system, for example, must be appropriate for that particular community. Financial incentives also differ. Where funding systems offer no additional resources to cope with extra workload generated by CHW referrals, there is often limited motivation or capacity to respond and confidence in the system is undermined. District-level adaptation, while necessary, also brings challenges when trying to achieve consistency and scale-up.

Balancing sensitivity and specificity

It is crucial to reach a balance between sensitivity (detecting as many cases as possible) and specificity (detecting actual public health events). Over sensitivity increases the workload of health centres which must check and dismiss incorrect alerts, for illnesses that can be treated at home. Over specificity runs the risk that fewer alerts are sent, which can potentially lead to missed outbreaks. This difficult balance can only be struck through ongoing supervision, mentoring and refinement of guidance, which comes with cost implications.

Equity and inclusion - Involving women with sensitivity

CBS supports gender equality and social inclusion in terms of who benefits most and fosters a more participatory approach to health security. Its adoption can help governments progress towards a more inclusive, equitable national strategy that supports the needs of the most vulnerable. We must recognize, however, the barriers to increasing direct participation of vulnerable groups in surveillance work. We have witnessed, for example, that women in insecure environments often prefer to be based within health centres close to home, rather than being exposed to dangers inherent in travelling considerable distances between villages. Only three of the seven women we trained currently work in the community. More funding could mean more CHWs are employed, reducing the area each person covers and thereby reducing safety concerns.

DAI Global Health leads a consortium of partners who work together to deliver the TDDA programme.

Principal partners



The Operations Partnership



Tackling deadly diseases in Africa



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