



Swiss TPH



## Challenges and opportunities to fill the epidemiological gap in fragile settings using a CDSS

Nora Monnier, MD, MSc

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# A digital solution for the integrated management of illnesses in refugees in primary healthcare

## Overall Aim

To improve the provision and quality of health care for refugees and displaced persons in Southern Chad and enhance surveillance in routine primary health care

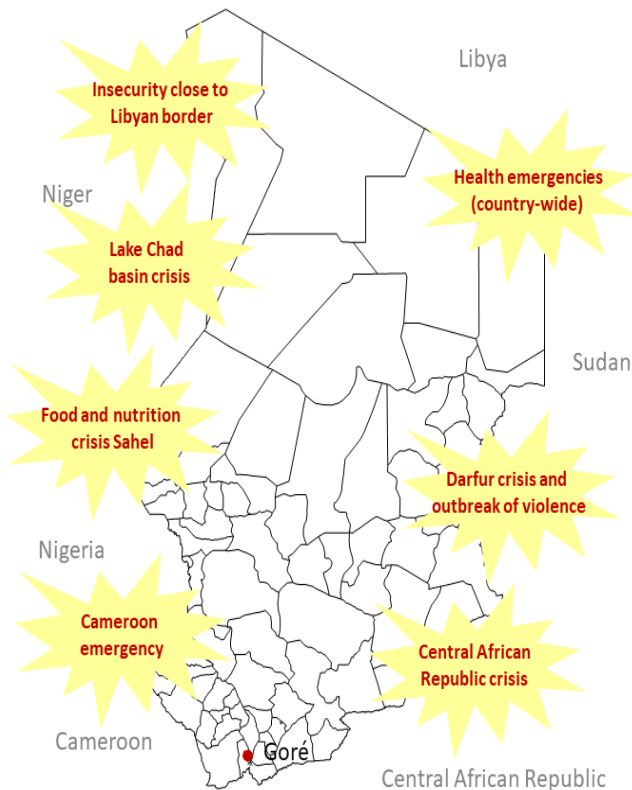
## Components

- A **digital clinical decision support system (CDSS)** for the diagnosis and treatment of common health problems including sexual reproductive and mental health
- Follow-up system (**medical records**) for ANC/PNC and **vaccination registry**;
- **Digital information and surveillance system** for detection and reporting of outbreaks and diseases with epidemic potential



## Rationale and specific challenges

- Risk of **emergence or re-emergence of communicable and non-communicable diseases** associated with fragile environments, complex crises (political, climatic, food and health), disrupted healthcare services and programs
- **Food- and vector-borne disease** outbreaks in high population density environments
- **Climate change** leading to changing epidemiology, environment (flooding, drought) and local vector abundance
- Limited data on **burden of disease** (access, data collection), fragmented, weak and ineffective systems (surveillance, resources)



Source: European Union emergency response centre, updated

# Examples of emerging conditions and Neglected Tropical Diseases (NTDs) in Chad

## Emerging febrile diseases (beyond malaria)

- Emerging or re-emerging infectious diseases such as arboviral diseases, leptospirosis

## Common skin problems and skin NTDs

- Previously, endemic and unreported diseases: yaws, Buruli ulcer, leprosy, lymphatic filariasis, onchocerciasis

## One Health

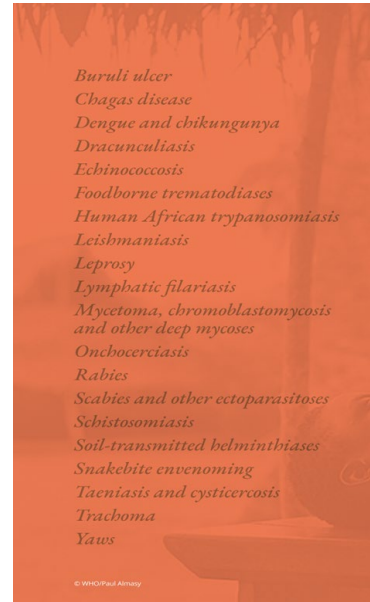
- Importation of animals (dogs, cattle, pigs): rabies, taeniasis / neurocysticercosis, brucellosis

# Neglected Tropical Diseases

- Affecting most vulnerable, marginalized population
- Prevalent in tropical and subtropical areas
- Public health interventions and concerted efforts for control and elimination



Photo: D. Revault  
Swiss TPH



WHO: Ending the neglect to attain the Sustainable Development Goals: A road map for neglected tropical diseases 2021–2030

# Digital solution for the integrated management and surveillance of NTDs

## Specific Aim

Integration of NTDs in primary healthcare systems to raise awareness and improve clinical diagnosis and management and surveillance

## Digital solution...

- Tailored to existing resources, epidemiological setting and socio-cultural context
- Use of low cost point-of-care diagnostic tools to support clinical diagnosis and guide treatment
- Aligned with the WHO strategic framework for NTDs for control and elimination

### Intensify cross-cutting approaches

**Integrating** NTDs on common delivery platforms that combine work on several diseases

**Mainstreaming** within national health systems to improve the quality of NTD management in the context of universal health coverage

**Coordinating** with other sectors within and beyond health on NTD-related interventions

WHO: Ending the neglect to attain the Sustainable Development Goals: A road map for neglected tropical diseases 2021–2030

# Emerging febrile illnesses in Chad

## Arboviruses –Chikungunya: improved case detection and management

Recent outbreaks in urban settings and refugee camps (population mouvement, density, vector abundance)



République du Tchad  
Unité – Travail – Progrès  
MINISTRE DE LA SANTÉ PUBLIQUE ET DE LA SOLIDARITÉ NATIONALE



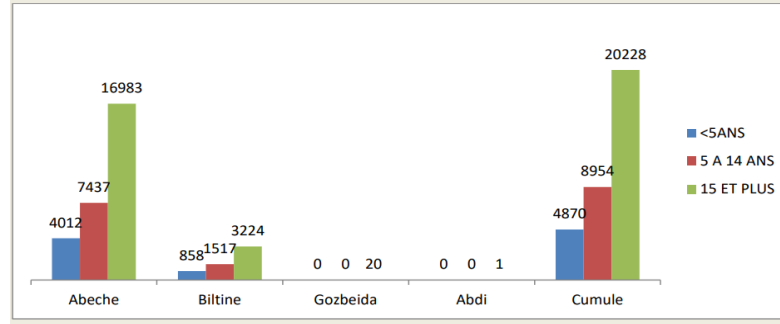
### PLAN NATIONAL DE CONTINGENCE POUR LA PREPARATION ET LA RIPOSTE A L'ÉPIDÉMIE DE CHIKUNGUNYA



28 Août 2020 au 28 Août 2021



Figure 4 : Répartition des cas par tranche d'âge





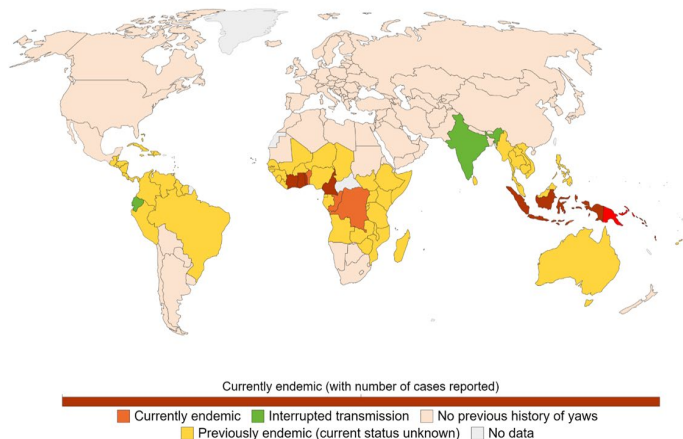
# Unknown endemicity status of skin NTDs in Chad

## Yaws eradication

- Clinical guidance in support of images (WHO source guidelines) for clinical suspicion and rapid diagnostic tools (RDTs)
- Strengthen active and passive surveillance in communities and health care, basic **(re-)mapping**

Yaws status of endemicity and number of cases, 2016

Our World in Data



Source: WHO Global Health Observatory (2018)

CC BY

**Plan et syphilis endémique ou héjé**

Répondre au seuil d'alerte

S'il y a un seul cas présumé :

25. Signaler le cas présumé à l'échelon pertinent du système de santé (établissement de santé périphérique ou district de santé) pour confirmation sérologique et exclusion de l'hypothèse de l'importation.

Répondre au seuil d'intervention

S'il y a un seul cas confirmé et que l'hypothèse de l'importation est exclue :

La zone est confirmée comme endémique et la stratégie d'éradication est appliquée

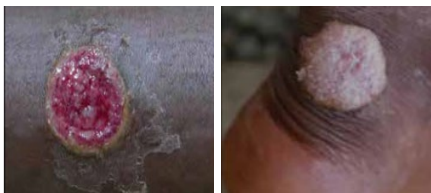
S'il y a un seul cas confirmé et qu'il s'agit d'un cas importé :

Soigner le cas et les contacts qu'il aura désignés et reprendre la surveillance post-élimination de la transmission pendant une nouvelle période de trois ans.

Analysier et interpréter les données

Temps : Faire un graphique des cas par année de diagnostic, un graphique du nombre cumulé de cas.

Lieu : Cartographier l'emplacement des lieux d'habitation des cas et indiquer les districts d'endémie par des nuances de couleur.



Source: Recognizing Neglected Tropical Diseases through changes in the skin, WHO

World Health Organization Health Topics Countries Newsroom

GHO Home Indicators Countries Data API

Last updated: 2022-07-21

Indicator	Number of suspected yaws cases reported			
Location	2021	2020	2019	2018
Central African Republic	1218	No data	No data	No data
Chad	No data	No data	No data	No data

RECOGNIZING NEGLECTED TROPICAL DISEASES THROUGH CHANGES ON THE SKIN

A TRAINING GUIDE FOR FRONT-LINE HEALTH WORKERS

World Health Organization

Alerte Syphilis

TP Syphilis

ST Syphilis



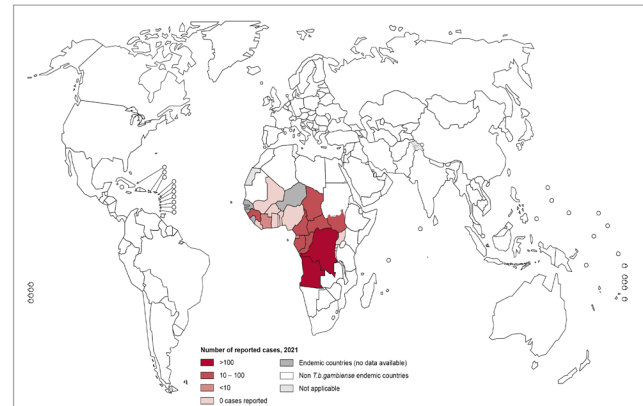
# Enhanced surveillance for NTDs nearing elimination

## Human African Trypanosomiasis (*T. b. gambiense*)

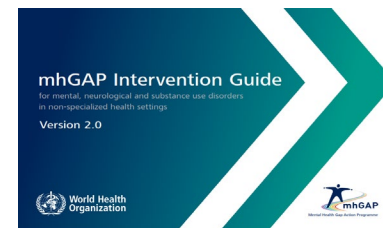
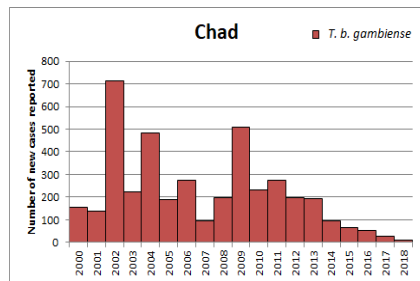
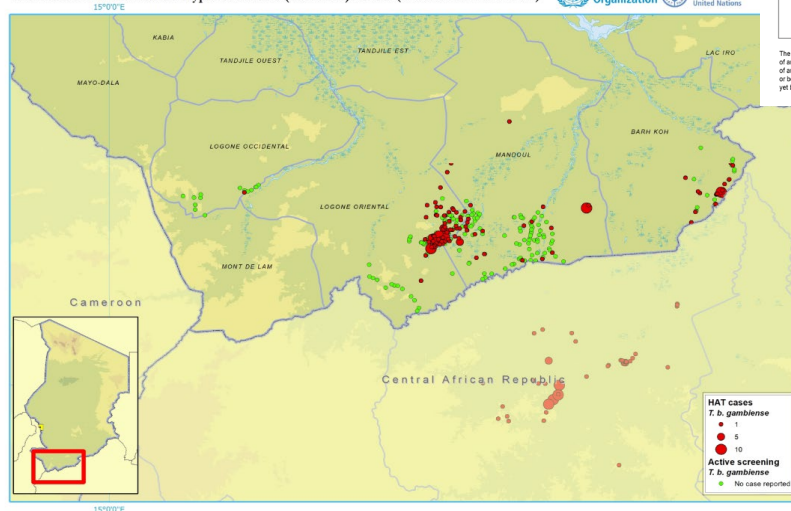
Confounding clinical pictures of somatic causes of neurological disorders and mental health issues: **adaptation of mhGAP** to context

- Increase awareness and knowledge on symptoms and signs at all levels in health care
- Integrate control and surveillance in peripheral health system in contribution to regional disease elimination programs (incl. **sentinel sites** post-elimination)

Distribution of human African trypanosomiasis (*T.b.gambiense*), worldwide, 2021



The Atlas of human African trypanosomiasis (2014-2018): Chad (zoom to affected areas)



# Conclusions

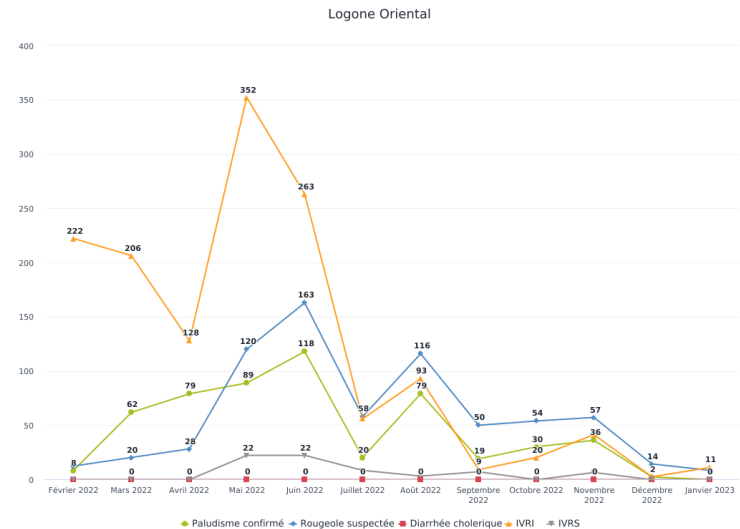
## Outlook and potential impact

### Enhanced surveillance to inform intervention needs and response planning

Integrating surveillance in CDSS for **evidence generation** aligned with existing national health information systems (electronic real-time data collection feeding epidemiological information into DHIS2 dashboard)

### Health facility-based passive surveillance contributing to

- Improved routine reporting and surveillance, e.g. early warning and response system (EWARS) report
- Case detection (**identifying local trends, re- or emerging infectious diseases** for outbreak alert and response and **data driven decision making**)
- Disease burden estimates, basic **mapping**

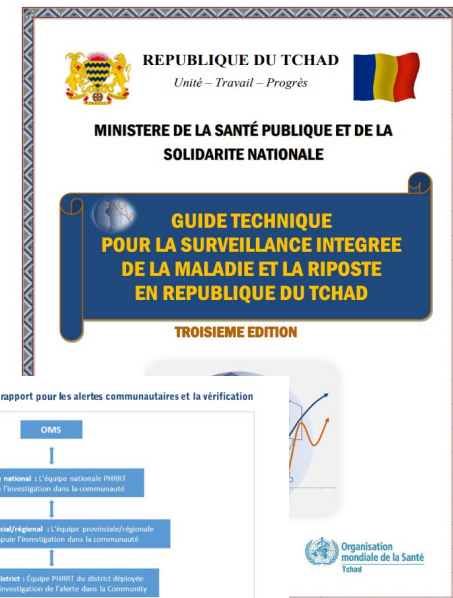


DHIS2 dashboard of epidemic prone diseases between February 2022 and January 2023

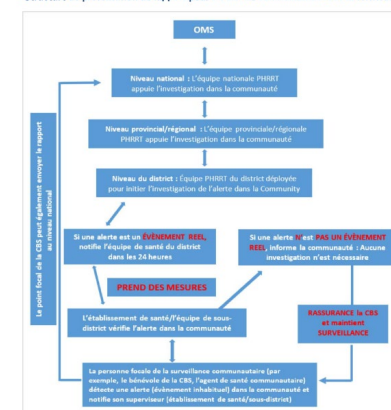
# Conclusions

## Outlook and potential impact

- **Capacity and health system strengthening, increased awareness and clinical guidance** leading to better services and knowledge within national health systems in the context of universal health coverage
- **Strengthening of networks, cross-cutting approaches and collaborations with key stakeholders** at local, regional and national levels
  - Collaboration with **vertical disease programs** in contribution to global efforts in control and elimination of NTDs
  - **Resource and data sharing** with public health authorities and programs aligned with existing health information system



Structure de présentation de rapport pour les alertes communautaires et la vérification



Le présent guide a été financé par le Programme d'urgence (2014) et La Fédération internationale des Sociétés de la Croix-Rouge et du Croissant-Rouge (IFRC) : Surveillance à base communautaire : principes fondamentaux, Mars 2017

Technical guide for the integrated disease surveillance and response of the Republic of Chad, 2021

# Conclusions

## Remaining challenges:

- Data entry (time and workload due to parallel systems)
- “Digital health **data system readiness**” (data collection and reporting, aligning existing health information systems and interoperability)

## Next steps:

Two proposals submitted to pilot an approach for improved diagnosis, syndromic management and surveillance of

- ...common **skin conditions and skin NTDs** (integrated approaches)
- ...**causes of fever** in adolescents and adults in routine primary healthcare services

by using a context-tailored CDSS and demonstrate **feasibility for integrating data collection and reporting** into existing health information systems

	Jan	Fév	Mars	Avril	Mai	Juin	Juillet	Sept	Oct	Nov	Déc	Total
accouchements totaux	78	63	92	90	71	79	64	82	69	115	89	80
accouchements maritimes	55	45	35	36	55	64	49	68	39	67	54	64
accouchements hospitaliers	23	18	57	54	16	15	15	14	30	48	35	16
maritimes, vitales	68	58	105	73	66	73	56	79	68	93	79	75
Mort né. frais	03	04	03	09	01	03	06	04	01	10	06	02
Mort né. maritimes	05	02	01	05	03	05	00	00	02	02	03	02
décès maternel	02	01	02	03	01	00	00	00	01	01	01	00
prématuré	02	04	02	03	00	03	03	03	01	02	01	02
faibles X de 2500g	03	05	03	01	04	03	03	05	07	01	02	03
décès maternel	01	02	01	02	00	00	00	03	00	03	03	00
Césarienne	03	04	05	07	03	05	02	08	02	07	05	03
laparotomie	00	00	01	00	00	00	02	01	01	00	00	00
Total												

Photo: D. Revault



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Thank you for your attention

Nora Monnier: [nora.monnier@swisstph.ch](mailto:nora.monnier@swisstph.ch)



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Swiss Tropical and Public Health Institute  
Schweizerisches Tropen- und Public Health-Institut  
Institut Tropical et de Santé Publique Suisse

*Associated Institute of the University of Basel*