Reinforced surveillance in the context of preventative OCV campaigns, Goma & Bukama, Democratic Republic of the Congo

GTFCC surveillance WG research Day – 23rd May 2024

Anaïs Broban

epicentre
ÉPIDÉMIOLOGIE • EPIDEMIOLOGY

MEDECINS SANS FRONTIERES

wellcome

UKaid
from the British people

MINISTERE DE LA santé

Background

- Research project in place since 2021

- Democratic Republic of the Congo
  - Goma (North Kivu)
  - Bukama (Haut Lomami)

- Main objective: assessing the mass preventative OCV campaigns impact in cholera-endemic area

Project setup

- Clinical surveillance

  - Suspect cases in cholera treatment centers/units

  - Questionnaire (vaccine status, risk factors)
  - Stool samples
  - Cholera RDT (Crystal VC O1)

- Vaccine coverage measurements

  - Random GPS sampling in the community
  - Various methodologies
    - Cluster methodology (Goma)
    - Community approach (Bukama)
    - As part of repeated sero-surveys (Goma, Bukama)
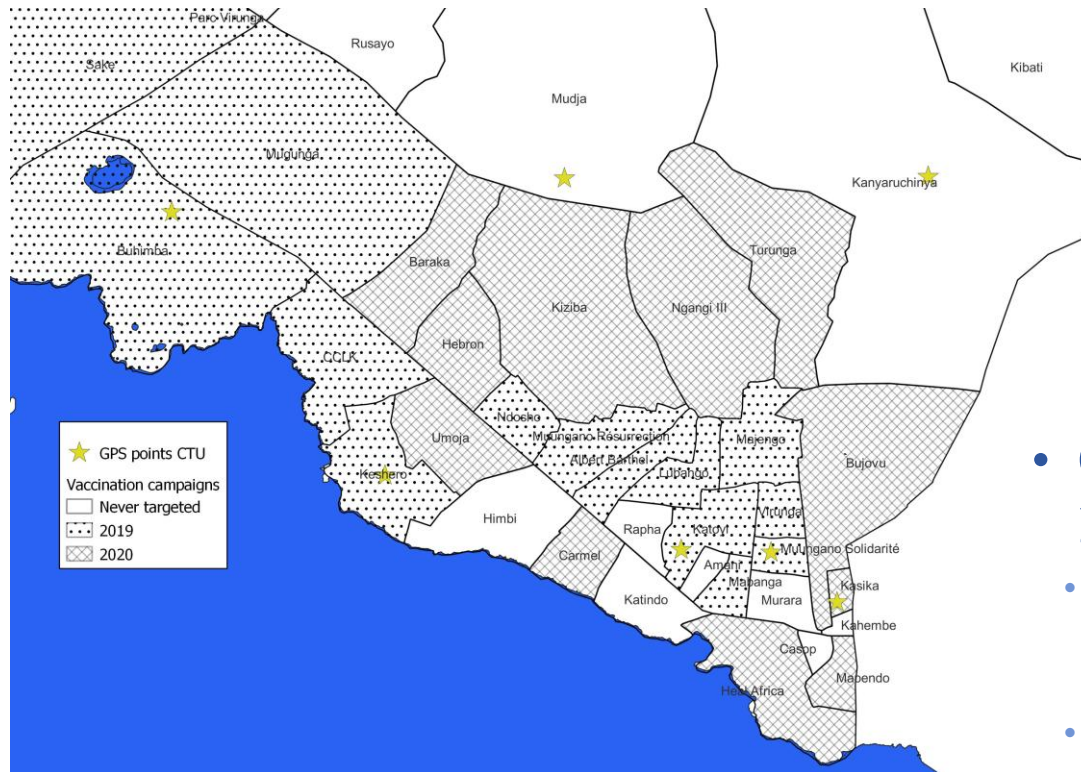   - As part of multi-indicator survey (Goma)
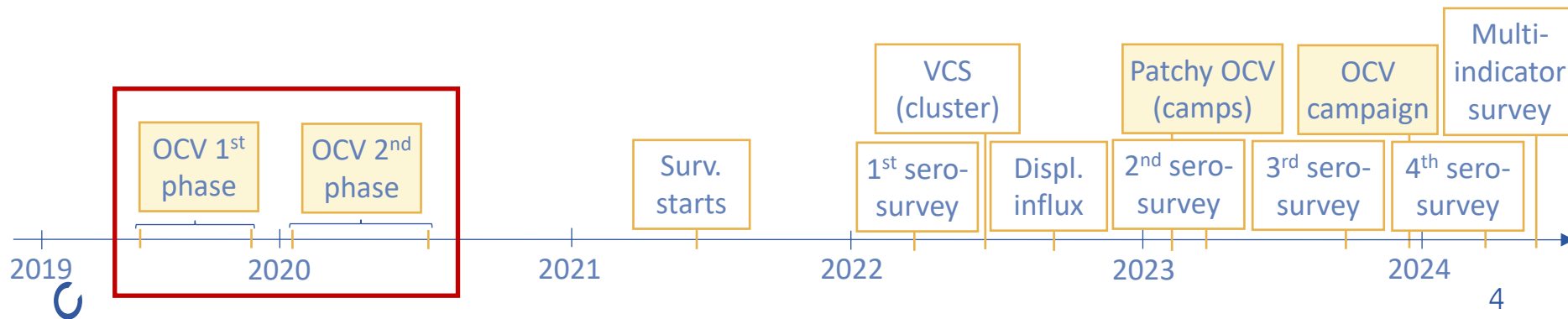
  - Vaccine status

→ Put in relation surveillance data, campaigns, vaccine coverage and other events
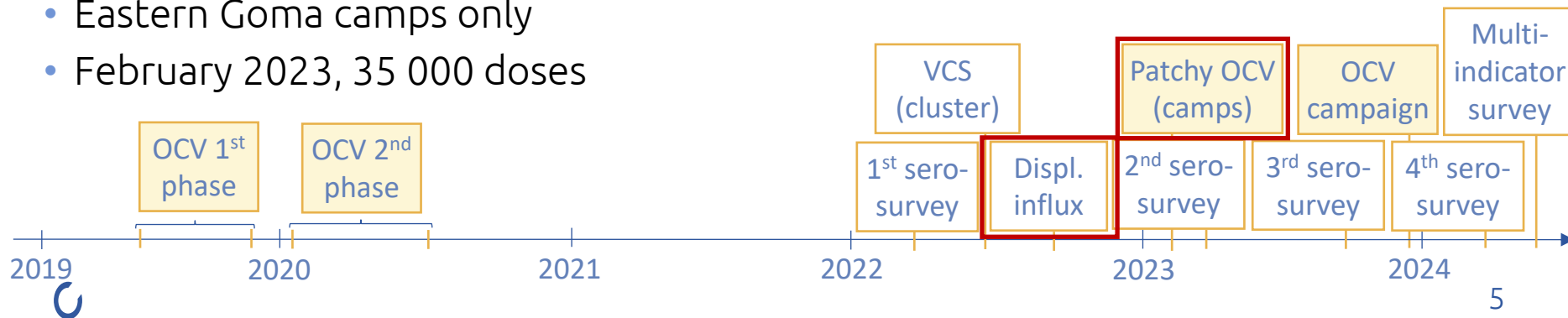
Goma: timelines

GPS points CTU

Vaccination campaigns
- ☐ Never targeted
- 2019
- 2020

- **OCV vaccination in 2019 and 2020**
  - Patchy zones, prioritized according to cholera notifications
  - High administrative coverage

Timeline:

- OCV 1st phase
- OCV 2nd phase
- Surv. starts
- VCS (cluster)
- 1st sero-survey
- Displ. influx
- Patchy OCV (camps)
- 2nd sero-survey
- 3rd sero-survey
- OCV campaign
- 4th sero-survey
- Multi-indicator survey

2019   2020   2021   2022   2023   2024
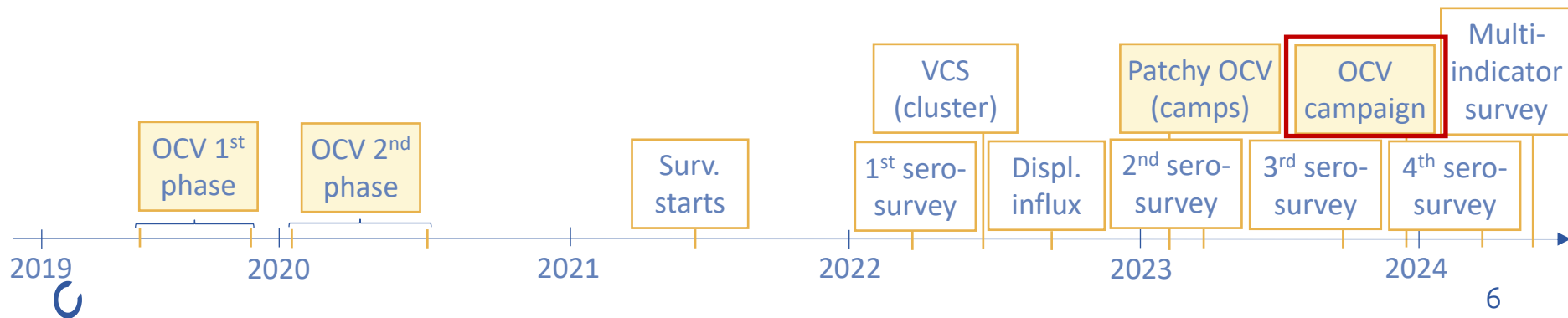
Goma: timelines

- **Massive influx of displaced persons in several waves**
  - November 2022 (war in Kibumba), February and October 2023 (war in Kitshanga), February 2024 (war in Shasha/Saké)

- **Camp vaccination**
  - Eastern Goma camps only
  - February 2023, 35 000 doses

OCV 1st phase	OCV 2nd phase		VCS (cluster)		Patchy OCV (camps)	OCV campaign	Multi-indicator survey

1st sero-survey | Displ. influx | 2nd sero-survey | 3rd sero-survey | 4th sero-survey

2019   2020   2021   2022   2023   2024

Goma: timelines

- Mass campaign
  - All the city targeted (all health areas, no prioritization)
  - Door to door strategy
  - 11 to 18th December 2023
  - About 2.6M doses distributed
  - All camps targeted for vaccination

							Multi-indicator survey
			VCS (cluster)		Patchy OCV (camps)	OCV campaign	
OCV 1st phase	OCV 2nd phase	Surv. starts	1st sero-survey	Displ. influx	2nd sero-survey	3rd sero-survey	4th sero-survey

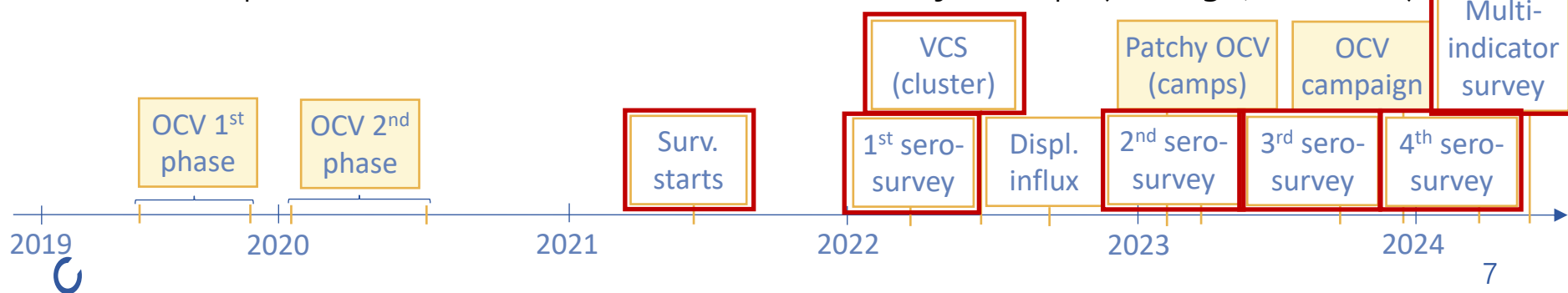2019　　　　2020　　　　　2021　　　　2022　　　　2023　　　　2024

Goma: study activities

- Surveillance activities from May 2021

- Multiple vaccine coverage measurements

Collected OCV status in :

- Four seroprevalence surveys
  - Feb. 2022: one person per household accepting blood sampling. City center, no camps
  - Feb. 2023: all household members accepting blood sampling. City center, camp Don Bosco
  - Sept. 2023: all household members. City center, no camps
  - Feb. 2024: one person per household accepting blood sampling. City center, no camps
- One Vaccine Coverage survey
  - August 2022: all household members, clusters. Whole city, no camps
- One multi-indicator survey
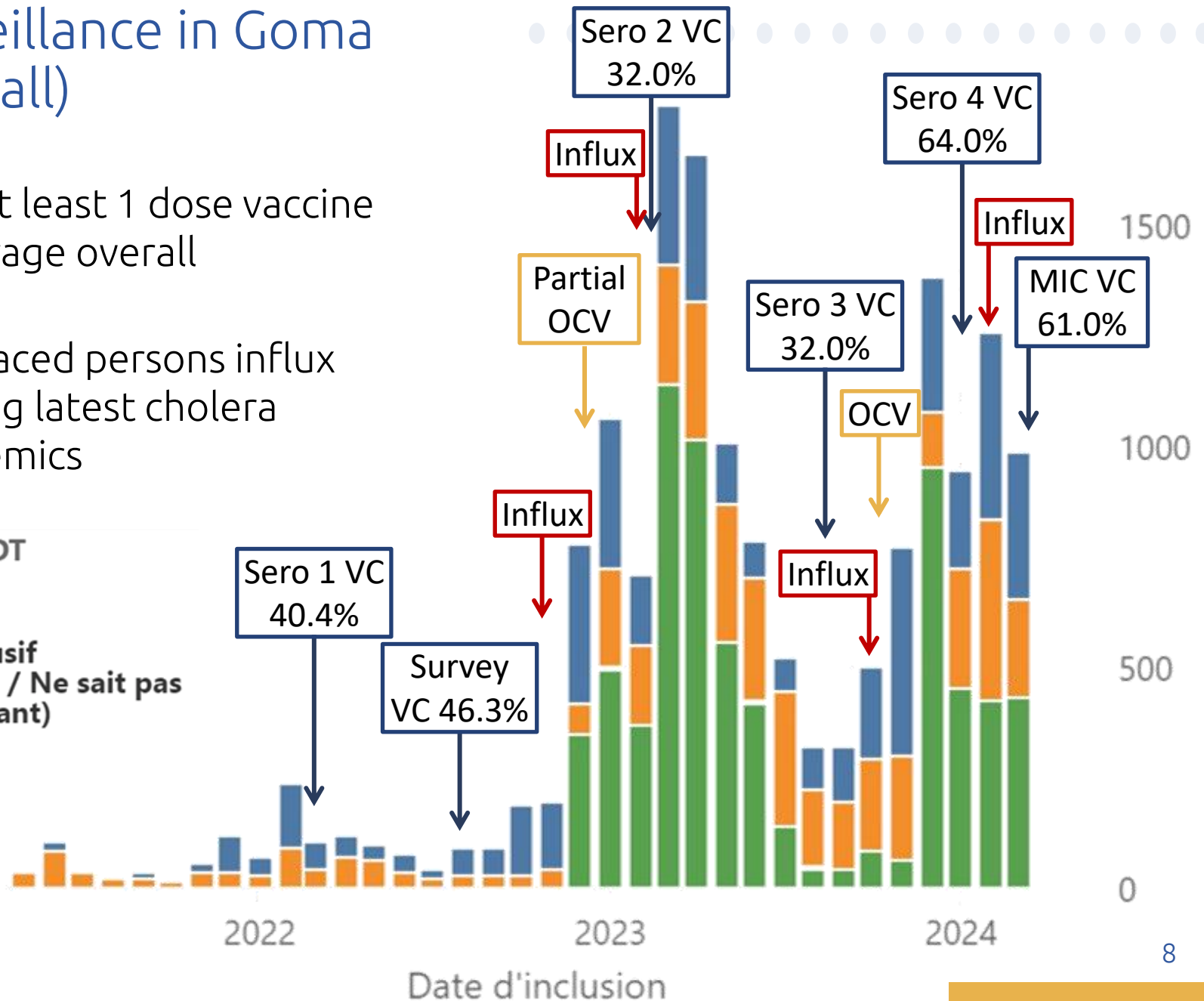 - March-April 2024: all household members. Whole city + camps (Bulengo, Shabindu)

| | | | | VCS (cluster) | | Patchy OCV (camps) | OCV campaign | Multi-indicator survey |

| OCV 1st phase | OCV 2nd phase | | Surv. starts | 1st sero-survey | Displ. influx | 2nd sero-survey | 3rd sero-survey | 4th sero-survey |

2019   2020   2021   2022   2023   2024

Surveillance in Goma (overall)

- VC: At least 1 dose vaccine coverage overall

- Displaced persons influx driving latest cholera epidemics

Résultats RDT
- Positif
- Négatif
- Inconclusif
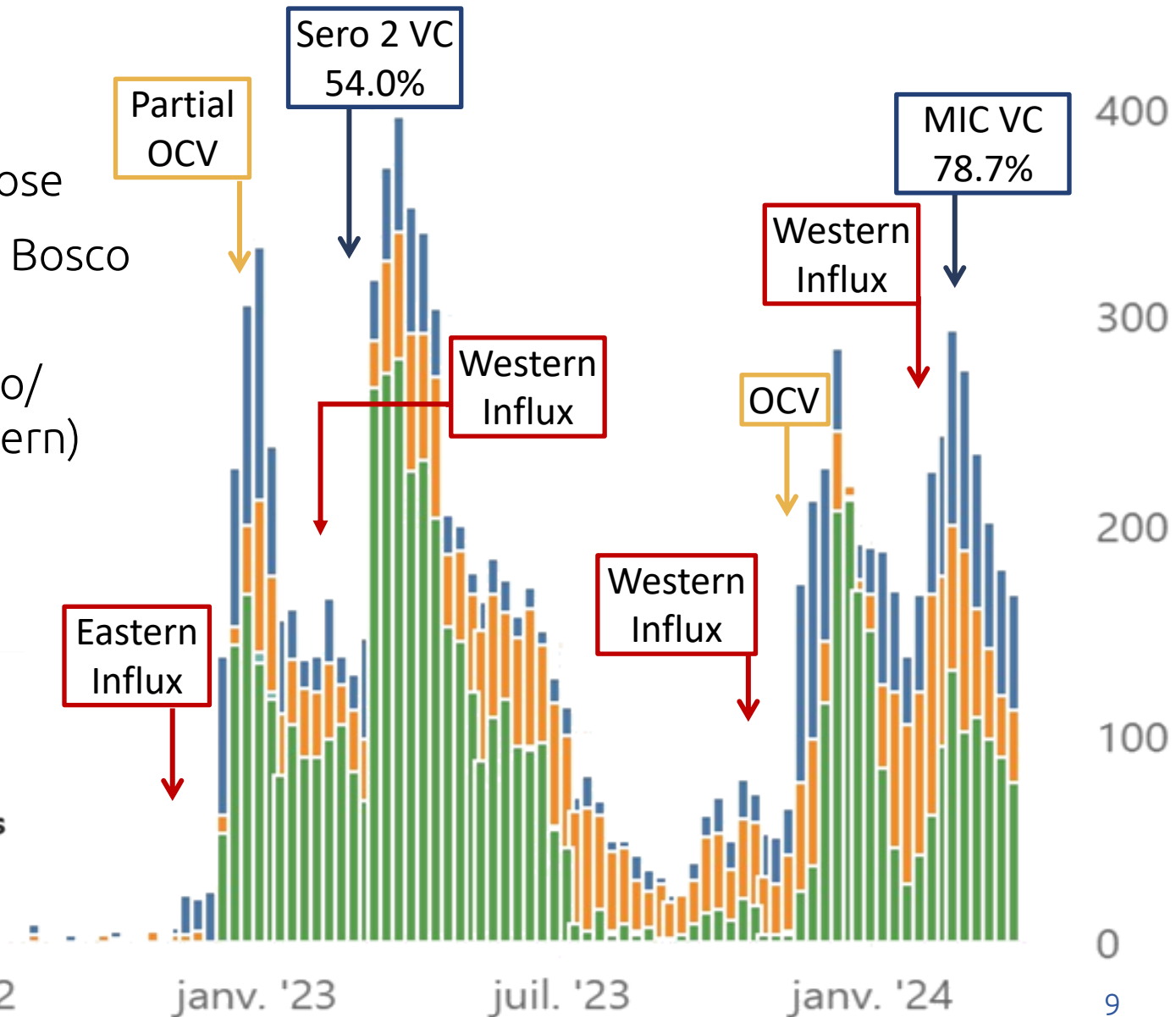- Inconnu / Ne sait pas
- (Manquant)

Surveillance in Goma (camps)

- VC: At least 1 dose
- Sero 2 VC : Don Bosco (eastern) camp
- MIC VC: Bulengo/ Shabindu (western) camps

Résultats RDT
- Positif
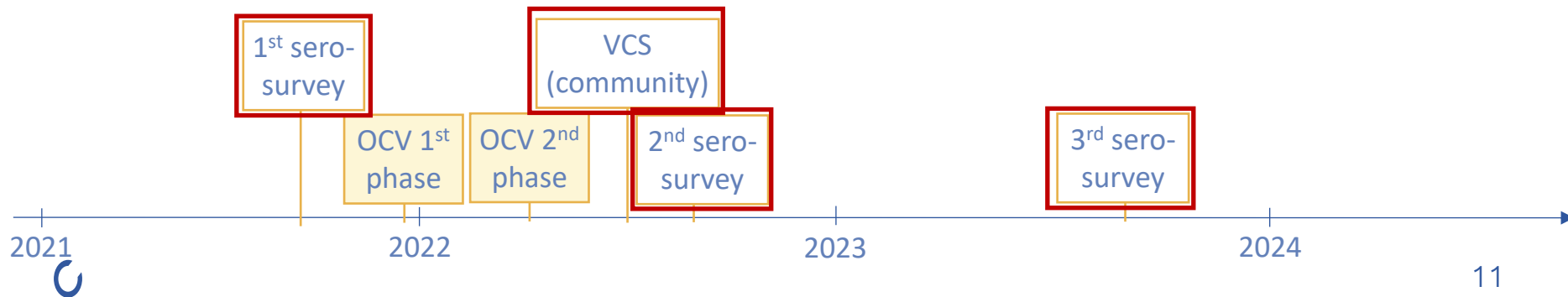- Négatif
- Inconclusif
- Inconnu / Ne sait pas (Manquant)

Partial OCV

Sero 2 VC 54.0%

Western Influx

Eastern Influx

Western Influx

OCV

Western Influx

MIC VC 78.7%

juil. '22   janv. '23   juil. '23   janv. '24

Bukama: timelines

Vaccination target
- ☐ 0 dose
- ▨ 2 doses

Kalobwe

Mbala

Maka

Kabwe

Ngoya Lulu

Medico Social

Kisanga Wa Fayor

Katenta mpo

Kazele

Byowa

Kabamoma

Muchanga

Makala

Methodiste

Kasamine

Sheleshele

Kibanda

Mukulakulu

- • Cholera endemic zone
  - • Seasonal (November-March)

- • OCV vaccination in 2021-2022
  - • Half the health zone, contiguous targeted area
  - • High administrative coverage

1st sero-survey

VCS (community)

OCV 1st phase

OCV 2nd phase

2nd sero-survey

3rd sero-survey

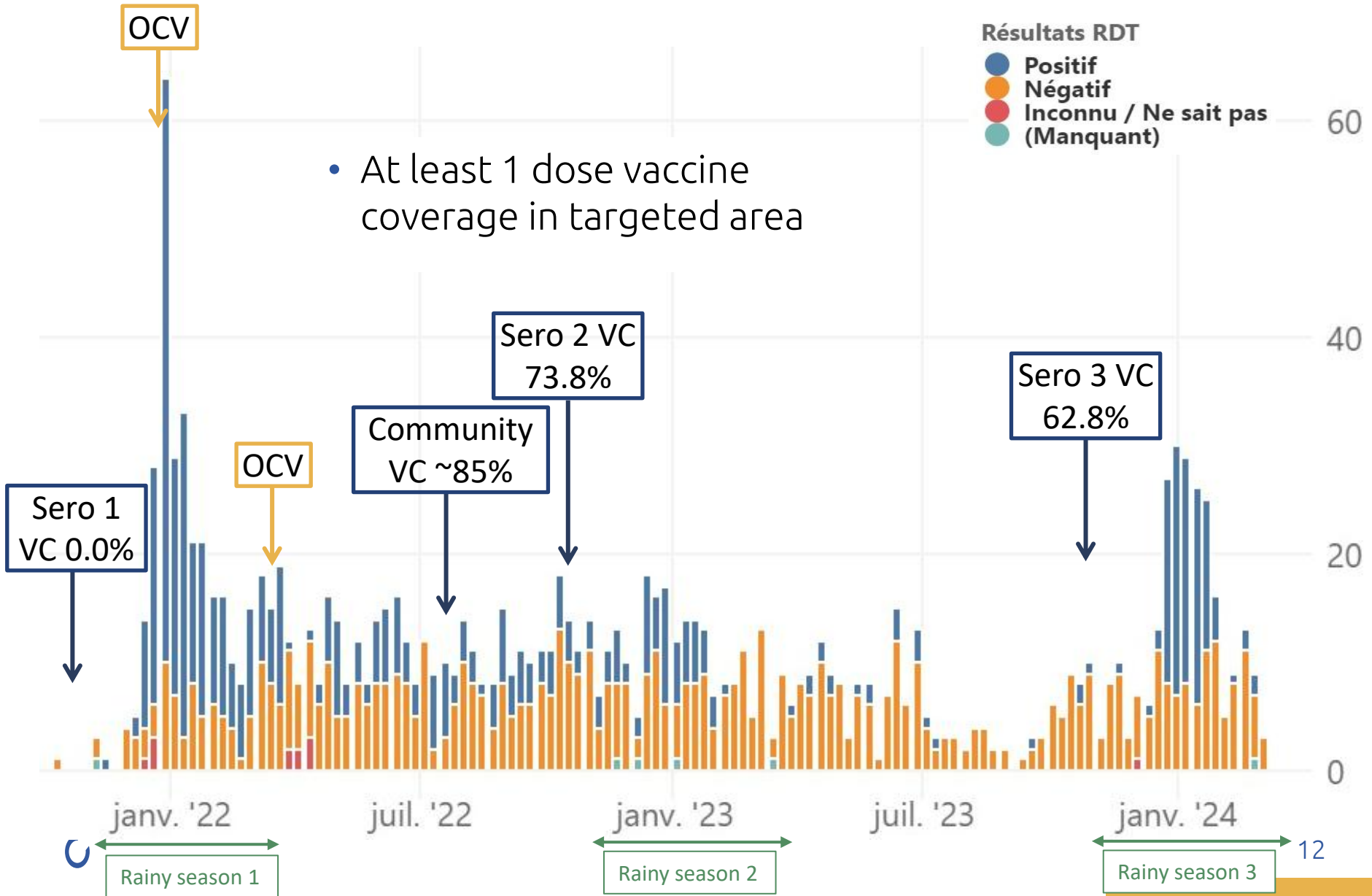2021   2022   2023   2024

Bukama: timelines

- Surveillance activities starting in October 2021

- Vaccine coverage as part of seroprevalence/mortality surveys
  - September 2021: before mass vaccination
  - September 2022: one person per household accepting blood sample
  - September 2023: all household members, cluster strategy

- Vaccine coverage 2022
  - Community strategy involving teachers – village exhaustive
  - Aggregated data for 1st and 2nd phase
  - Main reason for non-vaccination: absent

Surveillance in Bukama

- At least 1 dose vaccine coverage in targeted area

OCV

Sero 2 VC 73.8%

Sero 3 VC 62.8%

Community VC ~85%

OCV

Sero 1 VC 0.0%

Résultats RDT
- Positif
- Négatif
- Inconnu / Ne sait pas
- (Manquant)

Rainy season 1

Rainy season 2

Rainy season 3

Surveillance in Bukama

OCV

• At least 1 dose vaccine coverage in targeted area

Résultats RDT
- Positif
- Négatif
- Inconnu / Ne sait pas
- (Manquant)

Sero 1 VC 0.0%

OCV

Community VC ~85%

Sero 2 VC 73.8%

Sero 3 VC 62.8%

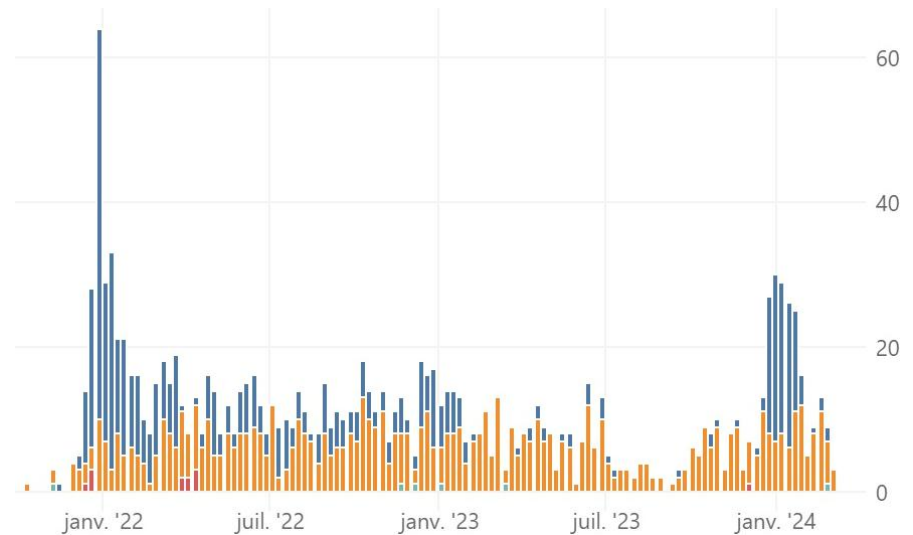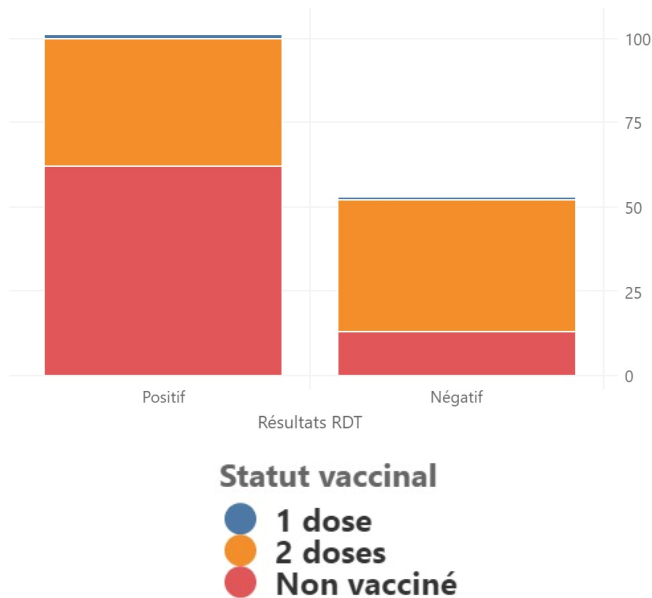janv. '22   juil. '22   janv. '23   juil. '23   janv. '24

Rainy season 1

Rainy season 2

Rainy season 3

13

Recent epidemic in Bukama

- **OCV performances**
  - During epidemic: 39% of RDT pos vs 75% of RDT neg were vaccinated
  - Non-matched test negative design VE (adjusted age, sex)
    - **Preliminary** VE since 2nd vaccination: 55.4% (36.9, 68.5)
    - **Preliminary** VE during the epidemic: 78.1% (53.6-90.2)

- **Different presentation than previous epidemic**
  - Lower peak
  - Shorter epidemic (1 month)
  - No residual circulation

Conclusions

- ## OCV is to be used in combination with other strategies
  - Evidence of OCV effectiveness
  - Though not always enough to control outbreaks

- ## Population movements are challenging to OCV strategy
  - Whether with big influx or steady movements

- ## A multi-activity project for impact evaluation of OCV campaigns
  - Put in relation several types of data
  - Data collection will continue until 2026

Thank you!

We would like to thank for their contribution to this presentation :

- PNECHOL-MD, Kinshasa
- INRB Goma, Grand Labo Lubumbashi, Institut Pasteur Paris
- The Wellcome Trust and FCDO
- Divisions provinciales et zones de santé
- Goma and Bukama communities
- Emily Briskin
- Sophie Meakin
- Rachel Mahamba and the whole field team
- Klaudia Porten and Epicentre

epicentre
ÉPIDÉMIOLOGIE • EPIDEMIOLOGY

MINISTERE DE LA santé

Contact et plus d'informations sur :

www.epicentre.msf.org   epimail@epicentre.msf.org

wellcome

UKaid
from the British people

Epicentre_MSF

msf-epicentre

Epicentre - MSF