

Conflict of Interest

The author has declared
no conflict of interest.



Measles death toll in the current epidemic in Democratic Republic of Congo: estimates from four population-based surveys

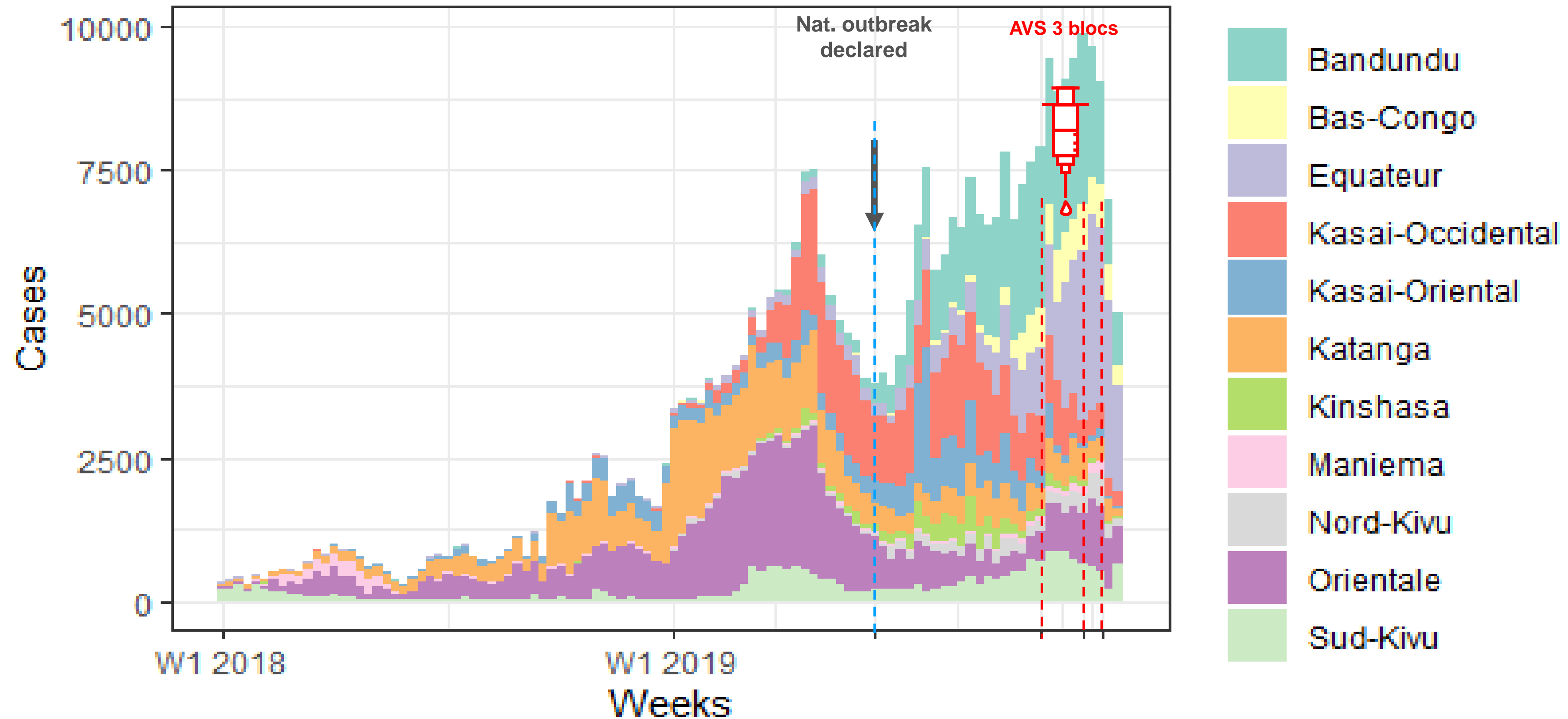
Etienne Gignoux -

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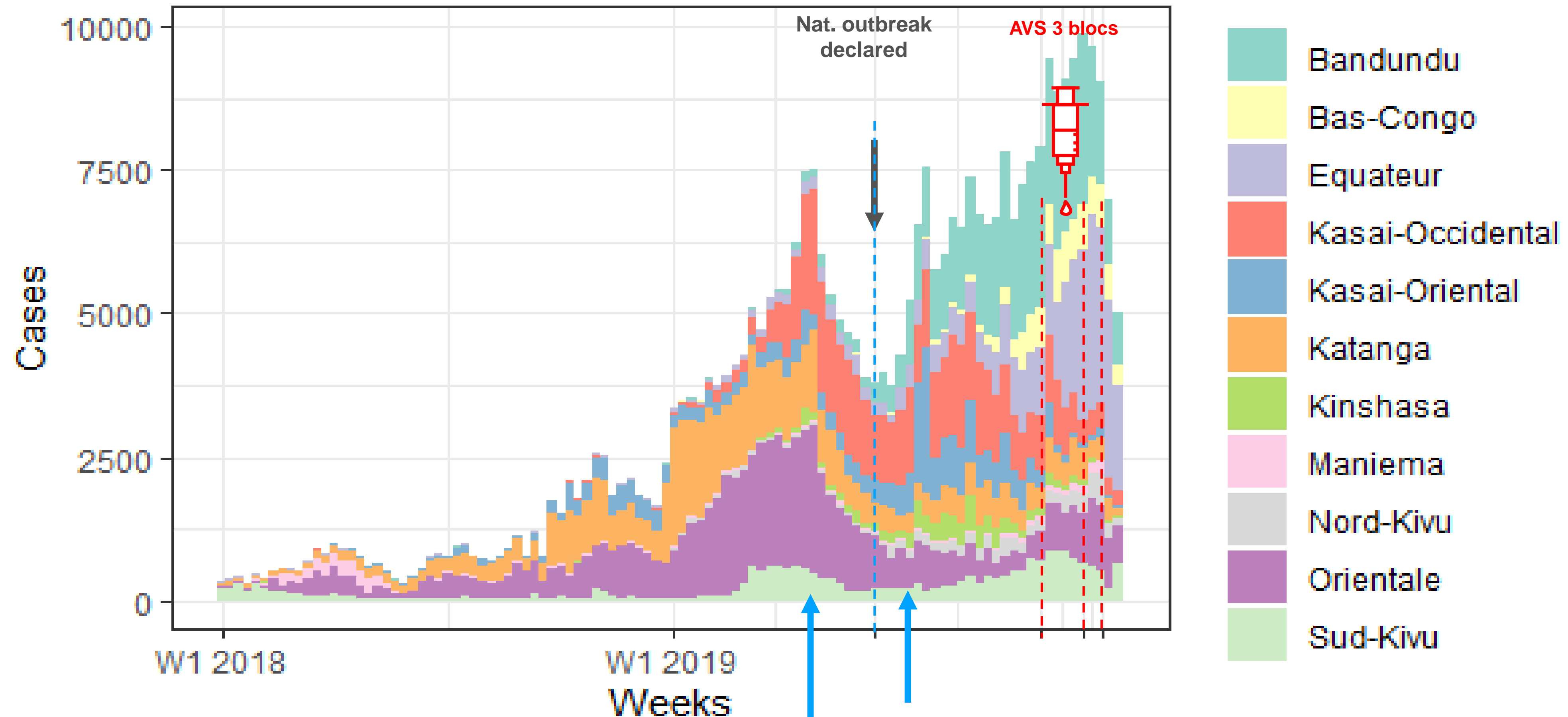
The biggest measles epidemic reported ever?

DRC 2018-19: 365654 notified measles cases

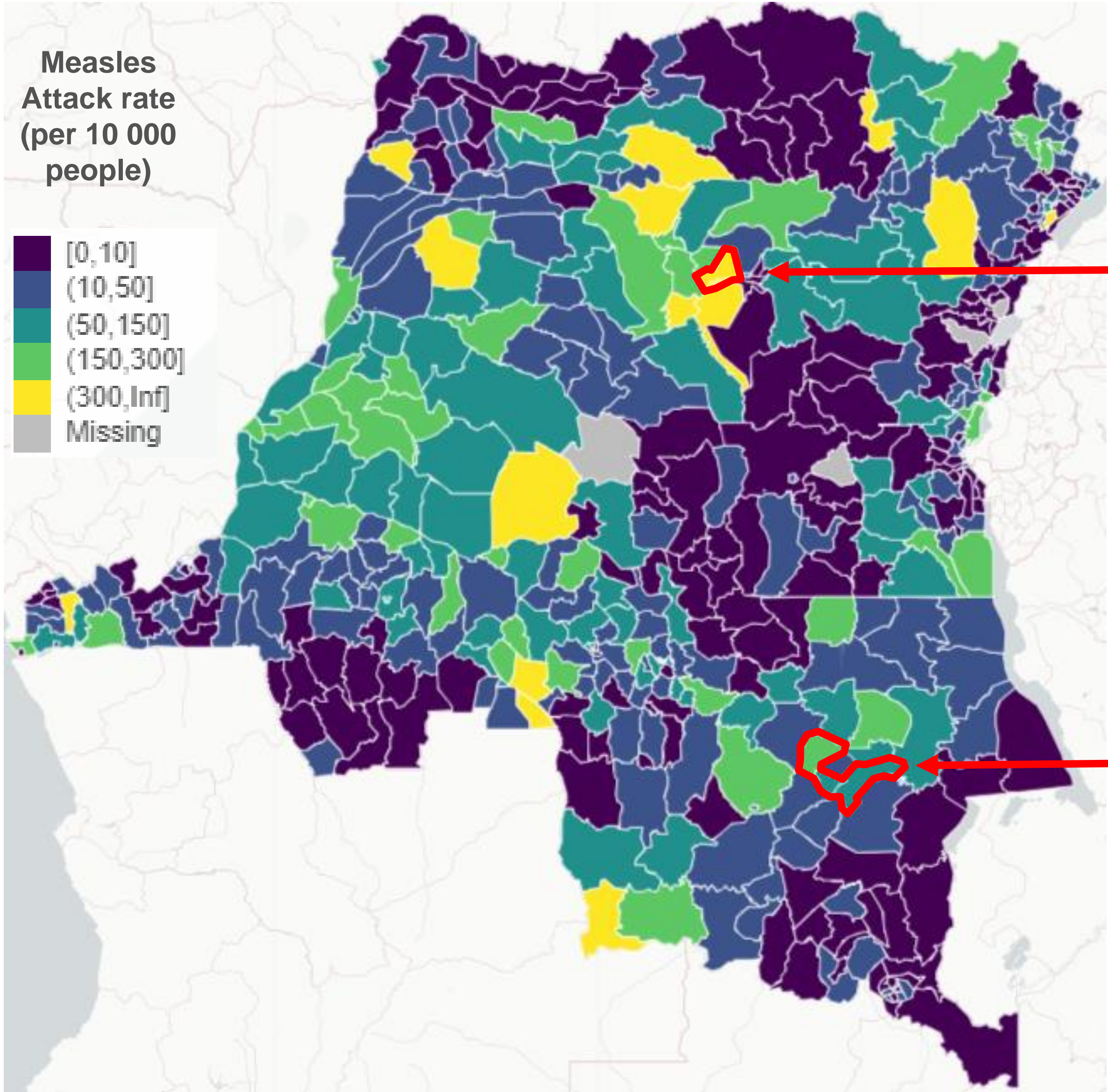


The biggest measles epidemic reported ever?

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Context



Yakusu
(Tshopo province)

Malemba
Mukenga Nkulu
Kikondja
(Haut Lomani province)

Objectives

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- To estimate retrospective mortality (crude & under 5)

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- To estimate measles specific mortality
- To estimate measles Case Fatality Risk (CFR)

Methods

Province	Haut Lomani	Tshopo
MSF Section	Operational Centre of Paris	Operational Centre of Geneva
Health Zone	Malemba Nkulu Kikondja Mukanga	Yakusu
Date of survey	April-May 2019	July 2019
Start of recall period	September 3rd 2018	January 1st 2018
Two stage sampling method	1st: spatial sampling (560 clusters) 2nd: proximity (8 households)	1st: probability proportional to size (43 clusters) 2nd: spatial sampling (26 households)
Indicators	Crude and under 5 mortality rate Measles specific mortality rate	Crude and under 5 mortality rate Measles specific mortality rate Measles attack rate Measles Case Fatality Risk (CFR)

Methods

- Province Haut Lomami
- 560 Clusters

	ZS de Malemba N.	ZS de Mukanga	ZS de Kinkondja
Households	1371	1318	1781
Individuals	9143	9120	11970

- Province Tshopo
- 43 Clusters

	ZS de Yakusu
Households	1080
Individuals	8968

The studies were approved by MSF ERB and comité d’éthique de l’Université de KISANGANI

Results : Mortality rate

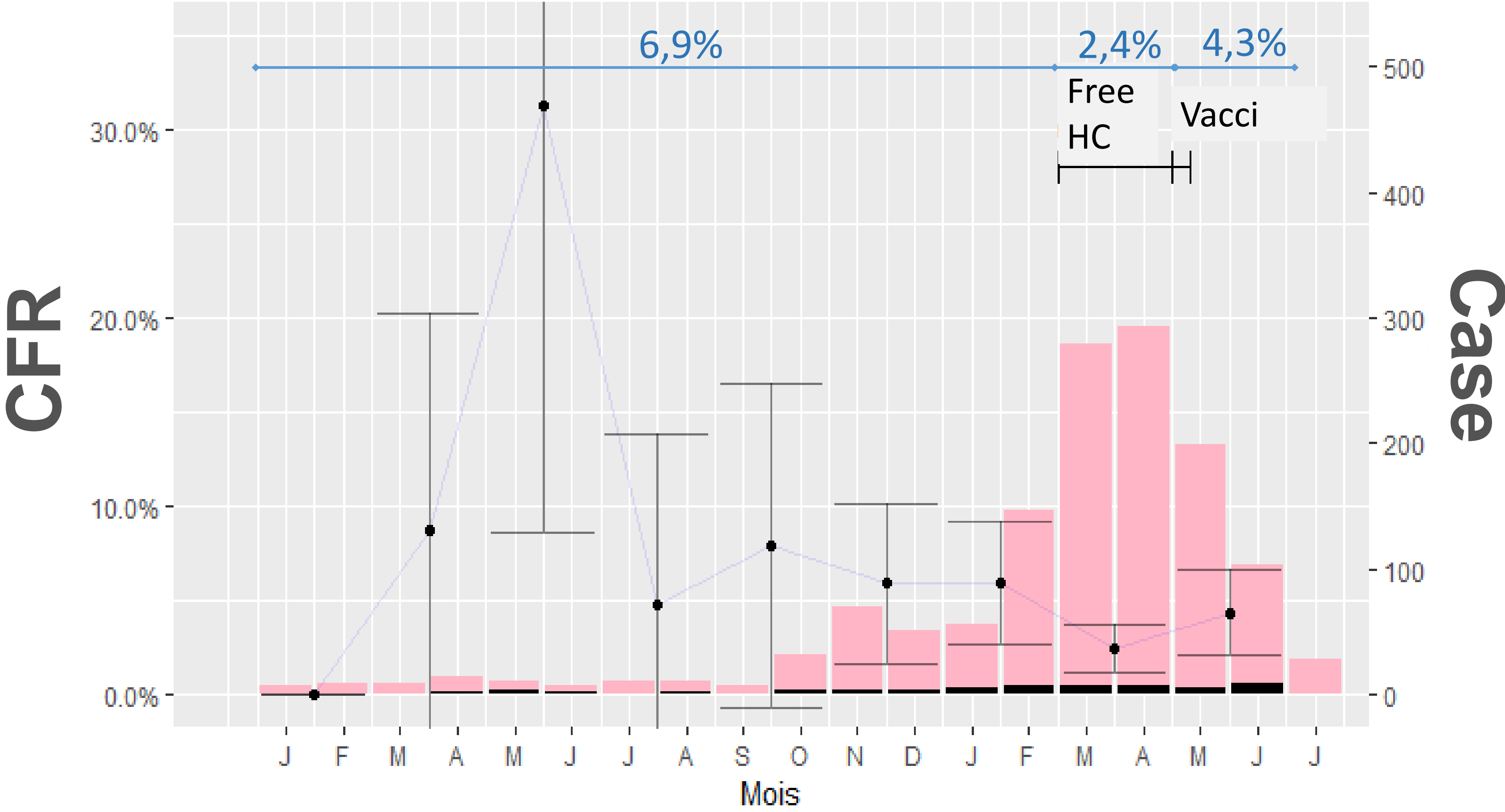
Table 1. Mortality rate					
Province	Haut Lomani		La Tshopo		Total
Health Zone	Malemba-Nkulu	Mukanga	Kinkondja	Yakusu	
Deaths reported	184	222	406	313	1125
Measles-related deaths (% of all deaths)	78 (42%)	78 (35%)	206 (50%)	57 (18%)	419 (37%)
Measles-related deaths in children under 5 years (% of all deaths)	72 (39.1%)	67 (30.1%)	179 (44.1%)	51 (16%)	369 (32,8%)
Proportion of the population who died of measles	0.8% (95% CI : 0.6-1.0)	0.9% (95% CI : 0.6-1.1)	1.7 % (95% CI : 1.3-2.2)	0.7 % (95% CI : 0.5.-0.9)	1.1% (95% CI : 0,8 -1,3)
Proportion of the population under 5 years old who died of measles	3.6% (95% CI : 2.8 4.6)	3.3% (95% CI : 2.5 - 4.3)	6.8% (95% CI : 5.4 - 8.6)	2.8% (95% CI : 1.9-3.6)	3.7% (95% CI : 2.4% - 4.7%)

Results : Interpolation

Table 2. Estimated number of measles-related deaths					
Province	Haut Lomani			La Tshopo	Total
Health Zone	Malemba-Nkulu	Mukanga	Kinkondja	Yakusu	
Population of the health zone	368853	228726	288834	142379	1028792
Estimated number of measles deaths in the health zone (95% CI)	1660 (1195 -2024)	1928 (1463-2393)	4198 (3177-5218)	1015 (738-1291)	8801 (6673 -10926)
Estimated number of measles deaths in the health zone in children under 5 years	1264 (635 – 1569)	1480 (1092 – 1868)	3316 (2539 – 4094)	908 (640-1176)	6968 (4906-8707)

During the same period, only 276 deaths due to measles were notified through the national surveillance system in the four health zones.

CFR according to case management

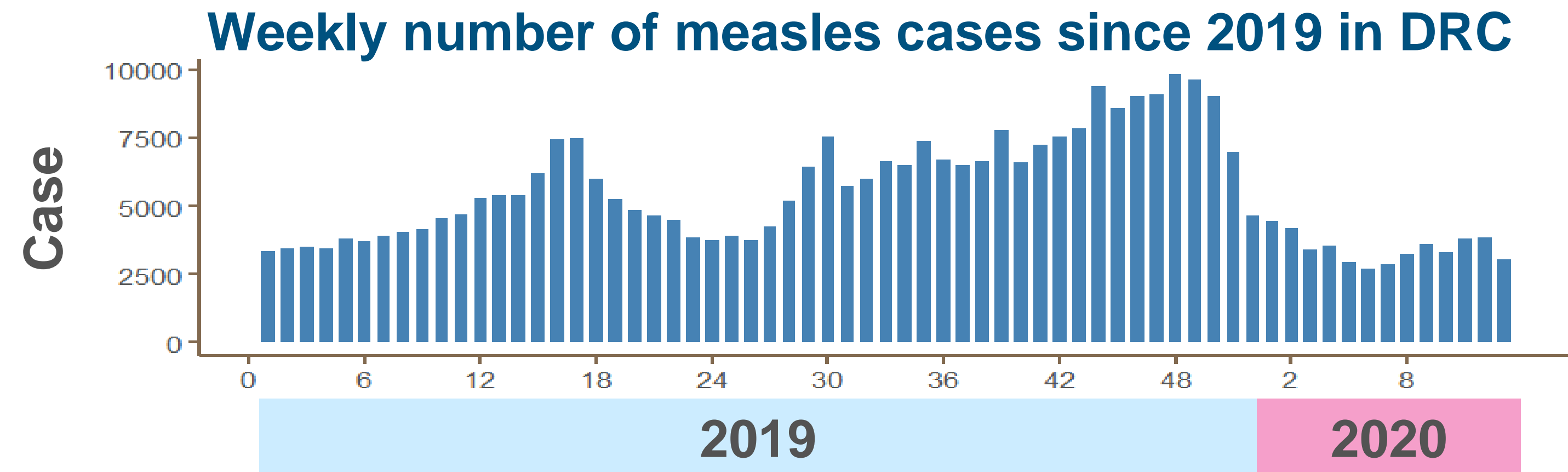


Overall CFR
4.2%

During free health care CFR was 56% lower (95% CI : 31% -73%, $p < 0,001$)

Conclusion

- Limitations
- Mortality burden of measles is high and underestimated
- The epidemic is not over



- What will be the measles response during the covid-19 pandemic?

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