

# Impact of Ebola vaccination in DRC

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WHO  
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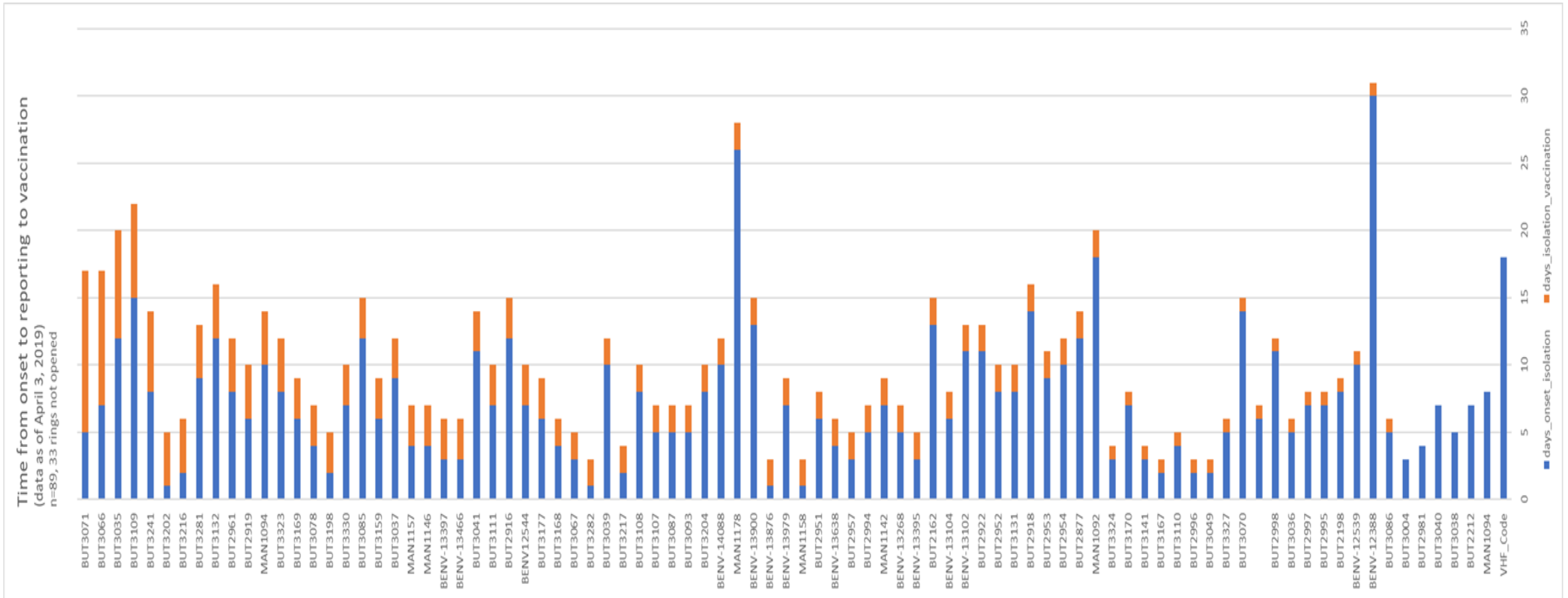
**R&D Blueprint**

Powering research  
to prevent epidemics

# What actions are taken to monitor the impact of ring vaccination in DRC?

- Daily review of the progress with ring vaccination
- Regular evaluation of the impact
  - Using empirical data
  - Model estimates
- Daily interactions with other pillars of the response to identify the constraints and adjustments required

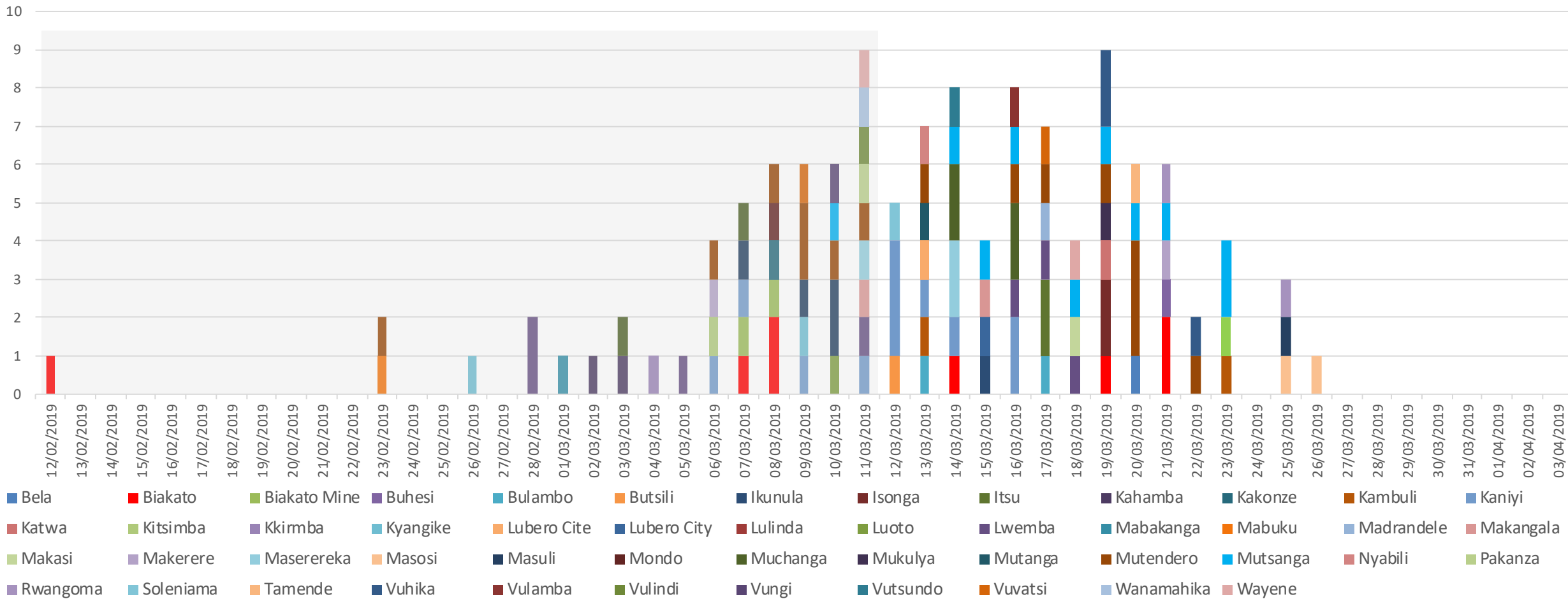
# Example of analysis- time from onset to identification of the case to start of vaccination



# Cases of EVD by date of onset and health area

## N= 122

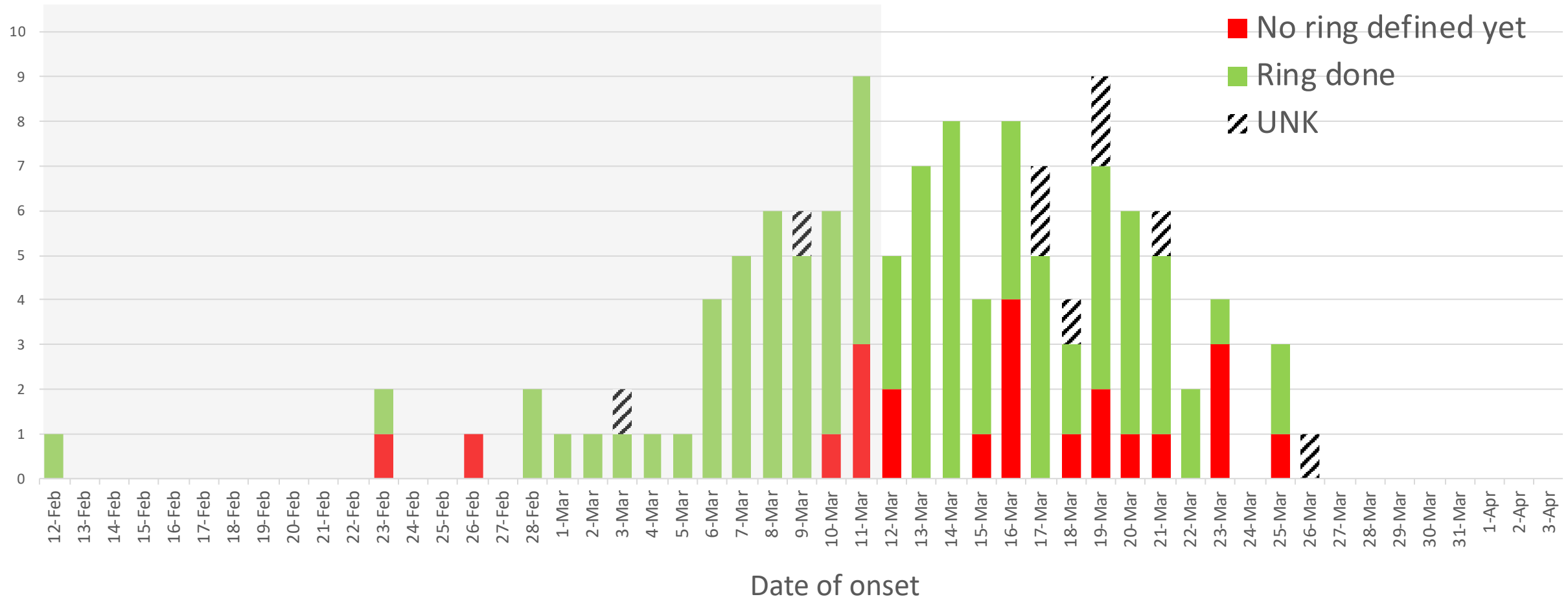
5 April 2019



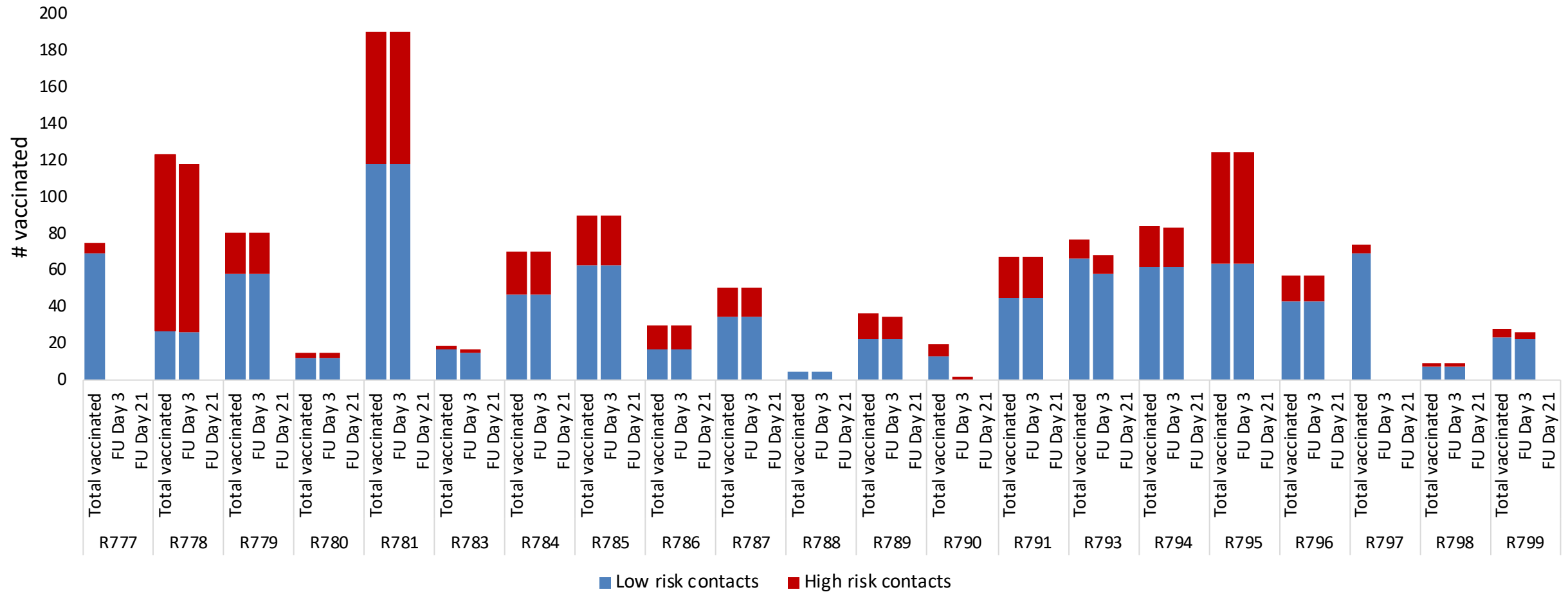


# Cases of EVD according to ring vaccination status

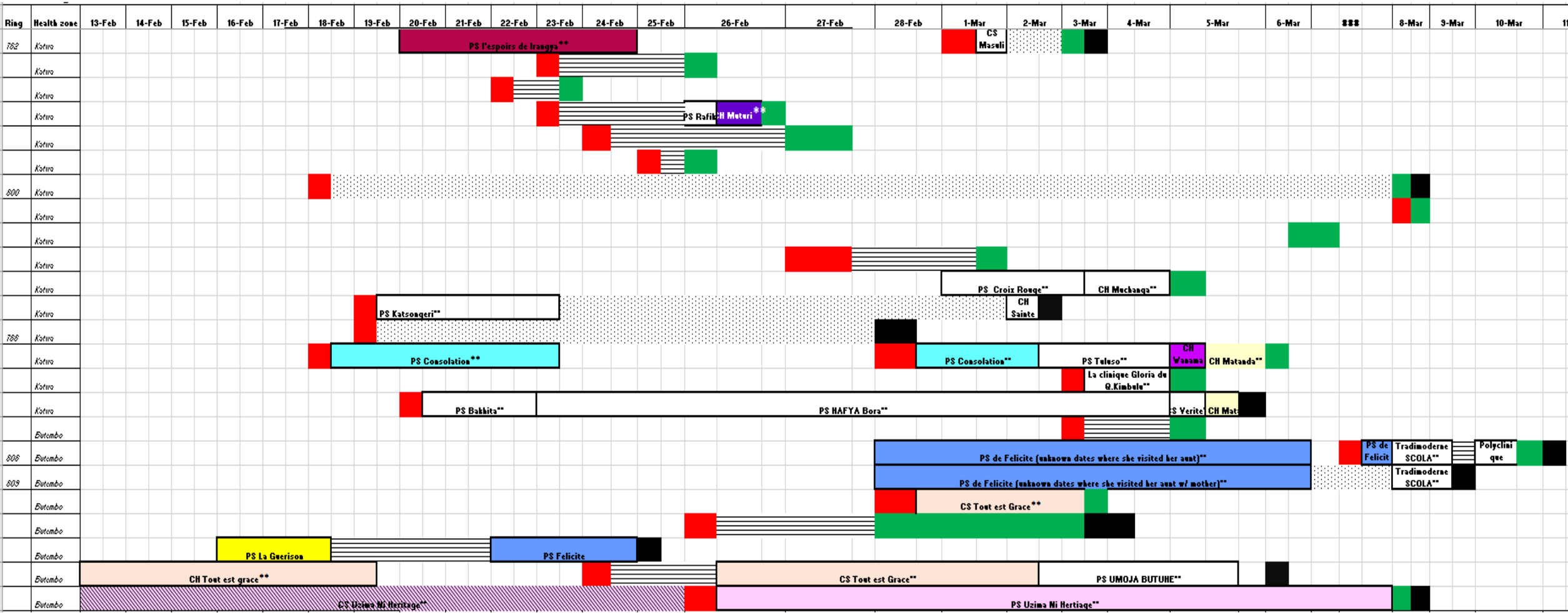
(16/122 cases with date of onset within the last 21 days)



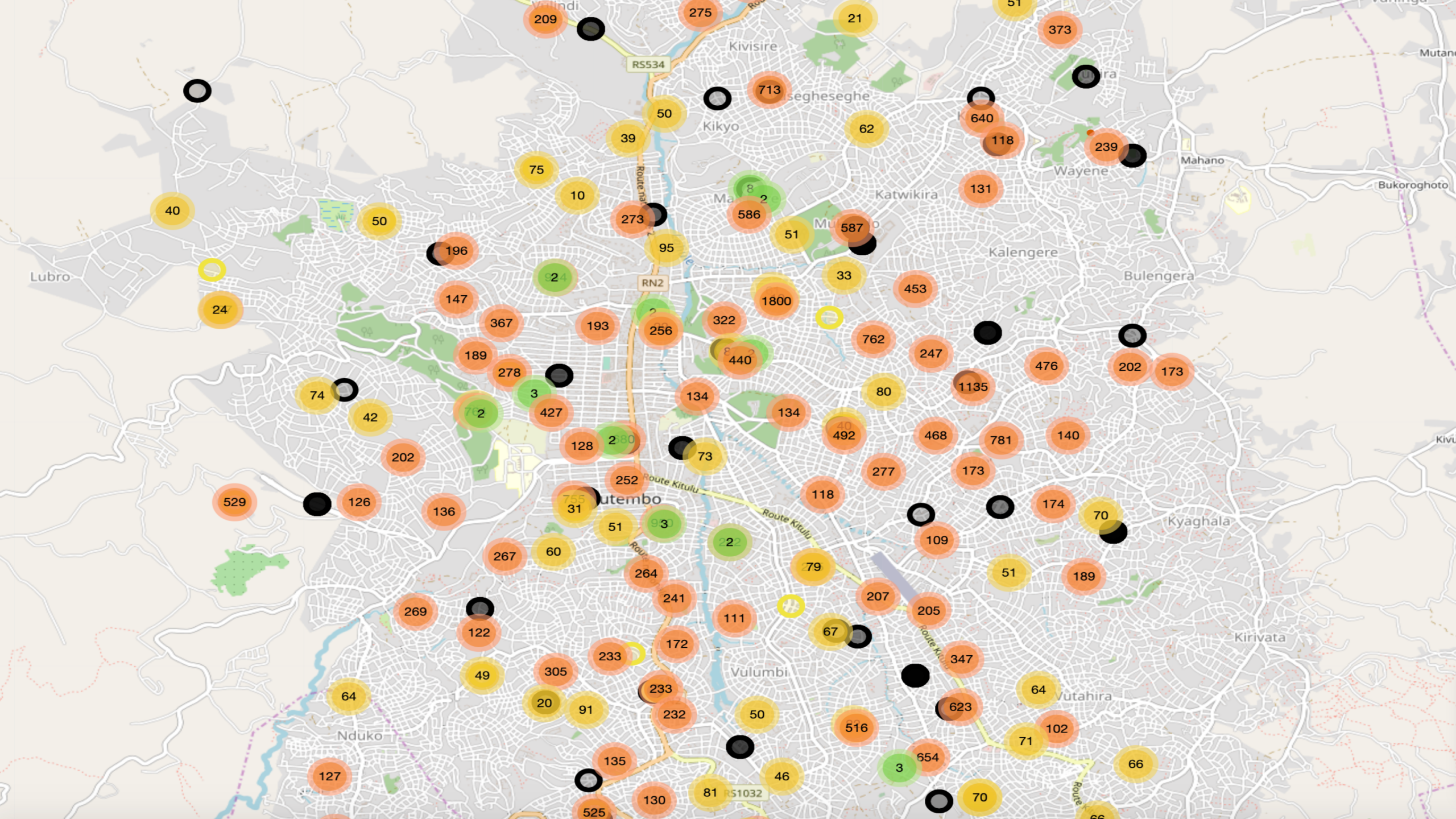
# Vaccination follow-up March 1-March 18, 2019



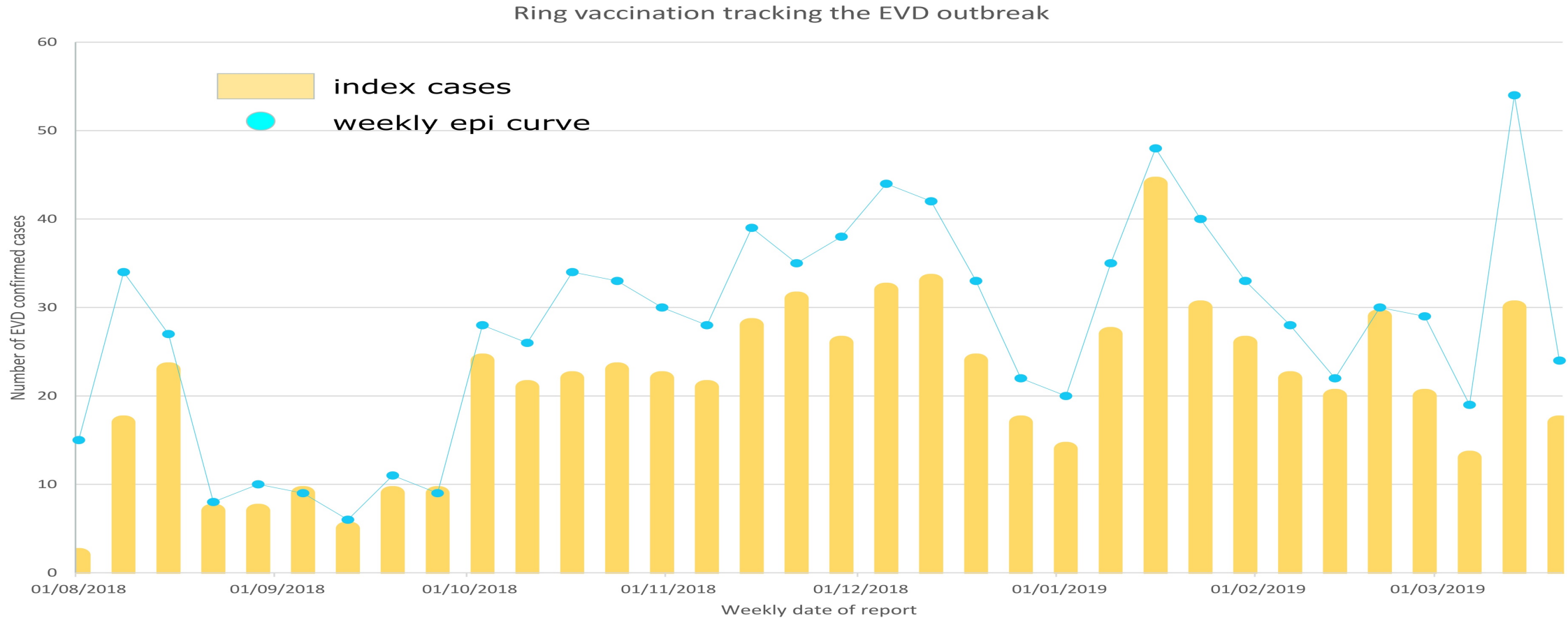
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# Reported EVD cases and cases with rings defined DRC, 2019









## Estimating Ebola transmission and ring vaccination impact in the 2018-2019 outbreak in the Democratic Republic of Congo

IVIR-AC was asked to comment on whether the model is valid to determine the optimal Ebola vaccine strategies in an outbreak setting in terms of the model design, parameters, attributes and the assumptions given the sparsity of data available.

### Recommendations

- IVIR-AC believes that the model is useful for the forward projection of the number of cases,
- estimates of number of cases averted, and demand for vaccine supplies for various control
- strategies (e.g. ring vaccination, contact tracing and isolation etc). The Committee sees the value
- of the combination of model outputs and empirical data to inform response activities.
- IVIR-AC agrees that the investigators have accounted for the majority of the plausible epidemic
- scenarios in their model.

# Estimating Ebola transmission and ring vaccination impact in the 2018-2019 outbreak in the Democratic Republic of Congo

## Recommendations

IVIR-AC also recommended that:

- The investigators should explicitly indicate the purpose of this modelling exercise in terms of its intended contribution to Ebola containment and mitigation in the field.
- Infectiousness (secondary case/offspring distribution) of those who were hospitalized and those who were not might be fundamentally different. The investigators should explicitly make clear that the inference and forecast are sensitive to this heterogeneity.
- There are numerous strengths of the model parameters (e.g. vaccine efficacy based on trial data as well as continuing assessments of vaccine effectiveness) and attributes (e.g. temporal changes in transmission dynamics (e.g. time to admission to health care facilities) and vaccine operations depend on regular revision of data)

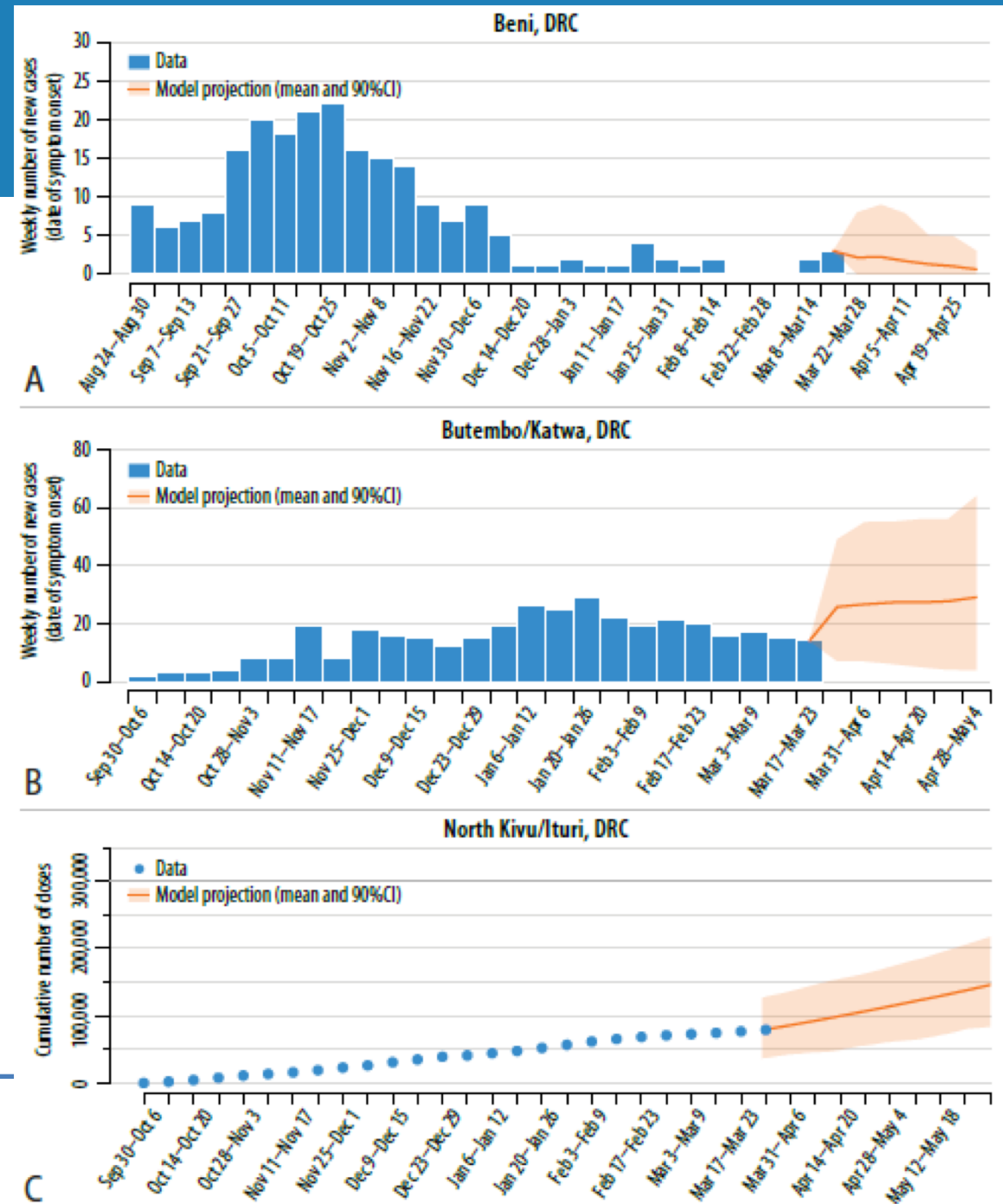


## Estimating Ebola transmission and ring vaccination impact in the 2018-2019 outbreak in the Democratic Republic of Congo – preliminary results

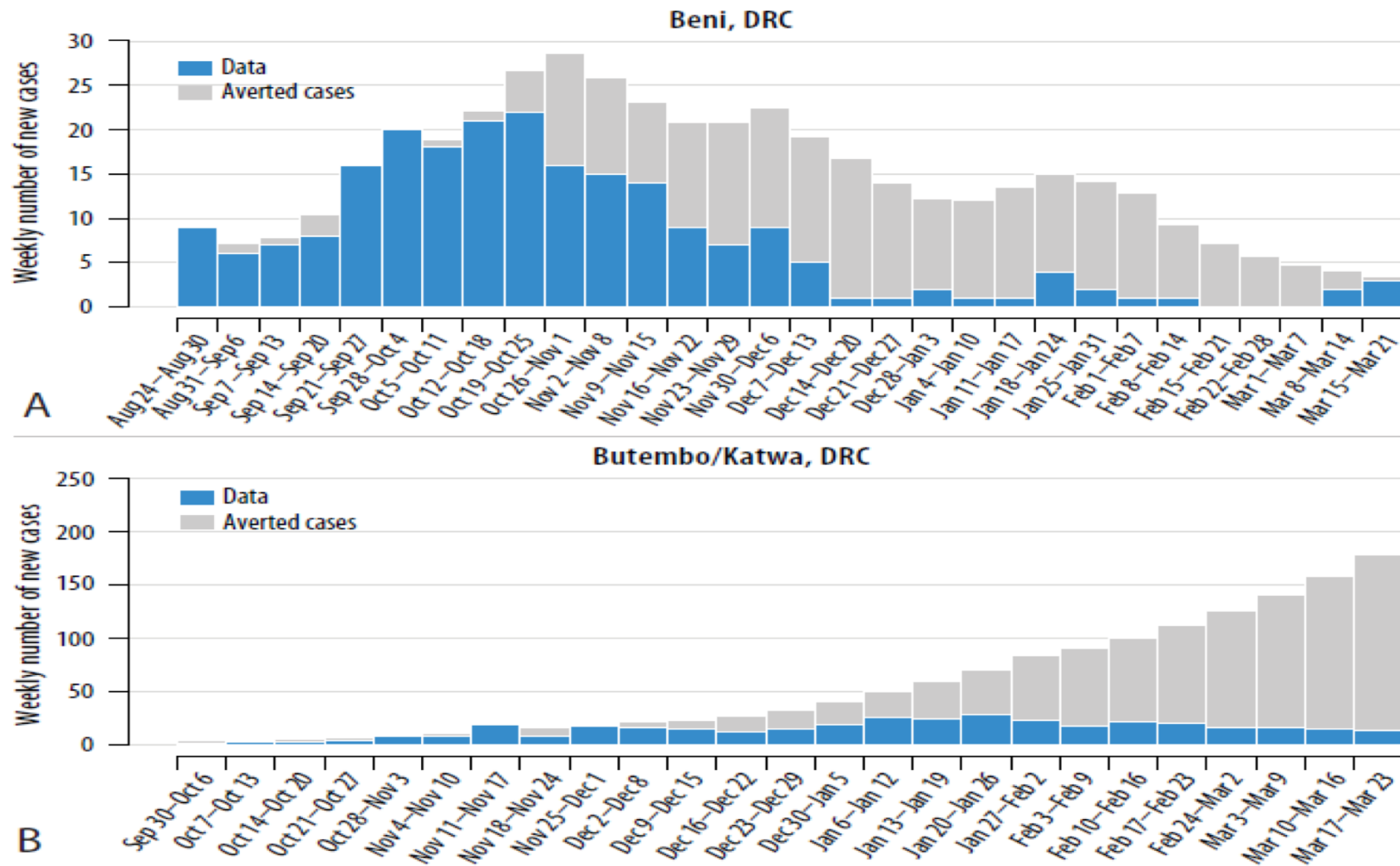
The model is used to simulate the evaluation of the outbreak and has simulated the impact of contact tracing and ring vaccination with the rVSV vaccine

It has provided estimates of the following epidemiological indicators:

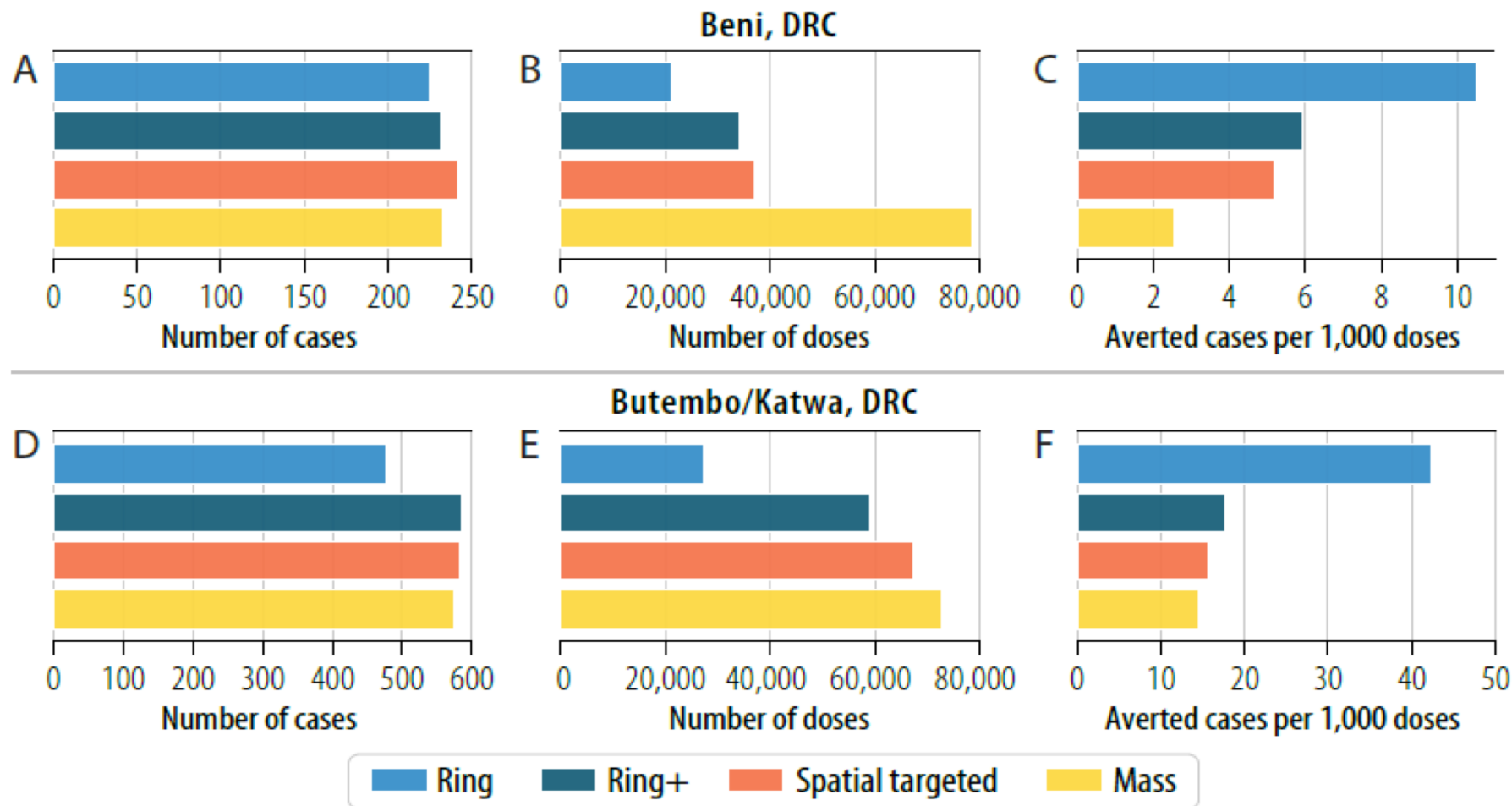
- forward projections for the number of cases in health zones with sustained disease transmission
- estimates of number of averted cases by the current implementation of ring vaccination protocol compared to scenarios with no vaccination, and
- forward projections for the demand of vaccine supplies



# Estimating Ebola transmission and ring vaccination impact in the 2018-2019 outbreak in the Democratic Republic of Congo – preliminary results



# Average number of EVD cases by onset of symptoms projected as of March 31, 2019 in Beni health zone with ring vaccination and hypothetical vaccination strategies



# Conclusions

## **We still face challenges but..**

- The ring vaccination strategy has contributed to geographical containment and reduced transmission in areas where vaccination has taken place.
- Critical actions to improve control have been identified and strategies being implemented:
  - Improved ring definition by better identification of people at risk
  - Alternative strategies to improve community engagement

In addition, with our partners, we continue to monitor vaccine supply.



