

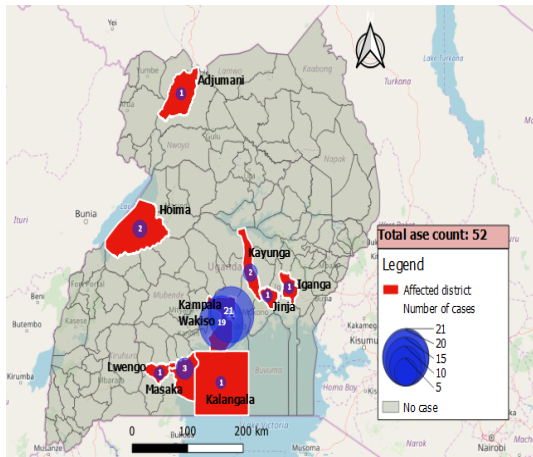
Predictive simulations on the evolution of Covid-19 in Africa

Uganda

John Bosco SSEBANDEKE

April 16, 2020

Data by health ministry

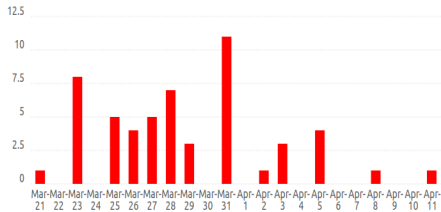


Data

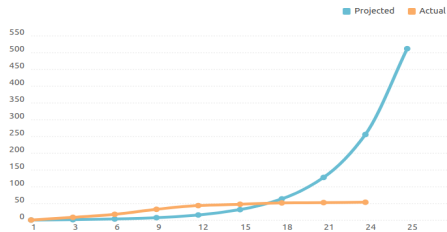
▶ [Link to data](#)

- **Confirmed: 54**
- **Recoveries: 04**
- **Deaths: 00**
- **tested: 5,025**
- **High risk travelers since 07 Mar: 18,000**
- **quarantined: 244**

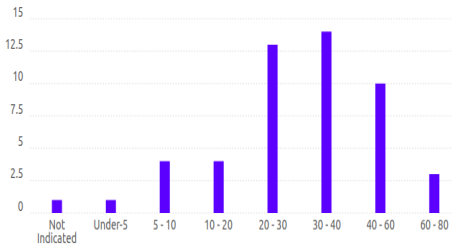
Trends in confirmed cases of COVID-19



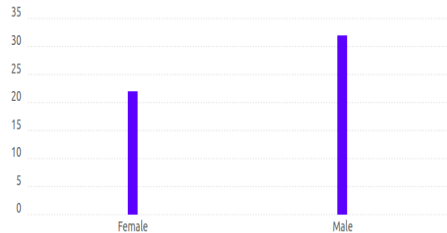
Cumulative Cases: Project vs Actual



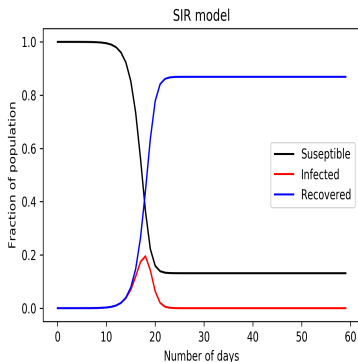
Age distribution of cases



Sex distribution of cases



SIR model



- $s(0) = 1, r(0) = 0,$
 $i(0) = 1.25 \times 10^{-6}$
- $k = 0.5, b = 1.0$

- **Susceptible fraction**

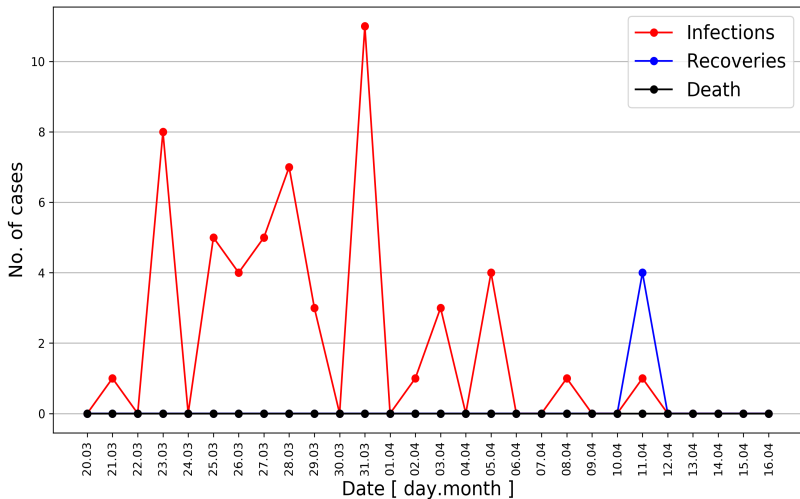
$$\frac{ds}{dt} = -b * s(t) * i(t)$$

- **Infected fraction**

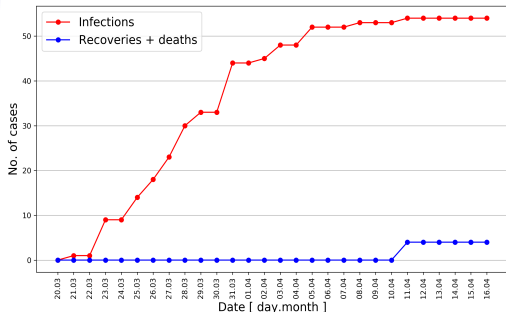
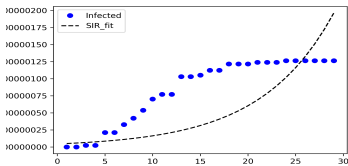
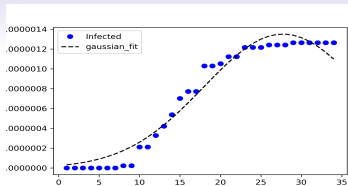
$$\frac{di}{dt} = b * s(t) * i(t) - k * i(t)$$

- **Recovered fraction**

$$\frac{dr}{dt} = k * i(t)$$



Daily data: infections as a function of time.



Conclusions

- SIR model not a good fit.
- Seem to have reached a plateau.
- Tests are still too little (7,693) given the population size (42.72 million)