



Why persistence of Ebola community deaths in Conakry, Guinea?

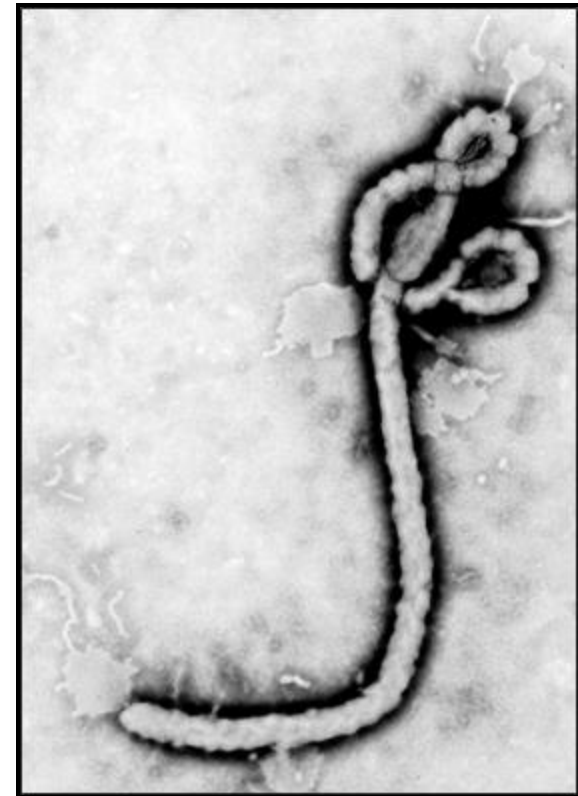
Conakry, January 1st – February 12th 2015

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Ebola fever – Ebola virus

- Identified in 1976
- *Filoviridae*,
 - *Marbourgvirus*
 - *Ebolavirus*– 5 viruses
 - Ebola (Zaire)
 - Soudan
 - Bundibugyo
 - Tai Forest (Ivory Coast)
 - Reston (animals only)



Ebolavirus Ecology

Enzootic Cycle

New evidence strongly implicates bats as the reservoir hosts for ebolaviruses, though the means of local enzootic maintenance and transmission of the virus within bat populations remain unknown.

Ebolaviruses:

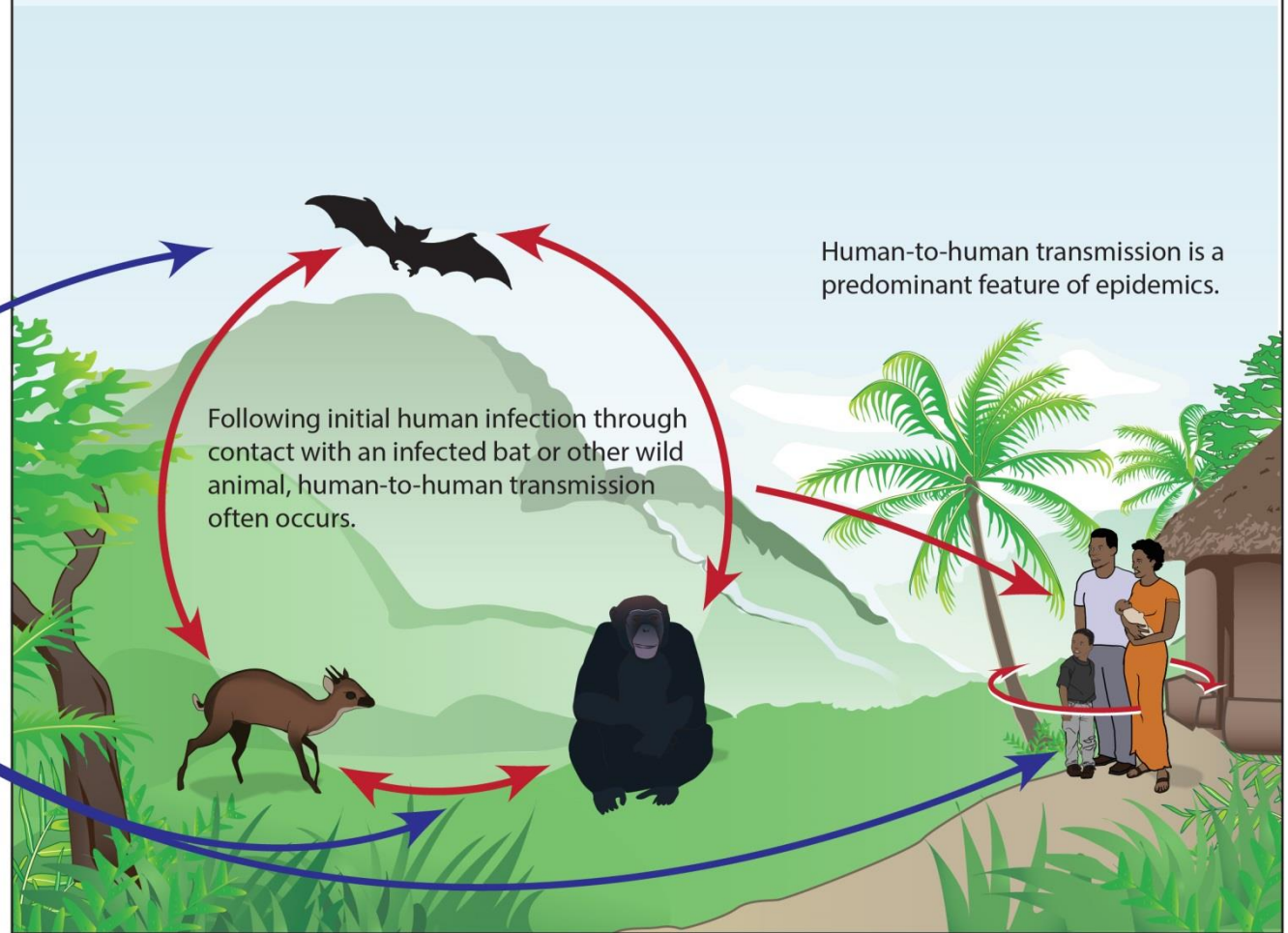
- Ebola virus (formerly Zaire virus)
- Sudan virus
- Tai Forest virus
- Bundibugyo virus
- Reston virus (non-human)



Epizootic Cycle

Epizootics caused by ebolaviruses appear sporadically, producing high mortality among non-human primates and duikers and may precede human outbreaks. Epidemics caused by ebolaviruses produce acute disease among

humans, with the exception of Reston virus which does not produce detectable disease in humans. Little is known about how the virus first passes to humans, triggering waves of human-to-human transmission, and an epidemic.



Ebola virus disease – key facts

- The incubation period 2 to 21 days.
- Humans are not infectious until they develop symptoms.
- First symptoms are the sudden onset of fever fatigue, muscle pain, headache and sore throat.
- followed by
 - vomiting, diarrhoea, rash,
 - symptoms of impaired kidney and liver function,
 - in some cases, both internal and external bleeding (e.g. oozing from the gums, blood in the stools).
 - Laboratory findings include low white blood cell and platelet counts and elevated liver enzymes.

Ebola worse outbreak

Guinea

Liberia

Sierra Leone

27 741 cases 11 284 deaths



Carte 2. Répartition géographique des cas confirmés d'Ebola par préfecture, et classification des préfectures selon le niveau d'alerte, 18/03/2015-07/04/2015 (21 jours), Guinée



Context – early February 2015, Conakry, Guinea

- Although the weekly number of Ebola cases decreased markedly since December 2014 and all Ebola riposte activities were deployed :
 - the number of Ebola community deaths (ECD) showed no decrease
 - Conduct safe and dignified burials met with frequent difficulties
 - reticence/hostility to Ebola control activities were regularly reported
- A study was then conducted on ECD in Conakry in order to get a better understanding of their circumstances

Objective

- Provide accurate information on ECD since 1st January 2015 regarding :
 - history of contamination and disease,
 - seeking for health care
 - social reaction

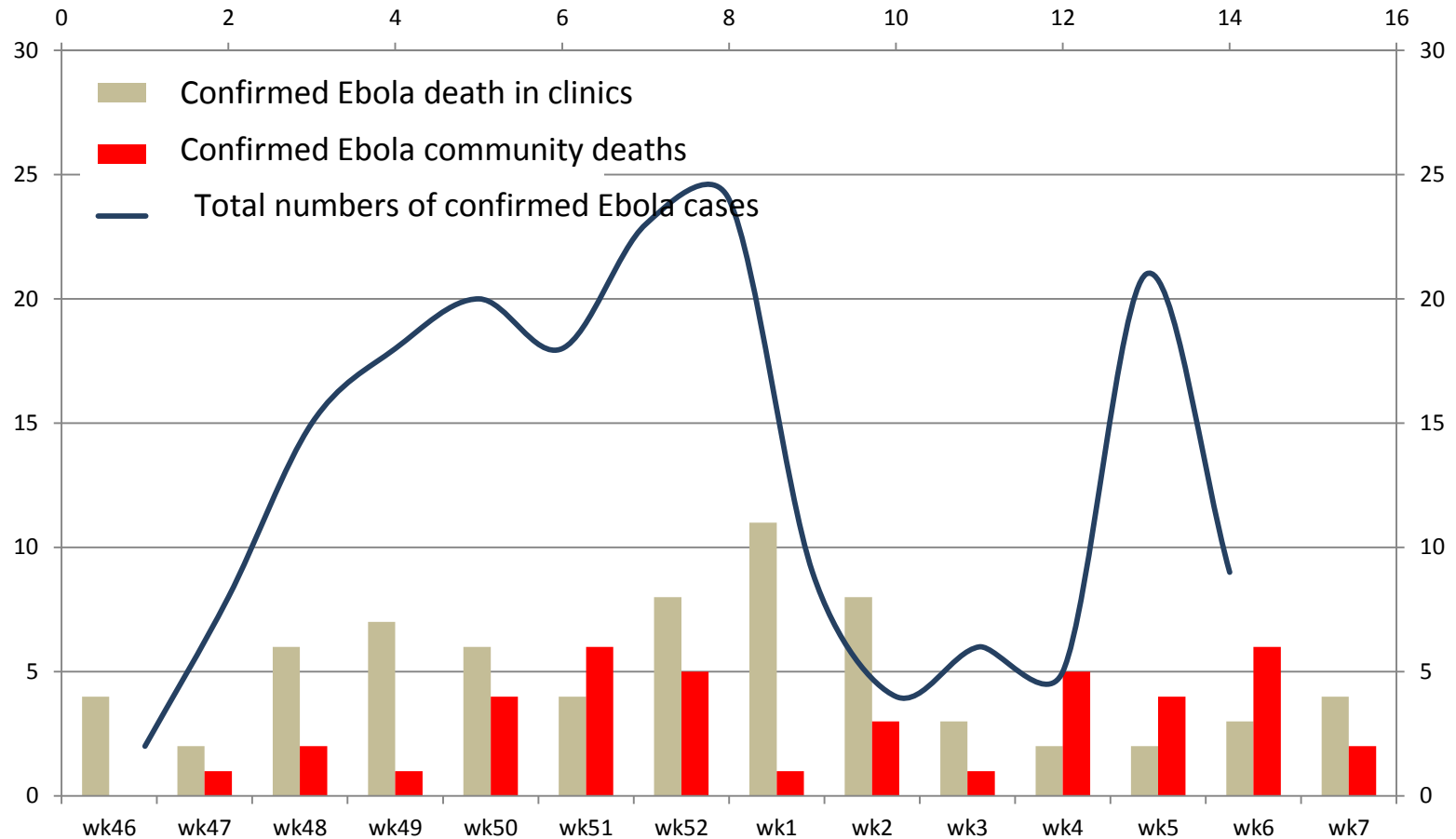


**Conakry city
and its 5 communes**

Methods

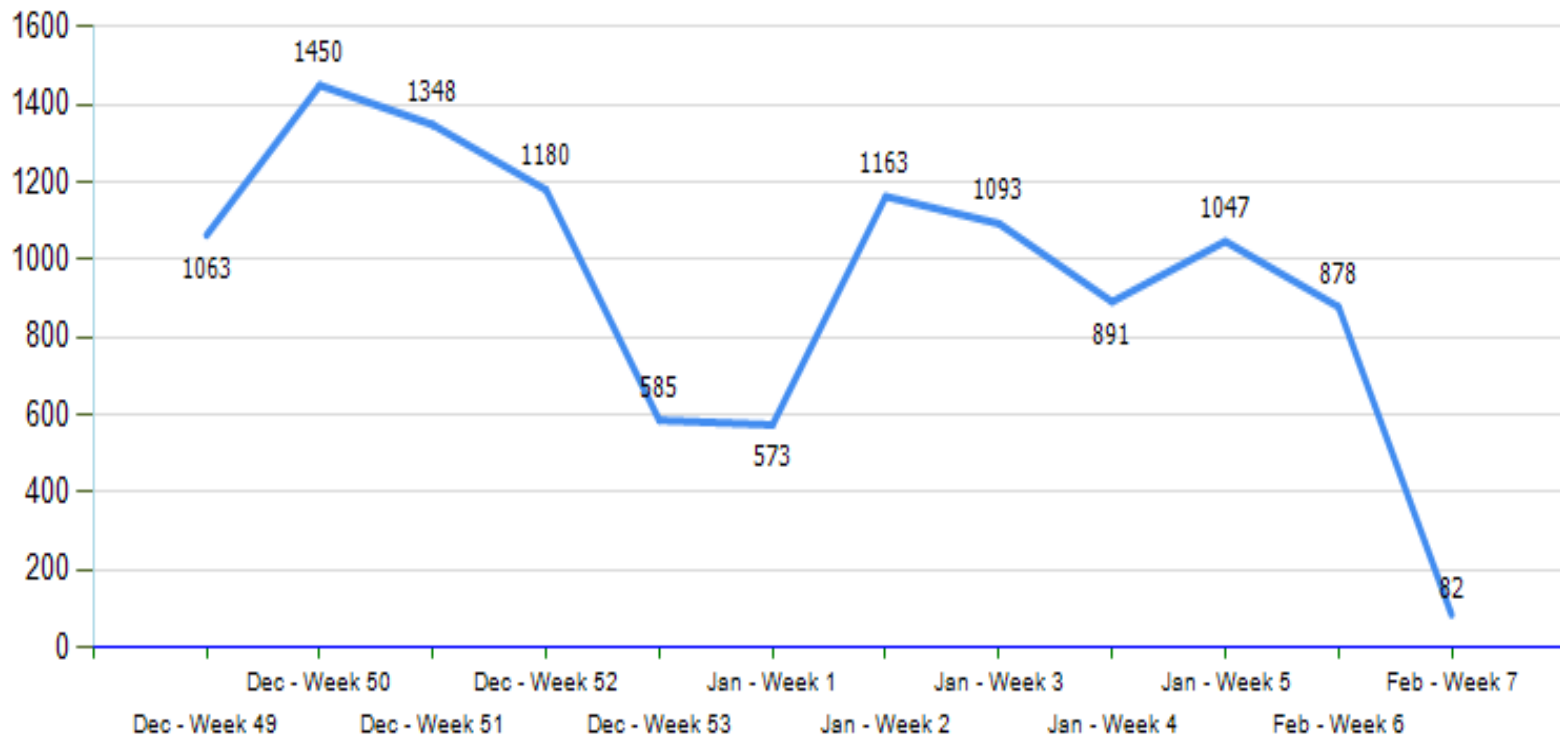
- Trends analysis during the last 3 months (1st november 2014-10 february 2015) for:
 - Reported ECD in Conakry (national database)
 - Ebola reported cases and Ebola deaths in clinics (national database)
 - Statistics of calls to the Ebola free hotline in Conakry (N°115)
- For all ECD between 1st January and 12 February 2015, a descriptive analysis was conducted from investigation reports **(27 ECD)** with collection of the following information
 - Death classification, type of burial
 - Transmission chain
 - Area of residence, place of contamination, place where symptoms started
 - Patient journey in the community
 - Patient journey in seeking for health care
 - Social reaction to control activities

Trends in confirmed Ebola cases and deaths in Conakry, Guinea week 46 2014 – week 7 2015





Number of calls to the free Ebola hotline (N°115) Week 50 2014 to week 6 2015



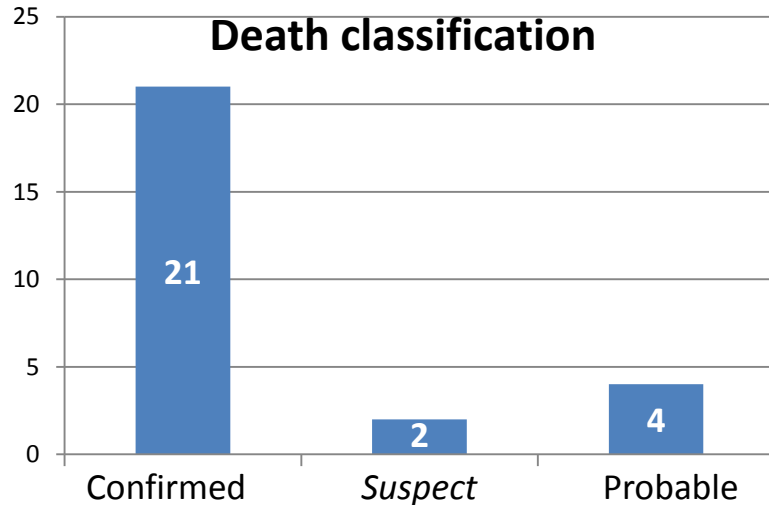


Reasons for calling the free Ebola hotline (N°115) Week 50 2014 to week 6 2015

death health information other quarantine security threat sick suspect



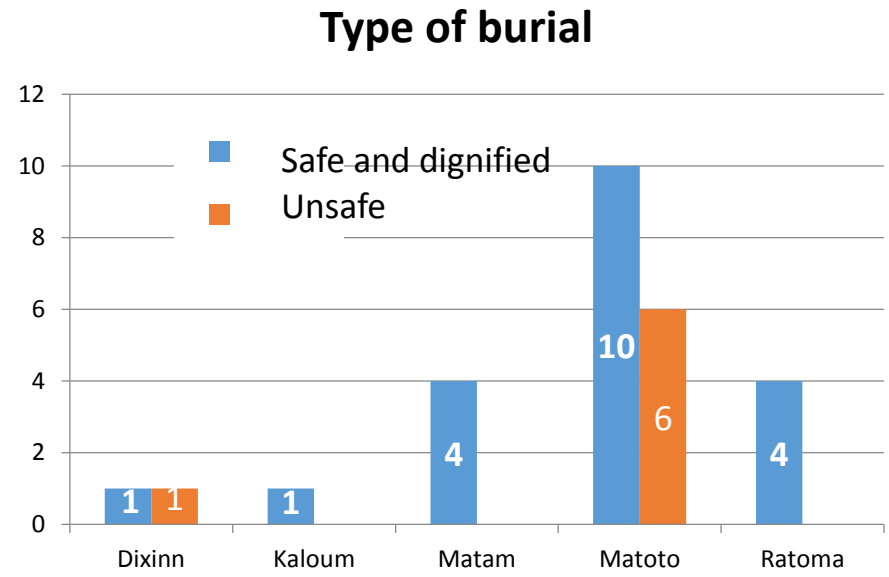
Classification of ECD, type of burial



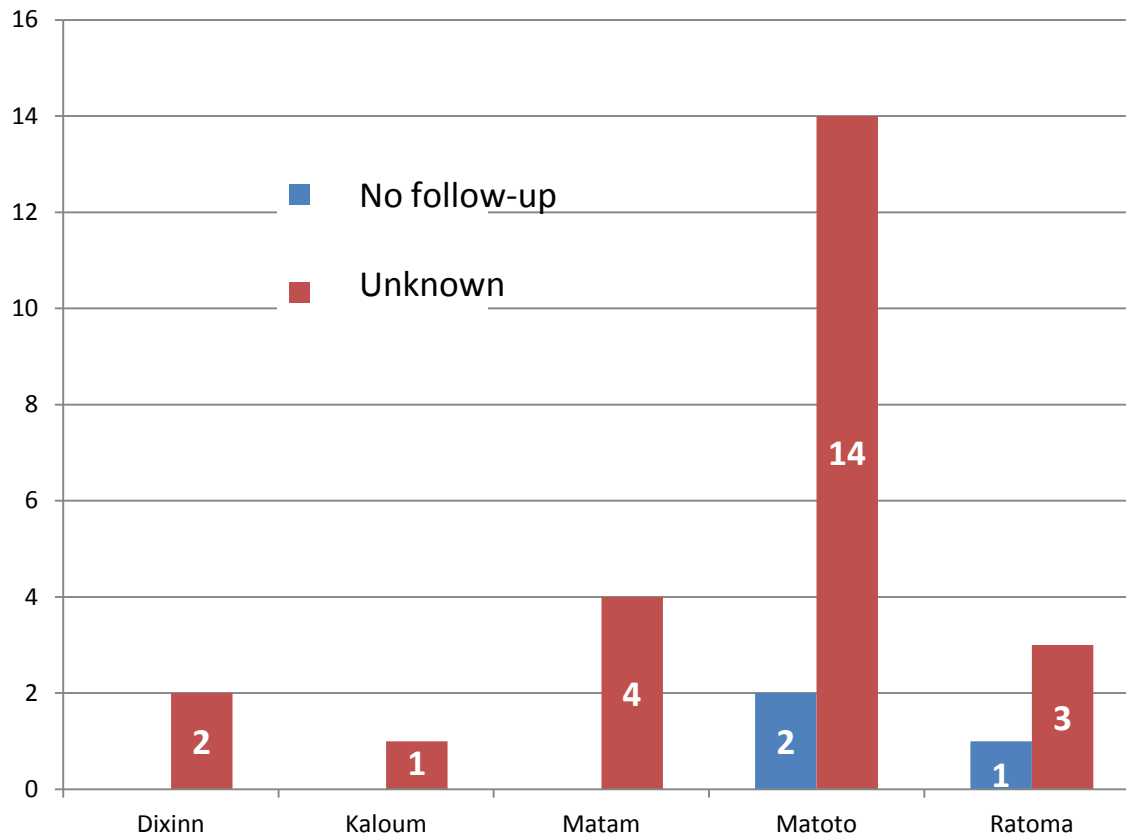
78% of ECD were biologically confirmed

59% were reported in Matoto, the largest commune of Conakry city

For 74% of ECD, safe and dignified burial was conducted



Was the deceased previously known as a contact or suspect case?



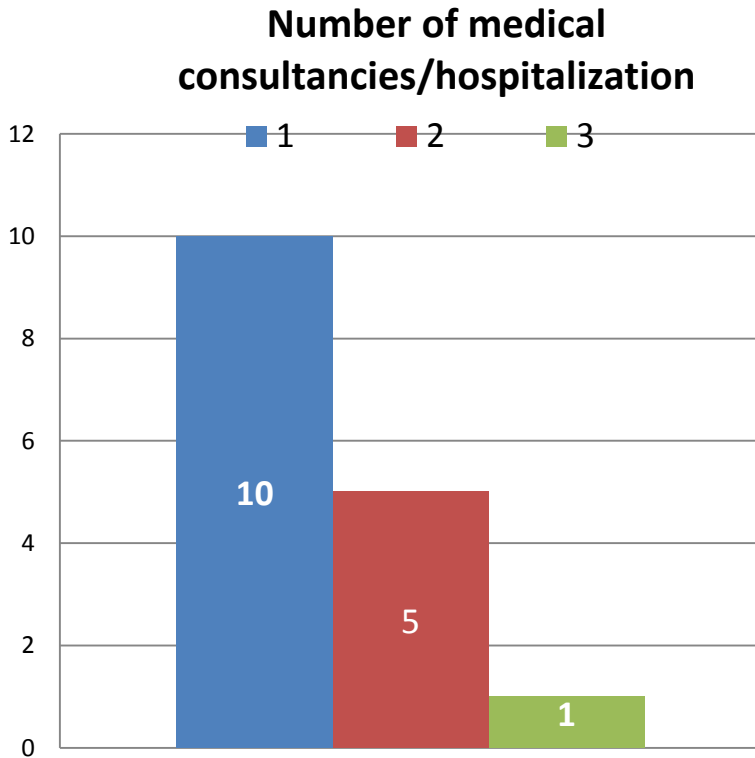
89% of the deceased were not identified as contacts

11% were contacts with no follow-up

(No followed-up contact)

Seeking health care

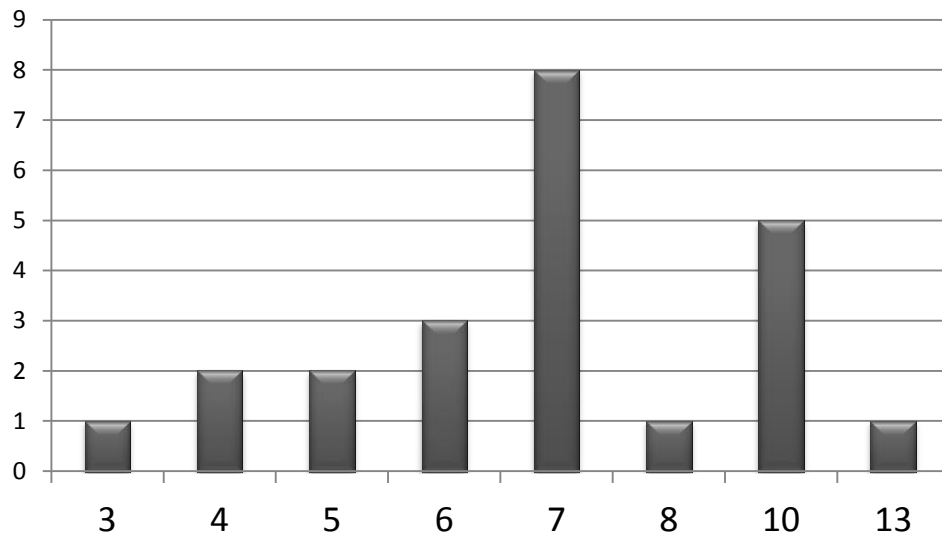
- For 16 cases (59,3%) seeking medical care was reported
- 2 deaths occurred in a medical clinic (1 private clinic, 1 Donka national hospital)



Type of medical structure	Number	%
Private clinic	12	44%
Public medical center	2	7%
Hospital	3	11%

Disease duration and reported symptoms

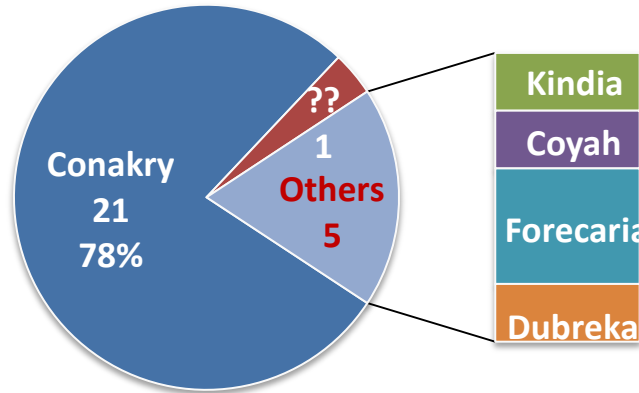
Disease duration (days)



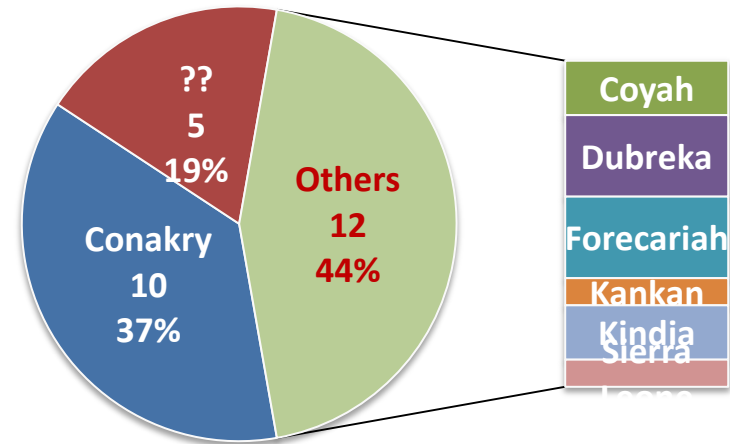
- **Fever 84%**
- **Asthenia 90%**
- **Diarrhea/vomiting 50%**
- **6 cases of bleeding**
- **2 cases of foetal death/abortion**

Patients journey

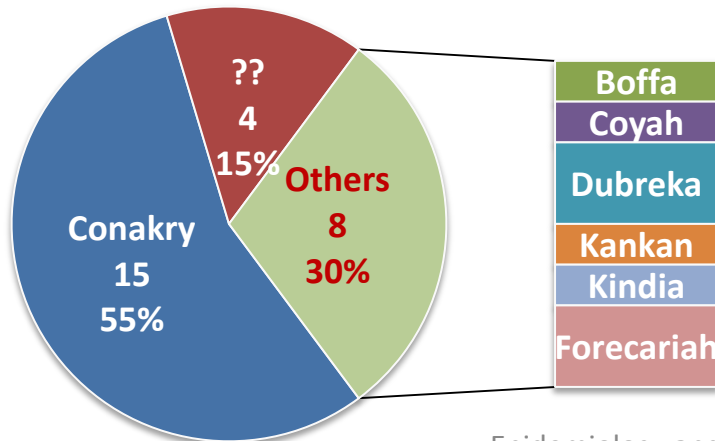
Area of residence



Place of contamination



Place where the symptoms started



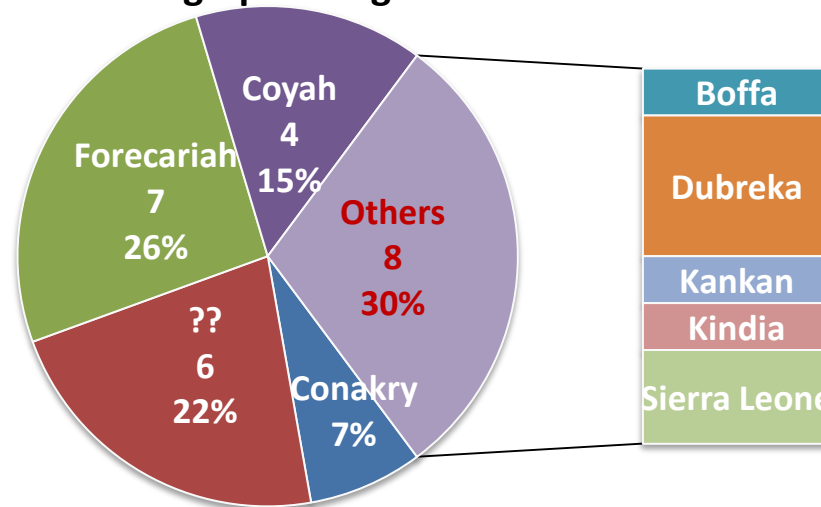
At least 48% attended unsafe funerals

At least 59% had contact with an Identified Ebola suspect (mostly identified *a posteriori*)

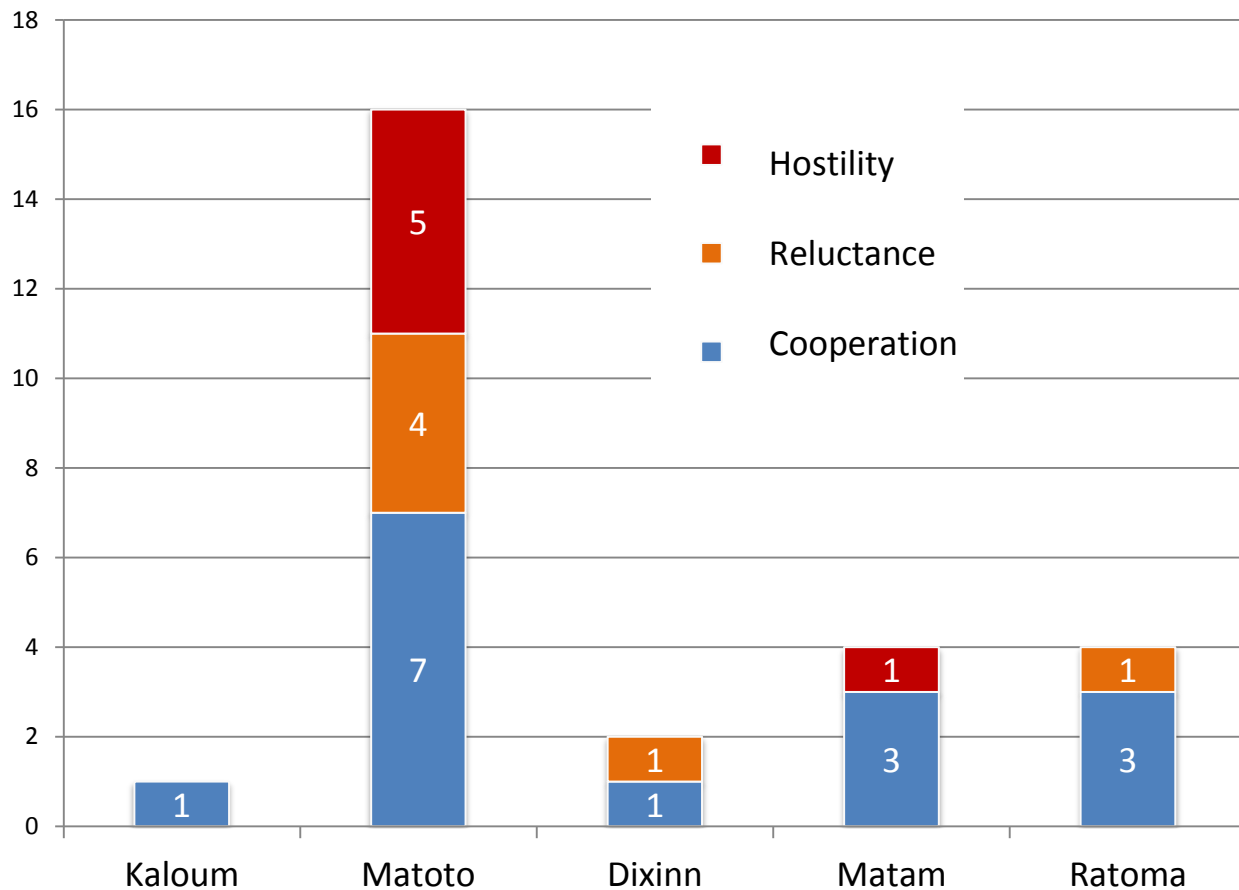
Transmission chain

Identified	Number	%
<i>a posteriori</i>	11	40
<i>a priori</i>	3	11
imprecise	5	19
unknown	7	26

Geographic origin of the transmission chain



Social reaction



Hostility

3 physical assaults

1 threat with a weapon

2 death threats

Refusals of control activities

For the 27 ACD situations, were reported:

- 5 refusals of safe and dignified burials and 4 refusals of biological sampling (oral swab)
- 7 refusals of environmental spraying with bleach
- 8 refusals of epidemiological investigation
- 12 refusals of contact follow-up
- 1 suspect case could not be removed from the family and transferred to an Ebola clinic

Conclusions (1)

- ECD in Conakry early 2015 originated mainly from contamination while helping an Ebola patient or during funeral attendance in places of active transmission in low Guinea
- Most of Ebola community deaths in Conakry concerned individuals not identified as contacts
- For three quarters, biological sampling could be performed and safe and dignified burial conducted
- When the information was available, most of the deceased has sought medical care at least once, mostly in private clinics
 - 2 patients deceased in a medical clinic/hospital
 - 6 cases presented with bleeding
- **Problem of triage in medical facilities, private as well as public**

Conclusion (2)

- Transmission chain: identified *a posteriori* for the majority of Conakry ECD
- For the majority of ECD:
 - Residence in Conakry
 - Ebola symptoms started in Conakry
 - At least one third got contaminated in Conakry and 40 % elsewhere (area with Ebola active transmission in low Guinea)
 - The origin of the contamination chain was mostly outside Conakry



Conclusion

- In more than half of the ECD situations, cooperation of the family was obtained
- But open hostility (family and/or neighbours) occurred one out of four ECD situations
- The majority of hostile reactions or reluctances were reported in Matoto commune
- Principal consequences of social difficulties
 - Refusals of environmental spraying
 - Refusals of epidemiologic investigations
 - Refusals of contact follow-up

Impact of the study on the improvement of Ebola strategy in Guinea

The study brought useful information to:

- Implement active surveillance
- Implement more efficient triage methods in all clinics and hospitals as well as prevention of infection for health workers
- The case definition was modified in March, to improve its sensitivity and help physicians to identify suspect cases and call for intervention of field epidemiologists for case classification



Many thanks to

- *All the field epidemiologic teams in Conakry that have been working very hard to investigate cases and ECD, collect epidemiological data, supervise contact follow-up, and provide information and comfort to the population*
- *All the wonderful colleagues involved in the fight against Ebola epidemics*

Matoto team, Conakry

