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A qualitative study to understand population's perception on plague after 2017 epidemic, Antananarivo, Madagascar

Sitraka Rakotosamimanana, Chiarella Mattern, Elliot Rakotomanana, Emma Raboanary, E. Chevalier, Josélyne Ramamonjisoa, François Taglioni, Minoarisoa Rajerison, Fanja Rakotomanana, Laurence Baril

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Abstract: From August to November 2017, a pneumonic urban plague epidemic occurred in Madagascar. Plague refers to an important social, historical and cultural representations which are essential insights to better prepare the epidemic response. The purpose of this study is to understand the perceptions of this plague epidemic by population living in Antananarivo (capital city) using participative visual method including collective interviews and photographs.

Introduction

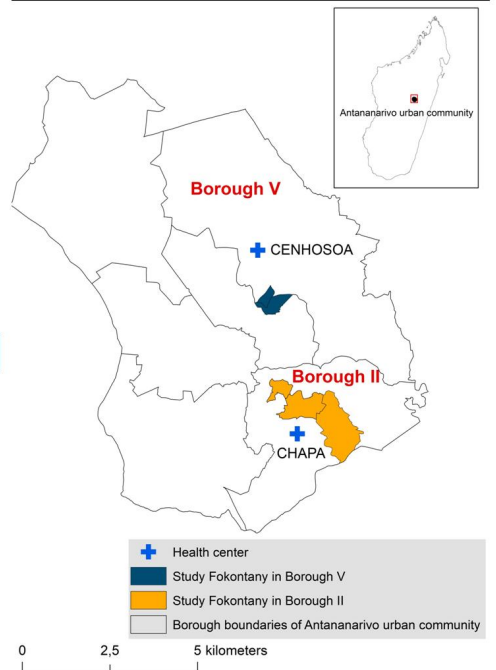
- Plague is an important public health concern in Madagascar [1,2], Endemic in central highlands (Altitude > 800 meters), can occur sporadically in other places.
- Each year human cases, mostly bubonic plague, were reported.
- Urban pneumonic plague outbreak occurred early from August to November 2017 [3, 4] and other cases were also notified from November 2017 to January 2018 (Table). The purpose of this study is to understand Antananarivo population's perception on plague after 2017 plague epidemic.

Table: Distribution of 2414 notified cases to the Central laboratory for Plague (based at IPM) from 08/01/2017 to 11/28/2017 according to the clinical form

	Pulmonary plague		Bubonic plague		Septicemic plague		Not specified		Total	
	n	%	n	%	n	%	n	%	n	%
Confirmed	32	1,7	66	16,7	0	0,0	6	4,3	104	4,3
Probable	386	20,6	73	18,5	1	100,0	33	23,6	493	20,4
Suspect	1460	77,7	256	64,8	0	0,0	101	72,1	1817	75,3
Total	1878	100,0	395	100,0	1	100,0	140	100,0	2414	100,0

Methods

- Type of study: **Participative visual method including collective interviews** (Ethical Committee #50 MSANP/CE)
- Study sites : Two Urban boroughs of Antananarivo with a high rate of confirmed and probable plague cases during 2017's epidemic : borough II and V (see Map). Five fokontany (smallest administrative unit in Madagascar) were randomly selected. (3 in borough II and 2 in borough V).
- Participants criteria: general population based on age (18 to 60 years old), exact residence in fokontany and consentient to participate in the study.
- A main question is asked to each participant: **"What makes you think of the plague in your environment?"**. A camera was provided to each participant to take three photos to answer that main question. A total of 78 photos were taken by the 26 study participants.
- Five collective interviews were then organized gathering together 4 to 6 participants (categorized by gender), to justify and describe the pictures taken. Collective interviews were conducted on three distinct themes: knowledge on plague, population's attitude during plague epidemic and population's preventive practices during epidemic. Interviews are accompanied by information sessions on plague.
- After transcription and translation of the five collective interviews and explanations of the photos we group the photos and participants speeches by categories.



Results

- The seriousness of plague, the death that it can cause and the fact that it can be treated by specific medications were mentioned by all respondents.
- Radio, television, newspapers and rumors are the sources of information on the plague epidemic mentioned by the respondents, for all the fokontany investigated. No respondents mentioned awareness and information posters.
- Two categories of perception of plague transmission were distinguished:
 - **Direct transmission perception:** contact with rat, its fleas and man through garbage and sewage (Photos 1 and 2)
 - **Indirect transmission perception:** Plague spreads through infected water, or poorly washed food (Photos 3 and 4)
- Confusion between modes of transmission of plague. No difference between bubonic and pneumonic plague: "... *bubonic (plague) comes from the spit, (...) and the pneumonic (plague) one comes from the fleas! It's from the rats' fleas!...*"
- Living near a cemetery is perceived as a risk factor for plague transmission. When we asked the question: *"Where can you catch plague if it is here in your Fokontany?"*, participants mentioned the cemetery and explained: *"Because they bury people with plague there!"*



Conclusion

- Participative approach based on photographs and collective interviews is a qualitative exploratory method that allows identifying perception and experience from the Antananarivo population during 2017 plague epidemic.
- Lack of knowledges on plague especially in its mode of transmission were identified in the study.
- Several factors may influence the knowledge about plague: messages from the media, collective social representation, living close to the area such as plague reference hospitals or cemeteries
- Educational levels may not have impacted on the knowledge from the Antananarivo population on the disease.
- Conducting such a study during an ongoing epidemic and not only after an epidemic could provide further insight of disease perception

References

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4. P. Mead (2018) *Plague in Madagascar — A Tragic Opportunity for Improving Public Health*, NEJM; 378: 106-108

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