Urban malaria in Brazzaville: Local heterogeneity and global challenges

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The interests of a Brazzaville' study:

- an holoendemic area
- A country in reconstruction after 12 years of civil war. (So the most laborataries have gone back in the nineties)

The goals:

- To consider and to update researches about malaria in an urban setting like Brazzaville taking into account the evolution of the city and the evolution of the pathogen complex
Which are the factors responsible for the geographic distribution of malarial risk in Brazzaville?
Methodological approach

- Landscape analysis
- Questionnaire survey
- Interviews with public health actors
- Entomological survey

Orthophotos 2006, 1 000ème, dalle 530 860 et 530 920.
WGS 84 UTM 33S
The questionnaire survey
**Targets:** To evaluate population behavior about malaria consideration (preventive and curative family behaviors).

**Method of survey:** Survey carried out by giving one questionnaire to each of the 100 households.

**Location:** 100 investigated parcels in 9 districts of Brazzaville. The investigated zones were delimited by environmental perimeters. (spatial stratification method)
Location of investigated parcels

Localisation des parcelles selon des considérations écologiques :

- Parcelle exploitable

Découpages administratifs
- Arrondissement

Écologie du vecteur
- Bords de cours d'eau
- Marais/hagès

Source: Cours d'eau à partir des orthophotos 2006 MAPS DGST
Découche vecteur des berges de cours d'eau et des zones de marais/hagès à partir des orthophotos 2006 Université de Provence - LPED
Limites administratives du ministère de l'Intérieur congolais 2002.
Most of the population of Brazzaville is concerned by Malaria and 85% considers it as a serious disease.

However, their ignorance about the disease involves risk behaviors and an adoption of wrong measures of prevention.
M212 : Do you know about a program giving free care to children from 0 to 15 years and to pregnant women?

M305 : Where do you usually buy your medication?
M210: What do you do in case of fever?

<table>
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A third of the inhabitants investigated use modern self-medication.

Moreover, the ignorance of the appropriate treatments increases the danger of this phenomenon.
Three other surveys (one of which was entomological) have been linked with the previous data.
**Targets**: Recognition and measure of the potentiality of the meeting between man and vectors zones

**Survey method**: Larval prospecting by the technique of the deeping (taking made in the ladle) to measure the productivity of breedings.

**Location**: Prospecting 20 areas in 6 districts (Makélékélé, Bacongo, Mfilou, Poto-Poto, Moungali et Talangaï).
Gutters and pipes in Brazzaville
To link the different surveys

INFORMATION COLLECTED DURING THE QUESTIONNAIRE SURVEY

Q35 is the only district where mosquito in not the main answer to the question about malaria causes.

7 households out of 11 answered that pollution was the cause of the disease.

The significant insalubrity in this district seems to influence the answers.

Between risk perception and potential risk
Larval prospectings

**Description**
Gutter close to the road filled by rainwater and waste water from the parcels around.
Habitat of high density,

**Results**
Number of ladles: 9 or 720 ml of water
28 larvae found or 3 larvae/ladle

"Prospecting in the urban area, in the gutter."
Q35 is the only district where mosquito is not the main answer to the question about malaria causes. 7 households out of 11 answered that pollution was the cause of the disease. The significant insalubrity in this district seems to influence the answers.

### Tableau croisé dynamique

<table>
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<th>M304: causes du paludisme</th>
<th>M003: quartiers de résidence des ménages enquêtés</th>
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Conclusion and outlooks

Controlling the heterogeneity due to micro larval breeding

Considering the risk in the South countries

Measuring the risk
• to link the data and to measure of exposition rate
THANKS FOR YOUR ATTENTION