

# Carrion's Disease: Neglected Diseases of Neglected People

Valentina Bravo, Dr. De Souza- Kenney

Among the neglected tropical diseases, Carrion's disease often finds itself at the lower end of the priority list. This is hardly surprising, given the populations it predominantly afflicts: the underserved rural communities of Peru, Ecuador, and Colombia. In the transmission cycle, an individual becomes infected when the bacterium *Bartonella bacilliformis* is passed from one person to another during the blood meal of the sandfly known as *Lutzomyia verrucarum*. While the existing literature on this disease primarily centers on the scientific aspects, it's equally vital to grasp the experiences of those affected by the illness and their interactions with healthcare systems. Given the prevailing lack of attention, gaining insights into the perspectives and concerns of experts becomes paramount.


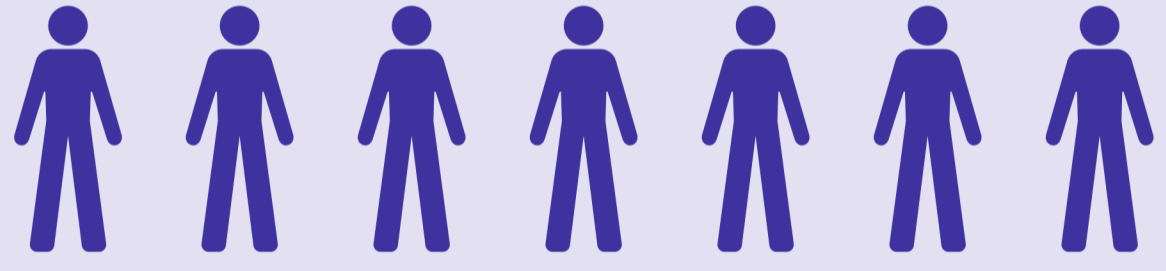
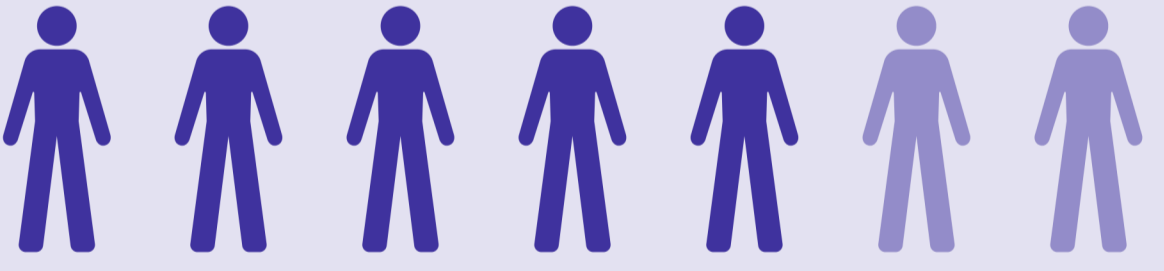



## Methodology

Interviews were conducted with people living in the endemic area of Cajamarca, Peru, the third city with the highest number of cases. Questions about the disease, their relationship with healthcare, and the environment were asked. Seven people participated in the interviews.

To understand its severity and technicalities, three leading experts on the disease were interviewed, these being Dr. Ulloa, Dr. Ruiz, and Dr. Minnick.

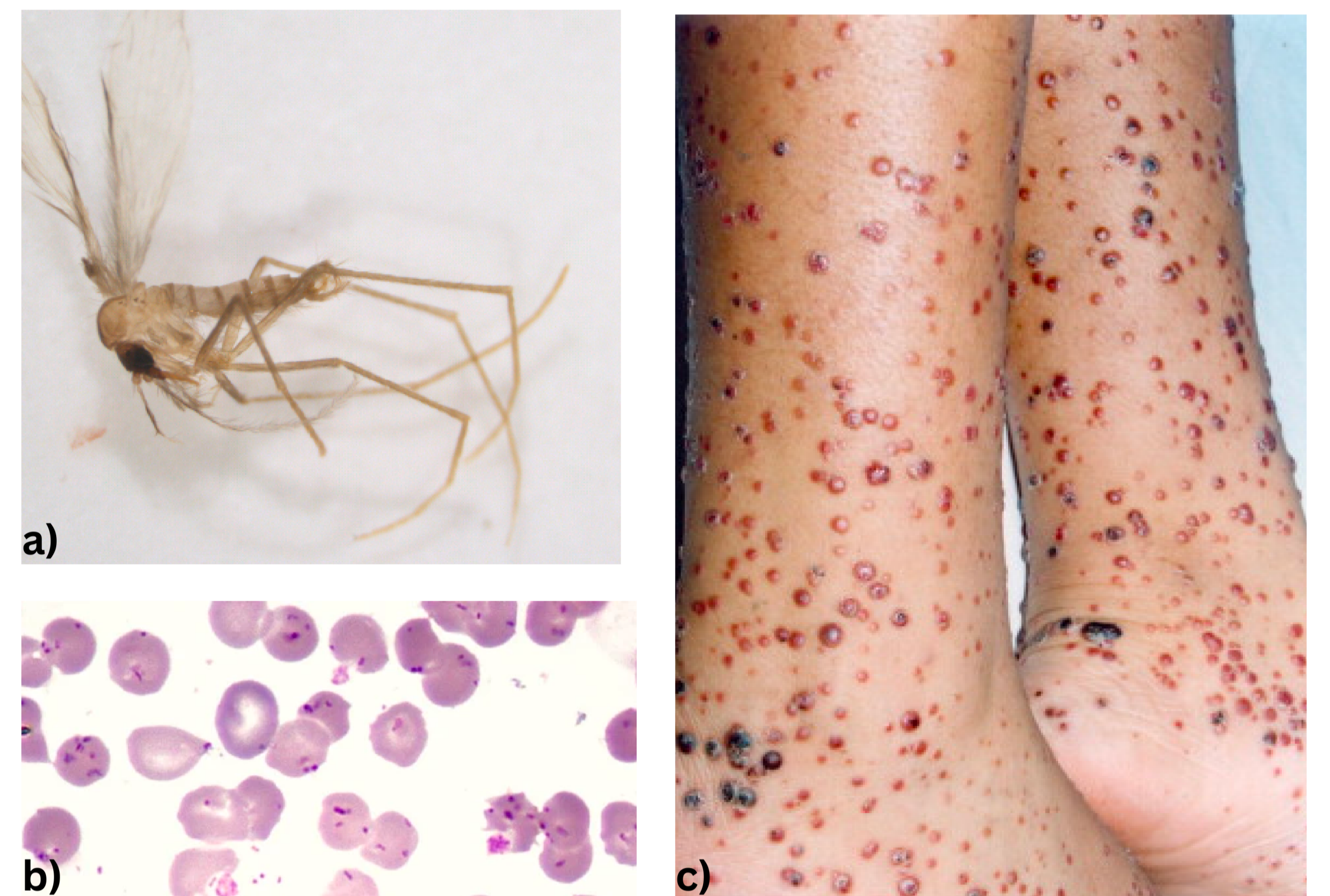
## Findings

### The people

- People that know the disease  

- People that approach medical attention  

- People that make use of a particular health service (e.g. doctor's independent practice)  

- People that count with public health insurance  

- People that had a negative experience with the hospital  

- Reported low resources at the public health centre  


## Conclusion

The limited awareness among people about this disease highlights the government's lack of interest in educating its population about this issue. Carrion's disease underscores the significant problem of inadequate healthcare access in rural areas. Even though most participants have public health insurance, it is considered so ineffective that they seek alternative resources like private doctors or religious institutions. According to experts, there has never been a more crucial time to address Carrion's disease. If both sandflies and the bacteria adapt further, we may not be adequately prepared to handle a more widespread epidemic.



a) *Lutzomyia verrucarum* sand fly (CBG Photography Group, Centre for Biodiversity Genomics). b) *Bartonella bacilliformis* infection of red blood cells during the acute phase (Universidad Peruana Cayetano Heredia). c) Peruvian warts in the chronic phase (Maguiña, 2009).

### The experts

- Humans are the reservoirs of the disease. They could be silent, as asymptomatic carriers are found to make up 40-50% of endemic area population.
- Migration of carriers to new cities could lead to the expansion of disease if the appropriate vectors are found.
- Many sand fly vectors are yet to be found but speculated to be present in non-endemic areas.
- Infection could happen years after contraction of bacteria and multiple times.
- Cases go unnoticed due to other more prominent health concerns, such as COVID-19.
- The synthetization of a vaccine is possible, only if funding and attention are present.

I wish to thank the Laidlaw Scholars Foundation, and my amazing mentor and research advisor, Dr. Leanne De Souza-Kenney, as well as the U of T Laidlaw Scholars Programme for making this research project happen and supporting me throughout my first Laidlaw summer.