

Understanding Epidemics Section 2: HIV/AIDS

PART B: Emergence

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Introduction

AIDS is a very recent disease. It was first described as a specific medical condition in 1981 in California, USA.

Its primary cause (a blood-borne, viral pathogen that weakens and destroys the human immune system - see the Biology page) was first identified in 1983. At that time, there were still relatively few cases and these were in relatively few locations. Since this small beginning, AIDS has spread rapidly and now has a global distribution.

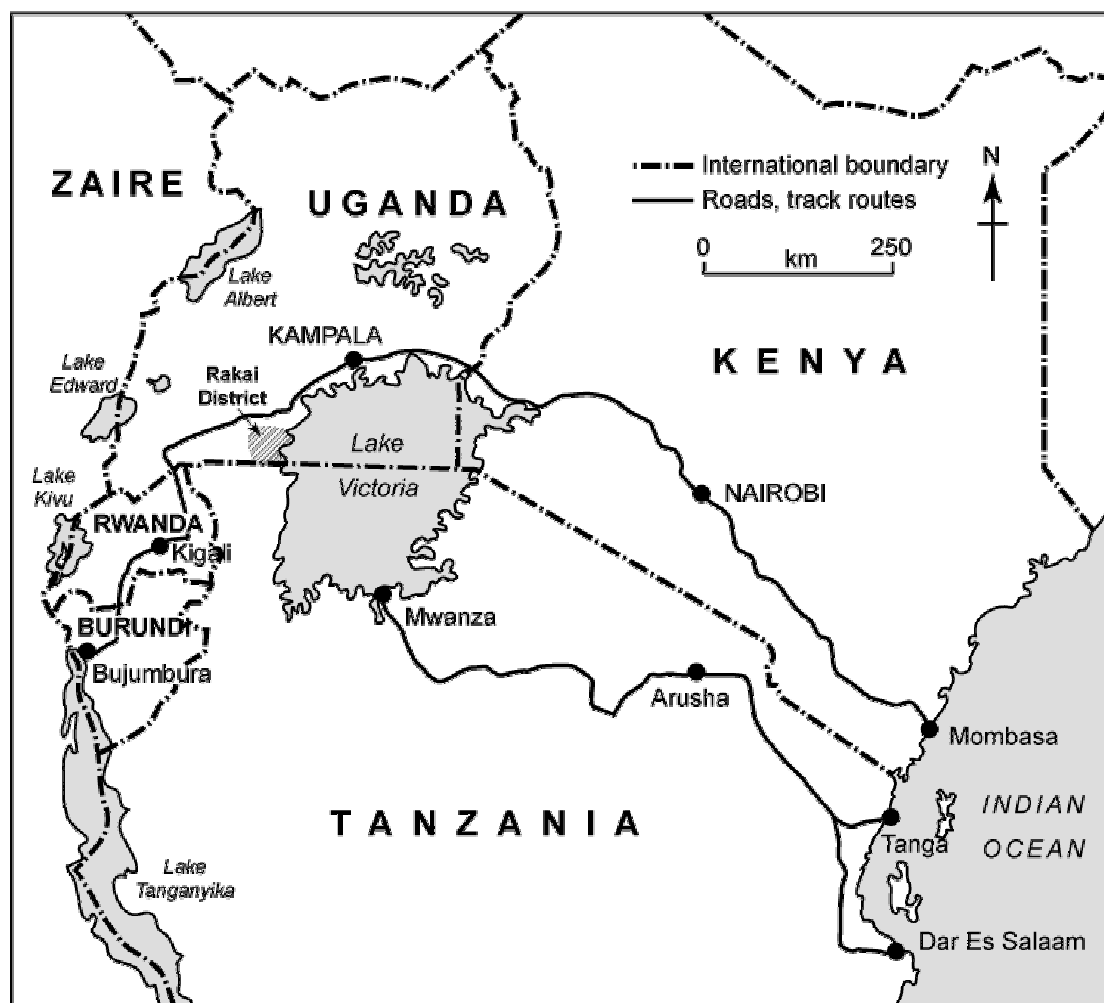
Given that AIDS is so new, within the era for sophisticated modern science and medical care, we might expect that the origin would have been relatively easily identified. However, that is not the case.

Since the disease is recent, it is likely that there was a single source, rather than two or more separate, independent origins. The disease then spread from that single source, both locally and also over longer distances associated with travellers along major highways.

There are three competing and controversial theories on the origin of AIDS which are discussed in the next three sections.

African spontaneous

The first theory is that AIDS originated in Africa, probably in the area of Uganda/Tanzania/Rwanda, to the west of Lake Victoria (shown on the map below).



Map of Lake Victoria showing the borders between Kenya, Tanzania, Burundi, Rwanda, Uganda, Zaire and Kenya.

It is thought to have originated as a result of the pathogen crossing the species barrier for the first time from monkeys to humans, perhaps as a result of humans eating infected monkey-meat.

Simian or monkey HIV/AIDS pathogens can be identified in various ape populations in Africa (chimpanzees and monkeys), and may have existed in these populations for a long time without affecting humans.

However, once the pathogens entered into the human population, the disease spread through what we now know to be the mechanisms of spread – through sex and infection of the blood system with infected needles or transfusions with infected blood.

This theory is the most commonly accepted by scientists. Transfer of a disease across a species barrier is rare but not unknown.

The transfer of a simian pathogen to a human population is not only plausible in its biology, but also fits the facts of the earliest years of the epidemic and its focus on south-western Uganda.

USA lab origin

The second theory is that AIDS originated in the USA. This is linked to the early focus of infection among homosexual men in California.

This theory argues that AIDS first came from medical research laboratories, associated with drug research. The disease then 'escaped' into the human population and spread.

This theory is much more politically charged than the other two because it seeks to establish an external origin rather than an African origin for what is most seriously an African problem.

However, this theory fails to explain with any plausibility the subsequent patterns of spread to and within Africa from the USA.

Drug trials in Africa origin

The third theory is that AIDS originated in Africa, in Congo, as a result of drug trials for poliomyelitis in the 1950s, during the last years of Belgian rule in the Congo.

At that time a serum was being developed from simian (monkey) materials and tested on the local Congolese populations. It then spread, very slowly at first within that region where the early 1980s focus was identified.

This theory would seem to fit in general terms with the early geography of the disease, but has recently been systematically rejected by medical scientists for reasons relating to its biology.