INTRODUCTION. In 1984 the hypothesis was advanced in the US that a new virus was the threshold of a caused epidemic of immune deficiency, AIDS, in line with the class germ theory of disease. This theory predicts that a new pathogenic virus or microbe causes an exponentially spreading epidemic of new microbe-specific illnesses and deaths within weeks to months. The resulting bell-shaped epidemiological curves of illnesses and deaths were first described for a plague in London in 1665. Many other bell-shaped epidemics have since been described, for example the great flu epidemic of 1918. As shown in Figure 1. However, despite millions of HIV antibody-epidemics worldwide [1], no general epidemic of immunodeficiency was recorded [2, 3]. Recently, a study from Harvard University ‘estimated’ that from the year 2000 to 2005, 1.8 million South Africans were killed by HIV at a steady rate of 300,000 per year. These estimates were based on information from the World Health Organization [4]. The study also claimed that antiretroviral drugs (ARVs) could have saved at least 330,000 of those 1.8 million estimated deaths based on “modelling” the South African epidemic. Since no general HIV-AIDS-epidemics had been observed in any other continent, despite millions of HIV antibody-positives, and since steady losses of lives per year for 6 years are inconsistent with the exponential increases and declines in the dynamics, we have investigated the evidence for the claim that HIV killed 1.8 million South Africans at 300,000 per year from 2000 to 2005. In view of the inherent toxicities of anti-HIV drugs, we further asked whether the potential benefits of these drugs, claimed by the Harvard study, do indeed outweigh their inherent toxicities.

RESULTS. Surprisingly, the WHO/UNAIDS does not list any numbers on “Reported HIV cases” and “Reported AIDS cases” in their epidemiological “Fact Sheet” for South Africa for the period of 2000 to 2005. As shown in Figure 2, the respective statistics from 1996 until 2004 show a very erratic pattern. In an effort to find independent data, we investigated the HIV mortality statistics of South Africa for evidence of steady losses of 300,000 lives per year for a total of 1.8 million between 2000 and 2005. Unexpectedly, we found that Statistics South Africa attributed an average of only 10,000 deaths to HIV per year between 2000 and 2005 (Table 1). These numbers were based on disaggregated causes of death, among which HIV/AIDS is part of an AIDS Syndromes [5], which includes the most common South African diseases and causes of death, namely ‘tuberculosis, pneumonias and intestinal infections’ listed as “HIV-diseases” by Statistics South Africa [6]. Thus common AIDS diseases may have been erroneous attributed to HIV, because they coincided with a positive test for antibodies against HIV. It follows that Statistics South Africa does not support the estimates of 1.8 million ‘HIV-deaths” which Chepligwe ed al., and that the low numbers reported by South Africa may be an overestimate. We conclude that there is no verifiable evidence that a putative HIV-epidemic killed 300,000 South Africans per year between 2000 and 2005. Consistent with these data, the population of South Africa based on census counts for 2000 and 2005 shows an increase of 6 million from 42.5 million in 2000 to 48.5 million in 2005. (Figure 3a and b) Furthermore, the UNAIDS and WHO estimates for South Africa and the US Census Bureau. As shown in Table 1 and Figure 3, this gain extended a steady growth trajectory of South Africa from 29 million in 1980 to 47.5 million in 2005, which then continued at the same steady rate [6, 7, 8]. The change of the growth trajectory predicted by the losses of 300,000 South Africans per year for 6 years is shown as a hypothetical branch of the observed population growth curve in Figure 3a. But, the growth curve did not show any evidence for such new, steady losses of 300,000 lives per year from 2000 and 2005. In sum, neither the WHO, nor the mortality statistics of South Africa, nor the population statistics of South Africa provide verifiable evidence for a putative HIV-epidemic that killed 300,000 South Africans per year for 6 years as shown in a hypothetical branch of the observed population growth curve in Figure 3a. But, the growth curve did not show any evidence for such new, steady losses of 300,000 lives per year from 2000 and 2005. In an effort to make our investigation above variations among population statistics and AIDS epidemics of different African countries, we asked next whether the population of Sub-Saharan Africa as a whole was increasing or decreasing - in the face of the widespread prevalence of antibodies against HIV [1, 9, 10, 11, 12, 13]. Again we found in the statistics of the World Bank that the population of Sub-Saharan Africa as a whole had doubled from 400 million in 1980 to 800 million in 2007 [14]. Unfortunately, the same kind of expected negative predicted epidemiological patterns associated with a widespread new killing virus never showed up in Africa. It would appear then that HIV is a non-pathogenic passenger virus. The hypothesis that HIV is a passenger virus thus predicts that its spread and prevalence do not coincide with mortality. To test this prediction we investigated the effect of the spread and prevalence of HIV on the population growth curve of South Africa. For this purpose we plotted the HIV-antibody prevalence of the South African population reported by the National Department of Health South Africa since 1990 [15] on the same Figure 3 that shows the population growth curve (Figure 3 A and B). The new Figure 3B shows that anti-HIV antibodies were first detected in 1990 in 0.7% of the population. This percentage then increased slowly (not exponentially) to about 30% in 2000, when it leveled off between 25 and 30%. As shown in Figure 3 (Figure 3c) it can be seen that the steady growth trajectory of the African population since 1980 is unaffected by the rise of the HIV-prevalence from 0.7 to 30% between 1990 and 2000 and the steady death rate of HIV since then. The independent of the growth trajectory of the South African population of HIV prevalence thus confirms our hypothesis that HIV is a passenger virus.

Since the rise of the HIV-antibody prevalence from 0.7% in 1990 to about 30% in 2000 is much too slow for the natural, exponential spread of a new virus (see Figure 1), we propose that HIV has been long-established passenger in South Africa. Recent evidence estimating that HIV has been in humans since at least 1960s corroborates the hypothesis that HIV is a long-established endemic retrovirus [16]. Unexpectedly, data from the CDC and WHO indicate that the large majority of HIV in South Africa is a passenger virus organized by the AIDS regulatory and co-stimulatory systems, if anything against HIV as is also present [1, 5]. Since all of these diseases were known prior to the presumed recent origin of HIV [17] and continue to occur in the absence of HIV [18, 19, 20], the logical conclusion is that HIV is not necessary for any one of these diseases. The CDC and WHO also report millions of AIDS-free, HIV antibody-positives in the US, Europe, Asia and particularly in Africa [21, 22, 23]. Although even highly pathogenic viruses are not pathogenic in all infections, they always cause disease without delay, if they do. In contrast HIV is said to cause AIDS only after exceedingly long latencies of 5-10 years [1, 2, 24], although HIV induces anti-viral immunity within weeks after infection [25, 26]. Thus HIV is sufficient to replicate, but inherently insufficient to cause AIDS - a hallmark of a passenger virus. Moreover the US Army reported recently that HIV-positive soldiers [27], without abnormal AIDS risks and without anti-HIV treatments (see next), developed no AIDS up to 23 HIV-antibody-positive years [28]. Thus the CDC, the WHO and the US Army provide evidence that HIV is not necessary or sufficient for AIDS, which supports our demographic evidence that it behaves like a passenger virus.

CONCLUSIONS. Our meta-analysis of African AIDS revealed unexpected discrepancies between the reported epidemics of AIDS and of HIV. The predicted epidemiological pattern of mortality associated with the putative new AIDS virus never showed [29] up in South Africa or anywhere else in Africa between 2000 and 2005. On the contrary, the African population doubled during the HIV-AIDS era, despite high prevalence of HIV. Our analyses have thus resolved the paradox that HIV would cause a general AIDS epidemic in Africa, but not in the rest of the world. It seems that HIV by itself is just a permissive vehicle for infectious agents. The AIDS would be caused by the infectious agent (virus or bacterium) and not by HIV. In view of this and the inherent toxicities of anti-HIV drugs reviewed by us here, we propose a re-evaluation of the HIV-AIDS hypothesis. Until very recently, evidence that HIV is fatal pathogenic, we surmise that South Africa’s “failure to accept the use of available ARVs [anti-HIV drugs]” [30, 31] has been irrational. The study of anti-HIV drugs, owing to their inherent cytotoxic and anti-cancer effects, can have beneficial effects against “opportunistic diseases” and cancers, if prescribed for limited periods of time [30, 33].