

15.232 Business Model Innovation: Global Health in Frontier Markets

Assignment 1: Managerial Briefing on HIV/AIDS

Acquired Immune Deficiency Syndrome (AIDS) is a disease in which the immune system progressively deteriorates. It is caused by the Human Immunodeficiency Virus (HIV) which targets the immune system and weakens people's surveillance and defense systems against infections (WHO, 2013). As the virus destroys and impairs the function of immune cells, infected individuals gradually become immunodeficient.

HIV is transmitted through infected blood, semen, vaginal fluids or breast milk (AIDS Link International, 2013). The most common ways of transmission are through vaginal or anal intercourse without a condom or by sharing a syringe with an HIV/AIDS patient. Currently there is no cure for HIV/AIDS, however due to the new innovative treatments the progress of the disease can be relatively controlled (Innovation, 2013) and the patients can have a productive life. After the initial infection the patient has an asymptomatic period which usually lasts between 2-15 years (J. Tang, P. Chan, 2007) depending on individual characteristics. Patients are diagnosed as having progressed from HIV to AIDS based on development of certain cancers, infections, or other severe clinical manifestations.

Number of patients, Market size and differences/inequities

In 2011 the estimated number of people infected from HIV/AIDS globally was ~34 million (WHO, 2013). Slightly more than 50% of all patients were women and girls (UNAIDS, 2010) while it should be stated there are significant variations in terms of number of HIV/AIDS patients per region. Thus, the Sub-Saharan Africa accounts for 67% of world number of patients (Scrip Business Insights, 2011). At the same time North America and Western and central Europe represent only 6.7% of worldwide infections (Figure 1).

The Global Anti HIV/Aids pharma market was estimated to be ~\$16.5 bn in 2010 (Scrip Business Insights 2011). However although North America and Europe represent a relatively small part of number of patients, in terms of Anti-HIV pharma market size represent the majority, with US counting for 55.2% of total global market and France, Germany, Italy, Spain and UK counting for 33.5%. Thus the rest of world in terms of pharma expenditure counts only for 14.3%. According to forecasts (Scrip Business Insights 2011, Decision Resources 2011) the prevalence of HIV/AIDS is expected to remain relatively stable during the next years with marginal increase. Similarly the estimated pharma market size is expected to grow with a 2% CAGR until 2016.

HIV/AIDS Prevention, Treatment and Co-morbidities

Prevention is the best approach to reverse and ultimately halt HIV/AIDS (UNFPA 2013) while it is also the most cost effective. In general the public prevention strategies need to be adapted per country taking into account the current stage of the epidemic and the specific local needs. Common prevention programs (NPIN 2013, UNFPA 2013, WHO 2013), focus on pregnant and young people, include also free condoms and syringes programs, increased awareness efforts and post-exposure prophylaxis (PEP), mainly for physicians who get exposed in the virus. The importance of the prevention strategies is also indicated by the fact that HIV prevention investment counts for 22% of total HIV/AIDS expenses in 106 low and middle income countries (UNAIDS, 2010) while at the same time there is still significant room to further improve the prevention activities and the level of awareness.

The patients could be categorized in three main segments based on the different stages of the treatment life cycle (Decision Resources, 2011): a) naïve- patients on their first line of therapy, b) maintenance- patients who are in the second, third or even fourth line therapy but are stable with the current treatment, c) salvage- patients who fail in the fourth or greater line of therapy. In the naïve category there is a chronic type of therapy and relatively effective treatment options (products with once-daily dosing or minimum number of pills). Approval for new drugs in this category requires significant evidence in terms of safety for the patient. The maintenance segment has the largest patient number; however the market is heterogeneous due to the fact that physicians are highly willing to change treatment in order to identify the most appropriate for their patient. The salvage segment is the one with the most unmet need and as a result both the patients and the physicians are more open to accept less user friendly treatments (many pills, frequent dosing, etc). It should be highlighted that receiving treatment is the only option in order to maintain the progress of HIV/AIDS under control. Moreover it is very encouraging the fact that the access to antiretroviral therapy significantly increased in 2012 (WHO, UNICEF, UNAIDS, 2013) and is projected to further continue during the next years (Figure 2).

HIV/AIDS patients have significantly higher rate of co-morbidities including cardiovascular, renal hepatic and/or gastrointestinal, pulmonary, neurologic disorders and malignancies (OHTN, 2010). As an example, potential infection also with Hepatitis C would increase the mortality rate while HIV/AIDS patients have statistically significant greater risk of acquiring tuberculosis. These co-morbidities have a significant impact on the quality of life of the patients, increase the complexity that physicians are facing in order to identify the most suitable treatment and also increase the health care cost due to frequent hospitalization.

Actions for controlling HIV/AIDS

It is obvious that in order to control the number of HIV patients it is needed to further focus both on Prevention and on Treatment. Thus it is important to set a clear strategy and allocate adequate resources, especially in the countries which have very high percentages of AIDS/HIV. In terms of treatment the Treatment 2.0 initiative(UNAIDS, 2010) could be a framework for the areas of further focus (Figure 3): a) optimization of drug regimens in order to create more efficient, less toxic and more easy to use pills, b) provide access to point of care diagnostics, c) reduce costs, d) adapt delivery systems, e) mobilize communities. Furthermore an important also element in order to reduce the difficulties which AIDS patients face is to further promote awareness and change the mentality/stereotypes or rest population in order to avoid any kind of social discrimination (AVERT, 2013).

Concluding, HIV/AIDS is a disease that has no cure until now, but due to launch of innovative drugs during previous years, the treated patients are able to relatively control the progress of the disease. However although in more developed countries the percentage of treated patients is high, in developing countries and especially in Africa this percentage is extremely low. Moreover since there are clearly unmet needs (Figure 4), the HIV/AIDS will remain an area of interest and as a result new innovative treatments are expected to arise which will be for the benefit of all stakeholders (patients, society and pharma companies). Assuring access to the appropriate treatment for all patients and at the same time focusing on prevention should be the main elements of any effort to set under control the prevalence of HIV/AIDS.

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15.232 Business Model Innovation: Global Health in Frontier Markets
Fall 2013

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