The epidemiological coupling of TB/HIV:

The framing of disease and its sociocultural impacts on target populations

by

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Introduction

During the past decade, global health scholars have re-conceptualized and redefined two of the world's most deadly epidemics, HIV/AIDS and tuberculosis (TB), into one disease category: TB/HIV, with the hopes of integrating preventive and treatment efforts for these diseases. This classification has mainly arisen because of the high co-infection rates of HIV/AIDS and TB; according to the World Health Organization, "At least one-third of the 33.2 million people living with HIV worldwide are infected with TB, are 20-30 times more likely to develop TB than those without HIV." (WHO; 2009; 1). This co-infection phenomenon, however, becomes more significant in light of the fact that each disease negatively impacts the other; whereas the HIV virus increases the risk of progression of *M. tuberculosis* infection to active TB disease, the presence of TB allows for HIV to multiply more quickly and thus can accelerate the progression of HIV to AIDS (WHO Clinical Manual; 2004; 39). Additionally, researchers have put forth the possibility that people living with HIV/AIDS are more likely to develop multi-drug resistance TB (MDR-TB) than individuals that do not have HIV/AIDS, although this claim has not been substantiated with scientific evidence.

Therefore, upon considering the existing trends between HIV/AIDS and TB, the World Health Organization (WHO) established an "Interim Policy on Collaborative TB/HIV activities" in 2004 in order to help policymakers and health representatives "to understand *what should be done* to decrease the joint burden of tuberculosis and HIV." (WHO; 2004; 1) This document outlined measures for governments and local representatives worldwide to adopt with regards to the collaboration in surveillance, monitoring, and treatment of TB/HIV. In fact, there have already been many efforts to integrate HIV/AIDS and TB services; referring to these past and

current initiatives, a study on the epidemiological coupling of TB/HIV titled 'Monitoring Linked Epidemics: The Case of Tuberculosis and HIV" explains:

> In effect, these efforts have increased the number of TB patients worldwide who were tested for HIV and accessed HIV prevention, treatment, and care services from 22,000 in 2002 to 700,000 in 2006. Additionally, the number of countries implementing collaborative TB/HIV activities rose from 7 in 2003 to 112 in 2006... (Sanchez, et al; 2010;7).

Thus, the coupling of these two diseases is perceived as successful and has been met with support from the international global health community and organizations such as The Global Fund to Fight HIV/AIDS, TB, and Malaria, the Bill and Melinda Gates Foundation, and the United States President's Emergency Plan for HIV/AIDS Relief (PEPFAR).

Although the classification of TB/HIV could allow for health systems to respond to these diseases more effectively via the integration of HIV/AIDS and TB services, it is important to evaluate this categorization in light of its effects on patients' understandings of TB and HIV/AIDS. For instance, how does this new TB/HIV category affect their perceptions and knowledge of each separate disease? A recent study on TB/HIV efforts in Zambia suggested that a new double stigma of HIV and TB has emerged among its citizens and that previous understandings of these diseases have been transformed as a result of this categorization. Therefore, it is of utmost importance that health scholars address the stigmatizing consequences of this new disease classification. This paper will argue that the integration of HIV/AIDS and TB services could significantly benefit individuals that are affected by these diseases, but it is necessary to address the social and cultural dimensions of this new TB/HIV category and the stigma associated with it in order for these measures to truly improve the quality of life of co-infected individuals.

Framing Disease: A historical narrative on disease categories applied to TB/HIV

In *Framing Disease: Studies in Cultural History*, historian Charles Rosenberg explores the historical and social contexts that shape people's understandings and categorizations of disease. He juxtaposes the medical and layperson notions of an illness and therefore complicates the unilateral, biological identification of diseases. His analysis proves particularly useful for the study of the recently emerged TB/HIV category. Indeed, according to Rosenberg, disease only starts to exist once society recognizes it: "Nevertheless, it is fair to say that in our culture, a disease does not exist as a social phenomenon until we agree that it does—until it is named." (Rosenberg; 1988; i) In the case of TB/HIV, HIV/AIDS and TB already existed as separate disease entities, but their integration into the TB/HIV category abandoned the previous notions of individual disease and thus created a "new" disease, one that is mainly characterized by co-infection. Indeed, according to an investigation on the social consequences of the categorization of TB/HIV, this integrated classification has altered the Zambian community's understandings of HIV/AIDS and TB by erasing the distinctions between these two, separate diseases. This study included a testimony from a teacher in an urban area that stated, "Somebody with HIV is synonymously thought to have TB. And it is not very clear to draw a line or a boundary." (Bond and Nyblade; 2006; 455). This study also reveals that individuals in Zambia refer to two types of TB, the "normal" TB and the HIV/AIDS related TB. Therefore, this newly emerged TB/HIV category and its emphasis on the integration of HIV/AIDS and TB services has created a new disease in the eyes of its target patients, which could reflect a significant divergence, one that must be addressed, between medical and layperson knowledge of TB/HIV.

In fact, Rosenberg stresses that laypersons play an important role in shaping the experience of disease (Rosenberg 1988; xviii), a phenomenon that is also observed when

analyzing the emergence of TB/HIV in Zambia. This study highlights the role of communal interpretations in affecting the experience of a TB diagnosis:

> Progressive, severe, and reoccurring TB, which occurs alongside other infections (especially chronic diarrhoea and herpes zoster) confirms community diagnosis of HIV. TB diagnosis is regarded as an excuse for HIV made by health workers, patients, and families that people can hide behind during illness and funerals. (Bond and Nyblade; 2006; 456)

The creation of the TB/HIV category has evidently fostered differences between popular and biomedical notions of disease. Whereas the *community* diagnosis regards TB/HIV as a fully intertwined entity and is based on the layperson observation of symptoms, the *medical* diagnosis regards each disease as a separate phenomenon and is contingent upon the availability of scientific evidence. In fact, according to a testimony from a clinical worker in Zambia, there is significant confusion in the community regarding what TB is and whether it can still be cured. The representative stated, " 'I don't know what TB is anymore.' In a rural community trust building exercise it was explained this way, 'The TB of today should be given another name because it doesn't cure.'" (Bond and Nyblade; 2006; 455). The belief that TB is no longer curable could deter individuals from seeking treatment at TB/HIV comprehensive care clinics because the risks of communal exclusion would no longer be outweighed by the individual health benefits, such as the disappearance of physical symptoms and the diminishment of disease progression.

Symptoms do play an important role in helping humans to identify the presence of disease and illness. In fact, Rosenberg contends that understandings of disease originate with the perception of symptoms, which tend to manifest themselves physically (Rosenberg 1988; xvi). It is therefore necessary to consider that the symptoms of HIV/AIDS and TB are highly similar and difficult to distinguish, especially in light of the fact that these diseases are already

epidemiologically constructed as a sole illness: TB/HIV. According to Bond and Nyblade, "extreme weight loss, frailty, productive cough (including sputum) and some side effects of TB treatment—particularly skin rashes---spark speculation about TB and therefore HIV." (Bond and Nyblade; 2006; 456). The Mayo Clinic stipulates that the frequent symptoms of initial HIV infection are "fever, headache, sore throat, swollen lymph glands, and rash"; and the signs of later infection are " swollen lymph nodes, diahrrea, weight loss, fever, and cough/ shortness of breath." (Mayo Clinic; 2008; http://www.mayoclinic.com/health/hiv-aids/ds00005/dsection=symptoms). On the other hand, the CDC list of symptoms for active TB includes: a persistent, bad cough, chest pains, coughing up of blood, weight loss and fever, etc. (CDC; 2008; http://www.cdc.gov/Features/TBsymptoms/). The fact that HIV/AIDS and TB have overlapping symptoms, and that these signs are particularly visible to others (i.e., weight loss and cough), likely reinforces the communal notion that TB/HIV is a singular disease and that a person diagnosed with either HIV/AIDS or TB must necessarily be infected with the other disease.

A historical narrative on the changing perceptions of syphilis and other sexually transmitted diseases (STD's) from the fifteenth century to the nineteenth century can shed light on the current confusion regarding the separate entities of HIV/AIDS and TB due to these diseases' similar symptoms. In "Genesis and Construction of a Scientific Fact," historian Ludwik Fleck explains, "No attempt was made to differentiate between venereal diseases with general symptoms and those lacking them altogether, or like gonorrhea, rarely exhibiting them." (Fleck; 1979; 6).

Therefore, the personal observation of physical signs, rather than the existence of biomedical theories, has, throughout the history of medicine, played a significant role in people's conceptions of disease and illness. Moreover, Fleck argues:

> the history of the development of syphilis concept thus far shows the limited significance of any single experiment compared with the total experience consisting of experiments, observations, skills, and transformation of concepts available within a given field. (Fleck; 1979; 10)

This statement suggests that scientific evidence produced through experimentation is not the only type of knowledge that influences the development of one's ideas regarding disease. Rather, personal observations significantly affect how each individual perceives a specific disease, such as TB/HIV. Moreover, when gaps in knowledge exist between medical practitioners and clinicians, and their patients, as in the case of TB/HIV, personal and social ideas of health and illness can play an increased role in the conceptualization of disease.

Indeed, one of Rosenberg's most important points is that each disease is invested with a unique configuration of social characteristics and these qualities can partly be determined by its biological character (Rosenberg; 1988; xx). HIV/AIDS, transmissible through sexual contact, the sharing of needles and/or blood transfusions from infected HIV persons, was highly stigmatized in its beginnings as a disease of gay men, prostitutes, and drug users, and these associations are still relevant in current health contexts. Moreover, fears of contagion surrounding the transmission of TB through cough droplets contributes to the social and physical marginalization of individuals infected with TB. Considering that both diseases are uniquely stigmatized because of their modes of transmission, it is of utmost importance that scholars explore the consequences of intertwining these illnesses into one disease category. When Bond and Nyblade asked study participants to explain their understanding of TB transmission, they seemed to grasp how TB was spread, but they nevertheless expressed the following judgments:

> The new TB carries stronger and more damaging associations with deviant and culpable behavior because of its association with HIV. Elders explained that the 'old TB' was often caused by habits such as men smoking tobacco or marijuana, drinking home brewed liquor, through employment in the mines or by abortion, but the 'new TB' is more often associated with hanging out in bars and in towns, and with sexual transgressions. (Bond and Nyblade; 2006; 456)

Therefore, it seems that Zambian citizens and communities have re-conceptualized their biological knowledge and moral understandings of TB in light of its association with HIV. Nevertheless, their understandings of HIV/AIDS have also shifted due to its coupling with TB:

> Ironically, the stigma attached to HIV has been reduced by education on how it is spread. But because it is now so closely linked with TB, which can be transmitted by close contact, people now fear that they may catch HIV the same way and ostracise TB sufferers long after they stop being contagious (Bond; 2006; http://www.newscientist.com/article/mg19225803.500-tb-and-hiv-confusion-creates-stigma.html).

The epidemiological coupling of TB/HIV has therefore attached new stigmas to each individual disease and reinforced the marginalization of co-infected individuals in their respective communities.

The classification of TB/HIV has burdened co-infected individuals with new personal and societal concerns regarding their health, quality of life, and acceptance in the community. An investigation conducted in 2009 in titled "Tuberculosis and HIV coinfection: its impact on quality of life" analyzed and compared the quality of life of co-infected TB/HIV individuals versus that of people living with HIV/AIDS that do not have active TB using the World Health Organization Quality of Life Instrument for HIV clients (WHOQOL-HIV). According to this study, "...coinfected individuals had a lower QOL in all of the domains of the WHOQOL-HIV as compared to people living with HIV without TB. The occurrence of two stigmatizing diseases can decrease the QOL by affecting the physical, social, and mental wellbeing of the person." (Deribew, et al; 2009; 5). This conclusion suggests that disease is not lived exclusively through

biological experience; after all, TB is curable with a temporary drug regimen, and the study subjects were receiving treatment from an Ethiopian hospital, so their bodies were in the process of *physical* and *biomedical* recovery. However, the *social* and *emotional* components of the TB/HIV disease experience are largely shaped by the new stigmas that are attached to this category, and overcoming the newfound status of marginalization that results from physical manifestations of disease and/or a disease diagnosis may prove to be highly difficult.

At times, these types of concerns and fears can pressure individuals to refrain from seeking treatment in TB/HIV care facilities. A case control study published in January 2010, "Predictors of HIV Testing among Patients with Tuberculosis in North West Ethiopia", aimed to account for the low acceptance of HIV testing among TB patients in this region. This investigation designed a quantitative survey that was offered by trained nurses and included questions regarding stigma and its effects on personal relationships and social support. The researchers concluded that the main factors for the non-acceptance of HIV testing were the following: "low awareness about the association between TB and HIV, stigma and discrimination of people who have TB and live with HIV, low-perceived risk and partners trust." (Ayenew, et. al; 2010; 3) The previous Zambian study raised similar issues with regards to TB/HIV; this pattern suggests that this new category has created confusion in certain target populations with regards to the distinctive dynamics of TB and HIV/AIDS and that efforts to integrate HIV/AIDS and TB services have contributed to the emergence of double stigmas toward co-infected individuals. Global health discourse and language could play an important role in shaping individual conceptions of disease; the single categorization of TB/HIV may suggest that these diseases are jointly transmitted, whereas the term co-infection is also fairly confusing and could imply dual transmission.

Actors and Institutions: Global Responses to TB/HIV Epidemic

There are several actors and institutions that have been highly supportive of the TB/HIV integration approach. As was previously mentioned, the World Health Organization (WHO) has led the movement toward the adoption of collaborative TB/HIV activities. In 2008, WHO held a meeting in which 65 representatives from approximately 30 nations discussed the implementation of the Three I's: Isoniazid preventive treatment (IPT), intensified case finding (ICF) for active TB, and TB Infection Control (IC) to decrease the burden of TB among people living with HIV/AIDS. According to the meeting report, intensified case finding (ICF) "means regularly screening all people with or at high risk of HIV or in congregate settings (such as mines, prisons, military barracks) for the symptoms and signs of TB, followed promptly with diagnosis and treatment..." It explains that the patient's seeking of voluntary counseling and testing (VCT) services for HIV can serve as the entry point for this type of TB screening, which can be conducted through questionnaires. Individuals who do not have active TB but who live in areas with high TB prevalence or whom have a documented TB infection would then be advised to take IPT in order to reduce the risk of developing TB by 33-67% for up to 48 months. The final part of this strategy, infection control (IC) refers to the importance of taking measures to protect individuals that are offering or receiving HIV care from being infected with *M. tuberculosis* and potentially developing active TB.

The WHO's Three I's proposal emphasizes the significance of preventive methods in reducing the incidence of TB in HIV-positive populations and is therefore an important component in the fight against TB/HIV. However, even though it mentions the effects of stigma on co-infected individuals, the report does not suggest specific measures to approach this social phenomenon. One of its sections lists measures to be taken with regards to advocacy, including:

"Emphasize positive messages that empower individuals and communities in the fight against TB, in order to address the stigma, using the national models and community leaders." Given the fact that voluntary attendance to clinics is required for this strategy to work, it is surprising that the report does not go beyond merely recognizing that stigma can play a role in people's willingness to seek treatment. In fact, in a 2005 report "TB/HIV: Research priorities in resource-limited settings," the WHO also mentions stigma but does not offer any detailed proposals to address it: "Stigma is a major barrier to implementation: stigma from TB was considered to be at least as strong as HIV-related stigma. Stigma is seen in health facilities and among health care workers and should be further explored while implementing joint activities." (WHO; 2005; 4) Evidently, stigma continues to be mentioned in WHO reports but fails to be properly addressed, a phenomenon that could keep co-infected individuals from seeking necessary treatment.

The Global Fund to Fight AIDS, Tuberculosis, and Malaria was present at the "Three I's" Meeting and pledged its support to this initiative. Moreover, it is also a major stakeholder in the funding of TB/HIV reporting and monitoring mechanisms. In its eighth session, the Global Fund's TB/HIV Working Group recognized the following factors as main challenges in TB/HIV clinical management: clinicians' general lack of knowledge and training in the management of TB/HIV co-infection; the bureaucracy of treatment protocols; the weaknesses in data collection systems; and the lack of communication between TB and HIV/AIDS clinicians (The Global Fund; 2011; 3). The recognition of these limitations implies that the Global Fund may be evaluating the effectiveness of its strategies, but the fact that it does not acknowledge the consequences of TB/HIV stigma or popular attitudes towards this 'new' disease suggests that it could be ignoring the importance of patient feedback. In fact, according to Jonathan Cohen in "The New World of Global Health", "The fund, which supports everything from providing

antimalarial bed nets to anti-HIV drugs, has no staff permanently in countries and channels money through local financial institutions, as opposed to the World Bank." (Cohen; 2006; 166) Therefore, the Global Fund's lack of awareness of the stigmatizing consequences of TB/HIV could be attributed to its underlying structure and general policies. In the end, the Global Fund is not the only health organization that overlooks the socio-cultural aspects of TB/ HIV, while focusing on the biomedical and technical aspects of TB/HIV collaborative strategy implementation.

PEPFAR, The U.S. President's Emergency Plan for AIDS Relief, increased its bilateral funding for TB/HIV substantially in the past five years, from $26 million in 2005 to $140 million in 2008. Moreover, in 2007, PEPFAR and the Bill and Melinda Gates Foundation co-sponsored a meeting in Washington D.C. that raised $50 million to target TB/HIV scale-up, specifically "infection control and laboratory strengthening." (WHO; 2008; Appendix 1) PEPFAR is also working with several national TB/HIV partnerships that provide TB services to people living with HIV/AIDS. In Ethiopia, it supports the Fenote Tesfa project, which offers training on TB and HIV management to health care professionals; PEPFAR and the United States government have also worked in Guyana with the Guyanese Ministry of Health to improve TB laboratory capacity and diagnosis. (PEPFAR; 2009; http://www.pepfar.gov/press/81964.htm) These initiatives show that PEPFAR, in addition to the Global Fund and the WHO, is largely supporting technical and scientific research and initiatives, while disregarding the importance of social and cultural implications of this new TB/HIV disease category. The priorities for research put forth by WHO based on the perceived challenges to decreasing the joint burden of TB/HIV demonstrate that biomedical conceptions of disease can obscure the social dimensions of the TB/HIV label in co-infected patients.

One of the main concerns regarding the treatment of co-infected individuals is the possibility of drug interactions and its effects on their health and well-being. In its fact sheet on "Treatment of Drug-Susceptible TB Disease in HIV-Infected Persons", the Centers for Disease Control and Prevention (CDC) notes that certain agents in TB drugs can interact with protease inhibitors present in antiretroviral therapy (CDC; 2009; http://www.cdc.gov/tb/publications/factsheets/treatment/treatmentHIVpositive.htm). Therefore, individuals with active TB that are diagnosed with HIV are sometimes encouraged to postpone ARV treatment until they have reached a certain stage of their TB drug regimen. In its 2005 "TB/HIV: research priorities in resource-limited settings" report, the WHO concluded, "The major research priority area identified in relation to antiretroviral therapy for people living with HIV/AIDS who have TB or who develop TB is validating the optimal time for initiating antiretroviral therapy." (WHO; 2005; 1) Global health researchers have performed several studies to further clarify and elucidate the effects of ARV treatment on TB drugs and vice versa; according to a study performed in Tehran in 2009, co-infected patients that initiated ARV treatment at an earlier stage of their TB regimen experienced improved survival (Tabarsi, et al; 2009; 1). A research investigation supported by PEPFAR and the Global Fund, titled "Starting Antiretroviral Therapy at Three Points in Tuberculosis (SAPIT)" also demonstrated the benefits for TB/HIV co-infected patients of simultaneously taking ARV treatment with their TB drugs. (Science Daily; 2010; http://www.sciencedaily.com/releases/2010/02/100225091340.htm) Nevertheless, even though researchers predict that a consensus will be reached soon regarding the optimal timing and sequence of ARV and TB treatments in people suffering from TB and HIV/AIDS, there is still some controversy surrounding this issue (Tabarsi et al. 2009; 4). Another matter that has received significant attention from the global health community is the

proposed association between MDR-TB and HIV. The WHO puts forth that there is not sufficient evidence to corroborate the link between these two diseases and recommends that researchers organize and conduct additional studies in order to reach more definitive conclusions. (WHO; 2005; 8)

These overarching concerns with drug treatments largely reflect the pharmaceuticalization of global health as discussed by Professor Joao Biehl in his ethnography on HIV/AIDS in Brazil, *Will to Live*. For instance, the economic interests of pharmaceutical industries can be gauged in the potential of drug development in light of the new TB/HIV disease category. The participants in the WHO 2005 meeting on "TB/HIV research priorities in resource-limited settings" expressed, "drug development should be an area of focus for research on effectively treating people living with HIV/AIDS who have TB in resource-constrained settings." (WHO; 2005; 12). This classification of TB/HIV could reap significant profits for pharmaceutical companies, even though it is currently stigmatizing and marginalizing many co-infected individuals, and thus hurting the people that it is supposed to be helping with this integrated category. In fact, in *Sex and Germs: The Politics of AIDS*, scholar Cindy Patton argues, "Diseases are named for the convenience of the researchers and doctors, with little concern for the effect of naming on the populations affected. (Patton; 1985; 25). Although her analysis pertains to the emergence of HIV/AIDS in the United States, this analytic framework explores the naming of diseases and is therefore relevant in the study of the TB/HIV category. The pharmaceutical industry is not the only actor that can benefit from the dual classification of TB/HIV. Scientific researchers could also gain from the coupling of HIV/AIDS and TB into TB/HIV because it facilitates the monitoring of these diseases and subsequently, the collection of data and statistics regarding HIV/AIDS and TB. (Sanchez, et al; 2010; 1). Therefore, the joint

coupling of TB/HIV allows for statisticians and public health researchers to produce the facts and numbers that place TB/HIV in the global health care agenda. Despite these major interests in constructing TB/HIV as a disease category, the integration of HIV/AIDS and TB services could significantly improve the delivery of prevention and treatment to co-infected individuals if public health researchers acknowledge the roles that stigma and social marginalization play in the conceptualization of TB/HIV in target communities.

In "Redefining Global Health Delivery", scholars Jim Yong Kim and Michael E. Porter urge policymakers to adopt diagonal programs that identify and consider synergies in disease patterns during the intervention planning process. According to Kim and Porter, "Individual diseases are often medically connected, especially in resource-constrained settings, and these are synergies of broad line delivery units." (Kim and Porter; 2010; 7) The co-infection trends that have been observed between HIV/AIDS and TB would therefore be most adequately targeted through integrated approaches to combating these two diseases, such as those promoted by WHO, The Global Fund, and PEPFAR. For instance, according to "Monitoring Linked Epidemics: The Case of Tuberculosis and HIV", the TB/HIV co-epidemiology can allow for researchers to obtain useful information on spatial and temporal patterns of disease transmission because the integrated surveillance of both diseases allow for the study of joint epidemiological indicators; most importantly, this epidemiological coupling can shed light on how the two diseases interact and vary together. (Sanchez, et al; 2010; 5) Moreover, a study on the ProTEST Initiative in Zambia, a project that coordinates the integration of HIV and TB services in this region, showed that "coordinating an integrated and comprehensive package of services for PLWH[A] is relatively inexpensive." (Terris-Prestholt et al; 2008; 1) Given the current global health discourse on cost-effectiveness, the feasibility of TB/HIV integration is another factor that

could harness more support from the rest of the international health community. The diagonal approach to combating these infectious diseases through the coupling of TB/HIV could effectively reduce the burden of HIV/AIDS and TB in co-infected individuals. However, these programs must immediately address the altered understandings of HIV/AIDS and TB disease dynamics and the emergence of the double stigma that have resulted from the classification of TB/HIV.

Conclusions and Policy Recommendations

In order to fully understand the newly emerged stigma of TB/HIV, health policymakers should support 'on the ground' anthropological research initiatives to analyze the social dynamics of the target population and to identify community perceptions of TB/HIV. It is also important that anthropologists study the historical construction of HIV/AIDS and TB in these communities, so that they can evaluate how disease dynamics, understandings, and stigmas have changed with the recent integrative efforts of TB/HIV. These studies could help policymakers to identify popular misconceptions of TB/HIV and shed light on ways in which health workers and clinicians can correct these misunderstandings in the target population.

These initial studies should then be used to design an appropriate model of integrated TB/HIV care delivery for the community in question. For instance, in Malawi, health officials established a system of "separate TB/HIV service delivery with a strengthened referral system," whereas in some South African cities, policymakers have supported "a fully integrated approach with one-point services for TB, HIV, and TB/HIV." (WHO; 2005; 5) In communities with high HIV prevalence, a strong sense of TB/HIV stigma, and a lack of knowledge regarding the differences between each TB and HIV/AIDS, it may be advisable to opt for a model similar to that of Malawi to correct false notions of joint infection and thus, to combat the stigma

associated with TB/HIV. It is important to remember that basic health improvements can significantly contribute to the fight against infectious diseases, and in this case, the global battle against TB/HIV. Increased ventilation in health clinics, particularly those for people living with HIV/AIDS, would decrease the likelihood of TB transmission between health workers and patients, and between people who are infected with HIV and those who are infected with TB. Moreover, this type of measure would not require a significant coupling of HIV and TB services, which could be especially useful in regions with a strong TB/HIV stigma. Finally, the role of psychological and support services in helping stigmatized individuals overcome their social marginalization is paramount. Community support groups could provide TB/HIV individuals with a strong sense of social support, even if they are marginalized by the rest of the community, and could empower TB/HIV individuals to address the stigma that they face from their own family, friends, and neighbors. In conclusion, it is of utmost importance that the international health community recognizes the role of stigma in shaping an individual's experience with TB/HIV and in affecting decisions to take advantage of the collaborative TB/HIV services that have been created to reduce the global burden of TB/HIV.

Summary: Major Findings and Recommendations

During the past decade, global health scholars have re-conceptualized and redefined two of the world's most deadly epidemics, HIV/AIDS and tuberculosis (TB), into one disease category: TB/HIV, with the hopes of integrating preventive and treatment efforts for these diseases due to their high co-infection rates. This diagonal approach to combating these infectious diseases through the coupling of TB/HIV could effectively reduce the burden of HIV/AIDS and TB in co-infected individuals. However, several studies conducted in Zambia and Ethiopia on TB/HIV efforts in Zambia suggest that a new double stigma of HIV and TB has emerged among its citizens and that previous understandings of these diseases have been transformed and blurred as a result of this categorization. Health policymakers should attempt to understand patients' altered understandings of HIV/AIDS and TB disease dynamics in order to implement effective interventions against TB/HIV in target communities. This paper recommends the following measures to address the underlying social problems of TB/HIV stigma and popular misconceptions regarding the separate transmission patterns of these diseases:

- Support of 'on the ground' anthropological research initiatives to analyze the social dynamics of the target population and to identify community perceptions of TB/HIV

- Use of information gained from anthropological studies to design an appropriate model of integrated TB/HIV care delivery for the community in question, taking into consideration the stigma and dynamics of TB/HIV in the target population.

- Basic health measures; such as:
    - Increased ventilation in health clinics, particularly those for people living with HIV/AIDS, would decrease the likelihood of TB transmission between health workers and patients, and between people who are infected with HIV and those who are infected with TB
    - Establishment of community support groups for TB/HIV individuals, taking careful consideration that this does not cause further marginalization from the rest of the community.

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