The deadly synergy of HIV and tuberculosis

To coincide with the International AIDS Conference being held this month in Vienna, Austria, we publish in this issue of the journal six Review and Personal View papers on a diversity of subjects related to HIV/AIDS. In addition, page 446 features a profile of Gottfried Hirnschall, the newly appointed Director of WHO’s HIV/AIDS Department.

Although the epidemic curve for HIV shows signs of flattening out, worldwide, there are about 33 million people known to be infected with HIV, with 2.7 million new cases and 2 million deaths in 2008. HIV infection remains almost invariably fatal unless treated with antiretroviral therapy (ART). The number of people receiving ART in low-income and middle-income countries is up from just 400 000 in 2003 to more than 4 million (42% of those needing it) in 2008.

While there has been welcome progress in making ART available, HIV/AIDS raises other challenges that we are only just beginning to face. Among the most pressing of these challenges is the intersection of the global HIV and tuberculosis pandemics.

About 2 billion people (roughly one-third of the world population) are infected with *Mycobacterium tuberculosis*. In 2007, there were 1.37 million new tuberculosis cases among people living with HIV and 456 000 deaths. Looked at another way, one in four deaths due to tuberculosis among people infected with HIV. The deadly synergy of HIV and tuberculosis

The 3Is strategy—intensified case finding, infection control, and prophylaxis with the antibiotic isoniazid (isoniazid preventive therapy [IPT])—has been advocated to reduce the burden of illness and death from tuberculosis among people infected with HIV. The benefit of intensified case finding is earlier detection of tuberculosis and hence earlier start to treatment. Early case finding also helps infection control by reducing disease transmission in the community and in healthcare settings. A deadly example of what can happen when infection control fails was the outbreak of extensively drug-resistant tuberculosis among people infected with HIV in KwaZulu Natal, South Africa, in 2005–06. IPT can prevent latent tuberculosis infection from developing into active disease. A 6 month course of IPT reduces the risk of tuberculosis in people living with HIV by 33%.

In 2004, WHO established a policy for collaboration between HIV and tuberculosis treatment and prevention services (as reviewed by Anthony Harries and colleagues in the recent *Lancet* tuberculosis series). This policy has since been incorporated into the 2006 Global Plan to Stop TB. There are yearly global targets for collaborative activities in this plan. Measured against these targets, results have been—at best—somewhat wide of the mark. For example, in 2008 only 1 385 000 people infected with HIV were actively screened for tuberculosis (8.7% of the target), and only about 48 000 of those eligible were offered IPT (2.5%). As Harries and colleagues comment: “Tuberculosis case finding and isoniazid preventive therapy remain at minimum levels of implementation.” More promising was the 1 374 000 tuberculosis patients tested and counselled for HIV infection (59.7% of the target). One interpretation of these numbers is that HIV services continue to lack provision for tuberculosis care.

Since publication of the 2004 guidelines, it has become clear that an early start to ART can reduce the incidence of tuberculosis in people infected with HIV. Indeed, the benefits of complementing IPT with ART at different stages of HIV progression are discussed by Stephen Lawn and colleagues on page 489. In this context, the 2009 WHO recommendation to start ART at less than 350 CD4 cells per μL (replacing the earlier recommended threshold of 200 per μL) is to be welcomed.

However, earlier testing and treatment of patients infected with HIV requires funding, implementation, and convincing evidence of cost-effectiveness. The 2006 Global Plan estimated that US$6.7 billion would be needed up to 2015 to integrate tuberculosis and HIV activities. Sustaining this level of funding in the current economic climate will be an achievement in itself. As important as money is national planning for health-systems restructuring, leading to the integration of services and decentralised care for better access. The strong focus on global health issues in the past decade by donor governments and organisations and national leaders should not lessen at this important stage of the combined pandemic. ■The Lancet Infectious Diseases

For the International AIDS Conference see http://www.aids2010.org/
For the profile of Gottfried Hirnschall see Newsdesk page 446
For the article by Harries et al see Lancet 2010; 375: 1906–19
For the Personal View by Lawn et al see page 489