Round table

Reaching the targets for tuberculosis control: the impact of HIV

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Abstract In 1991, the 44th World Health Assembly set two key targets for global tuberculosis (TB) control to be reached by 2000: 70% case detection of acid-fast bacilli smear-positive TB patients under the DOTS strategy recommended by WHO and 85% treatment success of those detected. This paper describes how TB control was scaled up to achieve these targets; it also considers the barriers encountered in reaching the targets, with a particular focus on how HIV infection affects TB control.

Strong TB control will be facilitated by scaling-up WHO-recommended TB/HIV collaborative activities and by improving coordination between HIV and TB control programmes; in particular, to ensure control of drug-resistant TB. Required activities include more HIV counselling and testing of TB patients, greater use and acceptance of isoniazid as a preventive treatment in HIV-infected individuals, screening for active TB in HIV-care settings, and provision of universal access to antiretroviral treatment for all HIV-infected individuals eligible for such treatment. Integration of TB and HIV services in all facilities (i.e. in HIV-care settings and in TB clinics), especially at the periphery, is needed to effectively treat those infected with both diseases, to prolong their survival and to maximize limited human resources.

Global TB targets can be met, particularly if there is renewed attention to TB/HIV collaborative activities combined with tremendous political commitment and will.

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Une traduction en français de ce résumé figure à la fin de l'article. Al final del artículo se facilita una traducción al español. الترجمة العربية لهذه الخلاصة في نهاية النص الكامل لهذه المقالة.

Introduction

In 1991, the 44th World Health Assembly (WHA) recognized the importance and previous neglect of tuberculosis (TB), and set two key global targets to be reached by 2000: 70% case detection of acid-fast bacilli smear-positive TB patients under the then-new DOTS strategy recommended by WHO, and 85% treatment success for those detected.[1,2] Achieving these targets would significantly decrease TB prevalence and reduce TB incidence by approximately 10% per year in the absence of any major change in TB epidemiology.[3–6] By 2000, 148 countries had adopted the WHO DOTS strategy and 27% of the estimated global TB cases were being treated in a DOTS programme.[2] Despite this progress, it became clear that the WHA targets would not be met by 2000, and the achievement date was deferred to 2005.[2]

Setting the stage: scaling up TB control

In an effort to scale up global TB control to reach the WHA targets, the STOP TB Partnership was launched in 2000 and the first Global Plan to Stop TB, covering the years 2001–2005, was implemented.[3] Between 1990 and 2004, the global TB prevalence decreased from 297 to 229 per 100 000 (including those positive for HIV).[7] During this time, many countries received technical assistance to improve their national TB programmes, and 4.5 million patients were treated with anti-TB drugs procured through the Global Drug Facility, which was established to facilitate treatment with good quality, inexpensive TB drugs.[8] Second-line drug prices were reduced by 95% via the Green Light Committee, which promotes access to, and rational use of, second-line drugs for multidrug-resistant TB (MDR-TB).[9] By July 2005, more than 36 projects managing drug-resistant TB in the context of DOTS programmes had been initiated, with more than 10 000 patients treated appropriately for MDR in more than 27 countries.[4]

As HIV continued to worsen the burden of TB, the TB/HIV working group of the STOP TB partnership provided guidance to help countries design and implement collaborative TB/HIV activities.[10] By the end of 2003, 29 of the 41 countries with the highest prevalence of HIV-associated TB had a national policy for collaboration between their TB and HIV programmes, and 16 had a national TB/HIV coordinating body – key steps towards implementation.[4] In 2006, progress in meeting the target numbers was substantial: case detection reached 59% (more than 57 countries met the case detection target), and treatment success reached 84% (more than 60 countries met the treatment target) (Chris Dye, WHO, unpublished data). By late 2006, the global TB epidemic was at the threshold of decline (Chris Dye,

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WHO, unpublished data); however, only 25 countries have reached both of the 1991 WHA targets for TB control; particularly problematic are the low treatment success rates reported from Africa (72%) and Europe (75%).[7]

To meet the 1991 WHA targets, the US $56 billion Global Plan to STOP TB, 2006–2015 was formulated and disseminated.[4] Fulfilling this second plan will reach the 1991 targets. It will also achieve target 8 of Millennium Development Goal (MDG) 6 — "to have halted by 2015, and begun to reverse, the incidence of [all forms] of TB". It will also meet the STOP TB Partnership's 2015 targets, which are to halve TB prevalence and death rates from the 1990 baseline, and eliminate TB (incidence < 1/1 000 000) as a global public health problem by 2050.

Successful implementation of the Global Plan depends on implementation of the new 6-point STOP TB strategy recommended by WHO. This strategy promotes use of the new International Standards for Tuberculosis Care[11,12] to engage all care providers (including those in the private sector) in delivering high-quality care. It specifically addresses HIV-associated TB, MDR-TB and other challenges, and strengthens human rights and health systems. However, the plan also relies on new diagnostic tests, new drugs and TB vaccines being developed by or before 2015.

Through the successful implementation of the new plan, 50 million patients will be treated using DOTS and/or tested for drug-resistant TB in the context of DOTS programmes. Countries will achieve comprehensive TB control for their entire populations, through improved quality of TB treatment and care services (including TB laboratories) and implementation of community DOTS initiatives. Although the second global plan lays out an ambitious strategy for achieving the global TB targets, it acknowledges that these targets may not be reached in eastern Europe or Africa, due to the complexities of managing and treating both MDR-TB and HIV and their implications for case detection and treatment success, as described below.

Barriers to meeting the TB control targets

Long-standing barriers to the achievement of the global targets include neglect of TB control by governments, lack of financial and human resources to provide supervision and quality control, weakened health systems, poorly managed TB control programmes, poverty, population growth and a significant increase in drug-resistant TB (particularly MDR-TB) and recently, extensively drug-resistant TB (XDR-TB).[13] A lack of new diagnostic tools has impeded progress in global TB control. Perhaps the greatest challenge to achieving the global TB targets, however, has been the ever-expanding HIV epidemic and the resulting increases in HIV-associated TB.

In 2005, in large part due to Africa's uncontrolled epidemic of HIV-associated TB, African health ministers declared TB a regional emergency.[4] Approximately 38% of African TB patients are estimated to be HIV-infected.[7,14] This TB/HIV syndemic has seriously compromised even historically strong national TB programmes in many countries.[7] TB programmes are overwhelmed by an increasing volume of HIV-associated TB cases and by the need to manage cases and ensure treatment completion. Furthermore, TB is the leading cause of death among HIV-infected persons, and HIV is the strongest predictor of progression from latent TB infection to active disease.[4,15–17] Thus, TB programmes that were nearing the WHA-set global TB targets have seen their cure and completion rates worsen.[7]

The TB/HIV syndemic has also had a tremendous impact on human resources.[4,18–20] In a workforce that has remained the same or decreased, the increased overall number of TB patients has weakened TB programmes' infrastructure and increased poor TB outcomes such as treatment default, death and the emergence of XDR-TB.[21] The HIV-associated TB epidemic has led to an increasing incidence of smear-negative and extrapulmonary TB;[7] these forms of TB do not contribute to the case-detection targets and are more complicated to diagnose. Furthermore, smear-negative TB has a worse prognosis than smear-positive TB among those who are also HIV-infected.[16,22,23]

TB/HIV collaborative activities

To address the impact of HIV-associated TB and facilitate the achievement of both old and new global TB targets, we must scale up the WHO-recommended TB/HIV collaborative activities and push for closer coordination of these activities between HIV and TB control programmes. The WHO 2006 report on global TB control notes that 32 of 41 countries with a high burden of HIV-positive TB cases have reported on their TB/HIV collaborative activities for the last three years.[7] In 2004, 23 countries had appointed a TB/HIV focal person within their national TB programme, 17 had a formal system for referring patients from HIV to TB services, 20 had a policy to carry out intensified TB case-finding among people with HIV, 18 had a policy to provide HIV testing and counselling for all TB patients, 20 had a policy to provide cotrimoxazole preventive therapy to HIV-positive TB patients and 21 had a policy to provide antiretroviral therapy to HIV-positive TB patients.[7]

Progress has been made, but in reality we are dismally behind in all countries.[17] WHO estimates that 125 000 TB patients were HIV tested in high-HIV-prevalence settings in Africa by the end of 2005 (Chris Dye, WHO, unpublished data). For 2006, however, the new global plan calls for 600 000 TB patients to be counselled and tested in these settings, and for 29 million TB patients to be counselled and tested overall by the end of 2015.[4] Furthermore, once detected, these HIV-infected TB patients must receive cotrimoxazole preventive therapy and antiretroviral treatment.[10]

Although isoniazid preventive therapy (IPT) has been demonstrated to reduce the risk for TB among those with HIV infection,[24] only Botswana has attempted nationwide scale-up of this important intervention.[25] Many national programmes are reluctant to implement this activity due to cost, fear of not excluding active disease and logistic challenges. Successful achievement of the new global plan will require approximately 3 million HIV-positive individuals to be treated with IPT.[4]

HIV care settings, such as voluntary counselling and testing centres, comprehensive care clinics and centres to prevent mother-to-child transmission of HIV represent ideal settings for identifying persons with active TB; screening for active TB should be increasingly incorporated into these areas.[10,26,27] Indeed, addressing TB should be a core function of HIV services. The second global plan calls for the TB screening of 210 million people living with HIV/AIDS by the end of 2015.[4] However, to properly screen for TB among HIV-positive individuals, TB diagnostic capability needs to be strengthened, far beyond direct sputum-smear microscopy.[23,28] Microscopy often performs poorly even

when correctly executed, and is less useful among HIV-positive individuals than among those uninfected, because of the high proportion of smear-negative TB among those infected with HIV.[23,29] WHO has proposed a new smear-negative TB screening algorithm in the context of HIV;[29] however, this algorithm relies on the availability of chest X-ray and sputum culture for these patients. Thus, to properly diagnose and reduce TB in the context of HIV, improved and higher-quality diagnostic services, including sputum cultures, will have to be made widely available.[30] Such strengthening of TB laboratory capacity will also greatly improve the ability to detect MDR-TB and XDR-TB, which in turn will help to achieve the 1991 and global plan targets in those countries where MDR-TB is preventing TB control progress, such as in eastern Europe. Furthermore, the HIV care setting is key for the initiation of urgently needed IPT programmes.

Finally, one of the most important interventions for the control of HIV-associated TB is the provision of universal access to antiretroviral (ARV) treatment for all eligible HIV-infected individuals.[4,31] Treatment for HIV prevents or slows progression from latent infection to TB disease, and also leads to better treatment outcomes in patients who already have TB.[16,17] However, ARV treatment must be initiated early in the course of an HIV infection, and the coverage and compliance with ARV treatment must be extremely high to truly prevent additional TB cases.[32] Currently, 15 000 HIV-infected TB patients are reported to be on ARV treatment in high-HIV settings in Africa (Chris Dye, WHO, unpublished data). The global plan calls for 200 000 coinfected persons to be on ARV in 2006 in these settings, and the enrolment of 3 million HIV-positive TB patients into ARV treatment programmes by the end of 2015.[4]

TB-HIV service integration's impact

Integration of TB and HIV services in all facilities (i.e. in HIV-care settings and in TB clinics), especially at the periphery, is needed to treat effectively those infected with both diseases, to prolong their survival and to maximize limited human resources.[33] Diagnosing and treating TB disease in HIV-care settings will help to increase case detection and improve rates of TB treatment completion; infection control will be paramount in this context. Likewise, treating HIV (with cotrimoxazole and/or ARV) and TB together in TB treatment and care settings is logistically easier for the patient, and will also help to strengthen the follow-up and treatment completion rates for TB treatment. It is often difficult to achieve this integration operationally at the programme level, given differing resources and agendas of control programmes for TB and HIV/AIDS. Yet strengthening basic TB control in this way is critical to managing TB in the context of HIV, and will also help to "turn off the faucet" of MDR-TB, a product of poor TB control and incomplete treatment.[34]

The actions described above for scaling-up TB/HIV activities will also help to address the action plan put forward by the recently convened WHO Global Task Force on XDR-TB.[35] Integrated services and overall better TB control, including manual laboratory services, will help to manage and treat MDR- and XDR-TB patients and will allow better investigation of cases and contacts. Scaling-up TB/HIV collaborative activities will also help to promote universal access to ARV treatment for all TB patients, another critical action for managing and controlling XDR-TB.[35]

Conclusion

Implementation of the above activities is the only way to achieve the global targets. Implementation and scale-up of these activities is critical if these targets are to be reached in eastern Europe and Africa, two places that the Global Plan to STOP TB 2006–2015 has suggested will not meet the targets. Failure to meet the targets in eastern Europe and Africa would be disastrous for global TB control overall. All targets can be met in all countries through these activities, provided that renewed attention to TB/HIV collaborative activities is combined with political commitment and will. ■

Competing interests: None declared.

Résumé

Incidence du VIH/sida sur la réalisation des objectifs de la lutte antituberculeuse

En 1991, la 44e Assemblée mondiale de la Santé a fixé deux objectifs essentiels à la lutte mondiale contre la tuberculose (TB) à atteindre d'ici 2000 : détection, dans le cadre de la stratégie DOTS préconisée par l'OMS, de 70 % des cas de TB à frottis positif pour les bacilles acido-alcoolorésistants et succès du traitement chez 85 % des cas détectés. Le présent article décrit le passage à l'échelle supérieure de la lutte antituberculeuse pour réaliser ces objectifs. Il étudie aussi les obstacles rencontrés dans cette réalisation, en s'intéressant particulièrement à l'impact des infections à VIH sur la lutte antituberculeuse.

Il sera plus facile de renforcer la lutte contre la TB en élargissant les activités de collaboration TB/VIH recommandées par l'OMS et en améliorant la coordination entre les programmes de lutte anti-VIH et anti-TB, notamment pour endiguer les TB pharmacorésistantes. Il est entre autre nécessaire de renforcer les activités de conseil et de dépistage concernant le VIH auprès des malades tuberculeux, d'élargir l'utilisation et l'acceptation de l'isoniazide comme traitement préventif chez les individus infectés par le VIH, de dépister les tuberculoses actives dans les établissements dispensant des soins liés au VIH/sida et d'offrir un accès universel au traitement antirétroviral à tous les individus porteurs du VIH remplissant les critères pour bénéficier d'un tel traitement. Une intégration des services accueillant les malades tuberculeux et de ceux affectés au VIH/sida s'impose dans tous les établissements (à savoir des unités de soins en rapport avec le VIH et de celles de traitement de la TB), et tout particulièrement dans les établissements périphériques, pour traiter avec efficacité les personnes atteintes des deux maladies, prolonger leur survie et tirer la maximum de moyens humains limités.

La réalisation des objectifs mondiaux de la lutte antituberculeuse suppose en particulier un regain d'intérêt pour les activités de collaboration TB/VIH, accompagné d'une volonté et d'un investissement très forts sur le plan politique.

Resumen

Logro de las metas de control de la tuberculosis: impacto del VIH

En 1991, la 44ª Asamblea Mundial de la Salud estableció dos metas decisivas para la lucha mundial contra la tuberculosis con miras al año 2000, a saber, detectar el 70% de los casos bacilíferos en el marco de la estrategia de DOTS recomendada por la OMS, y tratar satisfactoriamente el 85% de los casos detectados. En este artículo se describe cómo se expandió la lucha antituberculosa para lograr esas metas, analizándose también los obstáculos que se interpusieron en el camino, en particular la influencia de la infección por VIH en el control de la enfermedad.

La eficacia de la lucha antituberculosa se verá potenciada por la expansión de las actividades en colaboración contra la coinfección tuberculosis/VIH recomendadas por la OMS y por la mejora de la coordinación entre los programas de control del VIH y de la tuberculosis, en particular de los destinados a combatir la tuberculosis farmacorresistente. Las actividades requeridas abarcan una intensificación del asesoramiento y pruebas del VIH para los pacientes con tuberculosis, un mayor uso y aceptación de la isoniazida como tratamiento preventivo de las personas infectadas por el VIH, el cribado de la tuberculosis activa en los entornos de atención de la infección por VIH, y el acceso universal a la terapia antirretroviral para todos los seropositivos que reúnan las condiciones para recibir ese tratamiento. Es necesario integrar los servicios contra la tuberculosis y el VIH en todos los establecimientos (esto es, en los entornos de atención para los infectados por el VIH y en los consultorios antituberculosos), especialmente en la periferia, para poder tratar eficazmente a quienes sufren ambas infecciones, a fin de prolongar su supervivencia y de maximizar unos recursos humanos limitados.

Es posible alcanzar las metas mundiales de control de la tuberculosis, sobre todo si se presta una renovada atención a las actividades colaborativas en materia de tuberculosis/VIH con el respaldo de un enorme compromiso y voluntad políticos.

ملخص

تحقيق أهداف مكافحة السل: أثرها على الإيدز

في عام 1991، وضعت جمعية الصحة العالمية الرابعة والأربعون هدفين رئيسيين للمكافحة العالمية للسل كان ينبغي تحقيقهما عام 2000؛ وهما كشف 70 بالمئة من المرضى بالسل الإيجابي اللطاخة لعصيات مقاومة للحمض ممن يخضعون لاستراتيجية المعالجة القصيرة الأمد تحت الإشراف المباشر التي توصي بها منظمة الصحة العالمية، والنجاح في معالجة 85% ممن تم اكتشافهم. وتصف هذه الورقة كيفية النهوض بمكافحة السل لتحقيق هذين الهدفين؛ كما تولي هذه الورقة اهتماماً خاصاً للعوائق التي تقف دون تحقيق هذه الأهداف، مع تركيز خاص على تأثير العدوى بفيروس الإيدز على مكافحة السل.

إن المكافحة الحازمة للسل يمكن أن تصبح أكثر سهولة بالنهوض بالأنشطة التعاونية بين السل والإيدز التي توصي بها منظمة الصحة العالمية، وبتحسين التنسيق بين برامج مكافحة السل وبرامج مكافحة الإيدز، ولاسيما في ضمان مكافحة السل المقاوم للأدوية. وتتضمن الأنشطة المطلوبة المزيد من التوعية حول الإيدز وإجراء اختباراته على مرضى السل، مع استخدام أكثر وقبول أكبر للإيزونيازيد كمعالجة وقائية تعطى للأفراد المصابين بالإيدز، وتحري السل في المواقع التي تقدم بها الرعاية لمرضى الإيدز، وإتاحة شاملة للمعالجة بمضادات الفيروسات القهقرية المسببة للإيدز لجميع المصابين بعدوى الإيدز والمؤهلين لتلك المعالجة. إن التكامل بين خدمات مكافحة السل وخدمات مكافحة الإيدز في جميع المرافق (مثل مواقع تقديم الرعاية لمرضى الإيدز وعيادات مكافحة السل)، ولاسيما في المناطق المحيطية، أمر تمس الحاجة إليه لتحقيق المعالجة الفعّالة للمصابين بكلا المرضين، ولإطالة فترة بقائهم أحياء، ولزيادة الموارد البشرية المحدودة.

إن الهدفين العالميين لمكافحة السل يمكن تحقيقهما، ولاسيما إذا ما تم إيلاء اهتمام كافٍ للأنشطة التعاونية بين السل والإيدز إلى جانب الإرادة والتزام السياسي الهائل.

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Round Table Discussion

Lessons from TB/HIV integration in Cambodia

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Background

Cambodia ranks 22nd among countries with the highest burden of TB.[1] WHO estimates that in 2004, Cambodia's incidence rate for all forms of TB was 510/100 000, and for smear-positive pulmonary TB, 226/100 000.[1] Although HIV prevalence among adults aged 15–49 years has decreased from 3% (1998) to 1.9% (2003), Cambodia continues to have one of the most serious documented epidemics in Asia, with an estimated 123 100 adults living with HIV/AIDS.[2] Given an estimated 64% of Cambodians infected with *M. tuberculosis*,[3] the overlap of the TB and HIV epidemics is inevitable. HIV prevalence among TB patients has increased from 2.5% (1995)[4] to 10% (2005).[5,6] As discussed in the base paper by Laserson & Wells, the impact of HIV-associated tuberculosis must be addressed by scaling up collaborative activities.

In response to these dual epidemics and separate national programmes to deal with each disease, the Cambodian Ministry of Health established the subcommittee on TB/HIV in 1999 and two frameworks in 2002, the Framework for TB/HIV in Cambodia and the Continuum of Care (COC) for People Living with HIV/AIDS Operational Framework.[7] In line with these policy documents, the National TB/HIV Subcommittee selected four pilot sites in 2003 (Phnom Penh, Battambang, Banteay Mean Chey and Sihanouk Ville) for rapid TB/HIV programme development. It designated the international partners Japan International Cooperation Agency, Family Health International/Gorgas TB Initiative, CDC/Global AIDS Program and WHO to provide technical assistance and support. In 2005, the national TB and HIV/AIDS programmes released a joint statement and standard operating procedures (SOP) for testing of TB/HIV.

Under the COC framework and the WHO "3x5" Initiative, access to ART for HIV-infected TB patients became available. The National TB Programme (NTP) has called for expanded access to ART for all eligible HIV-infected TB patients. Since 2003, the NTP has strengthened surveillance of co-infection among TB patients through national surveys. District TB registers were revised to capture HIV information, and patient referrals are made to voluntary counselling and testing (VCT) centres, home-based care programmes and ART clinics where co-trimoxazole preventive therapy is provided.

Results of integration

The impact of HIV co-infection on TB case fatality is evident in surveillance data. As the rate of co-infection rises, so does the reported death rate among sputum smear-positive patients.[8] Early indicators of TB/HIV programme linkage among the four pilot sites show important variations. While each site differs in size and conditions, the capacity to test TB patients for HIV co-infection is less uniform across sites than the ability to screen for TB among newly diagnosed HIV-positive patients. In 2005, the sites were able to screen from 70-100% of all newly diagnosed HIV-infected persons, but only 14-83% of TB patients were tested for HIV co-infection (NTP surveillance data).[9] The rate of active disease found upon screening ranged from 9% to 26%. IPT is provided on a trial basis at only one site after routine sputum culture to rule out active TB. To date, nearly 200 persons have received IPT and are being followed upon completion of a 9-month regimen.[10]

Lessons learned

From the TB-control programme perspective, the main challenges to TB/HIV co-management and linkage can be divided between issues regarding health systems/infrastructure and human resource capacities. The first set of issues reflects where the patient enters the health service. Routine TB screening is accessible for HIV-infected persons through a well-established, decentralized infrastructure for TB diagnosis and treatment. The main barrier relates to limited access to culture for diagnosing sputum smear-negative disease, and a lesser extent, to tools to diagnose extra-pulmonary TB. The provision of isoniazid for IPT is not a limiting step; rather, it is the limited diagnostic capacities, including chest radiograph interpretation. For patients entering the health system through the TB clinic, the limited (TB) staff capacity to conduct HIV counselling adversely impacts the availability of routine patient testing. The lack of training is compounded by a decentralized TB programme that provides diagnostic and treatment services in the periphery, beyond the direct reach of current VCT services. Once TB patients are at home, they rely on transportation support or home-based care services to keep appointments for routine TB/HIV care.

Conclusions

The TB burden among the HIV-infected population of Cambodia is well documented, and co-management of TB/HIV is feasible at district level. However, HIV-related services are not yet centred at the community level, which impacts determination of HIV status for TB patients and subsequent access to HIV services in some settings. Since the original pilot sites were established, TB/HIV activities have been expanded to 15 additional districts under the COC framework. Patients' need for transportation support to keep clinic appointments is an indirect indicator of the effect of poverty. Sustaining and expanding the integration process will require long-term commitment on the part of donors and government agencies. Nongovernmental organizations and other health partners must be brought into the linkage process, under the Ministry of Health mandate, in support of a standard, comprehensive patient management system that will facilitate monitoring and evaluation according to international standards. Such a

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patient-centred approach is an essential component of the new Stop TB Strategy and a necessary condition for further scaling up of activities in Cambodia. ■

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Tuberculosis in Rwanda: challenges to reaching the targets

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Introduction

Rwanda has a generalized HIV epidemic: 3.1% of adults are living with HIV/AIDS.[1] Care, treatment and prevention services for the approximately 183 558 adults and 13 901 children living with HIV/AIDS have been rapidly scaled up over the past three years under the guidance of the Rwandan Ministry of Health's Treatment Research for AIDS Center. By November 2006, almost 33 000 HIV-infected adults and children were receiving antiretroviral therapy.[2]

Expansion and enhancement of DOTS in the six-point Stop TB Strategy described by Laserson & Wells have been implemented in Rwanda by the health ministry's national integrated programme to combat leprosy and TB since 1990. Through recent programme improvements, treatment success rates have increased from 58% in 2003 to 81% by the third quarter of 2006; however, case detection was an estimated 24% in 2005.[3–5] Thus, Rwanda is close to achieving the WHO target for treatment success, but is below the target for case detection. Concerted efforts are being made to ensure that effective smear microscopy and directly-observed therapy are available nationwide. Further efforts are needed to reach the goals, especially for case detection. A recent national survey showing that the prevalence of multidrug resistance among new TB patients is 3.9% gives cause for concern.[6]

TB/HIV collaborative activities

Addressing TB/HIV coinfection (another component of the Stop TB Strategy) through collaboration between programmes and integration of services is a priority for the Rwandan government. Implementation of TB/HIV collaborative activities began with the placement of a TB/HIV technical advisor and coordinators at the national programme to combat leprosy and TB and at the Treatment Research for AIDS Center, to establish coordination at a central level. In February 2005, key stakeholders from the health ministry and partner organizations held a workshop to jointly prioritize collaborative activities and establish a national TB/HIV integration working group. In October 2005, the health ministry approved a national policy on TB/HIV collaborative activities based on WHO interim policy.[7,8]

The technical manual for the programme to combat leprosy and TB was revised to include a chapter containing standards of care for patients with TB and HIV. Provider-initiated HIV counselling and testing for all TB patients have been adopted. TB treatment cards and case registers now include information on HIV status, care and treatment; these data are regularly reported by all TB diagnostic and treatment facilities.

In August 2005, two TB/HIV integration model centres were established at one rural and one urban health facility. The purpose of these centres is to develop best practices and innovative strategies for TB/HIV integrated care, including evaluating strategies to enhance early diagnosis of TB among people with HIV/AIDS as well as developing methods to improve HIV testing of TB patients, to increase enrolment of TB/HIV coinfected patients into HIV care, and to provide cotrimoxazole and antiretroviral therapy through the TB services.

A TB symptom checklist developed to screen people with HIV/AIDS for TB was piloted at the two model centres and adopted as a national standard. Standardized paper-based registers (which include information on results of routine TB screening and treatment for TB disease) of patients before and after initiation of antiretrovirals have been developed, and complete roll-out is expected by the end of 2006. As of June 2006, preliminary data from 27 of 120 sites providing antiretrovirals report that 138 of 1581 (9%) people receiving care and treatment for HIV/AIDS are also receiving treatment for TB.

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In 2005, a baseline evaluation of access to and acceptance of HIV counselling and testing among TB patients was conducted at 23 geographically representative sites. Of 482 patients registered for treatment in the fourth quarter of 2004, 52% had a documented HIV test result. Other HIV-related information was poorly documented. When interviewed, TB patients reported high acceptance of HIV testing if offered (198 out of 207, or 96%). These results were used to inform policy-makers and providers, and to modify national guidelines to promote TB/HIV activities. This evaluation also revealed that mortality among HIV-infected TB patients in Rwanda was six times higher than among non-infected TB patients, supporting the case made by Laserson & Wells that TB is the leading killer of people with HIV/AIDS.

Implementation of the national TB/HIV policy and guidelines has resulted in a nation-wide increase in HIV counselling and testing of TB patients from 46% in 2004 to 81% by the third quarter of 2006. In that quarter, 49% of HIV-infected TB patients had initiated cotrimoxazole preventive therapy and 34% were receiving antiretrovirals.

Conclusion

Rwanda's experience has demonstrated that it is possible to achieve rapid and successful implementation of TB/HIV collaborative activities as part of the Stop TB Strategy in the setting of a generalized HIV epidemic. This additional effort did not involve substantial additional costs and did not interfere with other TB control efforts. Indeed, it has enhanced case detection among people with HIV/AIDS, who are at the highest risk for TB. Challenges remain for sustained political commitment to support TB/HIV collaborative activities in the context of recent trends. These include decentralization of health services, expansion of HIV counselling and testing in settings other than TB outpatient facilities, provision of cotrimoxazole at all sites offering TB services, effective referrals between TB and HIV programmes, accurate recording and reporting of TB/HIV data, and establishing adequate human resources to supervise and monitor programme outcomes. ■

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Tuberculosis in the Dominican Republic: addressing the barriers to sustain the achievements

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The base paper calls for urgent implementation of activities to achieve the targets for TB control set by the 1991 World Health Assembly, the 2015 Millennium Development Goals and the Stop TB Partnership. Laserson & Wells conclude that the greatest challenge is the devastating impact of the HIV epidemic. They suggest that countries will only achieve success with an accelerated political commitment to TB/HIV collaborative activities through national revised plans built upon the Stop TB Strategy and the Global Plan to Stop TB 2006–2015.

The Dominican Republic faces several challenges in addressing these targets.

While the incidence of all forms of TB in the Dominican Republic has been estimated to be among the highest in the Americas (91 cases per 100 000 people in 2005),[1] much progress has been achieved since the implementation of DOTS in 1999. By 2005, DOTS services had been made available to 80% of the population and detection of infectious cases was 83% for the whole country and 76% in DOTS areas. The 2003 cohort analysis suggested 80% treatment success.[1] Funding for TB control has been secured for the next 3 to 5 years and technical support has been provided. A steady supply of high-quality anti-TB drugs has been assured via the Global Drug Facility, fixed-dose combinations have been introduced and a MDR-TB unit has recently been created. This impressive list of achievements was realized in a short period of time.

However, to ensure sustainability and guarantee that targets are reached, 5- to 10-year national planning in line with the Global Plan to Stop TB 2006–2015 and implementation of the new Stop TB Strategy are vital. The Dominican national TB programme and its partners face several of the barriers acknowledged in the base paper. Notably, the latest data suggest that progress to address TB/HIV, MDR-TB and XDR-TB has been slow.

Data on TB/HIV coinfection, which are limited to certain areas of the country, suggest that between 6% and 11% of TB patients are infected with HIV.[2,3] A recent survey suggests that young adults, provinces with a high rate of tourism

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and sugar-mill camps should be targeted for interventions.[3,4] While the country has introduced some TB/HIV collaborative activities (e.g. isoniazid prophylaxis for HIV-infected people and provision of antiretroviral drugs), there are no data on the number of HIV-infected TB patients receiving antiretroviral drugs. There is no surveillance of HIV among TB patients, no information is available on coinfected patients receiving cotrimoxazole, and a proper referral/counter referral mechanism for patients has not been established. Collaboration between TB and HIV/AIDS programmes needs to advance immediately and concretely in line with the new Stop TB Strategy.[5] The recent development of national TB/HIV guidelines and inclusion of TB/HIV activities on national plans are steps in this direction.

MDR-TB has been one of the greatest challenges for the Dominican Republic, which was classified by WHO in the mid-1990s as one of the world's hot spots for MDR-TB.[6] This high rate of MDR was associated with poor programme performance and lack of political will to fight the disease. TB control has now been implemented according to internationally recommended guidelines for more than 7 years, and a project to manage MDR-TB has recently started. The use of second-line drugs must be fully supervised to prevent the rise of extensively drug-resistant TB. New data on the magnitude of MDR-TB is urgently needed. In addition, a strengthened national network of properly-equipped laboratories with trained personnel and a fully functioning national reference laboratory are necessary to ensure access to quality-assured sputum smear microscopy, culture and drug-susceptibility testing.

Surveillance efforts in the Dominican Republic, although following WHO/PAHO standards, need to be strengthened. While case reporting in DOTS areas suggests a steady increase in the number of cases detected, nationally there is an inconsistent pattern of increases and decreases. The quality of case finding across the country and TB programme/health system issues, such as the quality of the workforce, may be contributing factors explaining disparities.

The national TB programme needs to develop and maintain a strong stewardship capacity to guide and oversee collaboration between private and public providers. Public–private approaches, including monitoring and evaluation, should be explored and implemented. Increased advocacy and social mobilization to engage civil society in TB-control efforts is also needed to increase access to DOTS services in urban and rural areas.

The implementation of locally relevant operational research can also be useful in identifying programme limitations and strengths, as well as mechanisms to facilitate scaling up of activities.

Finally, TB-control efforts must progress hand-in-hand with strengthening of the health system as a whole. International cooperation, financial sustainability and strong political commitment to work at all levels with different stakeholders will be the recipe to achieve targets for TB control in the Dominican Republic. ■

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Joint tuberculosis/HIV services in Malawi: progress, challenges and the way forward

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In the base paper, Laserson & Wells suggest that the greatest challenge to achieving global TB targets is the ever-expanding HIV epidemic and the resulting increase in HIV-associated TB, particularly in sub-Saharan Africa. Malawi, in southern Africa, is a poor country that has a huge HIV epidemic, and serves as an appropriate case study.

In Malawi, which has a population of 12 million, an estimated 790 000 adults are living with HIV, there are 80 000 AIDS-related deaths each year and 170 000 HIV-infected persons are in need of antiretroviral therapy.[1] The HIV epidemic has had a large negative impact on TB control services in the country. TB case notifications have risen from 5000 per year in 1985 to more than 25 000 per year for the past five years. An increase in the number of cases of TB that recur after treatment completion has contributed to this burden.[2] There has been a disproportionate increase in the number of patients with smear-negative pulmonary TB and extra-pulmonary TB, the diagnosis of which is not easy in a resource-constrained environment.[3] Case fatality rates in patients with smear-positive pulmonary TB have risen from 5% in 1985 to more than 20%, and are even higher among those with smear-negative TB, who are more severely immunosuppressed.[3] According to the last national survey, 70% of TB patients are infected with HIV.[4]

The government of Malawi has tried to respond to this challenge. Malawi was one of three African countries to pilot

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the WHO ProTEST initiative (1999–2002), which promoted HIV testing and counselling among TB patients as an entry point to HIV prevention, treatment and care services.[5] Subsequently, and with the support of bilateral and multilateral donors, a three-year TB/HIV plan (2003–2005) was developed and integrated into the five-year national TB control plan (2001–2005). The principal objectives were to scale up HIV testing among TB patients and, for HIV-positive TB patients, to provide cotrimoxazole preventive therapy and facilitate access to antiretrovirals.

What progress has been made between 2003 and 2005? From routine data collected and reported within the national programmes for TB and antiretroviral therapy, the proportion of TB patients tested for HIV increased from 15% in 2003 to 47% in 2005. During this time, the majority (90% or more) of HIV-positive TB patients started cotrimoxazole preventive therapy. In 2005, just over 20% of new patients starting antiretroviral therapy had active TB or a past history of TB. However, because the national database for antiretroviral therapy does not disaggregate patients with active TB or a past history, it is difficult to know how many HIV-infected TB patients starting anti-TB treatment that year also started antiretroviral therapy.

Despite progress, challenges to implementation remain. Less than half of all TB patients were tested for HIV in 2005, the main barriers being irregular supplies of HIV-testing reagents, staff forgetting to refer patients or patients themselves not undergoing HIV testing and counselling after being registered and placed on anti-TB treatment. Ways to improve HIV-testing uptake need to be found, including the integration of HIV testing into the TB registration process itself.[6]

Since cotrimoxazole is regularly out of stock in peripheral hospital pharmacies, the national TB programme procured its own supply for patients on anti-TB treatment. The challenge is the continuation of preventive therapy after completion of anti-TB treatment. In this regard, the health ministry is now implementing a national policy of long-term preventive therapy for all eligible HIV-infected patients (including those with TB) with cotrimoxazole procured via the Global Fund to Fight AIDS, Tuberculosis and Malaria.

HIV-positive patients with TB are potentially eligible for antiretroviral therapy if they are in either WHO clinical stage 3 (pulmonary TB) or stage 4 (extra-pulmonary TB).[7] It is preferable to perform a CD4-lymphocyte count before considering antiretroviral therapy; however, in Malawi there is a shortage of laboratories with this capability, and hence national guidelines recommend that all HIV-infected TB patients be considered for antiretroviral therapy.[8] Every year, an estimated 19 000 HIV-infected TB patients are registered for anti-TB treatment, but currently only a small proportion access antiretroviral therapy.

There are several reasons for this. The policy is to start TB patients on antiretroviral therapy after they have completed the initial phase of anti-TB treatment, by which time the sickest patients have died and survivors may feel well enough not to need antiretroviral therapy. In the continuation phase, anti-TB treatment is decentralized to health centres, while antiretroviral therapy tends to be administered by central, district and mission hospitals, and therefore access to antiretrovirals is difficult for patients receiving their anti-TB treatment at health centres.[9] Offering earlier antiretroviral therapy to TB patients and expanding the availability of antiretroviral therapy to health centres are ways of potentially solving these problems.

Finally, the monitoring systems for HIV and TB need to explicitly include the relevant parameters.[6] For example, TB monitoring tools, including cohort reports, should include data on numbers of TB patients who have been tested for HIV, who are HIV-positive, and who have started cotrimoxazole or antiretroviral therapy. Only in this way will staff managers know whether TB/HIV interventions are making a difference to treatment outcomes. ■

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