Contemporary global strategies for TB control

FIFTY YEARS AFTER the first TB drugs were introduced, tuberculosis still remains a major global public health problem. Approximately 2 billion people, one third of the world’s population, are already infected with the TB bacillus, an additional 8 million people are infected every year. Out of these latent infections, an estimated 9 million have the active disease and 2 million die every year.¹

Prior to the 1990s, control efforts in most developed countries helped to reduce the burden of tuberculosis in their communities to a relatively minor health problem. However, in the developing countries, tuberculosis continued to pose big a problem.² By the early 1990s, a global resurgence of new cases of tuberculosis was reported.³ New active cases of TB were reported in the developing countries, and even the developed countries where, hitherto, TB was presumed to be under control. Approximately 85% of these new cases of TB occurred and are still occurring in essentially 22 countries of Africa, Asia and parts of Eastern Europe.⁴ These countries are presently designated the ‘22 TB high burden countries’.

Several factors have been ascribed to the global resurgence of the disease; prominent among these is the HIV epidemic, which has contributed significantly to the reactivation of latent infections and primary active disease due to suppressed immunity. The other factor is the emergence of resistance strains of the bacillus due to poor treatment regimens. This has resulted in patients with multi-drug resistant TB (MDR-TB), which militates against effective treatment through increased treatment failure and relapse rates.⁵

The discouraging statistics on mortality and morbidity associated with the resurgence of TB prompted the World Health Assembly to declare it a global public health emergency in 1993.⁶ There was therefore an urgent need to reinvigorate and strengthen national TB control programmes. The recommended strategy was for countries to strive to detect at least 70% of new smear-positive cases and ensure a total cure of at least 85% of these detected cases. To achieve this, the WHO in 1994 recommended that national TB programmes adopt the strategy of ‘directly observed therapy short-course’ (DOTS). The success of this strategy hinges on five main components:

- full government commitment to national TB programmes;
- passive case detection by sputum-smear microscopy of symptomatic patients;
- standardized short-course chemotherapy to all sputum-smear positive cases, with direct observation of drug intake in at least the first two months of treatment;
- regular uninterrupted supply of all essential drugs;
- standardized recording and reporting systems to ensure adequate monitoring and evaluation of the treatment programmes.

By 2004, 182 countries had adopted and were implementing DOTS in their national programmes.⁴ It was documented that by the end of 2004, 20 million patients worldwide had been treated under the DOTS strategy and more than 16 million of these cases were reported cured.⁴ Indeed, apart from some countries of Africa, Asia and Eastern Europe, the DOTS strategy was reported to have reduced or stabilized TB morbidity and mortality rates.

Global data clearly indicated that most of the resource-poor countries were facing some limitations in the implementation of their DOTS programmes. Severely deficient general healthcare infrastructures and extreme poverty were identified as two major constraints. The situation in these countries has been compounded with the escalating HIV epidemic, which has already overburdened human resources and health infrastructure. Running parallel to these is the upsurge of cases of MDR-TB in these countries. The major challenges of these countries appear to involve identifying and reaching all those in need of care, especially the poorest of the poor, strengthening health systems as a whole, and sustaining uninterrupted supply of anti-TB drugs.

Against this backdrop, the WHO and its partners have
worked to complement policies and strategies to address these major constraints towards achieving global TB control. These include the establishment of important initiatives, such as the Stop TB Partnership, The Global Alliance for TB Drug Development, The Green Light Committee.

The primary vision of the Stop TB Partnership is *A world free of TB by 2050*. The mission involves pursuing high quality DOTS expansion and enhancement through six principal components:

- addressing TB/HIV
- controlling and combating MDR-TB
- contributing to the strengthening of health care systems
- engaging more health care providers
- empowering patients and communities
- enabling and promoting research

The Global Drug Facility has been established to ensure an uninterrupted and sustained supply of quality-assured anti-TB drugs to resource-poor countries at no or reduced costs. It is also to facilitate access to training and drug management. Resource-poor countries are therefore encouraged to take advantage of the services of the Global Drug Facility.

To effectively treat MDR-TB, the strategy of DOTS-plus has been put in place. This essentially involves the use of second-line drugs as the ‘last resort’ treatment. Indiscriminate use of second-line drugs may seriously increase resistance. The Green Light Committee, a committee within the Stop TB Partnership, has been set-up and charged with the responsibility of DOTS-plus. To qualify for DOTS-plus, countries must carry out pilot projects adhering strictly to WHO Guidelines for establishing DOT-plus projects for the management of MDR-TB. These guidelines provide protocols for standardized or individualized treatment regimens, using second-line drugs. Adherence to these guidelines will promote appropriate management of existing cases of MDR-TB and prevent the rapid development of resistance to second-line TB drugs. Countries faced with a high level of MDR-TB are encouraged to urgently seek the assistance of the Green Light Committee.

The Global Alliance for TB Drug Development (TB Alliance) was created to lead a collaborative effort between public and private players with a simple, shared goal: to accelerate and ensure the development of new, fast-acting, affordable TB drugs and vaccines that will revolutionize TB control. Under this initiative, several potential drugs of various classes have been discovered. As at 2005, only four of these drugs were at the pre-clinical stage (non-fluorinated Quinolones, Nitroimidazole (PA-824), Pyrrole LL-3858 and Quinolone KPQ-10018). Three of the Quinolones – Maxifloxacin, Levofloxacin and Gatifloxacin – are at various stages of clinical trials. It is hoped that these new drugs will significantly shorten the duration of TB treatment from 6 - 8 months to 2 - 3 months, and also help reduce the pill burden through fixed combination doses.

In conclusion, it is pertinent to note that a variety of new policies and strategies have been developed which, if provided with adequate resources, could be implemented more widely and would make a major contribution toward improving overall global TB control. Increased political commitments should encourage developing countries to strengthen and expand their DOTS programmes to more communities, particularly in the rural areas.

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**REFERENCES**