

Investing in Health R&D for the Millennium Development Goals

PROBLEM: Each year, over 6 million people in developing countries die from AIDS, malaria and tuberculosis (TB). Yet no effective vaccine exists for these sicknesses and the drugs used to treat them can be difficult to use, ineffective, and expensive. There is an urgent need to invest in the development of drugs, diagnostics and vaccines that work better and faster to fight these diseases and save lives.

Health is a key input to economic development because it raises the productivity of the work force and increases the attractiveness of the economy for investors, domestic and foreign. Pandemic diseases such as AIDS, malaria, and TB cause tremendous suffering for affected populations and deter investments in infrastructure, tourism, agriculture, mining, and industry in poor countries.

The long-term driving force of modern economic growth has been science-based technological advance. Yet there has been little investment in applying such advance for diseases which primarily affect the poor of the world. Meeting the MDGs will require a special global effort to harness the capability of science and direct research and development toward specific health challenges facing the poor.

Prescription for Healthy Development: Increasing Access to Essential Medicines

R&D Challenges

- **Lack of innovation**—Medicines and vaccines required for many diseases and illnesses prevalent in developing countries do not exist because industrial research has been directed primarily towards more profitable markets in developed countries, where chronic diseases (such as cardiovascular disease and cancer) associated with longer life spans are the main causes of mortality.
- **Drug resistance**—Lack of consistent access to drugs and inappropriate use of medicines have led to an increase in drug-resistance. There is a critical need for new medicines to supplement or replace those to which diseases have become resistant.

Recommendations

- **Stimulate** R&D for medicines and vaccines for diseases of poverty by promoting cooperation between all key players, securing substantially more financing from multiple sources, identifying clear priorities for research, and developing more effective ways to share technological advances and methods.
- **Support** public-private initiatives such as IAVI, DNDi, MMV, and the TB Alliance, as a productive model for development of new medicines and vaccines; promote innovative financing mechanisms for R&D for neglected diseases.
- **Expand** investment by governments in medical research to meet the most pressing needs of developing countries and poor populations. The public sector must encourage the for-profit sector to devote resources to badly needed research for new vaccines, drugs, and diagnostics to fight major infectious diseases by creating a supportive policy environment and through major involvement and public funding.

Combating HIV/AIDS in Resource-Poor Settings

R&D Challenges

- **Second-line drugs and pediatric formulations**—Second-line and third-line drugs to treat resistant strains of HIV are not widely available and are very expensive. Additionally, convenient and affordable antiretroviral formulations for children do not exist.
- **Technologies for monitoring treatment**—Current tests to monitor HIV treatment are too expensive and impractical in many resource-poor settings. Furthermore, monitoring treatment and even confirming HIV infection in infants and children pose additional challenges.
- **Concurrent HIV and TB treatment**—TB is the most important and deadly opportunistic infection in AIDS patients in many settings. Common methods of diagnosing do not work as well in immune-compromised HIV patients. In addition, one of the most commonly used antiretroviral drug regimens cannot be used with one of the standard TB drugs.

Recommendations

- **Develop** affordable HIV treatment-monitoring tools suitable for resource-poor settings.
- **Improve** guidelines, diagnostics, and drug formulation for the treatment of HIV-positive children.
- **Sustain** development of additional antiretroviral (ARV) combinations appropriate for resource-poor settings that can be used to treat drug-resistant strains and promote development of new TB drugs which can be used in combination with ARVs.

Coming to Grips with Malaria in the New Millennium

R&D Challenges

- **Diagnostics**—Rapid diagnostic tests, although promising, have not yet been fully proven in the field.
- **Vaccine**—Development of a highly-effective vaccine for malaria has so far proven elusive due to the complex biology of the disease, although recent progress is promising.
- **Vector control**—The supply of available and potential insecticides is dwindling due to insecticide resistance, failure to re-register, and lack of market incentives to develop pesticides for public health use.
- **Combination therapy**—New medicines for malaria, especially for the treatment of resistant strains, are likely to be formulated as combination therapies. Testing of combinations will almost double the time and economic cost of medicine development programs.

Recommendations

- **Support** development of new or improved diagnostic methods that are simple, reliable and readily applicable in the field.
- **Develop** vaccines suitable for use by long-term residents of areas where malaria is common and others for shorter-term exposure.

- **Improve** control methods effective against adult and larval mosquitoes, including the development of new classes of insecticides.
- **Fund** development and testing of new antimalarial medicines and combinations for long-term prophylactic use as well as safe and effective treatment for both resistant and uncomplicated cases.

Investing in Strategies to Reverse the Global Incidence of TB

R&D Challenges

- **Drugs**—New drugs are urgently needed to shorten and simplify treatment, overcome drug resistance, and ultimately treat latent infection. With the current burden of treatment—its length and complexity—dramatically improved, more patients will be treated, cure rates will increase, and resistance will be addressed.
- **Diagnostics**—Better, simpler, and more specific diagnostics that do not rely on microscopy are essential to speed case detection and identify TB in children and in people infected with HIV. Results known in minutes, not days or weeks, will offer a significant advantage in TB control.
- **Vaccine**—An effective vaccine that works beyond childhood and in all settings will serve as a crucial breakthrough in TB control, given that one-third of the world's population is latently infected with the bacillus that causes TB.

Recommendations

- **Increase** overall funding for the development of TB drugs, diagnostics, and vaccines suitable for use in resource-poor settings that will address drug resistance, TB-HIV coinfection, latency, and shorten the time of diagnosis and treatment.
- **Support** public-private partnerships dedicated to developing affordable and better drugs, diagnostics and vaccines and leverage the capacity, resources and counsel of industry, the public health sector, academic laboratories and innovative developing countries.
- **Promote** harmonization of streamlined regulatory requirements for introducing new TB drugs, diagnostics, and vaccines.



The **UN Millennium Project** is an independent advisory body commissioned by the UN Secretary-General to recommend strategies for achieving the Millennium Development Goals, the set of internationally agreed targets for reducing poverty, hunger, disease, illiteracy, environmental degradation and discrimination against women by 2015. This document summarizes recommendations from the following Millennium Project Task Force reports:

- Task Force on HIV/AIDS, Malaria, TB, and Access to Essential Medicines, Working Group on HIV/AIDS—*Combating AIDS in the developing world*
- Task Force on HIV/AIDS, Malaria, TB, and Access to Essential Medicines, Working Group on Malaria—*Coming to grips with malaria in the new millennium*
- Task Force on HIV/AIDS, Malaria, TB, and Access to Essential Medicines, Working Group on TB—*Investing in strategies to reverse the global incidence of TB*
- Task Force on HIV/AIDS, Malaria, TB, and Access to Essential Medicines, Working Group on Access to Essential Medicines—*Prescription for healthy development: increasing access to medicines*

The full text of these reports can be downloaded at: <http://www.unmillenniumproject.org/reports/reports2.htm>



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