Neglected and poverty-related diseases

Neglected and poverty-related diseases are a group of mainly infectious diseases that collectively affect more than two billion people worldwide, mostly in low- and middle-income countries. Among others, these diseases include the so called "big three", namely malaria, tuberculosis and HIV; the seventeen WHO/TDR prioritised diseases commonly referred to as tropical neglected diseases (NTDs); and many others, including emerging and re-emerging diseases such as the Ebola virus disease. The term tropical can be misleading or at least bring a false sense of localisation, especially in our modern interlinked world, as has been shown by the recent Ebola virus disease epidemic or the potential health threats due to the ongoing migration crisis and climate change.

These diseases are referred to as poverty-related, because not only they are endemic under poverty conditions, but also restrain economic growth and productivity thus entrapping the affected communities into a vicious cycle of disease and poverty. They are neglected because of market failure, which leads to persistent underinvestment in the research and development (R&D) of the diagnostic, treatment and care and prevention tools to combat them. Some would also say that they are called thus because they occur among neglected and marginalised populations.

All neglected and poverty-related diseases are controllable, meaning that their burden can be reduced to acceptable levels within specific communities. Most of them are potentially eliminable (reduced to zero in defined geographical areas) or even eradicable (completely wiped out worldwide). However, in order to effectively combat these diseases we need to understand them well. We need to understand their epidemiology, including the changing dynamics in the affected populations. Disease patterns may vary between communities and susceptibility to treatment changes as interventions are implemented. Furthermore, quite often individuals may suffer from a co-existence of more than one of these diseases and possibly with other diseases as well. Therefore, there is a strong need of putting in place a robust mapping and surveillance system to continually track and inform disease control measures.

This also applies to the intervention tools where there is a need for constantly monitoring the effectiveness and safety of the diagnostics, therapeutics and vaccines used in the management of these diseases. Drug resistance is always a risk with many of the neglected diseases where it is not uncommon to rely on a single drug for their treatment. Research is urgently required to feed the R&D pipeline and bring into use new or improved appropriate interventions suitable for purpose. This should be a comprehensive, dynamic and holistic approach taking into account the entire spectrum of neglected and poverty related diseases. For such a robust response, the G7 countries need to work jointly in a coordinated manner and in partnership with the disease-endemic countries and other partners. This calls for either a dedicated

neglected and poverty-related diseases fund or a coordinated long-term commitment to meet the needs.

This could for instance be modelled on the European & Developing Countries Clinical Trials Partnership (EDCTP) in which some European Union and sub-Saharan African countries coordinate their efforts and work in collaboration with other global health partners. This partnership aims to accelerate the development and utilisation of intervention tools (diagnostics, treatment, microbicides and vaccines) against these diseases. This involves supporting all stages of clinical trials from phase I to IV, including post-registration implementation research on how to deliver successful interventions best and more cost-effectively. The support also includes capacity strengthening in endemic countries to ensure the research is conducted using good clinical practise and follow appropriate regulatory and ethical principles. In the case of a dedicated instrument of joint effort to fight neglected and poverty-related diseases, this should however be more comprehensive and cover the entire value chain from discovery to delivery including strengthening of health systems.

Science, technology and innovation as a basis for social-economic growth should be used to inform and direct policy. The recent call by the United Nations for a 'seat for science' on the high-level political forum on UN's sustainable development agenda to ensure that *Science* is not just an observer, but an advisor to the policy makers is very laudable.

Scientists and agencies that fund science must take up this UN invitation to occupy their seat and must advise policy makers at all levels. On this note it is gratifying that this years' Nobel Prize in Physiology or Medicine has gone to three scientists for their work on the neglected and poverty-related diseases of round worms and malaria and their discovery of ivermectin and artemisinin, respectively. Ivermectin which is used to treat onchocerciasis (river blindness) and lymphatic filariasis (elephantiasis) is in the forefront in the eradication of these two diseases. For a long time, malaria control relied almost exclusively on one drug – chloroquine. Artemisinin became a game changer when it rescued the malaria control programme at a time it was down on its knees following the development and spread of chloroquine resistance.

To use the words of this year Nobel Committee, "The two discoveries have provided humankind with powerful new means to combat these debilitating diseases that affect hundreds of millions of people annually. The consequences in terms of improved human health and reduced suffering are immeasurable". This shows that the battle against neglected and poverty-related diseases can be won. It is possible not only to control most of these diseases, but even to eradicate many of them. However, for this to happen, it will require a comprehensive, concerted and coordinated approach.

Although in recent time there have been some gains in the fight against HIV, malaria and tuberculosis, the so called big three disease of poverty, the war is far from over. Recent improved research funding, albeit still suboptimal, has

been associated with an increase in the number of candidate products in the R&D pipeline of diagnostics, therapeutics and vaccines. There are now several potential new drugs and candidate vaccines against tuberculosis and malaria. Recently, the first vaccine against malaria (though not fully protective) was registered for use. Similarly, progress is being made in understanding the development of preventive HIV vaccines as well as use of drugs to prevent infection. The deployment of the automated Xpert MTB/RIF assay for the rapid diagnosis of tuberculosis and rifampicin resistance and the ongoing work towards development of several point-of-care diagnostics for tuberculosis and malaria are encouraging.

There is renewed optimism on many fronts, for instance with the possibility that HIV transmission could be significantly reduced by preventive strategies such as early diagnosis and treatment or pre-exposure prophylaxis. On another front, malaria eradication is back on the global agenda. We need to press on with these gains.

EDCTP contributes to this through a partnership of African and European Union participating states in collaboration with other international development partners and the private sector. These include international funders, WHO/TDR and the pharmaceutical industry. The participating countries from both Africa and Europe along with the European Union cofund the initiative, which is administered centrally. The participating states are jointly responsible for setting priorities and a common agenda as well as governance of the programme.

Following on the success of the first programme (2003-2014), which had focussed only on HIV, malaria and tuberculosis, EDCTP has now expanded its mandate and scope to include neglected diseases and cover all phases of clinical trials including post-registration implementation research on optimisation of the health services. The programme is also reaching out to other global health partners for synergistic collaboration. In the programme, capacity building in endemic countries has always played a central role to ensure sustainability and local ownership.

Another example of a coordinated effort is the proposed WHO Pooled R&D Fund that was recommended by Consultative Expert Working Group in 2014. This is to support development of products for diseases where there is market failure as prioritised through the WHO Global Health Research Observatory. This programme needs the support of all WHO member states, including from the G7.

Ladies and Gentlemen, thank you for your attention.

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