

VIEWPOINT:

CLINICAL LABORATORY DIAGNOSTICS IN AFRICA

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Clinical laboratories play a critical role in the health care delivery system by conducting tests on patient-samples. The results produced by these laboratories are crucial in diagnosing, managing, treating and preventing disease. The capacity of clinical laboratories to adequately perform tests and produce accurate and reliable results depends on many factors namely, the personnel training, the quality of test reagents, availability of lab supplies and equipment, and overall organizational and management controls that cover human resources, information management, and procurement. Any problem arising at any component of the system could affect the overall performance. "The capacity of clinical laboratories to adequately perform tests and produce accurate and reliable results therefore depends on many factors that are interdependent and collectively influence the quality systems.

Medical laboratory technology is a profession of highly trained individuals who perform clinical laboratory tests on patient samples. There are essentially 2 levels of training in the profession: the technician and the technologist levels. Although they often have overlapping job duties in the laboratory, the training for technicians takes about 1 to 2 years with emphasis on practical skills while training for technologists takes 4 years with emphasis on both substantive and managerial skills. The managerial role includes supervision, project management and decision making while the substantive roles include problem solving and data interpretation.

Technicians can prepare samples and use automated machinery to conduct some tests, and they may also do tests manually. They could specialize in a specific field or perform a variety of tests. For example, phlebotomists specialize in blood collection; histotechnicians get tissue samples ready for doctors to analyze the samples through a microscope. Clinical laboratory technologists or managers usually supervise the activities of technicians.

In developed countries, medical services rightly rely on results from individual, patient-directed, diagnostic laboratory tests ordered by clinicians. This system appears effective for industrialized settings and is generally sustainable. Laboratory diagnostic services in some developing countries have been modeled on the practices in industrialized countries. However, such routine laboratory testing becomes unrealistic in these developing countries settings because of lack of adequate resources, unreliable test results if not performed properly and due to low quality control measures and stan-



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dards. Some developing countries don't have national quality assurance programs.

Generally in developing countries, laboratories have often been overlooked or not given priority in the healthcare systems and only receive limited funding. Often in addition, laboratory personnel are poorly trained and lack the necessary equipment. The working environment is not conducive and in some instances unsafe. The clinical laboratory profession is characterized by a lack of motivation and low pay, leading laboratory professionals to change profession or emigrate to other countries in search of better working conditions.

In the absence of adequate laboratory services, clinics in African settings sometimes may have to base their diagnosis mostly on symptoms, which could be subjective and challenging given that many endemic diseases present similar symptoms. Sometimes, clinics would request the patients to go and have their tests done in private laboratories where the cost is much higher than in public hospitals. Even though these private laboratories seem to provide better results, their reliability cannot be ascertained due to the lack of national quality assurance programs to certify these laboratories.

Externally funded programs to combat major infectious diseases in developing countries have recognized problems that clinical laboratories are facing; and because the success of these programs obviously depend on good laboratory service support, provisions have been made to strengthen the laboratory capacity in the countries where they are implemented. Two examples of these programs are:

1) the WHO 3 by 5 five initiative introduced on the World AIDS Day in 2003 aimed at providing antiretroviral treatment to three million people living with HIV/AIDS in developing countries and those in transition by the end of 2005; [1]

2) the President's Emergency Plan for AIDS Relief (PEPFAR) [2] which is a US initiative that was instituted in 2003 to substantially increase its support in addressing the global HIV/AIDS epidemic.. Laboratory support activities in these programs include the evaluation of currently available diagnostic technologies; adoption of those technologies that are simple and effective; building of national quality assurance programs; guidance, training and technical support; expansion and strengthening HIV/STI/TB surveillance programs; strengthening laboratory information systems.

Although these programs fund or target only specific disease or area of clinical diagnostics, they can form a model for other areas.

In summary, clinical laboratories in Africa are under funded, understaffed, under equipped and generally lack good quality assurance procedures. Most clinical laboratory professionals in Africa are frustrated by their working conditions and low wage, unlike their colleagues in other parts of the world.

Currently, externally funded health programs in developing countries - mostly targeting the main infectious diseases (HIV/AIDS, STI, TB, and malaria) - are putting a great emphasis in working with the ministries of health to strengthen laboratory capacity in the countries. However these are short-term programs that will terminate leaving the countries to face the usual sustainability problems. In

Increased economic growth in Africa may lead to overall higher investment in the health sector, especially in human resource capacities and laboratory facilities. Any plan to fight global disease must include upgrading of laboratories. Hopefully, laboratories in Africa could benefit from the current political momentum to end poverty in developing countries including through the global initiative and the millennium development goals.

References:

1. <http://www.who.int/3by5/about/initiative/en/print.html>
2. President Delivers "State of the Union", white House Press Release, 28 January 2003. www.whitehouse.gov/news.