



## Role of National Reference Laboratory: Bangladesh Perspective

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National Reference Laboratory is very essential for a country. Bangladesh has not such type of laboratory for a long time. Few laboratories are playing partial role as reference laboratory in Bangladesh. However, it is a far cry about this referral laboratory. With this type of need, an initiative has been taken by the legendary professors of laboratory medicine of Bangladesh to establish this kind of laboratory. After structural setup and constructive work of ten storied building in Dhaka a reference laboratory named as National Institute of Laboratory Medicine and Referral Centre (NILM&RC) has been visible in front of the Bangladeshi people. But lack of coordination, unwillingness of the administration of this Institute this was not possible to run in full swing. In this context the honorable health minister, MOHFW, Bangladesh has taken the initiative to run this laboratory in full scale from October 2019. From then NILM&RC is functioning with pride and honour.

The detection and management of communicable and non-communicable diseases starts with the identification of the condition with laboratory diagnostics which is the cornerstone. This triggers downstream interventions, including therapeutics, treatment monitoring, epidemiological surveillance, population-wide disease control and preventive vaccine development. Furthermore, the diagnosis as well as the management of communicable diseases requires laboratory services, buttressed by an enabling policy framework. It is also very essential to monitor the lower level laboratories and these are guided by the national reference laboratories, which tend to have better human and infrastructure resources. Laboratory services should provide accurate diagnosis leading to prompt and appropriate treatment, and they should support treatment monitoring. The accurate diagnosis allows for targeted and appropriate treatment, reduces

morbidity, reduces mortality as well as it is cost effective. At population level, it also facilitates public health surveillance, contact tracing and case hospitalization, all of which can reduce the risk of the disease spreading locally and across borders.

National Reference Laboratories are at the pinnacle of diagnostic service provision. They play pivotal roles in the diagnosis, disease surveillance and statistical analysis of epidemiological data. When the roles and functions of national reference laboratories are well defined, their contribution to efforts to address the health challenges posed by communicable diseases in general and is easier to anticipate.

The capacities of national reference laboratories can be increased on the demand of the clinicians of the country and should be assessed by different international organization. The areas of assessment include generic issues that would affect laboratories regardless of their specialties such as policy, as well as those specifically affecting the capacity to provide diagnosis and treatment monitoring for diseases. The results of the assessment were reported.

The definitions of national reference laboratories are varied in different countries. In few countries, the tertiary hospital-based referral laboratories are described as national reference laboratories; in others national public health laboratories are the national reference laboratories. In addition, some laboratories work as a hybrid of the two general profiles. There is no common denominator. The functions and roles of these institutions have been varied as does their staff composition and service profiles. The infrastructure housing the laboratories is also variable. Establishment of National Institute of Laboratory Medicine and Referral centre

(NILM&RC) in Bangladesh gives a great solution regarding these problems.

The laboratory focus could be generally described as either diagnostic or public health, with the diagnostic profile predominating. In few countries the public health role was more prominent. Even when the laboratories are predominantly diagnostic or public health-oriented, the activities conducting within them, are varied widely. The intended purpose of the laboratories dictated the composition of personnel, equipment complement and the scope of services provided. Because the profiles are different, the perceived roles and functions are different. The expectations of policy makers and other laboratory users are defined by the profiles and functional capacities of laboratories.

Laboratories with a diagnostic bias in general have limited capacity to participate in public health activities. In addition to general challenges, diagnostic type national reference laboratories has a

limited capacity to provide essential but specialized, sophisticated or costly laboratory tests. Public health-type services were virtually absent in diagnostic type national reference laboratories.

On the other hand, public health-type laboratories had inadequate diagnostic capabilities. These related mainly to policies and policy implementation plans, the numbers and expertise of personnel, attention to quality management, inadequate systems of information management and financial constraints. Financial limitations influenced the acquisition and servicing of equipment and the procurement of laboratory reagents, consumables and sundries. The challenges facing national reference laboratories are systemic. The optimization of their functions requires a common redefinition of the expected roles, functions and minimum standards. These should be complemented with adequate allocations of appropriate human resources, operational logistics and financial support.

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