

The Need for Point of Care Testing (POCT) in Health Care Settings

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Introduction

Point of care testing (POCT) is a rapidly growing field in the healthcare system. Also called as near-patient testing, it means laboratory testing of the patient's specimen outside the hospital premises, near to the location of the patient [1,2]. The purpose to develop POCT is to provide laboratory testing reports and results to physicians in a timely manner so that decisions regarding treatment of the patient are taken in a timely manner without any undue delay [3].

POCT is an emerging concept wherein the laboratory tests of the patients are done by individuals who have no formal degree or education in laboratory sciences and technology [4]. Usually, nurses, midwives, female multipurpose workers, anesthesia assistants, physicians and even patients can perform POCT. Use of glucometer for checking blood sugar levels, pregnancy test kits to determine pregnancy, malaria test kits to diagnose Malaria and rapid card tests for diseases like HIV and Hepatitis B are used by patients themselves and are considered to be examples of POCT. The main aim to develop POCT laboratory is the reduction in the time taken for the physician to diagnose the ailment through usual hospital laboratory tests. Moreover, to establish a POCT laboratory, the personnel performing the tests, equipment, infrastructure and other benefits must be evaluated and explained to the patient [5]. POCT testing has been very useful in settings like emergency rooms, intensive and neonatal care units and operating rooms [6]. The main concern lies with the quality of the testing and the POCT laboratory services should result in better outcomes and less hospital stay among patients. The introduction of the concept of POCT in the Indian healthcare system requires necessary planning, situation analysis, oversight, inventory control. Assuring the reliability of test performed in POCT through adequate training of the staff and quality control.

This article aims at providing a new concept, guidelines, and framework regarding the point of care testing in the healthcare services in the Indian context. This article also provides information regarding management, maintenance and implementation of POCT services with special emphasis on the safe use of such services in the community and healthcare settings.

Need for Point of Care Testing (POCT) Services

The traditional laboratory set up in the community and health care settings have been providing laboratory service to the patients for long. No doubt the ease of testing within the hospital premises, quality of the tests and standard rates for each test has been appreciated by almost every patient. In the process, a lot of time is utilized which may cause the delay in the primary diagnosis of the patient and eventually adverse outcome of the ailment [7,8]. In contrast, POCT uses relatively lesser volumes of capillary whole blood from a finger stick. The test results are available within a short span of time with potential early patients care and management resulting in improved survival and outcome [9].

A review of NHS pathology services in their report clearly mentions that faster results are produced in locating the test equipment near to the patient bedside [10]. This protocol is valuable in the golden hours like in life-threatening conditions. The report also recommends

that laboratory services should work in close coordination with the community-based health services to improve the care of patients where ever necessary [11].

The testing in the main laboratory depends on the turn-around time which adversely affects the result outcome results in delays in investigation reports. Turn-around time depends on variables including time from the health care providers request, the collection of the blood specimen from the patient and delivery of patients sample to the; laboratory. Establishing a POCT laboratory helps in decreasing the effect of the above-mentioned variable to a greater extent as the laboratory personnel's are located in that particular area and can report the sampling collection site in less time. Furthermore, they can analyze the obtained samples and deliver reports within no time.

What we require to establish a POCT Services

The establishment of the POCT services require (1) establishment of need, (2) consideration of the clinical, operational, and economic benefits and (3) the costs involved. The need to establish a POCT service should, first of all, identify the likely benefits accrued to the patients by establishing such rapid services. Moreover, the clinical consideration in managing such services should be kept in mind. The operational difficulties, challenges and economic benefits from delivering such services should also be considered. The assessment of risk from providing such services should be conducted focusing primarily on the patient care, procedures involve and other related procedures that need to be put to provide the best possible services with high-quality diagnostic services [12]. Some of the issues with major concern include (1) durability of the devices used in POCT services, (2) quality control of the investigation reports, (3) competent device operators, (4) productiveness in the transmission process of the results to the health care providers, (5) expertise of the healthcare provider in interpretation of the results provided by POCT personnel, (6) adequate record keeping protocol, (7) identifying lacunas in the procedure and correcting them accordingly [13,14].

There is a need to develop a Coordination Committee

To carry out the POCT services effectively, there is a dire need to develop and form a coordination committee which will be charged with managing and running all the processes of delivering high-quality POCT services. The committee should include representatives from the community who use the services (end users) along with the representatives from the organization providing the services (providers). The end users include healthcare providers and maybe even a patient. The providers should include at least one representative from the laboratory and those involved in the use of other diagnostic and therapy equipment close to the patient (e.g. Respiratory measurement technologist and nurses). Typically, a laboratory professional will chair such a committee because it is the laboratory that will provide the necessary backup if there is a service failure; furthermore, the laboratory professional will have had training and expertise with the analytical issues that are likely to arise. For many reasons, the committee should report to the medical director.

The committee should then designate members who will take the responsibility for overseeing the training and accreditation of all POCT operators and also for QC and quality assurance. The work of the committee should be governed by the organization's policy on POCT. Implementation of a POCT service requires a POCT policy that establishes all of the procedures required to ensure the delivery of high-quality services, together with the responsibility and accountability of all staff associated with the POCT.

Training and Certification of the POCT personnel

The confidence of the clinician, the caregiver, and the patient in the results generated by a POCT device depends heavily on the robustness of the instrument and the competence of the operator, given that it has already been shown to meet the analytical requirements of the clinical setting. Many of the agencies involved in the regulation of healthcare delivery now requires that all personnel associated with the delivery of diagnostic results demonstrate their competence through a process of regulation and this applies equally to POCT personnel. Typically, those healthcare professionals, involved in POCT will not have received training in the use of analytical devices as part of their core professional training but may be called upon to operate a number of complex pieces of equipment. Competence on a long-term

basis is maintained through regular practice of skills and continuing education and it is important to build these features into any education and training program. Regular review of performance in QC and quality assurance programs will provide a means of overseeing the competence of operators. The regular assessment of competence should be built into a formal program for recertification that will be a requirement of most accreditation programs.

Documentation, Accreditation and Regulation of POCT

It is critically important to keep an accurate record of the test request, the result, and the action taken as an absolute minimum. The documentation should extend from the standard operating procedures for the POCT systems to records of training and certification of operators, internal QC and quality assurance, together with error logs and any corrective action is taken.

Accreditation of POCT should be part of the overall accreditation of laboratory services. The Clinical laboratory improvement amendments of 1988 (CLIA) legislation in the United States stipulates that all POCT must meet certain minimum standards. In the United States, CLIA and CAP are responsible for inspecting sites and each is committed to ensuring Compliance with testing regulations for POCT.

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