Original Research

Assessment Of Satisfaction Rates Towards Viral Diagnostic Laboratory Of Indian Council Of Medical Research Among Patients, Lab Staff And Doctors In Central India

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ABSTRACT

Background and Objectives: Department of Health Research, Government of India and the Indian Council of Medical Research (ICMR) have established a three tier network of laboratories for the diagnosis and research on viruses of public health importance. These laboratories provide diagnosis free of cost and are monitored for the quality and turnaround time. However, their utility at local level to the patients, clinicians and programme is not evaluated. We planned this cross-sectional study to understand satisfaction of the patients, clinicians and laboratory workers towards the diagnostic services provided by State level Virus Research & Diagnostic Laboratory (SL-VRDL) of ICMR-NIRTH (National Institute of Research in Tribal Health), Jabalpur.

Methods: The desired information from patients, clinicians and laboratory workers was collected in a semi structured feedback form during the study period from July to September 2018. The information was entered in to MS Excel for basic analysis and then was further analyzed using SPSS v. 20.

Result: We could collect feedback from 573 responders, of whom 485 were patients, 54 were treating clinicians and 14 were laboratory technicians. Four hundred and sixty three (95%) patients, 53 (98%) doctors and 13 (93%) technicians were found satisfied with the services. However, 4% patients complained about difficulty during drawing of blood sample, delay in timely reporting and difficulty in submitting of samples on nonworking days. More than 70 % clinicians had confidence in the reports generated by laboratory. 10 (18%) doctors requested for sample reception on government holidays as well. 11(79%) technicians believed that workload was manageable.

Conclusion: The study shows that the overall satisfaction level for the services provided by the SL-VRDL is high; however, also brings out the lacunae to improve the services in future. We suggest more systematic studies at different VRDLs across the country to capture the key points for betterment of the network

Key Words: feedback, ICMR, VRDL, laboratory utility, patient's and doctor's satisfaction

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INTRODUCTION

Diagnosis of viral diseases is important especially in the era of emerging and re-emerging viral infections. The department of health research (DHR), Government of India, had funded to establish a network for virus research and diagnostic laboratories across the country which is being run by Indian council of medical Research (ICMR), New Delhi. This three tier lab network has Medical College, State and Regional level laboratories to address this challenge. ¹ These labs use recommended kits, reagents and follow Standard Operating Procedures (SOPs). The labs are attached to the apex laboratory at National Institute of Virology (NIV) for external quality control program. These labs follow a systematic approach for collection and testing of samples and gather the information in a prescribed format². The data generated in the form of test results along with symptoms and demographic information is uploaded to a portal which is managed by ICMR-National Institute for Epidemiology Chennai (ICMR-NIE). ICMR-NIE monitors data quality and analyze data provided by network laboratories to signal about any impending or frank outbreak also any new/emerging viral pathogen.³

The State Level Viral research and diagnostic Laboratory (SL-VRDL) for the state of Madhya Pradesh is functional since 2012 at ICMR-National Institute of Research in Tribal Health, Jabalpur (ICMR-NIRTH). This is a Biosafety level 2 laboratory, equipped for carrying out serological and molecular tests for more than twenty viruses and the diagnosis is provided free of cost. As per the mandate, the laboratory conducts molecular & serological research on viruses of public health importance and also conducts outbreak investigations.^{4,5}

The laboratory has proved its utility towards public health during Influenza and COVID 19 pandemics. The studies in past have also shown that these labs have proved to be a boon for health sector of India in the control and containment of the disease ⁶

Samples for viral diagnosis are referred by various government authorized facilities; mostly from eastern Madhya Pradesh. This laboratory is recognized as Apex referral laboratory for Dengue and Chikungunya, Sentinel laboratory for Japanese Encephalitis by National Vector Borne Disease Control Program and is accredited for serological & molecular diagnosis of Measles and Rubella. The laboratory tests about 400-500 samples per month, however this inflates when there are outbreaks, epidemics and pandemics. In a routine course, the laboratory operates six days a week, but during emergencies like pandemics and outbreaks it functions round the clock. The laboratory participates in external quality control program of VRDL Network and WHO. It has demonstrated more than 99% concordance with the resource centers in serological and molecular diagnosis. The records of the laboratory are also maintained at ICMR-NIE website timely.

On one hand using quality reagents, instruments, SOPs, sterilization techniques, time management, employment of skilled, experienced and dedicated lab staff, are important elements for any public health laboratory, it's success has also to be gauged on satisfaction of direct beneficiaries like patients, clinicians/doctors and health program managers. Further quality work and uninterrupted services can be delivered by satisfied lab workers. Burnout among healthcare workers has shown to be a significant problem. It has been associated with multiple undesirable outcomes, including decreased job satisfaction⁷⁻¹⁰

This analysis was also helpful in finding out shortfalls and points towards improvement for providing better services. We made an attempt to assess the overall satisfaction of beneficiaries towards the services provided by SL-VRDL at ICMR-NIRTH, Jabalpur.

METHODOLOGY

This is a cross sectional study which was conducted from July to September 2018. Pre- tested questionnaires containing both close and open ended questions were designed separately for patients, clinicians and laboratory staff. After taking written informed consent the questionnaire forms were filled by the participants under the direct supervision of the investigators while maintaining their anonymity. The patients or their attendants completed the questionnaire at the laboratory when they visited the lab for collection of test reports. Our team visited various departments of tertiary care hospital and collected data from treating clinicians. This study has clearance from institutional ethical committee.

The data generated was entered initially in to MS Excel (Microsoft, USA) and then was analyzed using statistical software SPSS 20 (IBM, USA) and mean, proportion and percentages were calculated. Chi square test was applied to find association between different variables. The critical value for the significance of the results was considered at <0.05 level.

RESULT

Out of total 573 responders 485 were patients/ attendants, 54 clinicians at the tertiary care centre from the departments of Paediatrics, Medicine, Obstetrics and Gynecology and 14 laboratory personnel working in the SL-VRDL.

Patient's/ attendant's response analysis:

Out of total 1192 beneficiaries of the lab during the study duration 485 (41%) participated in the study. Out of which more than half (63.5%) were in between 18-35year age group and 84.3% responders were males. Nearly half (41.2%) of them belonged to rural and tribal

areas, among them ninety (18.5%) responders belonged to the tribal communities named-Baiga, Bhil, Gond and Kol. Most of the patients/samples (95.1%) were referred to the institute by Government health facilities. Among the 485 patients/ attendants interviewed, 463 (95.5%) were satisfied with the facilities provided at our laboratory, only 22 (4.5%) individuals were dissatisfied with one or the other ailments. Four patients found that sample submission and getting report were the easiest steps during visit to the facility while others believed that each step is easy.

Two individuals found getting timely report was a challenge while two believed that submitting sample on Saturdays was the toughest task during the Institute visit.

Twenty-nine individuals had visited this facility once or more in past five years. 4 of them also mentioned that the time taken in reporting had improved than before and the free E- rickshaw facility to pick & drop from main entrance gate up to the Institute's building is very helpful.

The satisfaction with the facility and satisfaction with timely reporting was expressed by 477(98%) and 481(99%) respectively, which was found statistically significant. All the patients/ attenders who participated in the study were satisfied with the ease of getting report and testing quality whereas 483(99.5%) individuals were satisfied with the ease of sample submission (Table 1). When asked about the satisfaction with the facilities provided at the tertiary care centre 97% individuals had given the response in favor.

S.	Variable with which Satisfaction	No. of Satisfied Individuals	Chi Square	D Voluo
No.	level is shown	(percentage)	value	r value
1	Satisfaction with the facility	477 (98.35%)	93.26	< 0.05
2	Satisfaction with timely reporting	481 (99.17%)	46.49	< 0.05
3	Satisfied with the ease of reporting	485 (100.0%)	-	-
4	Satisfied with ease of sample submission	483(99.49%)	0.095	>0.05
5	Satisfaction with Quality	485(100%)	-	-

Table No. 1: Showing Satisfaction level of patients/attenders with the laboratory

Doctor's Response analysis:

All 54 participating clinicians believed that establishment of separate lab for virology diagnosis has helped in timely diagnosis and early initiation of treatment. Fifty-three out of fifty-four (98%) clinicians claimed that they have always received accurate report with correct names and the tests they have requested. Thirty-one (57%) doctors agreed that the lab tests they have ordered were promptly accepted. Forty (74%) doctors appreciated that the laboratory has succeeded in gaining trust over the authenticity of testing. Symptomatic concordance of reports was reported by 20 (37%) doctors. Most of the mismatch between clinical symptoms and lab diagnosis was observed in case of Influenza, Dengue and Chikungunya. Only 21(39%) doctors believed that writing the correct duration of illness in the patient information form by them helps in the selection of lab test for Dengue and other diseases by the technicians. Doctors who were found ignorant about the importance of mentioning the correct duration of symptoms in the request forms were the ones who complained that the results are not in consensus symptomatically (21/34, odds 1.07, p >0.05) but these findings are not statistically significant. Ten (18%) interviewees complained that during holidays samples were not received or they faced hurdle in submitting the samples and collecting the reports.

Lab Staff response analysis:

Twelve (86%) staff members informed that the patient information forms were found incomplete while 7 (50%) interviewees informed that the samples were not referred in well maintained cold chain. Three technicians reported that patients visit the lab most of the times with inadequate or haemolysed blood samples. No one had complained about getting requests to remake the test result reports. 10(71%) of them declared that speeding of the testing process is possible. Thirteen (93%) individuals were satisfied with the work environment as well as with the availability and usage of universal precaution aids in the laboratory. Twelve (86%) individuals described our lab a safe working place and provision of free vaccination facility against vaccine preventable viral diseases at the workplace and 11(79%) believed that workload was manageable.

Further analysis of responses from the patients/ attendants and doctors revealed other factors which aid in the satisfaction level were timely and free of cost testing. Also high quality diagnosis was very helpful in timely intervention. The availability of transportation from the main gate of the institute to laboratory building by E rickshaw was appreciated by patients/ attendants. Laboratory staff expressed their satisfaction on the working environment, biosafety practices, appropriate vaccination strategies, technical training and retaining. On the other hand, distance from medical

facility to the laboratory, need to re visit the laboratory due to incomplete lab request forms or insufficient/ incorrect samples, difficulties in submitting the samples on government holidays, unawareness of clinicians about list of viral diagnostic tests available at the laboratory and the need for complete lab request forms, unavailability rapid /urgent/emergency diagnostic services and sending timely alarms about unusual results to the hospitals were the points for consideration for betterment of the services .

DISCUSSION

The study documents high level of patient satisfaction towards the diagnostic services provided by the SL-VRDL in central India which is similar to the findings of another study. ^{11,12} The importance of customer satisfaction in driving quality improvement has been increasing in health sector, so as in the field of diagnostics as well. Patients are ultimately the primary customers of diagnostic laboratories but doctors, nursing staff and more importantly national and state health programs also benefit by it as they send the alarms to the heath functionaries for timely intervention. Treating clinicians are considered as internal or secondary customers. So, their opinion is also essential for improvement in laboratory management.¹³ Patient's satisfaction is highly dependent upon the ease of sample submission, easy and timely reporting, they also leverage clinically important advantage which supports clinicians in decision making and initiating treatment. Our laboratory scored high on all these factors similar findings are mentioned in previous studies also. 14,15

Laboratories usually focus primarily on the technical aspects and quality of tests while doctors and patients are more concerned about the timeliness of test results.¹⁶ and in this study it was found that laboratory staff, doctors and patients all three were satisfied. A study by Lee et al ¹⁷ showed that the high cost of laboratory tests was one of the most significant negative factors for patient satisfaction, however since the tests are done free of cost the patients had no complaints about this also.

This study also records high satisfaction among laboratory workers. The National Institute for Occupational Safety and Health (NIOSH) defines Total Worker Health (TWH) as policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker wellbeing.¹⁸ The TWH definition explicitly reflects the priority placed on changes to improve physical, organizational, and psychosocial factors in the work environment.

These become more important in virology laboratory as bio-safety and biosecurity are very important aspects of the working environment over there. We assessed and found satisfaction among most of the employees on parameters such as safety practices like availability and use of personal protective equipments, physical hazards, reduction of possible exposure to pathogens, timely vaccination, etc. Similar findings are reported in a previous study as well.¹⁹

The laboratory has succeeded in winning the trust of the referring doctors due to the quality, authenticity, prompt acceptance of testing orders, concordance of test results with the signs and symptoms of disease in question which helps doctors in early initiation of the treatment., test reports are usually in concordance with the symptoms, similar findings are reported in previous studies^{20, 21}

Based on the finding it is suggested to update the clinicians on regular basis about the availability of tests in the VRDL laboratories. The clinicians must be provided with the updated laboratory handbook, a laboratory information searching system and test menu.¹³ It is recommended to brief them about completing the lab request forms through regular workshops which will help laboratory personnel to conduct correct test for the diagnosis. Further, sample transportation in cold chain needs to be improved which will help in improving the quality of diagnosis and subside rate of sample rejection. Setting a sample collection centre at the tertiary health centre may help sample collection on holidays; however it will need extra human resources. The VRDL network reports all its results to ICMR-NIE portal which generates outbreak alerts, the VRDL also sends alarms to state and national programs in case of any unusual rise or detection of highly infectious diseases on a daily basis but it would be beneficial if hospitals are also involved in this network.

This study has a few limitations such as it is done for a short period with limited number of respondents, not including feedback from the program managers and having small number of laboratory personnel; nonetheless this study gives both utility and possible points for improvement in the VRDL services which can be implemented for best outcome of the flagship scheme of DHR and ICMR.

CONCLUSION

For the efficiency and usefulness of any human laboratory & research center the performance of the doctors who are referring the patients, patient satisfaction also the technicians and equipments involved in the testing process matters. From our study we can make an inference that ICMR being the apex body for medical research and laboratory testing, regarding ICMR-VRDL laboratory the doctors trust the facility for authenticity and timeliness of testing and reporting, the patients are satisfied as high quality test

results are provided to them free of cost and in quick time span, the laboratory staff is found satisfied with the work environment and testing policy. Although there is a scope of improvement in sample withdrawal and pickup facility for distant & difficult to reach regions, making it a 24*7 testing facility, updated laboratory handbook and a laboratory information searching system and test menu can be provided to the benefitting health care facilities for reference.

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Conflicting Interest: The authors have no conflicts of interest to declare.

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