



STUDY TO ASSESS THE FEASIBILITY
OF INNOVATIVE POINT OF CARE
DEVICE- AINA FROM THE
PERSPECTIVE OF USER

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INTRODUCTION

- India's is having more than 1.37 billion people. Approx. 70% of the total population lives in rural areas in India.
- To consider this population government of India created various health centers setup at rural areas under NHM



sub centers
(SC's)

Primary
Health Centers
(PHC)

Community
Health Centers
(CHC's)

- It is basic to highlight that quality services to address the growing burden of communicable and non-communicable disease at the last-mile.
- the importance of integrating innovative point of care devices with tele-consultation units in the primary healthcare settings across India in respect to that.

- Point-of-care (POC) testing is highly regarded as an effective and innovative method to manage diseases, especially in settings where resources available are very poor, primarily to reduce wait times for diagnosis and start of treatment as early as possible
- The importance of POC diagnostic equipment in the fight against the COVID-19 pandemic can be highly appreciated .
- Low cost is a major benefit provided by POC diagnostic devices as a large part of Indian population cannot afford traditional diagnostic methods which cost them high.
- This study tries to identify the feasibility of integrating innovative point of care device-AINA at the PHC level and gave an insight on the challenges and limitations associated in implementing innovative point of care devices at user end.



About the Device

- AINA Device is a portable blood monitoring system that performs blood tests within minutes.
- The AINA Blood Monitoring System offers a wide range of tests including Hemoglobin, HbA1c, Lipid profile and glucose tests on a single platform including immunological, enzymatic or chemical assays.
- Manage chronic diseases with the world's first smartphone-based diagnostic system.

AINA device is

- Safe and Reliable - Manufactured in a very high-quality standard in an environment in accordance with ISO 1385
- Clinically proven – clinically validated at various reputed clinical setups across the world.
- Mobile and Cloud Ready - Compatible with iOS and Android platforms. Ready for the integration of guaranteed and secured information technology.
- Accurate and precise – performance at par with industry gold standard, laboratory and point-of-care equipment's.

Research Question

- Does implementation of the point of care device AINA at PHC across Rajasthan is feasible from operator's point of view?

Objectives

- To assess the feasibility of AINA device from the user's perspective.
- To assess the challenges and limitations associated in at user end.

METHODOLOGY

Study Design : It was a mixed approach having both qualitative as well as quantitative component

Sampling Technique :

Using purposive sampling of the operators from the 25-health center's where the device is installed based on the previous year MIS data across the various districts from Rajasthan

Data collection procedure: Data was collected through Phone call Interview of the device operators i.e. LT, GNM.

Tool of analysis : Microsoft Excel

Data collection instrument : Structured interview having the questions based on parameters related to the use of device AINA across

Study population

- respondents were the operators of the Device AINA at the Health centers across the various districts from Rajasthan.

Inclusion Criteria

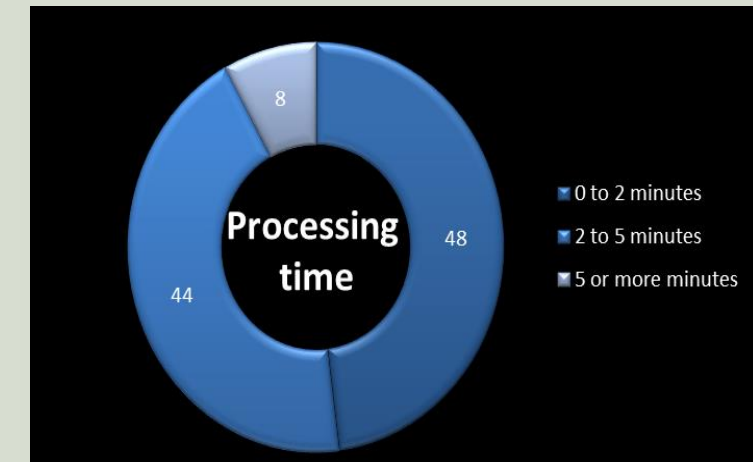
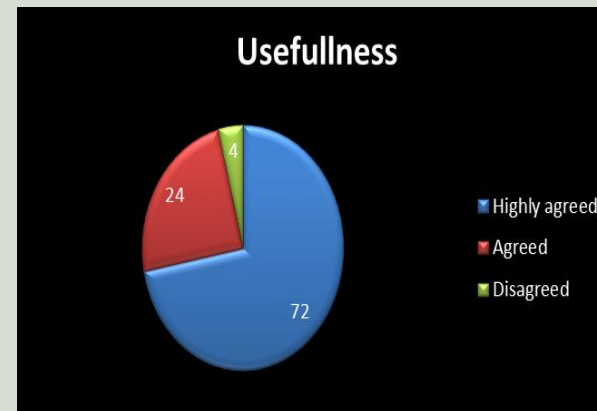
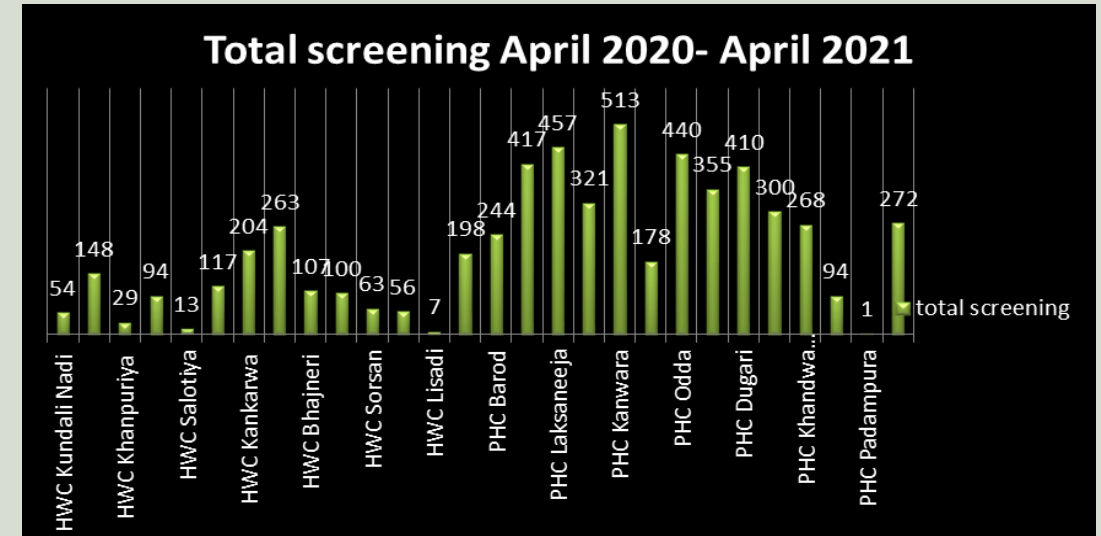
- Operators from the Health center's that have point of care device – AINA installed.

Exclusion criteria

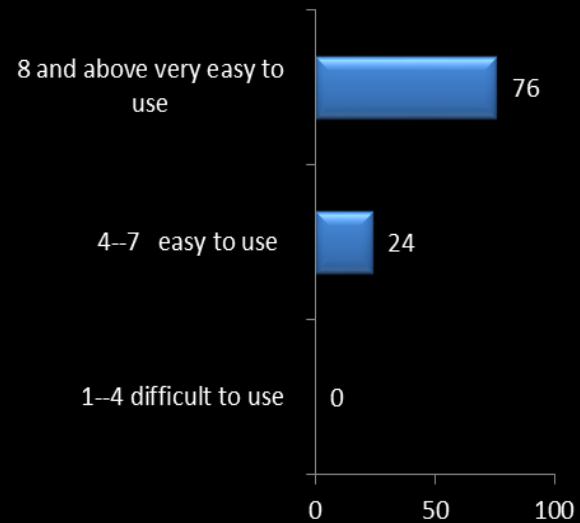
- Operators from the Health center's that do not have point of care device – AINA installed.

Results

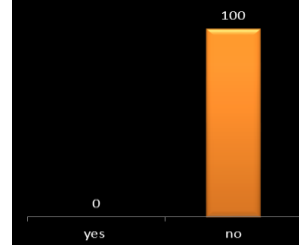
Characteristics	Number (n=25)
Gender	
Male	23
Female	2
Education	
Graduation	25
Post-graduation	0
Above post-graduation	0
Marital status	
Married	10
Unmarried	15
Experience	
1-2 years of experience	5
2-4 years of experience	11
Above 4 years of experience	9



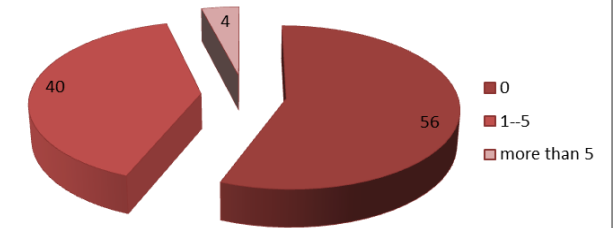
User friendly



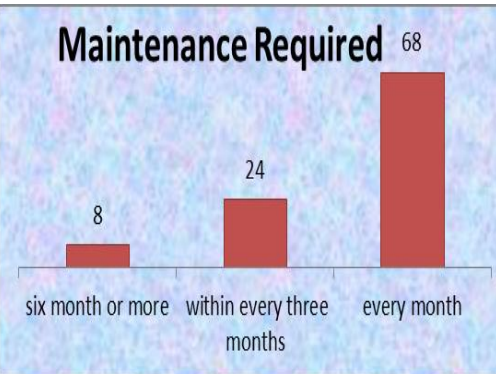
Assistance required



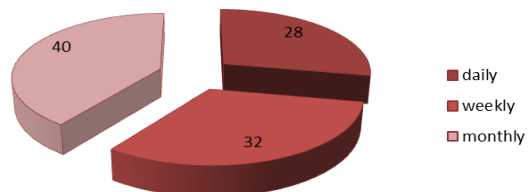
Test repetition per day



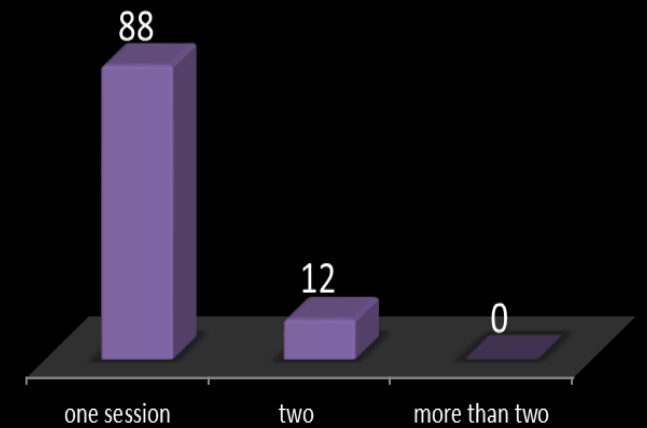
Maintenance Required

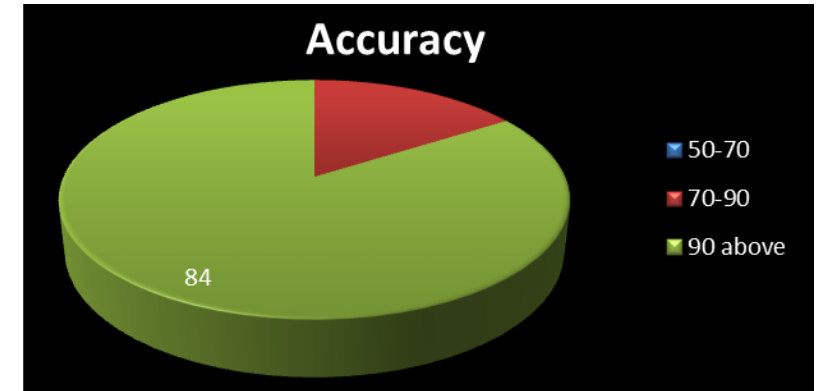
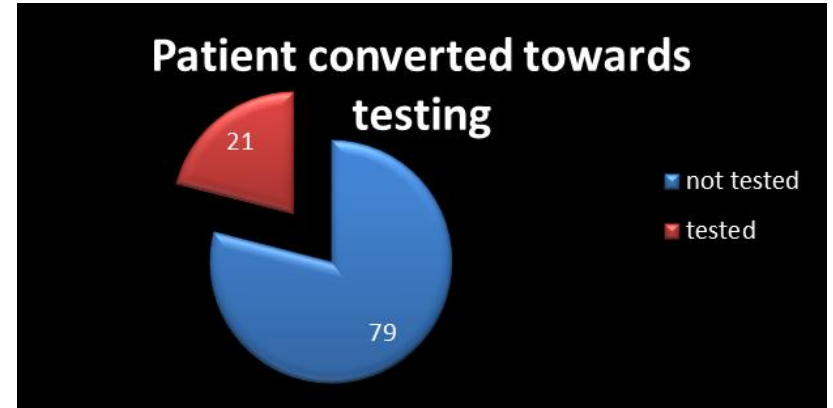
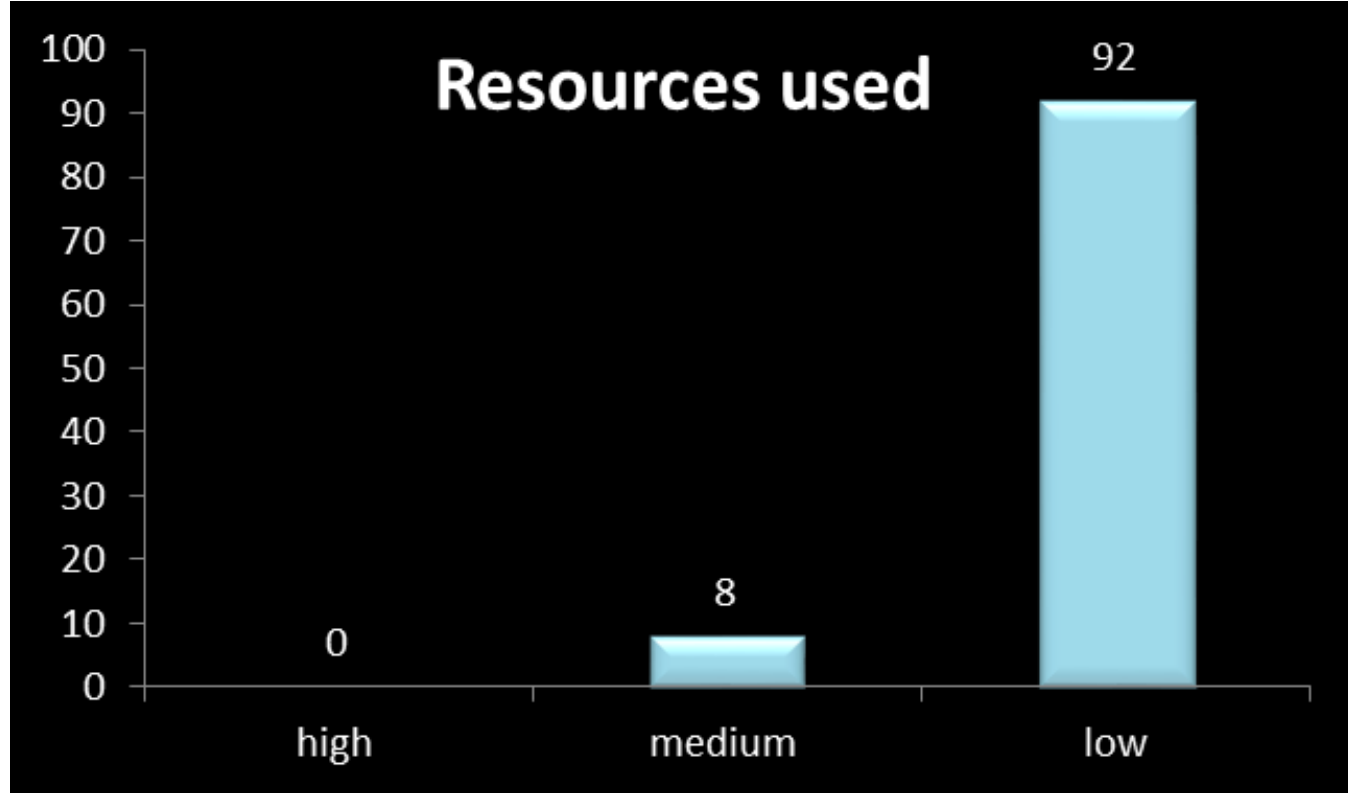


Technical glitches



Required training





Discussion

- Study by Engel, N., Ganesh, G., Patil, M. et al. suggests that there are many diagnostic delays that interfere with the continuity of POC. Conventional rapid tests are not currently available because they have not translated into rapid treatment decisions or may warrant shorter turnaround times, thus completely reducing their potential. While this study resulted that more than 92% of test execution times were found to be less than 5 minutes.
- Various studies have done for the accuracy of AINA device which suggests that the device accuracy is more than 90 % in comparison with the other methods of testing in view with that study; this study suggests that more than 84 % people responded that the device accuracy is more than 90 %.
- A Study by Aditya Narayan Konwar, Vivek Borse, et al suggests that TATA Elxi has developed a glucose monitoring device. It is easy-to-use, portable, and very convenient for people that need continuous blood glucose level monitoring this study gives an account on that operators gave an average 8.27 rating to use which shows that it is very easy to use add on to that 100 % operators support the statement by responding that they do require any assistance while using the device. Also the resource requirement is very low responded by approx. 92 % operators.
- A study by Tivani P. Mashamba-Thompson, Ngcwalisa A. Jama, Benn Sartorius, Paul K. Drain, Rowan M. Thompson et al showed that 11 key stakeholders were involved in the study and all stakeholders found that the main benefit of the point of care diagnostic devices as it enables access to healthcare diagnostic services for rural patients. Stakeholders believe that existing POC diagnostic services can meet the needs of patients. In contrast to the study, this study also suggests that more than 96 % operators agreed that the AINA-device is really useful at PHC.

Recommendation

Despite the fact that the use of AINA-device at PHC level helps in decreasing the patient loads at district hospital the device makers need to incorporate few changes to resolve the issues like technical glitches.

In few devices it is found that in the months of summer season due to temperature increase there is a variation or error seen in the devices, operator's needs to have look on that. The device can be placed at ac rooms where the temperature can be maintained in contrast to summer season.

The device need maintenance like cleaning within 15-20 days as the optical lens becomes dusty and results in variations of the test value manufacturers need to account the issue. Manufacturers can organize virtual training on how to clean and maintain the device so that the results won't get affected.

Conclusion

The effectiveness of point of care AINA device for better patient outcomes, including improved access to diagnosis and treatment, has been demonstrated. Increasing access to POC diagnostic devices, such as AINA device, is one of the global medical priorities in resource-constrained environments with restricted access to lab infrastructure. Our results highlight the feasibility and key challenges in implementing POC diagnostic services at the HWC/PHC/CHC level. A better implementation of POC diagnostics in these contexts requires ideas, perspective and collaboration among POC stakeholders to overcome the above obstacles.

To ensure the success of Point of care testing surveys or programs, test developers, policy makers, and funders must account for the everyday ground realities and challenges to overcome the barriers of POC testing programs.

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