

**INNOVATIVE POINT OF CARE DEVICE- DOZEE : A FEASIBILITY
STUDY**

Dissertation Submitted to



The IIHMR University, Jaipur

For the partial fulfillment

for the award of the degree of Master of Business Administration (MBA)

In

Hospital and Health Management

By

Dr. V Manohar Reddy

Under the Supervision and Guidance of

Prof. Nutan P Jain

2021

INNOVATIVE POINT OF CARE DEVICE- DOZEE : A FEASIBILITY STUDY

Dissertation Submitted to



The IIHMR University, Jaipur

For the partial fulfillment

for the award of the degree of Master of Business Administration (MBA)

In

Hospital and Health Management

By

Dr. V Manohar Reddy

Under the Supervision and Guidance of

Prof. Nutan P Jain

2021

DECLARATION BY STUDENT

I hereby declare that this dissertation titled 'Study to assess the feasibility of innovative point of care device-DOZEE from the perspective of device operators' is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Dr V Manohar Reddy

Date

CERTIFICATE

This is to certify that Dr. V Manohar Reddy in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur has successfully completed her/his internship at WISH Foundation, Jaipur-Rajasthan during March 22, 2021 to June 19, 2021.

Place: Date:

Preceptor/Head of the Organization

Name of the organization

CERTIFICATE

This is to certify that dissertation titled ‘Study to assess the feasibility of innovative point of care device-DOZEE from the perspective of device operators’ is a record of the research work undertaken by Dr. V Manohar Reddy in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.

Faculty Guide

Prof. Nutan P Jain

IIHMR University, Jaipur

Date

School Dean

Dr Dhirendra Kumar

IIHMR University, Jaipur

Date

Table of Contents

S. No	Topic	Page No.
1.	Introduction	9
2.	Literature review	12
3.	Study Question	13
4.	Study Objective	13
5.	Methodology	13
6.	Ethical Consideration	17
7.	Results	17
8.	Discussion	23
9.	Conclusion	26
10.	References	26

LIST OF TABLES

S. No.	Table	Page No.
1	Table 1: List of PHC by districts covered under the study	13
2	Table 2: The parameters used for the study of feasibility of DOZEE	15
3		

LIST OF FIGURES

S. No.	Figure	Page No.
1	Distribution of number of tests done at PHC's using the DOZEE device from Jan 21 to March 21	17
2	Perception of operators towards training requirement	19
3	Processing time of device per testing	20
4	Challenges faced during operating the device	21
5	Device Usefulness perception of respondents	23
6	Result: Total feasibility perception score	24

Abbreviations

POCD: Point-Of-Care Devices

RPM: Remote Patient Monitoring

Acknowledgement

The success of any task would be incomplete without the expression to the people who made it possible. Hereby I take this opportunity to express my deep sense of gratitude to all this who have been Instrumental in successful completion of my dissertation in WISH Foundation, Jaipur.

At the onset of my report, I would like to acknowledge my sincere thanks to my Institute of Health Management Research Jaipur for providing me a platform to gain enough knowledge and skills in different aspects of health management and WISH Foundation, Jaipur for believing me on my abilities.

I express my gratitude and respectful regards to my Guide Nutan P Jain, Professor, IIHMR University Jaipur, for this able guidance and useful suggestions, which helped me in completing my project work.

I would like to express my gratitude to Mr. Dinesh Songara, Associate director; WISH Foundation, Jaipur helped me at various stages of my project.

I would not forget to thanks Mr Ambey Srivastav, Ms Bindu Rathore for constantly supporting me throughout my journey.

Finally, and most Importantly, I would like to thank my family for their blessings and my seniors and colleagues for their help and wishes for the successful completion of this training.

Dr. V Manohar Reddy
MBA-Hospital and Health Management
IIHMR University, Jaipur

1. Introduction

India's population is more than 1.37 billion. Out of this around 70% of the population lives in rural India. To address this population, government has setup various health centers at rural areas, like Sub Centers, Primary Health Centers (PHC) and Community Health Centers under a program called as National Health Mission (NHM).

Each PHC caters for population of 30 K people. PHC is typically manned by a medical officer. Few Para medical workers are also part of PHC. It has small basic pathology lab.

In February 2018, the Government of India announced that 150 000 Health & Wellness Centres (HWCs) would be created by transforming existing Sub Health Centres and PHCs to deliver Comprehensive Primary Health Care and declared this as one of the two components of Ayushman Bharat. The Report of the Primary Health Care Task Force, Ministry of Health and Family Welfare, Government of India provided valuable insights into structure and processes that are required in health systems to enable Comprehensive Primary Health Care (CPHC).

Point-of-care (POC) tests have been hailed as an efficient and innovative way to manage infectious diseases, particularly in resource-poor settings, mainly to shorten diagnostic delay and treatment initiation. Despite the many definitions of POC testing, they all include the critical elements of rapid turn-around-times (TATs) to allow for quick diagnosis, and referral or treatment decisions completed within the same patient encounter or at the very minimum, with results delivered on the same day. It also improves the access to quality healthcare in underserved and remote regions, while also making it possible for patients to avail treatment outside traditional healthcare facilities.

Point-of-care (POC) diagnostic device is an instrument that is used to acquire particular clinical information of patients in clinical as well as resource-limited settings. POC diagnostic devices are used by healthcare professionals, because of their user-friendly features. In a developing country such as India, POC tests, and devices play a pivotal role in the healthcare system. Nowadays, POC diagnostic devices are used widely and available for a large variety of analytes; its utility ranges from intensive care units to outpatient clinics to personal care. India is a resource-limited country in terms of healthcare and advancements, thus, the utility of POC

diagnostic devices on broad-scale promises benefits and helps in uplifting the healthcare status of the large population. The importance of POC diagnostic devices in combating the current COVID-19 pandemic has also been discussed. The country has a huge resource gap of over 4 million health workers; nearly 60% of the existing personnel work in urban areas whereas 70% of the Indian population lives in rural areas. This scenario makes it even challenging to deliver and maintain the healthcare facilities in resource-limited rural areas. POC devices have been used as a preliminary step in clinical diagnosis that can help in the reduction of burden on advanced medical ecosystem.

Low cost is a major advantage offered by POC diagnostic devices as the large population in India cannot afford the cost of conventional diagnostics. The utility of POC diagnostic devices has increased the assurance in management by rapid analysis and also stimulated the penetration of POC diagnostic devices in the Indian market as well as household.

The main advantages of innovative remote monitoring of patients are: early and real-time detection of illnesses, ability to continuously monitor patients, prevention of worsening of illnesses and untimely deaths, cost reduction in hospitalizations, reduce the number of hospitalizations, obtain more accurate readings while permitting usual daily activities for patients, improve efficiency in healthcare services by utilizing communication technology, emergency medical care, service for patients with mobility issues, emergency care for traffic accidents and other injuries and usage of non-invasive medical interventions.

In PHC's with limited resource setting, it is very essential to keep diagnostic instruments which will help in early diagnosis and treatment, hence reducing the disease burden altogether. At the same time, it is quite essential to know the feasibility of any such device deployed at these facilities. The feasibility of any device is in can be checked by various factors such as a) operational feasibility b) Technical feasibility c) Economic feasibility d) Schedule feasibility. These methods are robust structures which still might fail in field conditions especially in public health settings. It is very essential to know the exact conditions in which the device is deployed. In order to do so, the best way is to interrogate the personnel who actually operate it on daily basis. This study is based on the perception of operators towards the feasibility of DOZEE device.

1.1 About the Device

DOZEE is the pioneer in contactless, continuous remote patient monitoring (RPM) in hospitals & at home, delivering unparalleled patient safety & maximize utilization of ICU beds. DOZEE is Multifunctional health monitor. This health monitor can track your sleep patterns, heart rate, respiration & stress levels within the comfort of your home. You Just have to slip the thin sensor under the mattress of the patient. DOZEE tracks and analyses heart health, respiration, sleep quality, stress levels and more with the help of the contact-free sensor. These sensors collect the data and also can be easily checked on the DOZEE app. It also generates periodic reports and alerts, giving you time to act before any symptoms show up.

DOZEE also gives you insights into your sleep which is a very important factor when it comes to health. The monitor detects early signs of health deterioration which helps the user figure it out before it gets serious. The device's high accuracy enables it to diagnose risks Heart Failure, Sleep Apnea and Arrhythmia.

DOZEE monitors the following Parameters:

- Heart Rate
- Respiration Rate
- Oxygen saturation
- Blood pressure
- Cardiac Performance Matrix

2. Review of literature

The point of care testing with the innovative devices at the rural setting can be a game changer in reducing the diseases burden for the diseases. Researchers suggested that the early diagnosis and treatment at the initial progress of disease decreases the chance of fatality.

In 2015, a research was published that describes the actors, technologies, and practices involving in diagnosing major diseases in five Indian settings. The home, community, clinics, peripheral Lab and hospitals to understand how the tests are used and fit into the health into the health system and with what implications for the POC continuum.^{[1],[2]}

In 2017, a study was done describing the implementation of POCD in rural primary healthcare in the Africa from the perspective of stakeholders.^[5]

In 2017 another study was published that illustrates and provide a review of the recent advancements in remote healthcare and monitoring in both with contact and contactless methods. With the review highlighted some issues in most health systems.^[3]

In 2020, a research study was done that tried to focus on current status of POCDs in the Indian healthcare system with an update on the ongoing COVID 19 scenario. It also focuses on the devices and technologies that are in the research and development phase across the country that has tremendous potential to elevate the clinical diagnostics scenario along with the diagnosis of ongoing COVID-19 pandemic are emphasized.^[6]

3.1 Study purpose

The DOZEE device is deployed at 25 PHC's across 12 districts of Rajasthan. It is essential to know the feasibility of deploying this device. The organization needed an insight in the feasibility of DOZEE device from the operators who are regularly using it.

3.2 Study question

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

4. Study Objectives

- To assess the feasibility of DOZEE device from the 'Operator' perspective at PHCs.
- To study the facilitating and hindering factors to use the device.

5. METHODOLOGY

5.1 Study Design: Analytical Descriptive Study

5.2 Study Location- A total of 25 PHCs from 12 districts of Rajasthan which are operated by WISH Foundation India under the MOU signed by the Government of Rajasthan.

Table 1: List of PHC by districts covered under the study

S.no	Facility	District
1.	HWC Sorsan	Baran
2.	HWC Dholam	
3.	HWC Bhajneri	Bundi
4.	PHC Jajawar	
5.	PHC Dugari	
6.	PHC Khandwa patta	Churu
7.	HWC Myala	

8.	PHC Richha	Dungarpur
9.	UPHC Needad	Jaipur I
10.	PHC Chacchlao	Jhalawar
11.	PHC Kanwara	
12.	PHC Dhanuri	Jhunjhunu
13.	PHC Padampura	
14.	HWC Kherulla	Kota
15.	PHC Barod	
16.	PHC Kotra deep singh	
17.	PHC Lakshaneeja	
18.	HWC badi sagthali	Pratapgarh
19.	PHC Ambirama	
20.	HWC Kankarwa	Rajsamand
21.	HWC Kuncholi	
22.	PHC Odda	
23.	HWC Kundali nadi	Sawai madhopur
24.	PHC Bhadoti	
25.	PHC Mandwa	Udaipur

5.3 Study Respondents:

The study respondents were the operators of the device DOZEE at the PHCs across the 12 districts from Rajasthan. These respondents are at the position of ‘Lab Technician’ or ‘GNM’ at the above-mentioned facilities. These responses are based on perception of individual respondents. The Lab technician at individual PHC is responsible for the complete laboratory for conduction of medical tests. The main role of the GNM at the PHC is of nursing, as well as supporting the ANM’s. In few PHC’s where a dedicated Lab technician was not available for conducting the tests, GNM performs the test related to DOZEE device.

5.4 Duration of Study: 3 months (April - June 2021)

5.5 Sampling and Sample size: All the PHCs where the intervention of DOZEE device was introduced. Among 25 respondents, 16 were Lab technicians and 9 were GNMs at the aforementioned PHC's.

5.6 Data collection instrument and procedure: The data was collected by structured interview based on the parameters related to the use of device and responses were submitted by the respondents from the PHCs across 12 districts of Rajasthan. Structured interview questions developed by the WISH Foundation based on the parameters related to the use of device DOZEE. Due to the ongoing pandemic restrictions telephonic interview was conducted with the respondents individually. After establishing the purpose of the call & taking verbal consent their responses were documented.

5.7 Data Analysis

The feasibility was assessed by using six parameters: Daily test average, Training need of operators, Processing time, Challenges faced, Device operability, and Usefulness perception. The weightage of each parameter is given based on its importance to keep the device deployed at the PHC's.

Table 2: The parameters used for the study of feasibility of DOZEE included:

Sr. No.	Parameter	Usefulness Perception index (weightage in %)
1	Daily test average	10%
2	Training needs of operators	10%
3	Processing time	10%
4	Challenges faced	20%
5	Device operability	20%
6	Usefulness perception	30%

1) Daily test average:

Not all PHC's have the same footfall of the patients. This can be attributed to various demographic transitions in which the PHC exists (further explained in the document). So, there is a need to carefully scrutinize the patient footfall before deploying any device or allocating any resource. It is not feasible to deploy a device where the patient footfall is less than 0.3 tests per day.

This parameter accounts for 10% weightage in the usefulness perception index of the device. The overall daily tests from the PHC's is calculated. This value is scored with respect to the weightage of this criteria using the following table.

Table 3: Weightage fulfilled w.r.t daily tests avg. of all PHC's per day.

Sr No.	Total avg. of daily tests per day of all PHC's	Weightage fulfilled out of 10%
1	0-0.40	2%
2	0.41-0.80	4%
3	0.81-1.20	6%
4	1.21-1.60	8%
5	1.60 or more	10%

2) Training needs of the operators:

Introducing new device especially technology enabled devices requires the need for training the personnel/operators at each facility. This comes with added burden on cost of providing the training. The other factor includes the number of periodic retraining sessions required, to keep the staff updated with the features and operate the device with full capacity. The induction of device is more feasible if the training requirement is low or as low as once a year. This parameter accounts for 10% of the total feasibility perception score.

Sr No.	No. of Operators with single training session perception	Weightage fulfilled out of 10%
1	< 5	2%
2	5-10	4%
3	11-15	6%
4	16-20	8%
5	21-25	10%

3) Processing time of the device:

Each device comes with industry/mmanufacturer standards of all it's features. The more the operators use the device and achieve the industry set standards, the device works at most efficiency. The processing time ie: from induction of device placement to the patient to generation of the result, is very important factor. If the operators take more time than the industry set time, it means the device is not being used at full efficiency. Hence, the feasibility reduces. This parameter accounts for 10% of the total feasibility perception score.

Sr No.	No. of operators with Processing time equal to company time of the device	Weightage fulfilled out of 10%
1	0-5	2%
2	5-10	4%
3	10-15	6%
4	15-20	8%
5	20-25	10%

4) Challenges faced:

No technology enabled device comes without challenges. But, if these challenges can be compensated with efficiency of the device, then the device can be established as feasible. This parameter accounts for 20% of the total feasibility perception score.

Sr No.	No. of operators not facing Challenges	Weightage fulfilled out of 20%
1	0-5	4%
2	5-10	8%
3	10-15	12%
4	15-20	16%
5	20-25	20%

5) Device operability:

While using the device, the simpler the device more feasible it becomes. That is, complicated devices can be used by specially trained personnel. In public health, deploying specially trained personnel along with the device is not feasible. So, it is required that the device is easy to use and further reduces the burden of existing workload on the personnel, to make the device more feasible. This parameter accounts for 20% of the total feasibility perception score.

Sr No.	Device difficulty total avg.	Weightage fulfilled out of 20%
1	0-2	20%
2	2.1-4	16%
3	4.1-6	12%
4	6.1-8	8%
5	8.1-10	4%

6) Overall Usefulness:

At the end, it all comes down to the usefulness of the device. Deploying a complicated device which requires multiple training sessions, give late results, used very rarely etc: is not at all feasible. Instead, a device which is easy to use, requires less training and used regularly is much feasible and preferred. This parameter accounts for 30% of the total feasibility perception score.

Sr No.	No.of operator with Overall usefulness perception	Weightage fulfilled out of 30%
1	0-5	6%
2	5-10	12%
3	10-15	18%
4	15-20	24%
5	20-25	30%

6. Ethical consideration:

Respondents were thoroughly explained about purpose of this study and implication of it then clearing any doubts of them, the informed consent were obtained ensuring them the safety security of the data obtained. The data collected was used for this study only.

7. Results:

The results are presented manly as per the perception of the respondents about the DOZEE device based on the indicators discussed in Methodology.

7.1 Average daily tests

The data of total number of tests conducted at the PHCs was taken from 3 months (from January to March of the year 2020-2021) MIS.

Figure -1: Distribution of number of tests done at PHC's using the DOZEE device from Jan21 to March 21(n=25)

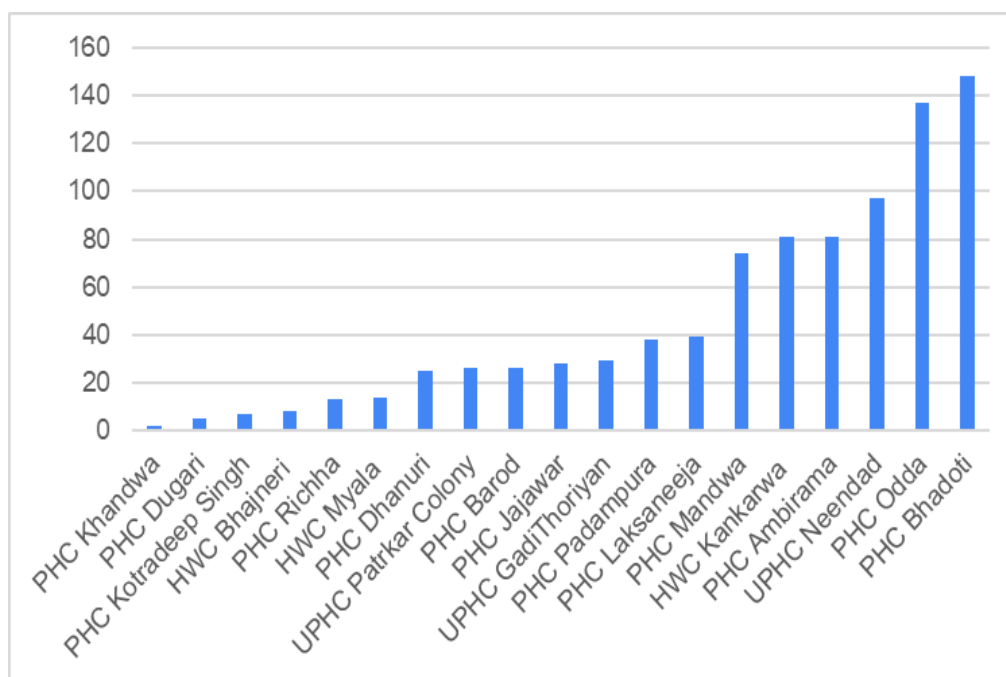


Figure 1 shows the distribution of total number of tests done by at PHC's using the DOZEE device. This shows the extent of use of the device in comparison to other PHC's. The variation in the use is directly influenced by the use of device by the staff at every PHC and also the

demographic variation in which the PHC exists. The PHC's with highest number of tests includes PHC Bhadoti with an average of 1.64 tests per day, PHC Odda with an average of 1.52 tests per day and PHC Neendad with an average of 1.07. The PHC's with lowest number of tests are PHC Khandwa with an average of 0.02 tests per day, PHC Dugari with an average of 0.05 tests per day and PHC Kotradeep Singh with an average of 0.07 tests per day. This shows the extent of use of the DOZEE device at all PHC's.

This variation in the result was due to the location of the individual PHC's. The PHC's like Bhadoti, Odda and Neendad caters to a large population of approximately 25,000 whereas the underperforming PHC's like Kotradeep Singh, Dugari and Khandwa are located in the rural interiors of their respective districts where the population is less than 10,000. When this result is calculated on average to all the facilities, the overall daily tests per day value is 0.41. This attributes to 4% of the total weightage of the total feasibility perception score.

6.2 Training needs of Operators:

DOZEE device is easy to use. Yet it requires some basic training exercise given by an expert. This training is required to make the device completely understandable to the operators. The operators with previous knowledge of technology can easily understand and use the device. Each respondent was trained at least once within the year 2020. Each training session conducted was at least 1.5 hours long. A vast majority of Operators required training with at least one session.

Figure 2: Distribution of operators by future training needs related to DOZEE (n=25)

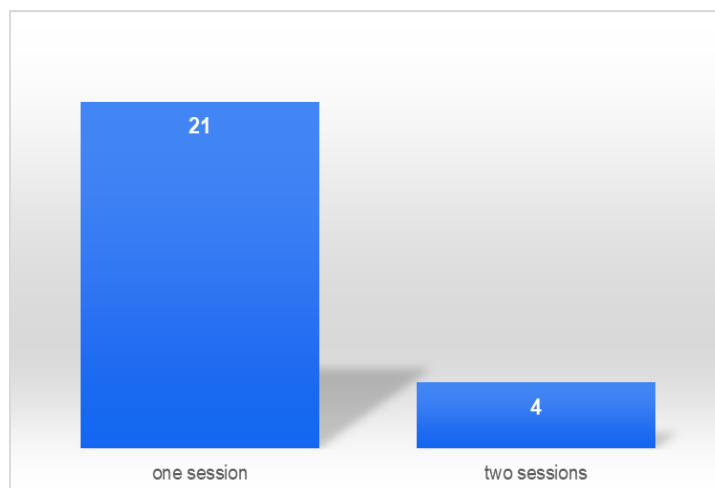
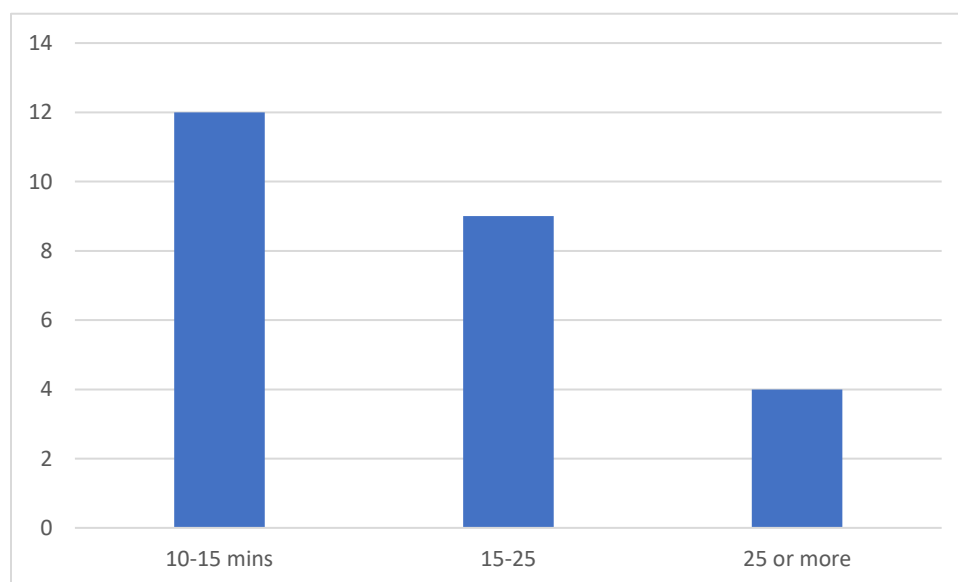


Figure 2 clearly indicates the perception of the operators towards the need of training in order to use the DOZEE device. Out of all the operators interviewed more than (80%) of them clearly pointed that one session of training is enough for being able to operate the DOZEE device fully. The operators who suggests the need for 2nd session of training were (20%) only. This illustrates that the device is easy to operate and continuous repeated training is not required. Use of such type of devices at the PHC's which require less technological knowledge and is easy to operate yet giving out the required results is very useful. The overall training cost is reduced. 21 among 25 respondent's percepts that one training session is enough required to learn to operate the DOZEE device. It fulfills 10% of the given training requirement criteria.

6.3 Processing time

Figure 2: Distribution of Operators by time taken in processing the device per test (n=25)



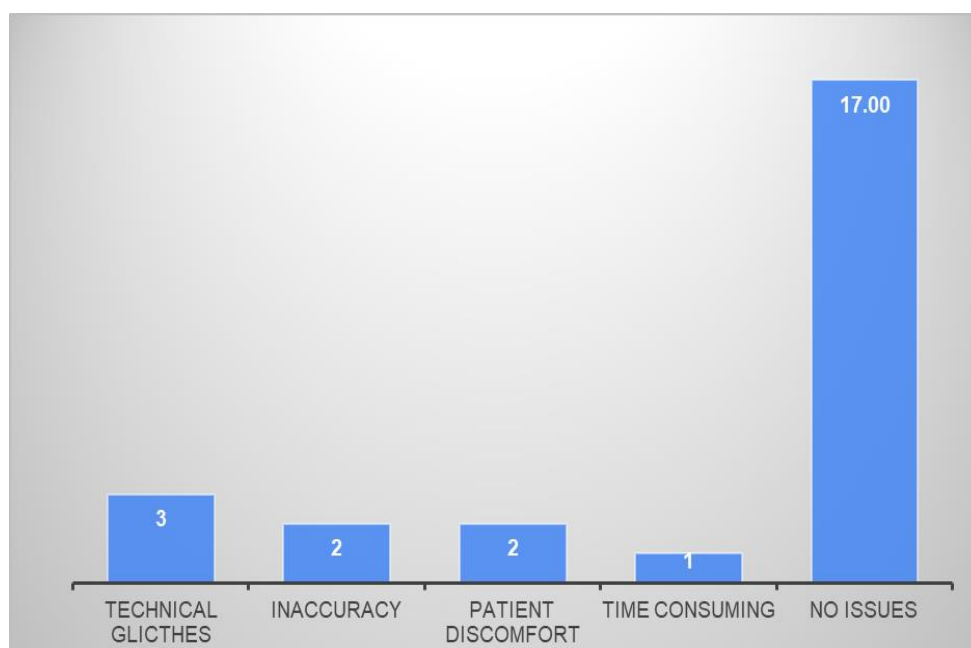
When the DOZEE-Device operators were asked about the processing time of device per testing i.e. the time from the patient entry after consultation with the need of this testing, the test itself and until the report is generated, (50%) of the operators responded that the device takes around 10-15 minutes per testing including the average of all tests. Furthermore, (46%) said that the device takes around 15-25 minutes in testing and only 4 % said that the device takes more than 25 minutes while testing the patient. When compared to actual time for the testing with DOZEE

i.e, 10 minutes, almost 50% of the operators could claim that the test was completed within the ideal time(Fig 3). It shows that almost all the operators could complete the process of testing according to the ideal time, almost all of them exceeded the ideal time taken for the test. So 50% of the respondents perceive that the device gives result at the desired standard from the manufacturer. When the above result is attributed and calculated out of total weightage to this criteria, this covers 6% of the total feasibility perception score.

7.4 Device challenges faced:

Challenges while using DOZEE device: Like all the technical devices, the DOZEE device is not spared from the challenges while using it.

Figure 4: Distribution of Operators by their perception on challenges in using the device (n=25)



Few of the challenges while using it were broadly categorized into 1) Technical challenges which comprised of the issues related to network related setbacks or software related issue, 2) Data errors which consisted of data inaccuracy for which the whole procedure might have to be repeated, 3) Time consumption – on average the device takes approximately 15 minutes to calibrate completely and show the results. But in few cases the calibration may take longer than expected, for instance, more than 20 mins which might lead to few patients showing lack of

cooperation. 4) Patient non-cooperation – in few instances the patient might not be willing to lie down and keep themselves still for accurate and fast generation of the results. This might increase the calibration time of the device and sometimes leads to patient showing signs of discomfort or getting irritated.

These challenges were categorized broadly and simplified for the ease of the operators to respond. The results are based on operators who acknowledged the challenges during the use of the device.

These individual challenges are given further weightage into this criteria. The result suggests that 68% of the operators do not face any challenge. The overall fulfilment of this result in total feasibility perception score is 16%.

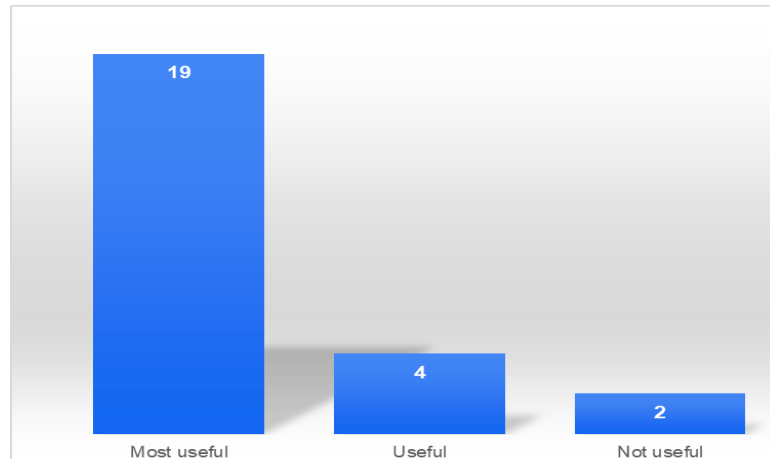
7.5 Device operability

Even though the DOZEE device is easy to use and the technical skill required to operate the device is low, some operators might still have hard time using the device. All the DOZEE-Device operators' percepts that they do not require any assistance while using the device. The operators were asked about how much user friendly the device is in terms of difficulty in handling the device to be rated out of 10 with 1 being 'easy to use' and 10 being 'not easy to use' and operate. None of the respondents gave above 8 rating i.e., they think that it is not difficult to use. 24 % respondents gave rating between 4 to 7 and 76 % of the operators gave rating below 4, which can be noted as very easy to handle and use the DOZEE device.

Overall average rating given of perception towards handling and device usage is 3.72. Lesser the average more easy is the device to operate. This result corresponds and fulfills 16% of the weightage in the total feasibility perception score.

7.6 Device usefulness

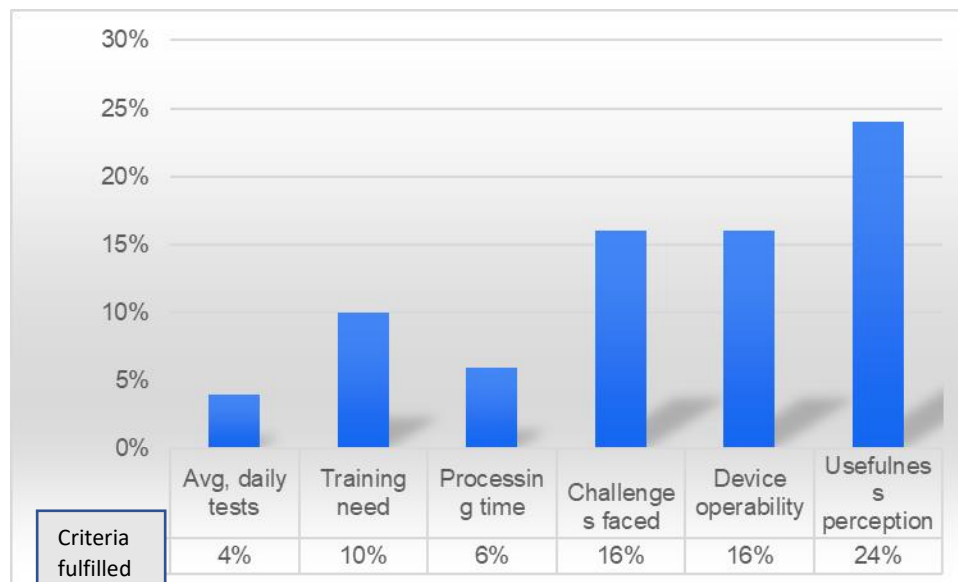
Figure 5: Distribution of Operators by their perception towards device usefulness (n=25)



In the end of the interview session with the respondents, each one was asked about their perception about device usefulness at the PHC. Figure 6 shows the perception of the device operators towards the device usefulness at PHC. An Overall 19 device operator agreed and supports the fact that the DOZEE device is most useful at the facilities, 4 of them perceive that it is useful and only 2 respondents had opinion that the device is not useful at all. This result fulfills 24% of the total weightage of this criteria.

Total feasibility perception score

The weightage fulfilled by each criteria is shown in figure 6.



all the criteria when combined together, gives the result of 76%. So the total fulfilment of all the criteria for the total feasibility perception score is 76%.

8. Discussion

This study reveals that in PHCs with limited resource setting, the feasibility of deploying any device should be thoroughly scrutinized. In many settings even the robust structures of feasibility studies fail due to incomplete knowledge of the reality of the conditions in which the facility exists or the challenges it faces in a regular basis. In order to understand the conditions better, it is of at most importance to know what the operators think of feasibility of that device. Even though this can be checked at various levels like; managerial level; technical level; manufacturing level; etc. the most accurate information can be available from the operators who use such device in regular basis. This study based on perception of 25 respondents, 16 Lab Technicians and 9 GNMs, shows that 96% of the operators suggests longer processing time (more than 15-20 minutes) to declare the results by the device when used in field settings of the PHC. When asked about the challenges faced in operating the device on daily basis, around 29% of them faced technical issues related to network or software issues, whereas 21% of them faced inaccuracy errors from the device and 8% of them said that the device takes longer duration in result generation which is results in patient discomfort and loss of time of the operators. When asked the operators to rate the 'ease of operating the device' on the scale of 1-10 with '1' being 'easy to use' and 10 being 'not easy to use', 76% of the operators said that it is very easy to use. The overall average of this rating is 3.72. All the score from the 6 criteria fulfills 76% of the total feasibility perception score. Hence, showing that the deployment of DOZEE device at all these facilities is 76% feasible.

This study is the first that we know of that investigates the perceptions of rural health care providers in Rajasthan, regarding the main barriers related to the diagnostic process, at primary health facilities. This information could help guide the development and implementation of health innovations that can enhance the provision of services in rural resource-poor settings.

The study was carried out in the lockdown period due to corona virus second wave in Rajasthan, so it was not feasible to interview the operators in person or at the site.

9. Conclusion

The Feasibility in terms of effectiveness of POC DOZEE- Device on patient outcomes, including improving access to diagnosis and treatment, has been demonstrated. Increasing the accessibility of POC diagnostics like DOZEE- device to resource-limited settings with poor access to laboratory infrastructure is one of the global health priorities. Our findings highlight significant feasibility and the challenges in the implementation of POC diagnostic services at PHC/HWC level. Collaborative efforts among POC stakeholders to address the above barriers will be essential in ensuring improved implementation of POC diagnostics in these settings.

To ensure the success of POC testing programs, test developers, decision-makers and funders need to account for the ground realities and overcome barriers to POC testing's like DOZEE device. Hence this perception-based study of the operators themselves gives a huge insight of the actual reality in which the device is being used. Hence, the study clearly signifies the feasibility of deploying of DOZEE device at the afore mentioned PHC's.

10. References

1. Engel, N., Ganesh, G., Patil, M. et al. Point-of-care testing in India: missed opportunities to realize the true potential of point-of-care testing programs. BMC Health Serv Res 15, 550 (2015). <https://doi.org/10.1186/s12913-015-1223-3>
2. Engel N, Ganesh G, Patil M, Yellappa V, Pant Pai N, et al. (2015) Barriers to Point-of-Care Testing in India: Results from Qualitative Research across Different Settings, Users and Major Diseases. PLOS ONE 10(8): e0135112. <https://doi.org/10.1371/journal.pone.0135112>
3. Vikram thaploo, Apollo, Essence of Point-of-Care Diagnostic Testing (POCT) in Remote Healthcare in India; Published on July 20, 2017. Available from <https://www.linkedin.com/pulse/essence-point-of-care-diagnostic-testing-poct-remote-india-thaploo>

4. Aditya Narayan Konwar, Vivek Borse, Current status of point-of-care diagnostic devices in the Indian healthcare system with an update on COVID-19 pandemic, *Sensors International*, Volume 1, 2020, 100015, ISSN 2666-3511, <https://doi.org/10.1016/j.sintl.2020.100015>.
5. Mashamba-Thompson TP, Jama NA, Sartorius B, Drain PK, Thompson RM. Implementation of Point-of-Care Diagnostics in Rural Primary Healthcare Clinics in South Africa: Perspectives of Key Stakeholders. *Diagnostics (Basel)*. 2017;7(1):3. Published 2017 Jan 8. [doi:10.3390/diagnostics7010003](https://doi.org/10.3390/diagnostics7010003)
6. Geoffrey C. E. Herd, Samarina M. A. Musaad; Point-of-Care Testing in Rural and Remote Settings to Improve Access and Improve Outcomes: A Snapshot of the New Zealand Experience. *Arch Pathol Lab Med* 1 March 2021; 145 (3): 327–335. doi: <https://doi.org/10.5858/arpa.2020-0104-RA>