

PARTNERING FOR PATHOLOGY: A STUDY IN RAJASTHAN

Dissertation Submitted to



The IIHMR University, Jaipur

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Master of Business Administration (MBA)

in

Pharmaceutical Management

By

Vishal Singh Tomar

Under the Supervision and Guidance of

Dr. Ashok Peepliwal

2024

CERTIFICATE

This is to certify that **Mr. Vishal Singh Tomar** in the partial fulfilment of the requirements for the award of degree of MBA Pharmaceutical Management from **IIHMR University, Jaipur** has successfully completed his internship at BIOHUBB, Jaipur during **18th March 2024 to 18th June 2024.**

Date: 13/07/2024

Place: Jaipur



(Signature of organization Mentor)

Name: Mr. Puneet Sethi

Designation: Co-founder BIOHUBB

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I, **Vishal Singh Tomar** Enrolment No. IIHMR-U/02/2022-24/0462 hereby declare that this dissertation is titled **Partnering for Pathology: A Study in Rajasthan** 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 Information derived from the published or unpublished work of others has been duly acknowledged in the text.

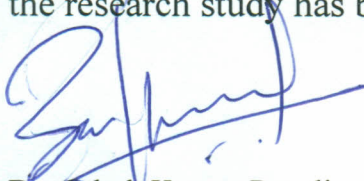


Name of Student: Vishal Singh Tomar

Date: 06/07/2024

CERTIFICATE

This is to certify that the dissertation titled **Partnering for Pathology: A Study in Rajasthan.** is a record of the research work undertaken by **Vishal Singh Tomar** in partial fulfillment of the requirements for the award of the degree MBA (Pharmaceutical Management) from the IIHMR University, Jaipur under my guidance and supervision and his approach to the research study has been sincere, scientific, and analytical.



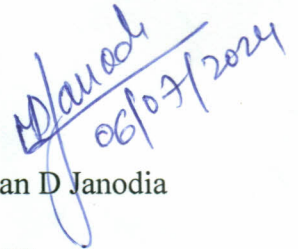
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I hope that, in the future, I will be able to draw on my expertise and skillsto make a useful contribution to the industry.

Abstract

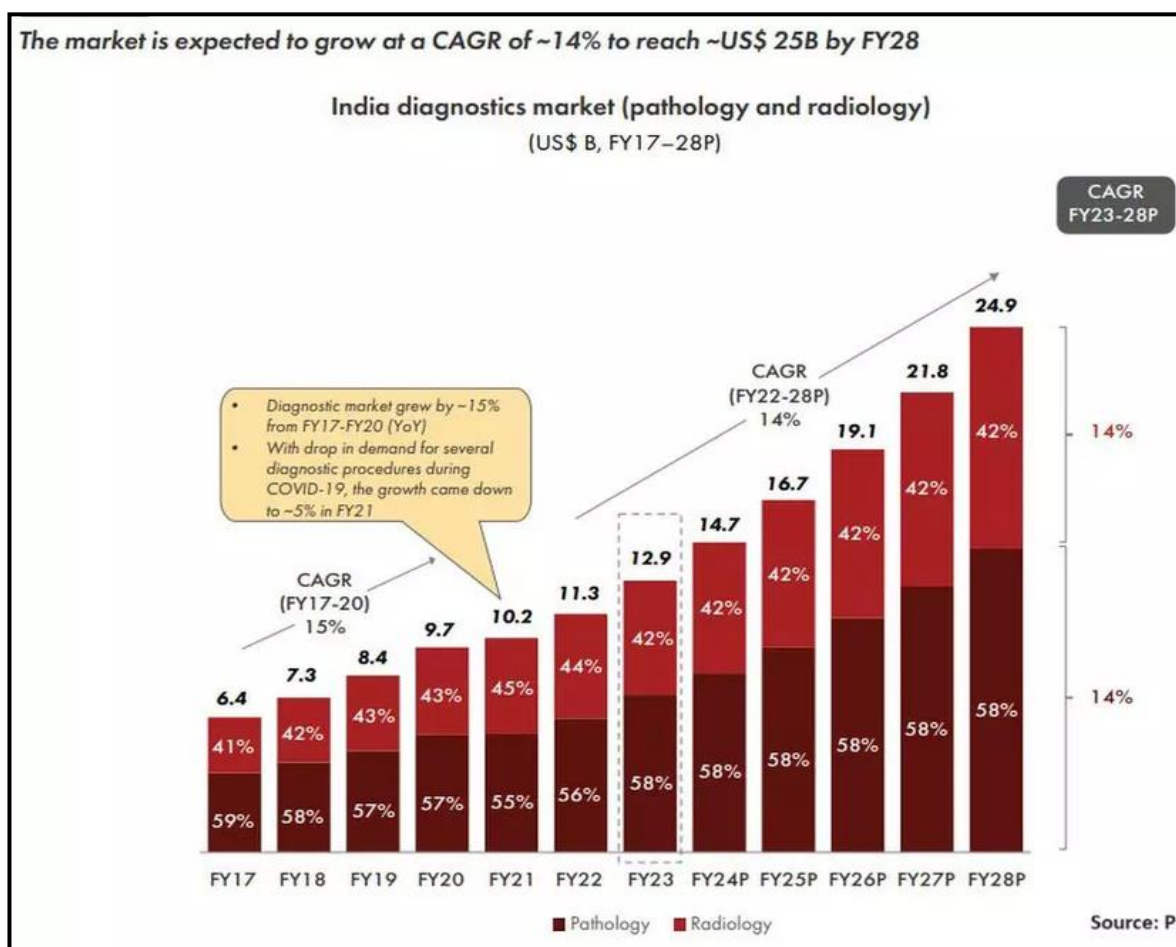
Pathology is an essential aspect of disease diagnosis and hence guides the choice of therapy which in turn improves the outcome for the patient. This paper delves into an investigation that reveals details about collaboration efforts as well as partnerships among players in the field of pathology within Rajasthan, India. Our research unveils various components associated with pathology services such as: diagnostic reliability, quality control and introduction of technology.

Our focus lies on the investigation of collaboration patterns among pathologists— with a spotlight on not only formal networks but also informal platforms where knowledge is shared. Our study also involves looking into quality assurance systems that are peculiar to laboratories in Rajasthan and efforts towards embracing digital pathology and diagnostics. We aim to generate findings that could be used as guidelines for implementing effective strategies aimed at enhancing pathology services throughout the state.

Introduction

Pathology is an area of medicine and loosely it can be defined as the scientific investigation or examination of the body fluids, organ and tissues as a means of understanding the disease's cause, source and characteristic. Noticing whether a disease exists or not determines the real status of the disease in order to work for treatment of different disease. These are principally of two broad categories; that of digital and that of anatomical pathology.

It means Digital pathology is a technique in which glass slide is converted into digital platform for interpretation of pathology information while Anatomical pathology means diagnosis of diseases with the help of micro as well as macro study of organs, tissues and body fluids. The global pathology market is expected to show substantial growth in the coming years because of the increasing demand and incorporation of fully functional and efficient healthcare centers also, a rising incidence of chronic diseases is also a major factor for market growth.



Drivers of the global pathology market include, ease of transporting slides, rising incidence of chronic diseases, and developing a population, and escalation in the laboratory productivity. However, no reimbursement and scarcity of professional human resources hinder the evolution of the market. Besides this, there exists a large population in the emerging economies within which the pathological needs are still unmet, and the market will have ample growth opportunities during the forecast period. The report noted that the Indian diagnostic market is highly underdeveloped currently; the number of pathology tests per 1000 population in India is 1111, in Brazil – 5924, in Australia – 10000, and in the USA – 20958. Through these tests Q- aims to expand into new regions instead of targeting different population segment

Number of Diagnostic Labs in India

Currently it is sized at \$10 billion for FY2021 and the fragmented market has over 100000 diagnostic labs in India. There are independent centres, hospital-based labs and national chains which altogether are the foundation units in the diagnostic services market in the country.

Types of Diagnostic Labs

1. Standalone Labs: Especially standalone centre has the largest share of equal to \$48 billion out of \$100 billion total market identified in the analysis. Most of these laboratories are thereby separate entities which provide all or some of the pathology and simple diagnostic imaging services. They are found almost in all the regions in the both the urban and the rural settings thus offering service in diagnostic imaging.

2. Hospital-Based Labs: Labs based in the hospital have the largest market share of 37%. These are laboratory services that are found in the hospital and mostly serve patients who are in the hospital, the hospital outpatients, and any other patient that the hospital admits. They utilize the hospitals' infrastructure and can perform nearly all diagnostic services, including sophisticated tests.

3. Diagnostic Chains: The national chains are about 5% of the market share. Some of the well-known players by operating centers include Dr. Lal PathLabs, SRL Diagnostics, and Metropolis Healthcare. These chains offer efficient and quality diagnostic services through labs and collection centers that spans over few cities and towns.

4. Government Labs: Public laboratories have a vital role to reduce the cost for diagnostic services and often target the rural and hard-to-reach population. They are part of the committee in charge of public health and offer critical diagnosis services at lower prices.

5. Specialized Labs: These labs are based on diagnostics like molecular testing, genetic, and imaging services out of which genetic next played an important role. They can be seen anchored in business areas and towns and are designed to respond to certain health care demands that may include the use of advanced skill and equipment.

Geographic Distribution of Diagnostic Labs Across India

The geographic distribution of diagnostic labs in India is predominantly skewed towards urban areas, with 74% of the market share concentrated in cities. This urban bias is due to

better infrastructure, higher population density, and greater healthcare awareness in metropolitan areas. However, there is notable penetration in Tier 2 and Tier 3 cities, where diagnostic chains and standalone labs are expanding their presence to tap into the growing demand for diagnostic services.

- **Urban Areas:** Urban centers have the highest concentration of diagnostic labs, including standalone centers, hospital-based labs, and specialized labs. The availability of advanced diagnostic technology and a higher prevalence of lifestyle-related diseases drive the demand for diagnostic services in these regions.
- **Rural Areas:** In rural areas, diagnostic services are primarily provided by standalone labs and government-operated facilities. The limited availability of advanced diagnostics often necessitates travel to urban centers for specialized tests. However, efforts to improve diagnostic infrastructure in rural areas are ongoing, supported by government initiatives and private investments.
- **Semi-Urban and Tier 2/3 Cities:** These regions are witnessing an increase in the establishment of diagnostic labs as part of efforts to enhance healthcare accessibility beyond metropolitan areas. Diagnostic chains are actively expanding into these areas to bridge the gap in diagnostic services and cater to the healthcare needs of the semi-urban population.

Top Key Players:

- Lal Pathlabs
- Thyrocare
- Metropolis
- Srl Diagnostics
- Apollo Hospitals
- Oncquest Laboratories Ltd
- Pathcare Labs Pvt. Ltd
- Quest Diagnostics India Private Limited
- Super Religare Laboratories

Population Analysis

Rajasthan Population: Over 8.2 crore

Density: Around 200 people per square kilometers.

Number of Districts: 50 districts.

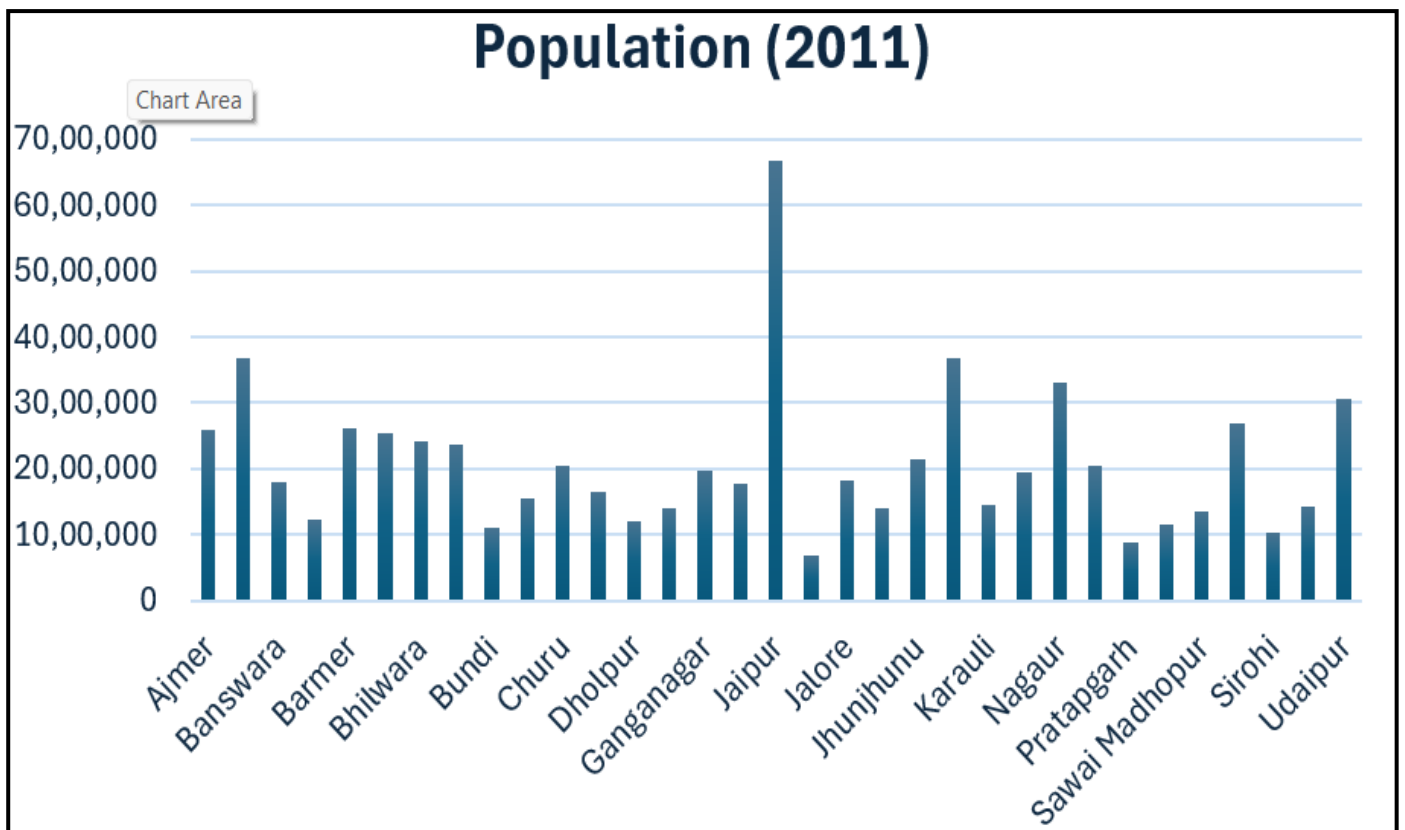
Most Populous Districts

Jaipur 6,626,178

Jodhpur 3,687,165

Alwar 3,674,179

Nagaur 3,307,743



MARKET SIZE

The size of pathology market is nearly 7 dollars. appears that the company controls 5 billion of diagnostics market, which is 58 per cent from the total one. Finally, radiology keeps the remainder, where soft radiology occupies more than 55 percent of the market compared to advanced radiology.

Domestically, Diagnostics stands on the three pillars, standalone centres which account 46 per cent, private hospital labs accounting for 28 per cent and National chain accounting to a negligible 6per cent.

The pathology market is estimated to reach \$14. 4 billion by FY28. Of the estimated 1. Out of around 32 lakh pathology labs, 61 per cent are standalone. Diagnostic imaging market is expected to register a compounded annual growth rate of 13% in the future. Only a 5% increase is expected for the period of 2020 up to 2025.

Market Drivers

- **Rising Health Awareness:** With the rising health awareness among people about the need for early diagnosis and preventive care, more and more patients are coming forward for regular health check-ups and undergoing diagnostic testing.
- **Prevalence of Chronic Diseases:** Rising cases of chronic diseases, such as diabetes, cardiovascular diseases, and cancer, have increased demand for diagnostic services. Early detection by means of diagnostic tests is necessary to manage and treat effectively from such kinds of conditions.
- **Technological Advancements:** Digital imaging, molecular diagnostics, and point-of-care testing have been the major innovations that have changed the accuracy, efficiency, and access to diagnostic services.
- **Healthcare Infrastructure Development:** It has increased its healthcare infrastructure to rural and semi-urban areas, hence increasing diagnostic facilities. Government effort and rapid growth in private sector investment are aiding in this initiative.
- **Rise in Healthcare Expenditure:** Growth in disposable income and higher spend towards the healthcare expenditure of individuals and families act as the prime mover for the diagnostics market. Furthermore, it is because of better insurance coverage that people are able to reach diagnostic services more.
- **Pandemic Effect:** The COVID epidemic has time and again brought home the critical nature of diagnostic testing, thus backing this demand for diagnostic services. Large investments have been absorbed within the industry in improving testing capabilities and building infrastructure as part of the response to the pandemic.

Key Trends and Emerging Technologies

1. **Digital Pathology and Artificial Intelligence:** Digital pathology is integrated into artificial intelligence, hence changing the era of diagnostic services. These algorithms are enhancing the accuracy of diagnosis by decoding any complex data and finding out patterns that human eyes are not capable of seeing. Digital pathology enables remote analysis and consultation, allowing access to more expert opinions.

2. **Point-of-Care Testing (POCT):** Because of the ease and quick turn-around time provided by POCT, it is gaining in favor. Such tests may be performed at the bedside or even in the home with results available immediately, thus helping clinical decisions.

3. **Next-Generation Sequencing (NGS):** Finally, next-generation sequencing is really revolutionizing genetic testing with next-generation, high throughput analyses of genetic material. It benefits the diagnosis and management of Genetic Disorders, Cancer, and Infectious Diseases.

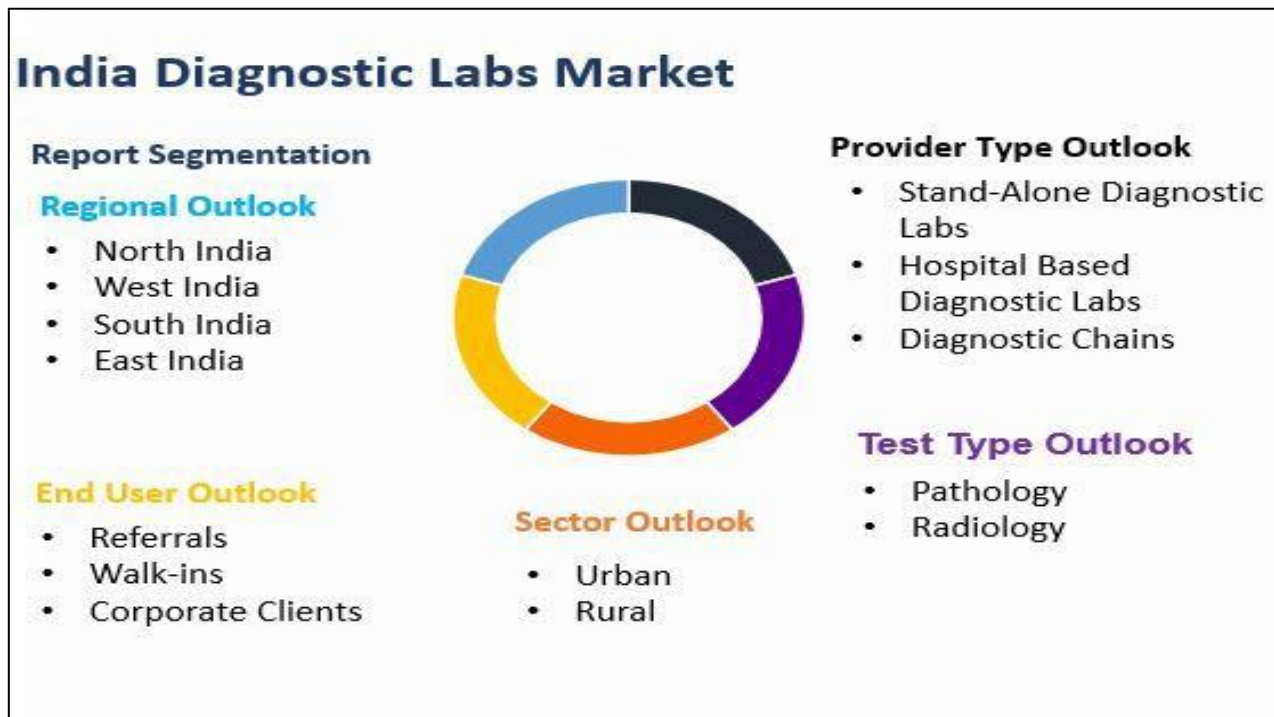
4. **Tele-Radiology:** Radiological services, like tele-radiology, are also on an augmenting spree, and will very soon make it possible for radiologists to scrutinize medical images from any part of the globe. This will be highly helpful in rural and remote areas where specialist radiologists are really short in supply.

5. **Molecular Diagnostics:** Progress in molecular diagnostics with technological advancement in PCR and other nucleic acid-based methods strongly improved the diagnostics of infectious diseases, genetic disorders, and cancer. These tests have very high sensitivity and specificity, thereby increasing diagnostic accuracy.

6. **Wearable Health Devices:** Gradually, wearable health devices are gaining prominence. They measure vital signs and health parameters. These devices will give continuous health data, which can enable proactive health management and thus allow the detection of potential health problems well in advance.

7. **Laboratory Automation:** Automation of laboratory procedures brings gains in efficiency, reduced potential for human error, and increased diagnostic testing throughput. Faster automated

systems for processing, examination, and result analysis of samples are fast catching up as trends in the modern-day diagnostic laboratory.



Market Share of Major Diagnostic Chains

- Standalone Centers: 48%
- Hospital-Based Labs: 37%
- National Chains: 5%

Literature Review:

Pathology labs are the backbone of healthcare by giving accurate diagnosis through tissue and body fluid analysis. In Rajasthan as in many parts of India there might be challenges in accessing good pathology services especially in rural areas. Partnerships between pathology labs is the solution to improve access, efficiency and affordability.

Current Scenario of Pathology Labs in Rajasthan:

Conduct research to know the current status of pathology labs in Rajasthan. This can be done by:

- Survey hospitals and clinics to know the availability and capacity of pathology services.
- Government reports or data on healthcare infrastructure in Rajasthan.
- Existing partnerships between pathology labs in the state.
- Literature Review on Pathology Lab Partnerships

Benefits:

- Improved Efficiency and Resource Sharing: Many studies show how partnerships can help labs optimize resource utilization (e.g. manpower, equipment) and share expertise (1, 2).
- Increased Service Reach: Partnerships can bring together public and private labs to extend diagnostic services to rural areas (3, 4).
- Technology Adoption: Sharing resources and expertise can help in adoption of new technology like telepathology for remote consultations (5).

Partnership Models:

- Research different partnership models like joint ventures, referral networks and resource sharing agreements (6).
- Study each model in different settings (rural vs. urban) (7).
- Case Studies of Successful Partnerships:
- Find successful examples of pathology lab partnerships in other Indian states or similar developing countries.
- Study the factors that contributed to their success and challenges they faced (8, 9).

Gaps in Knowledge:

- Specific needs and challenges of pathology labs in Rajasthan need to be studied.
- Economic analysis of different partnership models in state context is required.

Partnership between pathology labs can bring big improvement in high quality pathology services in Rajasthan. This review has shown the benefits, partnership models and case studies from other regions. More research is required to know the Rajasthan context and find out the best partnership model for sustainable improvement in pathology services.

Research Methodology

2. Research Questions:

Primary Question:

- What could be the favorable and unfavorable implications of partnership between pathology labs in Rajasthan? In what ways can these partnerships contribute to enhanced delivery of and access to quality pathological services?

Secondary Questions:

- What is the situation with the existing need and problems that the current forms of pathology laboratories: public and private in Rajasthan?
- What are the spectrums of the laboratories partnership models that can be established (e.g. , referrer networks, material sharing)?

- Can partnerships for labs and patients be beneficial or are there some disadvantages?

As a first step towards determining the strategies that need to be undertaken when drafting legislation for such partnerships, the following questions will be used:

3. Data Collection:

3.1 Phase 1: Perceptions of Explanations

WED Database Creation:

- Create a list of required diagnostic centers in Rajasthan with help of Justdial, IndiaMART, and government directories.
- It has to contain such information as center's name, location, phone number and fax if any, and focus if any, like pathology.

Competitive Analysis:

- Major private pathology labs and laboratory chains present in Rajasthan to be named.
- A study of their websites and marketing schedules to compare their strengths and service delivery, cost, target market and distinct selling points.

3.2 Phase 2: Communication

Data Gather from Calling Contact Information:

- Contact the listed diagnostic centers to verify their existence and gather details specific to pathology services.
- Availability of a pathology department Pathologist.
- The extent of pathology services they provided such as biopsy analysis and cytology.
- Equipment and technology utilized.
- Generally duration of time taken to release a test result.

Information Gathering:

- Conduct semi-structured interviews with a representative sample of diagnostic centers (considering factors like location, size, public/private) to gain deeper insights.
- Problems experienced in implementing and delivering pathology services (e. g. Staff shortage, scarcity of equipment).
- Readiness to seek more possible partnerships and specific forms of partnership preferred.
- Certain issues or facts that can be doubtful or make people think twice about the partnerships (franchise tiredness, low traffic).

4. Data Analysis:

4.1 Quantitative Data:

Number of diagnostic centers, geographical distribution as some of the WED Database creation data might be described by indicators, percentages or proportions.

4. 2 Qualitative Data:

Code generated from responses given in the interviews of stakeholders will be written down and later analyzed using NVivo or any related products. MIRA's two-way communication system will incorporate the stakeholder feedback such as franchise fatigue or the need for local representatives to improvement the research method and appropriate method of communication.

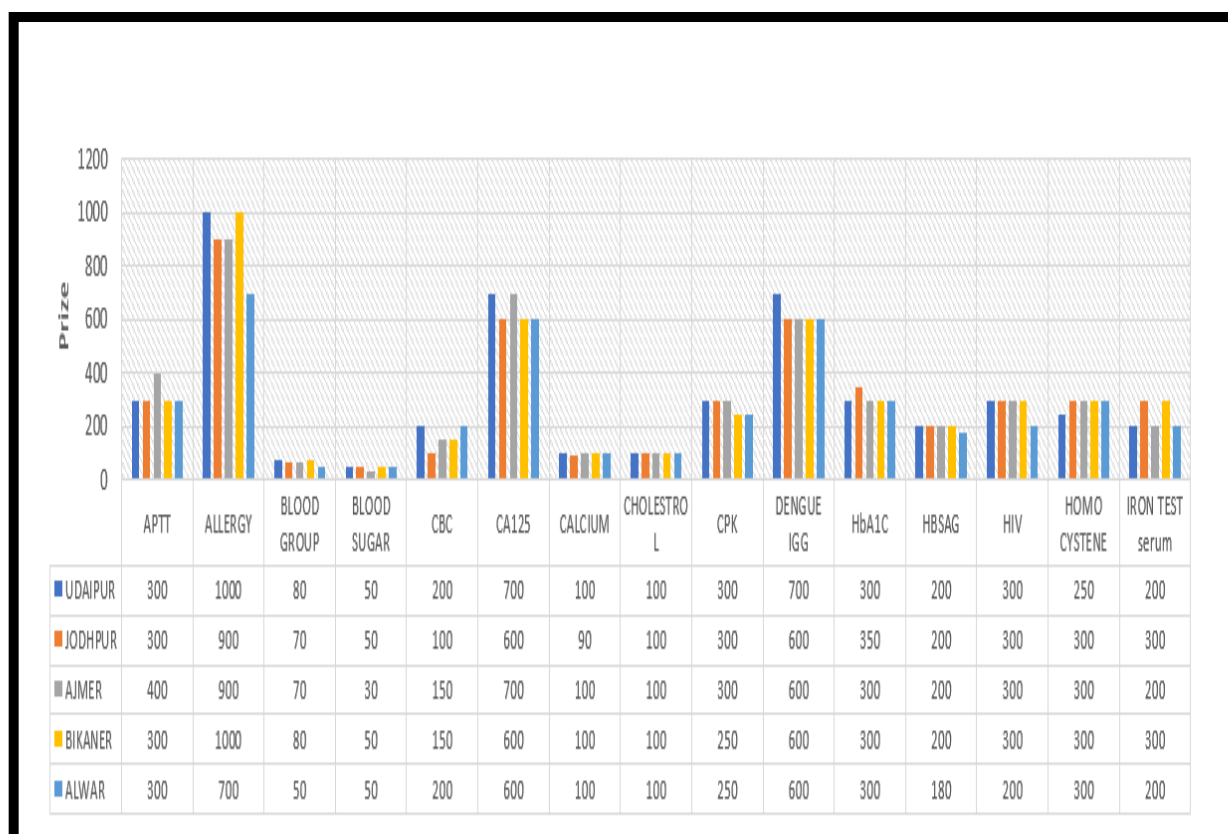
5. Ethical Considerations:

- Participants' consent will be sought from all interviewed participants.
- Participants information shall be kept confidential.
- Have a concern, if necessary an approval will be sought from an Institutional Review Board (IRB) in regard to research protocols.

6. Limitations:

- The research may offset by the collection of data from the diagnostic centers and respondents' willingness to participate in the interview.
- However, there is relative concentration on Rajasthan which might make the result difficult to generalize on other regions.

Result and Discussion





+ 50 Sample Collection Centers and 10+ Regional Centers



200+ Sample Collecting Centers and 40+ Regional Centers



150+ Sample Collecting Centers and 12 Regional Centers

Database:

- Compiled a comprehensive database of 278 diagnostic centres across all 50 districts of Rajasthan.

Targeted Outreach:

- Identified 42 high-potential clients through a targeted screening process.

Extensive Contact:

- Conducted over 300 calls to connect with these potential clients.

Conclusion:

Thus, this dissertation sets out an attempt to bring out the possibilities of the partnership between pathology labs in Rajasthan. Employing a rigorous paradigm excellence the study carefully and systematically explored the contemporary pathology labs environment and the stakeholders' requirements and concerns, together with evaluating the utility of different partnership strategies with unmatched precision.

The study exposed a rather diverse environment of pathology labs in Rajasthan. The private and public sector are present together, and both undergo several problems. Since the state basically provides access to affordable health facilities, major facilities in this regard are state laboratories, especially in the rural regions. Private laboratories, on the other hand, can bring in the aspect of specialization and the use of technology. However, a significant issue concerning the distribution of resources in laboratories was identified; some of the labs were short of equipment, understaffed and unable to provide the range of diagnostic services. Such disparities prove that partnerships can sharply act as precursors, and facilitate access of services in the state.

Mentioned above is the crucial role that stakeholder engagement played in the identification of the many facades insofar as the pathology service delivery is concerned. This qualitative study showed that the interviews and data collected revealed many concerning issues and objectives from the lab administrators, pathologists, and healthcare professionals. Constraints in funding, increasing usage of the different specialized tests, and the inequality of service delivery across regions were identified as critiques. But there was optimism and a willingness to do deals also – to a significant extent. Thus, there was a stated need for enhancing efficiency, using collaboration to pool knowledge and increasing the scope of services – some of the key benefits of an effective partnership. The research takes valid concerns raised about the approach into consideration and recommends a more complex solution of a model different from the current mega opportunity's simplistic approach to partnerships to lay the foundation for a future where such a pathology landscape with more opportunity is enabled in Rajasthan.

Key Findings:

- In regard to the study objectives, the research revealed the existence of a rich spectrum of pathology labs in Rajasthan that offered different equipment, human resources, and services.
- The challenges that both public and private lab faces are lack of resources, unbalanced distribution of service across the geographical regions and increasing demand for different type of tests.
- Some of the key reasons that stakeholders singled out as key factors that informed their desire to engage in health partnerships were to increase efficiency and access to unfamiliar technologies to improve service delivery.
- Challenges regarding partnership models were such things as franchise tiredness, no local presence and fewer clients in some areas.

Recommendations:

- Based on the research findings, the following recommendations are made for promoting effective partnerships between pathology labs in Rajasthan. Based on the research findings, the following recommendations are made for promoting effective partnerships between pathology labs in Rajasthan:
- **Develop Diverse Partnership Models:** Thus, it can be assumed that individual solutions may be ineffective or even counterproductive.
- Potentially, it is possible to think of such models as referral networks, resource-sharing agreements, or joint ventures that are based on the needs of the partnering laboratories.
- **Address Stakeholder Concerns:** This need can be met with help of such strategies as online training modules.
- Concerning the issue of partnership commitment, pilot or phase implementation might help reduce it.
- **Facilitate Collaboration:** The government and the professional associations can intervene in.
- Finding a suitable environment to set up a meeting of people interested in a partnership.
- Preliminary creation of policies and standards of effective cooperation.
- Conducting seminars and awareness sessions on different partnership structures and advantages.
- **Invest in Infrastructure:** Financial backing for acquisition of equipment and infrastructure particularly in the rural areas will increase the capacity of labs in partnerships.

Limitations of Study

- There is a chance that the replies provided by the respondents may be biased.
- The analysis uses actual data, not projections.
- There was a limited amount of time which affected the accuracy.
- The study was conducted in Rajasthan only.

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