

**Summer Internship Report
at
Department of Health and Family
Welfare
National Health Mission (NHM),
Punjab**

(April 25th to June 20th, 2024)

A Report By

ADITI SINHA

PGDM (Hospital and Health Management) 2023-2025



International Institute of Health Management Research, New Delhi



CERTIFICATE OF COMPLETION

THIS IS TO CERTIFY THAT

..... Aditi Sinha

has completed internship under the guidance of PO Free Diagnostic, SHG
under National Health Mission for Free Diagnostics Service Initiative
from date 25th April 2024 to 20th June 2024

We found him/her sincere, hardworking, dedicated and result oriented.

He/She worked well as a part of the team during his/her tenure.

National Health Mission Punjab wish him/her all the best for the future endeavors.


Mission Director
National Health Mission , Punjab

FEEDBACK FORM

Name of the Student: Aditi Sinha

Summer Internship Institution:

Department of Health and Family Welfare, Punjab, Chandigarh
NHM Punjab

Area of Summer Internship: Free Diagnostics Service Initiative

Attendance: 95%

Objectives met: All given work completed on time

Deliverables: Conducted a gap analysis of the Free Diagnostics Service Initiative Program and done the assessment of the State initiative scheme for X-Ray and Ultrasound for Patients of Government Hospitals of Punjab.

Strengths: Knowledgeable, good analytical skills with in depth knowledge and commands a good knowledge of the public health domain. Keen to learn new things and has a positive approach.

Suggestions for Improvement: Read more about the government health programs.

Signature of the Officer-in-Charge (Internship)

DR. PREETI THAWARE
PO, FDSI
Punjab.

Date: 20/06/2024

Place: Department of Health and Family Welfare, Punjab, Chandigarh

ACKNOWLEDGEMENT

I am deeply grateful for the opportunity to complete my summer internship at the Department of Health and Family Welfare (NHM Punjab), Chandigarh. This experience has been both enriching and inspiring, and I owe its success to several individuals who have guided and supported me throughout this journey.

First and foremost, I would like to express my heartfelt gratitude to **Dr. Preeti Thaware**, Medical Officer and Program Officer of the Free Diagnostics Service Initiative. Her exceptional guidance and mentorship over the past two months have been invaluable. Dr. Preeti's dedication, expertise, and encouragement made my internship journey both easy and fruitful.

I am also immensely thankful to **Dr. Anandhi Ramachandran**, Professor at IIHMR Delhi, who is my mentor. Her constant support, insights, and encouragement have been crucial in helping me navigate and make the most of this experience.

A special thanks to **Dr. Meenu Lakhanpal**, Consultant HR at NHM Punjab, for her seamless coordination and assistance, which ensured a smooth and productive internship.

I am deeply grateful to my parents, whose unwavering support and encouragement have been the foundation of all my endeavors. Their belief in me has made this achievement possible.

I would also like to extend my sincere thanks to my colleagues for their readiness to assist whenever needed. Their support has greatly enhanced my learning experience.

Finally, I would like to thank **IIHMR Delhi** for providing me with the opportunity to intern at NHM Punjab. This platform has allowed me to gain invaluable practical experience and insights into the healthcare sector.

Thank you all for making this internship a truly memorable and educational experience.

Aditi Sinha

TABLE OF CONTENTS

Contents	Page Nos.
Abbreviations	5
Abstract	6
Introduction	6-7
Rationale	7-8
Aim of the Study	8
Methodology	8
Description	8-12
Findings	13-14
Discussion	14-16
Conclusion	16
Reference	16-17
Plag Report	18

ABBREVIATIONS

S.I. No.	Abbreviation	Full Form
1	AAC	Aam Aadmi Clinics
2	CGHS	Central Government Health Scheme
3	CHC	Community Health Centers
4	DH	District Hospitals
5	HMIS	Health Management Information System
6	OPD	Outpatient Department
7	OECD	Organisation for Economic Co-operation and Development
8	PHSC	Punjab Health Systems Corporation
9	PHC	Primary Health Centre
10	PPP	Public-Private Partnerships
11	SC	Sub Centers
12	SDH	Sub-Divisional Hospitals
13	UHC	Universal Healthcare
14	USG	Ultrasonography
15	WHO	World Health Organization

PROJECT REPORT

Title: Assessment of the State initiative scheme for X-Ray and Ultrasound for Patients of Government Hospitals (DH, SDH & CHC) of Punjab

Abstract

The Department of Health & Family Welfare, Government of Punjab, has launched an initiative to augment and improve diagnostic services for the general public in government hospitals, including District Hospitals (DH), Sub-Divisional Hospitals (SDH), and Community Health Centers (CHC). This study evaluates the State Initiative Scheme for X-Ray and Ultrasound, which involves the enlistment of diagnostic centres from the open market to meet service gaps and ensure the continuous availability of radiological services.

The scheme ensures that patients receive in-house X-ray and ultrasound facilities at nominal charges, with referrals to empanelled centers only under specific circumstances such as equipment breakdowns or staff shortages. Data collected from administrative records will assess the effectiveness, utilisation, and impact of the scheme on healthcare delivery.

This comprehensive assessment aims to determine how well the scheme addresses the needs of patients, the efficiency of service delivery, and the overall improvement in diagnostic capabilities in Punjab's government hospitals. By analyzing both the in-house and referral services, this study seeks to provide insights for policy enhancements and optimal resource allocation in the healthcare system.

Introduction

India, despite its substantial economic progress, remains a lower-middle-income country with significant socioeconomic and health disparities. Over 20% of the population lives in poverty, and the nation faces a "triple burden of disease," which includes persistent communicable diseases, a growing prevalence of non-communicable diseases, and injuries. The Indian healthcare system is challenged by the need to serve its 1.4 billion citizens, with the private sector handling around 70% of healthcare needs. However, private providers are often small, unregulated, and concentrated in urban areas, leaving many underprivileged populations without proper care. Public hospitals, on the other hand, are overwhelmed by insufficient funding, a lack of skilled health professionals, inconsistent drug and equipment supplies, and overcrowding (1). In mixed healthcare systems like India's, private practitioners play a crucial role in providing healthcare, especially where public systems are overburdened. The private sector's involvement is significant in settings where public healthcare faces challenges in providing universal and timely access to medical services. Outsourcing has been identified as an effective strategy that can increase personnel, client, and stakeholder satisfaction, as well as reduce costs and improve benefits for the public sector. (2) Access to universal healthcare

(UHC) is increasingly recognised as a fundamental right worldwide. Developing countries, however, face acute shortages of healthcare infrastructure and personnel, exacerbated by urban-rural health divides. Public-private partnerships (PPP) are seen as a viable solution to making UHC a reality by leveraging private sector efficiency and resources. India's health spending is significantly lower than that of OECD countries, highlighting the need for private sector investment to bridge the funding gap and improve service delivery efficiency. (4) (5)

Hospitals in developing countries allocate 5-15% of their expenditure to purchasing advanced diagnostic equipment. However, the World Health Organization (WHO) reports that over 38% of medical equipment is out of service, primarily due to poor user expertise and improper maintenance. The PPP approach has been shown to significantly enhance the efficiency and quality of healthcare services, making it a key strategy for improving service quality and reducing resource wastage. (6) The primary reasons for outsourcing in healthcare include improving customer service, reducing costs, enabling healthcare organisations to focus on core activities, and increasing flexibility to meet changing market needs. (7) Healthcare disparities, including inequitable differences in health coverage, access to care, and quality of care received, contribute to broader health disparities. Addressing these disparities is critical for achieving equitable healthcare outcomes. (8) Large inequities in access to healthcare services persist across rural and urban areas and within communities in India. These disparities are pronounced in terms of infrastructure, human resources, supplies, bed-to-population ratios, and the spatial distribution of health institutions. Inequities in healthcare access are driven by factors such as population distribution, historical inequities, socioeconomic status, and unequal provision of and access to health services. (9) (10)

Rationale

1. To address the persistent service gaps in diagnostic services, especially in radiological investigations, the Punjab government has decided to collaborate with private diagnostic centers. This collaboration ensures the continuous availability of X-ray and ultrasound facilities, which are critical for timely and accurate diagnoses in government hospitals, including District Hospitals (DH), Sub-Divisional Hospitals (SDH), and Community Health Centers (CHC).
2. By empanelling diagnostic centers at Central Government Health Scheme (CGHS) package rates, the government aims to mitigate challenges such as equipment breakdowns, staff shortages, and other operational hurdles. This partnership allows for seamless continuity of services, ensuring that patients receive necessary diagnostic care without delays.
3. The initiative ensures that patients at government hospitals receive X-ray and ultrasound services at nominal charges, regardless of whether the services are provided in-house or referred to empanelled centers. This approach aligns with the government's objective of making essential healthcare services accessible and affordable for all, particularly the underprivileged.

4. By ensuring continuous availability of essential diagnostic services, the scheme aims to improve patient outcomes through timely and accurate diagnoses. This study will evaluate whether the scheme achieves its goal of reducing delays and improving the quality of care received by patients.

5. The scheme's design prioritizes the utilization of in-house diagnostic facilities before referring patients to empanelled centers. Evaluating the efficiency of this prioritization will highlight areas where resource utilization can be optimized, ensuring that government hospitals make the best use of available equipment and personnel.

6. By ensuring the availability of diagnostic services in government hospitals and empanelled centers, the initiative aims to reduce healthcare inequities, providing quality diagnostic care to the poorest sections of society. This aligns with the broader goal of improving public health outcomes and reducing disparities in healthcare access.

Aim of the Study:

To evaluate the effectiveness of the State Initiative Scheme for X-Ray and Ultrasound in government hospitals across Punjab, assessing how the collaboration with empanelled diagnostic centers addresses service gaps and enhances diagnostic service delivery to the patients.

Methodology:

The study population consisted of patients coming to government health facilities and empanelled centres in Punjab who were prescribed USG or XRay. The inclusion criteria comprised of all government health facilities and privately empanelled centres in Punjab, while the exclusion criteria ruled out all other non government and non empanelled health facilities. Data collection was done using a live Google Sheet to report daily OPD visits, X-ray and ultrasonography prescriptions, tests performed at in-house facilities, and tests done via outsourcing. The data required for analysis was collected from the same live Google Sheet, HMIS and PHSC Data. The data management plan involved analyzing a total of 10 months of data from January to May of 2023 and 2024. The required data was entered into a Microsoft Excel sheet and analyzed using Microsoft Excel, with results expressed in percentages. The study was completed within a period of two months.

Description

1. The USG data below indicates a significant increase in the number of ultrasounds conducted after the implementation of the scheme, with the most notable increase in February 2024 at 96.83%. This rise suggests that due to scheme easy access to ultrasonography for patients due to the opportunity to get the test done in either health facilities or empanelled centers at subsidised rates.

[Percent is calculated as difference in USG services done in 2023 and 2024 by USG services done in 2023.]

Table 1: Increment in USG services done in 2024 in comparison to 2023			
Month	2023	2024	% Increment
January	17052	19972	17.12%
Febuary	17863	35167	96.83%
March	20059	35701	77.91%
April	18071	30537	68.98%
May	23283	30661	31.69%

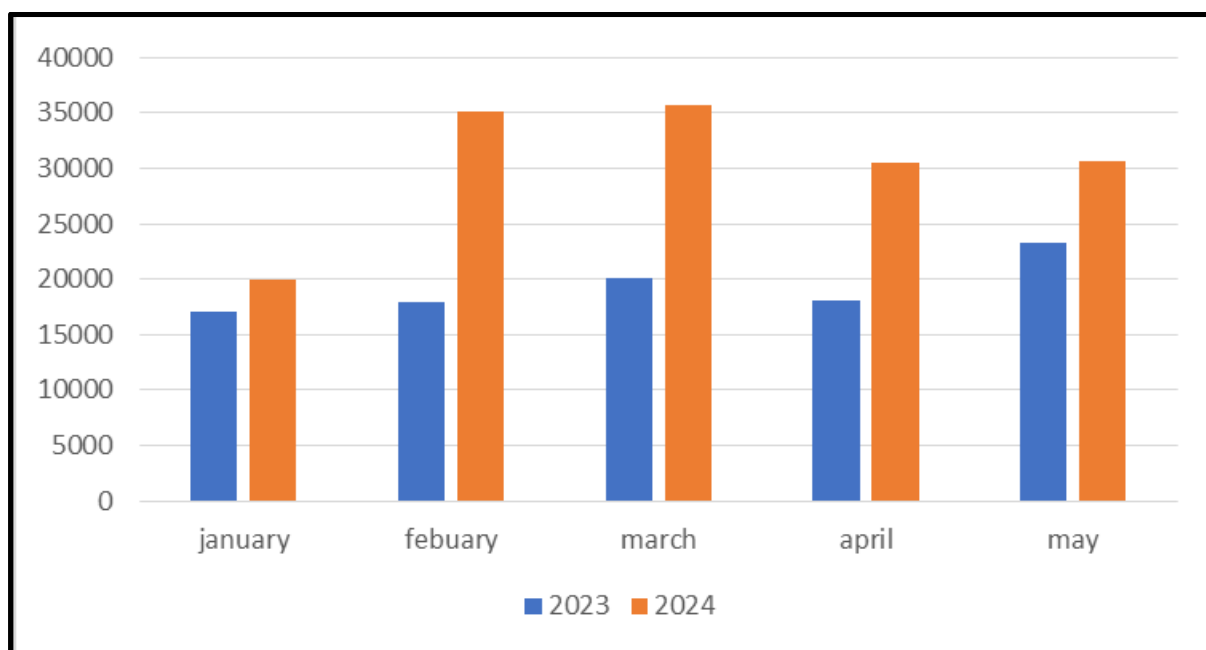


Fig 1: Increment in USG services done in 2024 as compared to 2023.

2. The X-ray data below reveals mixed results. While there is a decrease in X-rays conducted in January and May 2024 compared to 2023, February, March, and April 2024 show slight increases. The variability in the results suggests that while the scheme has had an impact, it

may be more pronounced in certain periods or locations. This also suggests that most of the in-house facilities can conduct radiological investigations on their premises.

[Percent is calculated as difference in X-ray services done in 2023 and 2024 by X-ray services done in 2023.]

Table 2: Increment/Reduction of X-ray Services in 2024 as compared to 2023			
Months	Year 2023	Year 2024	% Increment/Reduction
January	88885	83729	-5.80%
February	103147	112815	9.37%
March	112259	114863	2.32%
April	97479	99643	2.22%
May	127189	99906	-21.45%

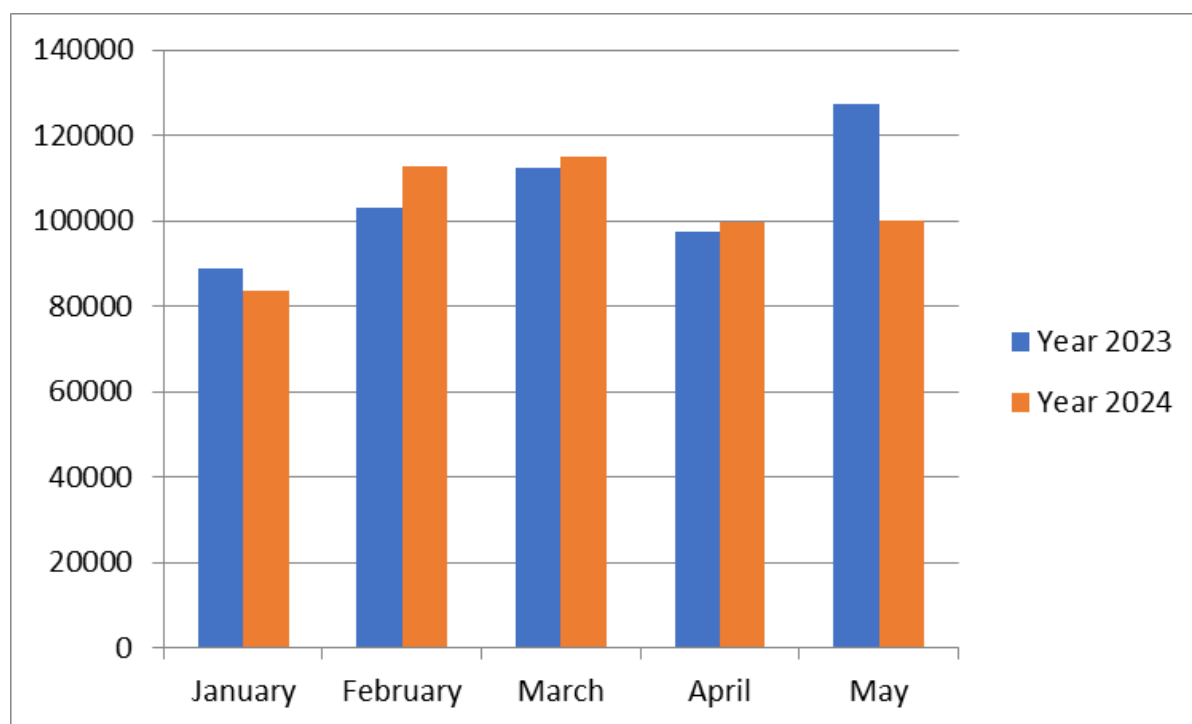


Fig 2: Increment/Reduction of XRay Services in 2024 as compared to 2023

3. The data below on OPD and AAC visits reveal significant trends. There is a consistent decrease in OPD visits from 2023 to 2024, with notable drops across all months, exemplified by a -38.58% reduction in May. Conversely, AAC visits show a substantial increase each month, with a striking 270.44% rise in January. This shift from traditional OPD services to Aam Aadmi Clinics is likely due to better accessibility since the number of AACs increased in 2024 compared to 2023, affordability, and improved quality of services.

[OPD Percent is calculated as difference in OPD visits in 2023 and 2024 by OPD visits in 2023.]

[AAC Percent is calculated as difference in AAC visits in 2023 and 2024 by AAC visits in 2023.]

Table 3: Reduction/ Increment in Patient Footfall in OPD and AAC						
Months	Year 2023		Year 2024		% Reduction/ Increment	
	OPD	AAC	OPD	AAC	OPD	AAC
January	1155833	224780	1125654	832671	-2.61%	270.44%
February	1343587	448314	1164503	1225367	-13.33%	173.33%
March	1465371	553804	1162401	1299937	-20.68%	134.73%
April	1301519	437754	994142	1353980	-23.62%	209.30%
May	1558645	544517	957288	1528270	-38.58%	180.67%

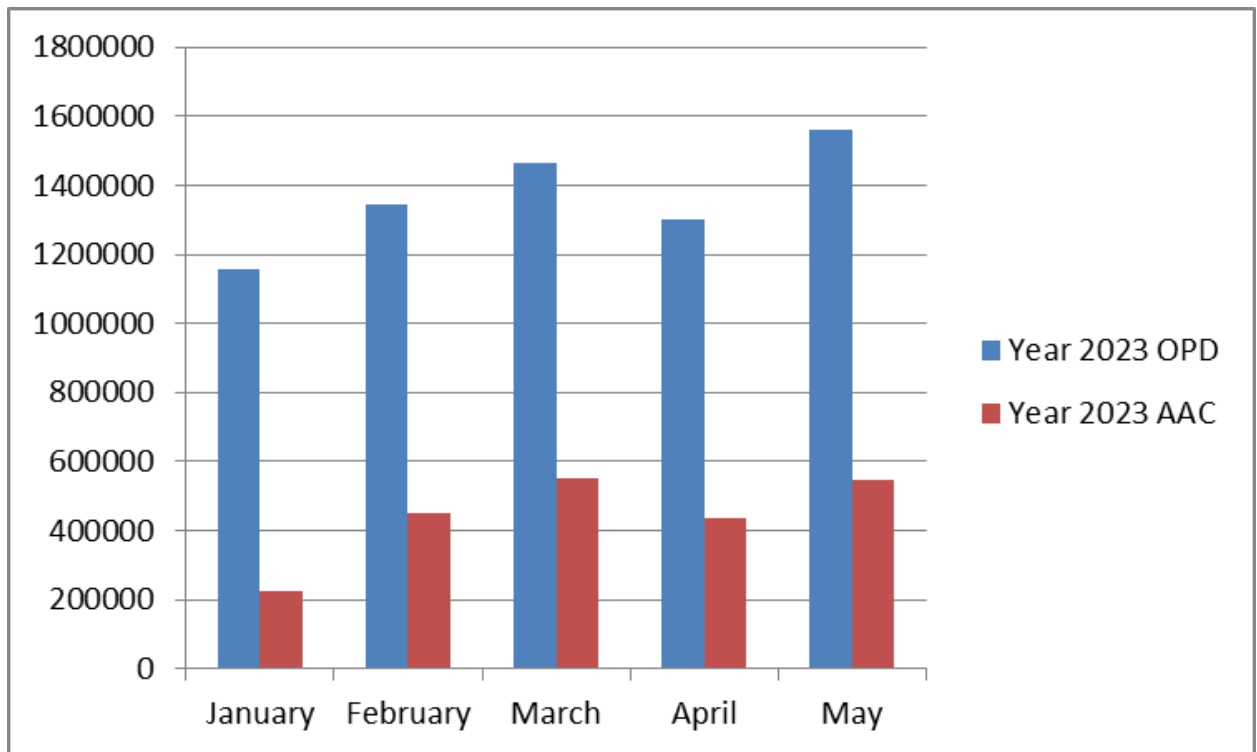


Fig 3: Year 2023 Aam Aadmi Clinics patient footfall and OPD patient footfall

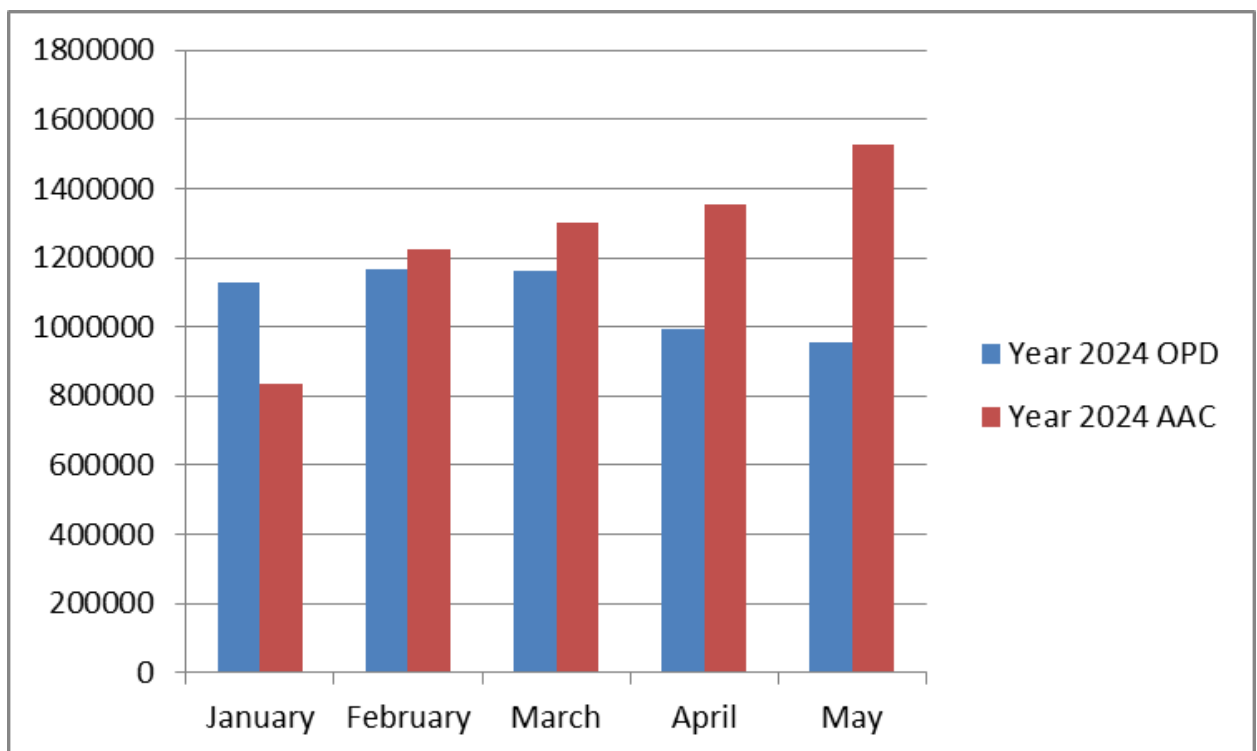


Fig 4: Year 2024 Aam Aadmi Clinics patient footfall and OPD patient footfall

Findings

Below are the findings of the study:

1. There are a total of 202 empanelled centers for X-ray and 389 for Ultrasound.
2. Out of a total OPD visits of 3,479,927; 111,790 USG (ultrasound) were prescribed, constituting 3.21% of the total OPD.
3. 64.2% of USGs were done in-house, 30.2% at empanelled centers, while 6.4% of patients did not avail USG services either in-house or at empanelled centers.
4. A total of 7,176 patients who were prescribed USGs did not get the investigation done. The highest number of such patients was 756 cases.
5. Empanelled centers conducted 1,101 additional USGs that were not referred from government health facilities.
6. 38 health facilities reported more patients investigated than prescribed. Five facilities reported more than 50 extra patients each, with 391 extra patients being the highest number.
7. Seventeen health facilities did not prescribe any USGs during the study period, with seven of these being from a single district.
8. There was a 6.37% increase in USG referrals from February to March 2024, followed by a 21.73% reduction from March to April 2024 .
9. Five districts saw significant reductions in EC referrals for USGs between March and April .
10. Out of a total OPD visits of 3,479,927; 345,747 X-rays were prescribed, making up 10% of the total OPD.
11. 100.2% of X-rays were completed in-house, 0.5% at empanelled centers, and 0.9% of patients did not get X-rays done either in-house or at empanelled centers.
12. Government health facilities conducted 8,881 extra X-rays, resulting in a 0.2% increase in the overall percentage.
13. 1,034 patients did not get their prescribed X-rays, with the highest number of missing patients being 496.
14. Nine health facilities did not prescribe any X-rays during the study period.

15. The highest number of patients referred to empanelled centers for X-rays was 210 patients.
16. The highest in-house USG was 94%.
17. There was a 22% reduction in referrals to empanelled centers for X-rays from February (771 referrals) to April (503 referrals).
19. 38 health facilities reported more USG patients investigated than prescribed.
20. 5 health facilities reported more than 50 extra USG patients investigated by empanelled centers.
21. X-Ray Prescription and Completion:
- 10% of the total OPD visits were prescribed X-Rays.
 - 100.2% of prescribed X-Rays were completed in-house, indicating some facilities exceeded their prescribed number.
 - 0.56% of X-Rays were done at empanelled centers.
 - 0.9% of patients did not avail X-Ray services either in-house or at empanelled centers.
 - 8881 extra patients were investigated for X-Ray by government health facilities, contributing to a 0.2% increase in overall completion percentage.
22. 5 health facilities accounted for 36% of total referrals to empanelled centers for X-Rays.
23. Nine health facilities did not prescribe any X-rays during the study period.
24. The reasons shared by the concerned authorities of the health facilities for the high number of missing USG patients included JSSK data not being reported for both in-house and empanelled centers and referrals being made to nearby health facilities.

These findings illustrate the performance, gaps, and discrepancies in the implementation of the radiological investigation scheme, highlighting areas for improvement in operational efficiency and patient outcomes within Punjab's public healthcare system.

Discussion

This research aimed to analyze the impact of new healthcare schemes on the utilization of services in Punjab's government hospitals, focusing on in-house and referral services. The findings, supported by various tables and graphs, reveal significant insights and trends. Despite India's economic progress, healthcare disparities remain pronounced. With over 20% of the population living in poverty, the healthcare system is strained by a triple burden of communicable diseases, non-communicable diseases, and injuries. The public sector is often

underfunded and overburdened, while the private sector, though crucial, is mostly unregulated and concentrated in urban areas, leaving rural populations underserved.

The research highlights the importance of the private sector in bridging gaps where public healthcare is insufficient. Public-private partnerships (PPPs) have shown the potential to increase satisfaction among personnel, clients, and stakeholders while reducing costs and improving public sector benefits. This is particularly relevant in mixed healthcare systems like India's, where the public sector alone cannot meet the population's healthcare demands.

The findings reveal several important insights into the effectiveness of the State Initiative Scheme for X-ray and Ultrasound for Patients of Government Hospitals in Punjab. The implementation of a substantial network of empanelled centres (202 for X-ray and 389 for ultrasound) indicates a robust effort to supplement in-house diagnostic capabilities and address service gaps. However, the data highlights mixed results in terms of service utilisation and accessibility. The OPD data shows that out of 3,479,927 total OPD visits, 3.21% resulted in ultrasound prescriptions and 10% in X-ray prescriptions. The high proportion of X-rays compared to ultrasounds underscores the critical role of radiological services in patient care. While 64.2% of ultrasounds were conducted in-house and 30.2% at empanelled centers, 6.4% of patients did not receive the prescribed USG services, pointing to potential barriers in accessing these diagnostics. Similarly, the X-ray services were exceptionally high at 100.2% in-house, suggesting efficient in-house facilities as well as minimal reliance on empanelled centers (0.5%). Notably, 0.9% of patients did not avail themselves of X-ray services, indicating a need for better follow-up and coordination.

A concerning finding is the significant number of patients who did not undergo prescribed USG investigations, totaling 7,176. Additionally, the fluctuations in USG referrals, including a 6.37% increase from February to March 2024 and a subsequent 21.73% decrease from March to April, suggest variability in demand and possible improvements in in-house service provision over time. The reduction in USG referrals in five districts reflects enhanced in-house capabilities.

The USG data show a significant increase in 2024, particularly a 96.83% rise in February. This surge can be attributed to enhanced access of patients to diagnostic services in either in-house facilities or empanelled centers, reflecting a positive impact of the healthcare schemes on the provision of diagnostic services. Conversely, X-ray services displayed mixed results. While January and May 2024 saw a decrease in X-rays compared to 2023, February, March, and April showed slight increases. These findings suggest that the scheme's impact on X-ray services varies across different periods, influenced by factors such as scheme awareness and better in-house capabilities.

The data from the study also reveal significant impacts of new healthcare schemes on OPD visits, ultrasound (USG) services, and X-ray services in Punjab's government hospitals. There was a notable reduction in OPD visits in 2024 compared to 2023, with a marked -38.58% decrease in May. This suggests improved diagnostic services and healthcare efficiency, potentially reducing the need for repeated visits. Additionally, the introduction and expansion

of Aam Aadmi Clinics (AACs) have shifted patient preferences from traditional OPD services to AACs, evident from the consistent decline in OPD visits and a substantial increase in AAC visits, such as the 270.44% rise in January 2024. This shift indicates that AACs are becoming a preferred choice for patients due to their better accessibility, affordability, and improved service quality.

Overall, the new healthcare schemes, including establishing AACs and integrating empanelled diagnostic centres, have significantly impacted healthcare delivery in Punjab. The reduction in OPD visits and the increase in diagnostic services like USG highlight the schemes' effectiveness in enhancing healthcare access and efficiency. However, the mixed results for X-ray services highlight the ability of in-house facilities to conduct radiological investigations and future changes in the scheme if applicable. These insights are crucial for informing future policy enhancements and optimising the implementation of healthcare initiatives to improve patient outcomes and reduce healthcare inequities in Punjab's public healthcare system.

Conclusion

In conclusion, the assessment of the State Initiative Scheme for X-ray and Ultrasound for patients of government hospitals in Punjab reveals a significant impact on healthcare service delivery. The establishment of a substantial network of empanelled centers has supplemented in-house diagnostic capabilities, improving access to essential diagnostic services. The notable reduction in OPD visits and the increase in ultrasound services indicate enhanced healthcare efficiency and accessibility. However, the study also highlights areas needing improvement, such as better tracking of service utilisation, addressing barriers to access, and ensuring consistent service provision across all health facilities. The mixed results for X-ray services highlight the ability of in-house facilities to conduct radiological investigations and future changes in the scheme if applicable. These findings are critical for informing policy enhancements and optimising healthcare initiatives, ultimately aiming to improve patient outcomes and reduce healthcare inequities in Punjab's public healthcare system.

References

1. Grewal H, Sharma P, Dhillon G, et al. Universal Health Care System in India: An In-Depth Examination of the Ayushman Bharat Initiative. *Cureus*. 2023 Jun 21;15(6):e40733. DOI: 10.7759/cureus.40733.
2. Khan IA, Priyanka N, Mitra SK, Lahariya AU, Vaz RP, Lahariya C. The Role of Private Practitioners in Bridging the Healthcare Gap and Achieving Universal Health Coverage in India. *Preventive Medicine Research & Reviews*. 2024 Apr 18; DOI: 10.4103/PMRR.PMRR_26_23.

3. Barati O, Najibi M, Yusefi AR, et al. Outsourcing in Shiraz University of Medical Sciences; a before and after study. *J Egypt Public Health Assoc.* 2019;94:13. DOI: 10.1186/s42506-019-0010-0.
4. Ganapathy K, Reddy S. Technology Enabled Remote Healthcare in Public Private Partnership Mode: A Story from India. In: Latifi R, Doarn CR, Merrell RC, editors. *Telemedicine, Telehealth and Telepresence.* Springer Cham; 2021. DOI: 10.1007/978-3-030-56917-4_14.
5. Khan AM, Mir MS. Contracting In Healthcare. *Biomed J Sci Tech Res.* 2021;36(3):5846. DOI: 10.26717/BJSTR.2021.36.005846.
6. Baniyadi A, Sari EA, Jaafaripooyan M, Rahimi Foroushani A. Real-Life Incentives Driving Public-Private Partnership in Diagnostic Services. *Ethiop J Health Sci.* 2020;30(3):409. DOI: 10.4314/ejhs.v30i3.12.
7. Khan AM, Mir MS, Kumar S. *Recent Advances in Hospital Administration.* Scripown Publications.
8. Wasserman J, Palmer RC, Gomez MM, Berzon R, Ibrahim SA, Ayanian JZ. Advancing Health Services Research to Eliminate Health Care Disparities. *Am J Public Health.* 2019;109(S1):S64-S69. DOI: 10.2105/AJPH.2018.304922.
9. DeBenedictis CM, Spalluto LB, Americo L, et al. Health Care Disparities in Radiology—A Review of the Current Literature. *J Am Coll Radiol.* 2022;19(1):101-111. DOI: 10.1016/j.jacr.2021.08.024.
10. Sivakumar I, Manimekalai K, Ranjithkumar A. Accessing Public Health Facilities: Rural and Urban Disparities. *J Crit Rev.* DOI: 10.31838/jcr.07.03.73.

Aditi Sinha

ORIGINALITY REPORT

7 %	6 %	2 %	1 %
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	assets.cureus.com Internet Source	2 %
2	Kumar Amitabh, Anurag Mathur. "Chapter 28 Impact of Repair and Maintenance of Hospital Equipment on Health Services in Government Hospitals in North—Eastern Region of India", Springer Science and Business Media LLC, 2024 Publication	1 %
3	Submitted to Ngee Ann Polytechnic Student Paper	1 %
4	www.jobsinpunjab.in Internet Source	1 %
5	link.springer.com Internet Source	1 %
6	www.ijser.org Internet Source	1 %
7	ejhs.ju.edu.et Internet Source	<1 %