

AN ECONOMIC ANALYSIS OF INPATIENT AND OUTPATIENT SERVICES FOR CHILDREN IN PRIMARY HEALTH CENTERS: A CASE STUDY OF BELGAUM DISTRICT, KARNATAKA

Hanamantgoud P Patil¹

¹Ph.D. Scholar and Lecturer in Economics, Govt First Grade College, Harugeri, Belgaum, India.

Email- hppatil1985eco@gmail.com

DOI: <https://www.doi.org/10.58257/IJPREMS36115>

ABSTRACT

The present study investigates the utilization of Inpatient Department (IPD) and Outpatient Department (OPD) services for children at Primary Health Centers (PHCs) in the Belgaum District of Karnataka, India. The research aims to evaluate the availability and quality of healthcare services and facilities provided to children in this region. By analyzing data from various PHCs, the study identifies key factors influencing the accessibility and effectiveness of healthcare services. The findings highlight significant disparities in healthcare provision, emphasizing the need for policy interventions to enhance the quality and reach of pediatric healthcare services in rural areas. This research contributes to the broader understanding of healthcare economics and the critical role of primary healthcare in improving child health outcomes in Karnataka.

Keywords: Child Healthcare Belgaum District, Karnataka Healthcare Services, Pediatric Healthcare Healthcare Economics, Rural Healthcare Health Policies, Karnataka State Child Protection Policy (KSCPP) Intensified Diarrhoea Control Fortnight (IDCF), Social Awareness and Action to Neutralize Pneumonia Successfully (SAANS), Healthcare Disparities, COVID-19 Impact Healthcare Accessibility Policy Interventions.

1. INTRODUCTION

The state of Karnataka ranked 9th in population in India with a total population of 61,095,297. Karnataka state has a total children population aged between 0 to 06 estimated at 34,85,742 and plays 5.70 percent of the total population. The Belgaum district was the second most populous district after Bengaluru Urban. It has a total population of 47,79,661 and children of 6,26,269 which represents 13.10 percent of the total population of the Belgaum district estimated in the 2011 census. Karnataka state has a total rural population of 3,74,69,335 which occupies 61.32 percent of the total population. The rural areas in Karnataka state have a total of 2127 Primary Health Centers (PHCs) to deliver healthcare facilities for rural people including men, women, and children.

Primary Health Centers (PHCs) play the main role in preventing and treating diseases in rural populations including communicable and non-communicable diseases. PHCs provide vaccinations and immunizations to prevent common childhood diseases such as measles, polio, and tuberculosis, provide nutritional supplements and monitor the growth and development of children through ICDS, PHCs offer basic medical care for common childhood illnesses such as respiratory infections, diarrhea, and skin infections. Primary Health Centers in Rural areas create awareness by conducting health education sessions for parents and caregivers, focusing on hygiene, nutrition, and the importance of timely vaccinations.

2. OBJECTIVES OF THE STUDY

The current study was counted with the following objectives

- To understand major health policies related to children in Karnataka state.
- To know children's health care facilities available in PHCs of Karnataka.
- To evaluate children's OPD and IPD in all PHCs of Belgaum District.
- To examine the healthcare facilities available in PHCs of Belgaum District.
- To Compare the Children IPD and OPD in all PHCs with others of Belgaum District.

3. METHODOLOGY

The study uses secondary sources of data from Communicable Diseases Reports of Belgaum District the study period is 5 years from 2018.

Statistical Tools Used:

The current study uses statistical tools like tabulation, averages, percentages, and bar diagrams.

Major health policies in Karnataka State:

Karnataka state has implemented the following major health policies related to children.

01. National Health Mission (NHM):

The NHM has the objective to provide newborns with immediate and specialized care under Facility-Based Newborn Care (FBNC), health workers work with Home-Based Newborn Care (HBNC) to educate families about newborn care practices and essential care. This includes several child health programs aimed at improving child survival rates and addressing factors contributing to infant and under-five mortality through Special Newborn Care Units (SNCUs), Newborn Stabilization Units (NBSUs), and Newborn Care Corners (NBCCs). Under Janani Shishu Suraksha Karyakram (JSSK), the PHCs provide pregnant women and unwell infants with free and cashless services, including transportation, medications, and diagnostics.

PHCs are essential to the Integrated Management of Neonatal and Childhood Illnesses (IMNCI) because they help prevent and treat common childhood illnesses like pneumonia, diarrhoea, and malnutrition. Primary Health Centers (PHCs) are involved in reducing pediatric pneumonia-related deaths by raising awareness and enhancing treatment access by the Social Awareness and Action to Neutralize Pneumonia Successfully (SAANS) program. PHCs also work to reduce child mortality due to diarrheal diseases by promoting oral rehydration solutions (ORS) and zinc supplementation under the program Intensified Diarrhoea Control Fortnight (IDCF).

02. Integrated Child Development Services (ICDS):

This program aims to improve children under six years old's growth, health, and diet. Giving extra nutritious food to children under six, pregnant women, and nursing mothers aims to prevent malnutrition. ensuring children receive vaccinations to prevent common childhood illnesses. conducting routine medical exams to maintain and monitor children's, expectant mothers', and nursing mothers' health. sends mothers and children to more sophisticated hospitals when specialized care is needed. Early childhood education is offered to children ages 3-6 to support their social and cognitive development. Healthy eating practices, childcare, and other related topics are also taught to mothers and other caregivers. Anganwadi Centers (AWCs) are a network of locations throughout the state that provide these services.

03. Karnataka State Child Protection Policy (KSCPP):

The KSCPP was drafted in compliance with an order from the Hon'ble High Court of Karnataka in W.P.No.49954/2019 on 22/07/2020. It specifically focuses on children up to the age of 18 years. This policy ensures the safety and security of children while respecting their legally recognized rights, including the right to participate in decisions affecting them. It explains every child in Karnataka state, regardless of gender, citizenship, religion, caste, or background, should have access to protection from violence, abuse, neglect, and exploitation.

The Karnataka State Child Protection Policy aims to safeguard children from abuse, neglect, exploitation, and violence. It promotes children's rights and provides guidelines for preventing and addressing child protection issues. It takes precautional Initiatives to create awareness, educate communities, and reduce risks to children. It has Mechanisms for identifying and responding to child protection issues, including reporting, intervention, and rehabilitation. works with Collaboration between various agencies and stakeholders, including government departments, NGOs, and communities, to ensure effective child protection.

Policy highlights the child's right to protection, equality, and participation in decisions affecting their lives. It provides Training and resources for those working with children to ensure they can effectively protect and support children. The policy prohibits children face discrimination based on religion, race, caste, sex, disability, or any other status. The well-being of the child should be the primary concern in all decisions and actions. It explains that, whenever possible, children should not be separated from their biological, adoptive, or foster parents, as family environments are conducive to their all-round development. It discusses the UNCRC, or United Nations Convention on the Rights of the Child, which establishes basic rights for children everywhere.

04. Intensified Diarrhoea Control Fortnight (IDCF):

It is an important public health initiative aimed at reducing child mortality due to childhood diarrhoea. The IDCF was launched to achieve "zero child deaths due to childhood diarrhoea." It focuses on increasing awareness about the use of Oral Rehydration Solution (ORS) and Zinc during the pre-monsoon and monsoon seasons. IDCF aims to prevent and manage diarrhoea, especially among children under the age of five. It is implemented by visiting health workers in households to distribute ORS to children under five years old.

IDCF initiated the STOP Diarrhoea Campaign in 2014 with the aim of "Prevent, Protect, and Treat (PPT)" strategy for emphasizing the use of ORS and Zinc.

05. Social Awareness and Action to Neutralize Pneumonia Successfully (SAANS):

Childhood pneumonia is a serious lung infection that affects children under the age of five. It can be caused by bacterial, viral, or fungal infections. The SAANS is an important initiative launched in Karnataka state to combat childhood pneumonia. It was launched on 20th April 2022 by the Health and Medical Education Minister of Karnataka, K. Sudhakar.

The primary goal of SAANS is to “Reduce childhood pneumonia-related deaths” by creating awareness and promoting early detection and care-seeking behaviors among parents and caregivers. This scheme involves community outreach programs, educational programs, and communication through various channels. Promotes Health workers, schools, and local leaders play a vital role in spreading awareness. The program aims to raise awareness about pneumonia prevention, protection, and treatment by Encouraging parents and caregivers to recognize pneumonia symptoms promptly. Promote timely medical attention when symptoms appear.

Child healthcare facilities are available in Primary Health Centers (PHCs) in Karnataka.:

Primary Health Centers play a crucial role in improving child existence and addressing issues contributing to infant and under the age-5 mortality. PHCs play a crucial role in providing necessary health services to the rural peoples. The following treatments are available for children in Primary Health Centers (PHCs) across Karnataka.

1. All PHCs provide regular Outpatient Department (OPD) Services to Children who can visit PHCs for common illnesses, minor injuries, and routine check-ups. These services include consultations with doctors, nurses, and other health professionals.
2. PHCs offer Antenatal Care (ANC) services to pregnant women. These services include regular check-ups, monitoring fetal growth, and addressing any pregnancy-related concerns.
3. PHCs provide Family Planning Services of counseling, contraceptive methods, and guidance on birth spacing.
4. Some PHCs have Inpatient Services for children who are admitted for short-term care. Which are useful for managing illnesses that require observation or treatment beyond outpatient visits.
5. Most of the PHCs offer Laboratory Services of Tests for conditions like HIV, pregnancy, malaria, etc.
6. PHCs serve as the first point of contact (FRCs). If a child's condition requires specialized care, they are referred to higher-level health facilities such as Community Health Centers or district hospitals.
7. PHCs conduct Immunization programs for childhood immunization and Vaccine programs. which are administered according to the national immunization schedule.
8. PHCs conduct health education to parents and caregivers, and promotion which covers topics like nutrition, hygiene, and child development.

Number of children treated at IPD and OPD in PHCs of Belgaum District

The following data are the children's OPD and IPD health care-seeking behaviours in PHCs and CHCs of Belgaum District during the year 2018 to 2022. i.e. 5years.

Table No.01

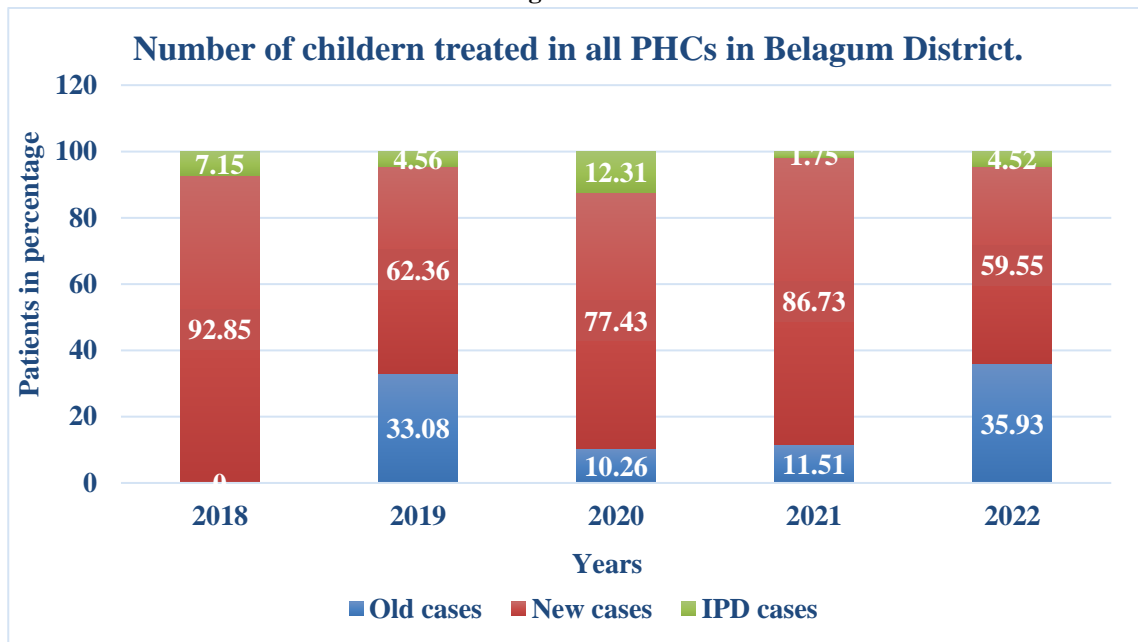
YEARS	OPD		IPD	TOTAL
	OLD CASES	NEW CASES		
	PHC / CHC	PHC / CHC	PHC / CHC	
2018	NA	211992 (92.85)	16335 (7.15)	228327 (100)
2019	114791 (33.08)	216350 (62.36)	15819 (4.56)	346960 (100)
2020	69948 (10.26)	527912 (77.43)	83947 (12.31)	681807 (100)
2021	91009 (11.51)	685627 (86.73)	13862 (1.75)	790498 (100)
2022	86233 (35.93)	142932 (59.55)	10855 (4.52)	240020 (100)

Source: Communicable Diseases Reports 2018, 2019, 2020, 2021, and 2022 from District Health Office (DHO) Belgaum.

Note: Data in bracket shows percentage.

Table No.01 shows that, in 2018 total 92.85 percent children treated in OPD while only 7.15 percent children treated in IPD. 33.08 percent old cases, 62.36 percent new cases were reported under OPD and only 4.56 percent of children were treated in IPD. Compared to 2019, Old OPD cases increased to 10.26 percent and 11.51 percent in 2020 and 2021 respectively, in 2022 old OPD cases increased to 35.93 percent.

Figure No.01



Source: Table No. 01.

Note: Data shows in percentage.

Similarly, in OPD new cases were reported 92.85 percent in 2018, and 62.36 percent, 77.43 percent, 86.73 percent, and 59.55 percent cases were reported in 2019, 2020, 2021, and 2022 respectively. Considering that children's IPD cases totaled 7.15 percent in 2018, further, it was estimated that to 4.56 percent and 12.31 percent in 2019 and 2020 respectively. Children's IPD cases decreased from 21.31 percent to 1.75 percent in 2019 and 2020 respectively. Further Children's IPD cases increased to 4.52 percent in 2022.

Table No.02

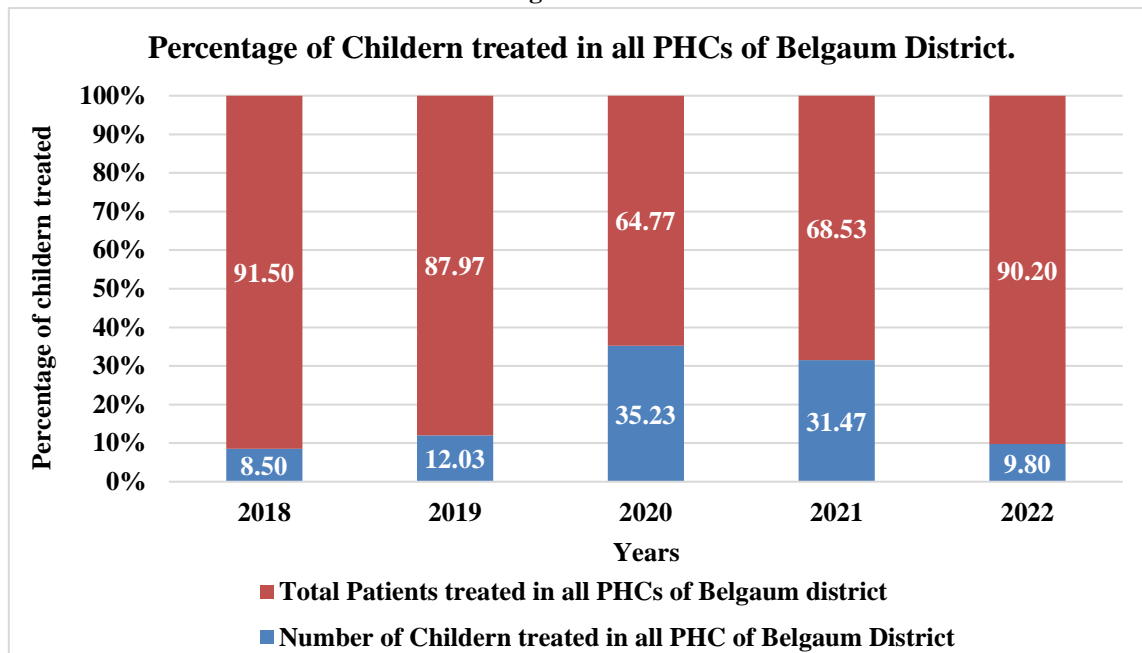
Year	Number of Children treated in all PHC of Belgaum District	Total Patients treated in all PHCs of Belgaum district
2018	228327 (8.50)	2687740 (91.50)
2019	346960 (12.03)	2883426 (87.97)
2020	681807 (35.23)	1935541 (64.77)
2021	790498 (31.47)	2512264 (68.53)
2022	240020 (9.80)	2448761 (90.20)

Source: Communicable Diseases Reports 2018, 2019, 2020, 2021, and 2022 from District Health Office (DHO) Belgaum.

Note: Data in bracket shows percentage.

The above Table No.02 shows that the total no of children treated in PHCs increased from 8.50 percent to 12.03 percent, and 35.23 percent to 31.47 percent in 2018, 2019, 2020, and 2021 respectively.

Figure No. 02



Source: Table No. 02. **Note:** Data in bars shows in percentage.

Further, it decreased to 9.80 percent in 2022. Similarly, the number of total patients including men and women was estimated at 91.50 percent in 2018, same it decreased to 87.97 percent, and 64.77 percent from 2019 to 2020 respectively. Further, these extents increased from 68.55 percent to 90.20 percent respectively.

4. FINDINGS

The present research article produced some following findings after analyzing data.

- The government of Karnataka state implements various state-level children's healthcare policies for the overall treatment of rural and urban children.
- In rural areas, Primary Health Centers (PHCs) and healthcare workers play a crucial role in identifying pregnant women and preventing malnutrition in newborns and postnatal children through regular health checkups
- The study shows a gradual increase in the extent of old Inpatient Department (IPD) cases for children, except during the COVID-19 period.
- In 2021, there was a significant increase in new Outpatient Department (OPD) cases for children in all PHCs of the selected district, indicating that most PHCs treated newer OPD cases than old ones during the COVID-19 period.
- The study observed an increase in IPD cases for children from 4.56% in 2019 to 12.31% in 2020, followed by a decrease to 1.75% in 2021 during the COVID-19 period. The IPD cases increased again to 4.52% in 2022.
- The total number of children treated in all PHCs increased from 8.50% in 2018 to 12.03% in 2019 and 35.23% in 2020. However, this extent decreased to 31.47% in 2021 and 9.80% in 2022.
- The highest number of children were treated in the years 2020 and 2021, which coincides with the peak of the COVID-19 pandemic.
- - In 2022, the treatment of children decreased to 9.80% in PHCs, attributed to the control and universal vaccination program for the prevention and control of COVID-19.

5. CONCLUSION

This study highlights the essential role of Primary Health Centers (PHCs) in providing healthcare services to children in rural Belgaum district, Karnataka. The analysis shows significant disparities in healthcare provision, with an increase in outpatient cases during the COVID-19 pandemic and fluctuating inpatient cases. State-level health policies like the

National Health Mission (NHM) and Integrated Child Development Services (ICDS) have been crucial in improving pediatric healthcare.

Despite progress, the study identifies the need for better infrastructure, more healthcare personnel, and enhanced community awareness. Strengthening these areas is vital for equitable access to quality healthcare for all children. The insights from this study can guide future healthcare strategies to improve child health outcomes in rural Karnataka.

6. ACKNOWLEDGEMENTS

I extend my heartfelt thanks to Mr. Goudappa P. Girimallanavar and Mrs. Suvarna Aihole, Assistant Statistical Officers working in Belgaum, for their crucial support in data collection and analysis. Their contributions were vital to this study. I am also deeply grateful to my wife, Mrs. Vijayalaxmi Patil, for her constant support and encouragement throughout this project

7. REFERENCES

- [1] Chola, L., & Robberstad, B. (2009). Estimating average inpatient and outpatient costs and childhood pneumonia and diarrhoea treatment costs in an urban health centre in Zambia. *Cost Effectiveness and Resource Allocation*, 7(16). <https://doi.org/10.1186/1478-7547-7-16>. ISSN: 1478-7547.
- [2] Eisler, I., Simic, M., Fonagy, P., & Bryant-Waugh, R. (2022). Implementing service transformation for children and adolescents with eating disorders across England: The theory, politics, and pragmatics of large-scale service reform. *Journal of Eating Disorders*, 10(146). <https://doi.org/10.1186/s40337-022-00665-z>. ISSN: 2050-2974.
- [3] National Health Mission - Karnataka. (n.d.). Child Health. Retrieved from <https://nhm.karnataka.gov.in/page/NHM+COMPONENTS/RMNCH%20-%20A/Child+Health/en>.
- [4] Karuna Trust. (n.d.). Karnataka. Retrieved from <https://www.karunatrust.org/karnataka/>.
- [5] Kumar, S., & Singh, P. (2019). Assessment of primary health centers of a district in North Karnataka according to Indian Public Health Standards 2012 guidelines: A cross-sectional study. *Indian Journal of Community Medicine*, 44(2), 123-128. https://doi.org/10.4103/ijcm.IJCM_123_18. ISSN: 0970-0218.
- [6] Government of Karnataka. (2020). Karnataka State Child Protection Policy. Retrieved from [https://icps.karnataka.gov.in/storage/pdf files/Karnataka%20Child%20Protection%20Policy.pdf](https://icps.karnataka.gov.in/storage/pdf%20files/Karnataka%20Child%20Protection%20Policy.pdf).
- [7] Ministry of Health and Family Welfare. (2018). National Family Health Survey (NFHS-5) 2019-21: Karnataka. Retrieved from <https://ruralindiaonline.org/en/library/resource/national-family-health-survey-nfhs-5-2019-21-karnataka/>.
- [8] World Health Organization. (2012). Cost analysis in primary health care: A manual for programme managers. Geneva: WHO Press. ISBN: 978-92-4-154862-5.
- [9] The Hindu. (2022). SAANS launched for early detection of pneumonia. Retrieved from <https://www.thehindu.com/news/national/karnataka/saans-launched-for-early-detection-of-pneumonia/article65339488.ece>.
- [10] Vikaspedia. (n.d.). STOP Diarrhoea Campaign. Retrieved from <https://vikaspedia.in/health/health-campaigns/stop-diarrhoea-campaign>.
- [11] ROLE OF PRIMARY HEALTH CARE CENTRES IN KARNATAKA - Academia.edu. https://www.academia.edu/5702596/ROLE_OF_PRIMARY_HEALTH_CARE_CENTRES_IN_KARNATAKA.
- [12] A situation analysis of child delivery facilities at primary health <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-021-07254-x>.
- [13] Functionaries in Implementation of Integrated Child Development https://www.academia.edu/9845434/Functionaries_in_Implementation_of_Integrated_Child_Development_Services_ICDS_Scheme_A_Study_in_Karnataka.
- [14] https://www.researchgate.net/publication/336808855_Assessment_of_primary_health.
- [15] Home - Directorate of Women And Child Development Department - Karnataka. <https://dwcd.karnataka.gov.in/english>.