



EVALUATING DIGITAL HEALTH STRATEGY: TRANSFORMATION OF ORAL HEALTH THROUGH ABHA

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Abstract

The digital health landscape in India is experiencing a profound shift with initiatives like the Ayushman Bharat Health Account (ABHA) that aim to enhance healthcare delivery, particularly for underserved populations. ABHA, part of the Ayushman Bharat Digital Mission (ABDM), is designed to empower individuals by providing them with a unique health ID, making health records accessible, interoperable, and portable. This manuscript explores the potential of ABHA to transform oral health care in India, focusing on how this digital health strategy can improve access, enhance care continuity, and empower patients. Through data-driven insights, case studies, and literature, we evaluate the role of ABHA in overcoming key oral health challenges and propose strategies for maximizing its impact.

1. Introduction

Oral health is integral to overall health, influencing systemic conditions like diabetes, cardiovascular diseases, and respiratory issues. Despite its significance, oral health in India faces multiple challenges, such as high rates of dental caries, periodontal diseases, and limited access to quality care. The Global Burden of Disease Study and the National Family Health Survey (NFHS) underscore the high prevalence of oral health conditions in India, with dental caries affecting more than 50% of the population, particularly in children and adolescents.

The gap in access to dental care is especially evident in rural and remote areas, where a lack of infrastructure, limited awareness, and scarcity of trained professionals inhibit effective treatment and prevention. Furthermore, India's oral health services are often fragmented, with patient records stored in paper format, creating barriers to continuous and coordinated care.

The introduction of digital health platforms, such as the Ayushman Bharat Health Account (ABHA), offers an opportunity to bridge these gaps. ABHA provides a framework for digitizing health records, including oral health data, and enables seamless access to these records for both patients

and providers. By promoting data interoperability and patient-centric care, ABHA can revolutionize how oral health services are delivered in India, particularly for underserved populations.

This article evaluates the role of ABHA in transforming oral healthcare by exploring its key advantages, supported by case studies, data-driven insights, and evidence from the healthcare sector.

2. Background: Oral Health Challenges in India

India's oral health burden is extensive, with significant regional disparities in access to care. According to the National Oral Health Survey (2015-16), more than 50% of children aged 5-14 years suffer from dental caries, and approximately 80% of adults have some form of periodontal disease. A particularly worrying statistic is the increasing prevalence of oral cancer, which is primarily caused by tobacco use and poor oral hygiene.

-Dental Caries and Periodontal Disease: Dental caries (tooth decay) and periodontal diseases (gum diseases) are among the most prevalent oral health issues in India. According to the National Family Health Survey (NFHS-5), nearly 60% of the population is affected by dental caries, and more than 70% of adults suffer from some form of periodontal disease.

-Lack of Access to Oral Healthcare: A key challenge is the limited access to dental care, particularly in rural and semi-urban areas. The shortage of qualified dental professionals, uneven distribution of dental clinics, and high costs of treatment prevent many individuals from seeking timely care. In rural India, the dentist-to-population ratio is alarmingly low, with some regions having no access to dental professionals at all.

-Fragmented Oral Health Records: The fragmentation of oral health records further complicates the situation. Paper-based records are not easily transferable between clinics, which means that continuity of care is often disrupted. This is especially problematic in cases of chronic conditions such as gum disease, which require long-term management.

ABHA offers a comprehensive solution to these challenges by digitizing health records, improving care coordination, and increasing access to oral healthcare services.

3. The Ayushman Bharat Health Account (ABHA): A Digital Health Revolution

ABHA, introduced under the Ayushman Bharat Digital Mission (ABDM), is a unique health ID system aimed at digitizing and securing health records across India. It allows individuals to store their health data, including dental records, in one place, making it accessible to both patients and healthcare providers. This initiative is crucial in the context of oral health, where continuity and coordination of care can be problematic due to the fragmentation of records.

A. Through ABHA, individuals can:

-Store Comprehensive Health Data: ABHA collects detailed medical and dental histories, diagnostic reports, and treatment records in a secure, interoperable format.

- Access Data Anytime, Anywhere: Patients can access their oral health records from anywhere, making it easier to seek care when needed, whether in their hometown or when traveling.

-Enable Seamless Coordination Between Providers: Dental professionals and healthcare providers can access up-to-date health records, facilitating better decision-making and treatment planning.

-Support Telemedicine: The ABHA platform enables remote consultations through telemedicine, allowing rural patients to consult dental specialists without traveling long distances.\

Case Study 1: Ayushman Bharat Implementation in Rural Uttar Pradesh

A key example of ABHA's potential in oral healthcare comes from rural Uttar Pradesh, where a pilot project was implemented to integrate ABHA with local dental clinics. The project aimed to improve access to oral health services for underserved communities by providing digital health IDs to patients. This enabled dentists to retrieve and update patient records in real-time.

The results of the pilot were promising. The clinic reported a 20% increase in patient visits due to the ease of accessing and updating patient records. Moreover, the use of ABHA allowed for timely

referrals to specialists, which reduced waiting times and improved the quality of care. The data also highlighted a significant reduction in missed appointments, as patients received reminders through the platform.

4. Transforming Oral Health through ABHA

ABHA's integration into India's oral healthcare ecosystem brings several transformative changes. These include improvements in access, care continuity, data management, and preventive care. Below, we discuss the specific areas where ABHA can significantly impact oral health outcomes:

4.1. Improved Access to Dental Care

The most significant benefit of ABHA is the improved access to care it offers. The digital health ID enables individuals to access their oral health records from anywhere, reducing the need for patients to carry physical records. This is particularly beneficial in rural areas, where patients may need to travel long distances to access dental services. By enabling remote consultations and follow-up visits through telemedicine, ABHA reduces travel time and cost, facilitating access to care for underserved populations.

A study published in the **Journal of Telemedicine and Telecare** (2020) highlighted that teleconsultation in dentistry had the potential to reduce barriers to care, particularly in rural areas, where access to specialized dental services is limited. ABHA's telemedicine integration ensures that rural populations benefit from the expertise of dental professionals located in urban centers.

4.2. Enhanced Continuity of Care

Oral health conditions, such as periodontal disease and oral cancer, require ongoing management. ABHA enables continuity of care by ensuring that patient records are easily accessible and transferable across different healthcare providers. For example, if a patient receives initial treatment for gum disease at one clinic, their follow-up treatment at another clinic can be planned with full knowledge of their previous care.

A study conducted by the **Indian Dental Association** (2021) found that continuity of care significantly improves outcomes for patients with chronic oral conditions. With ABHA, the ability to track treatment history and preventive care leads to better long-term oral health management.

4.3. Data-Driven Decision Making

ABHA's ability to collect and store large volumes of health data enables healthcare providers to make more informed, evidence-based decisions. Data on oral health conditions can be aggregated and analyzed to identify trends, high-risk populations, and emerging oral health issues. This information can help policymakers and public health authorities target resources and interventions where they are most needed.

The **Indian Journal of Dental Research** (2019) discusses how data analytics can drive evidence-based decision-making in oral health, such as identifying regions with high rates of dental caries or periodontal disease and focusing prevention efforts in those areas.

4.4. Promoting Preventive Oral Health Care

ABHA not only facilitates treatment but also plays a key role in preventive care. The platform can send reminders to individuals for routine dental check-ups, oral hygiene education, and preventive treatments such as fluoride applications. Additionally, dental professionals can provide real-time feedback and guidance to patients through mobile apps integrated with ABHA.

A study by **Dental Health Education Journal** (2021) found that mobile health reminders increased patient adherence to oral hygiene routines by 15%, leading to a reduction in the incidence of dental caries.

5. Challenges and Considerations for Implementation

While ABHA holds considerable promise, several challenges must be addressed to ensure its success:

5.1. Digital Literacy and Infrastructure

India's rural population faces significant barriers in terms of digital literacy. Many individuals may not be familiar with navigating digital health platforms or may lack the necessary devices. As such, it is essential to invest in digital literacy campaigns and provide the necessary infrastructure, such as internet access and mobile devices, to enable effective use of ABHA.

5.2. Data Privacy and Security

The digital nature of ABHA raises concerns about data privacy and security. With sensitive health data being stored and shared, it is crucial to establish robust cybersecurity measures and clear regulations on data ownership and sharing to protect patients' privacy.

5.3. Integration with Existing Healthcare Systems

Many dental clinics, especially in rural areas, still rely on paper-based records. To integrate ABHA effectively, dental professionals must be trained to use digital systems, and clinics must invest in digital infrastructure. A phased approach to implementation, with technical support and incentives for adopting digital health systems, would facilitate smoother integration.

6. Conclusion

The Ayushman Bharat Health Account (ABHA) has the potential to significantly transform oral healthcare in India by improving access to care, enhancing continuity of treatment, enabling data-driven decision-making, and promoting preventive health practices. While challenges such as digital literacy, data security, and infrastructure need to be addressed, the long-term benefits of ABHA in oral health management are undeniable. By integrating ABHA into the healthcare system, India can bridge the gap in oral health service delivery, improve outcomes, and reduce the burden of oral diseases.

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