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National Teleconsultation Service in India: eSanjeevani OPD

ICT India Working Paper #53

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Abstract

India's achievements in the field of health leave much to be desired. Infant and child mortality and morbidity and maternal mortality and morbidity affect millions of children and women. The burden of disease continues to be high in the country with life expectancy at around 69 years, MMR at 113 per 100,000 live births and IMR at 32 per 1,000 live births still remain high.

The public healthcare system in rural areas in India is not only underutilized due to poor quality of healthcare services, but is also inadequate in terms of population coverage. Further, gross shortage of specialist and chronic absenteeism of healthcare staff makes the situation even worse. Majority of the specialists/doctors live in urban areas and in such a situation telemedicine offers an ideal solution. The utmost need of telemedicine was felt when OPD services came to a halt due to nationwide COVID-19 lockdown. To deal with the situation, on April 13, 2020, the Ministry of Health & Family welfare launched National Teleconsultation service via an online portal "eSanjeevani OPD – Stay Home OPD".

This paper provides a detailed account of National Teleconsultation portal, eSanjeevani OPD. The paper discusses the current status of eSanjeevani OPD, its salient features, challenges in the way of successful adoption of eSanjeevani OPD and comparison of eSanjeevani OPD with global telemedicine platforms. Further, this paper also proposes a pilot study to explore the factors that act as barriers and facilitators for the utilization of eSanjeevani OPD.

Keywords: eSanjeevani OPD, Teleconsultation, Telemedicine, India

Introduction

The National Telemedicine Service in India is delivered via two variants of e-Sanjeevani- ‘**eSanjeevani AB-HWC**’, doctor to doctor telemedicine platform and “**eSanjeevani OPD – Stay Home OPD**”, a doctor to patient telemedicine system.

‘**eSanjeevani AB-HWC**’ was launched by the Ministry of Health and Family Welfare, Government of India in November 2019. This doctor to doctor hub and spoke model is being implemented in Health and Wellness Centres(HWCs) across the nation(Ministry of Health & Family Welfare, Government of India 2020). ‘**eSanjeevani AB-HWC**’ enables virtual connection between the doctor at the spoke (HWC) and the doctor/specialist at the hub(tertiary healthcare facility/hospital) via video conferencing. This facilitates real time virtual consultation from doctors & specialists at the hub to the patient at the spoke (via the doctor who operates the platform at the HWC). At the end of the consultation, ‘**eSanjeevani AB-HWC**’ generates e-prescription which could be used for obtaining medicines. The key features of ‘**eSanjeevani AB-HWC**’ include MIS based application, Comprehensive Electronic Medical Record (EMR), Teleconsultation and video-conferencing(Ministry of Electronics & Information Technology, Government of India 2021). Since November 2019 around 240 hubs and more than 5000 spokes have been set up in various states and more than 183,000 consultations have been completed. By the end of 2022, **eSanjeevani AB-HWC**’ will be operational in 155,000 Health and Wellness Centres (HWCs) across the nation.

Until March 2020, the practice of telemedicine in India was primarily governed by the provisions under the Indian Medical Council Act, 1956, Information Technology Act, 2000, the Indian Medical Council (Professional Conduct, Etiquette and Ethics Regulation 2002), Clinical Establishment (Registration and Regulation) Act, 2010 and Drugs & Cosmetics Act, 1940 and Rules 1945(AK et al. 2021). In March 2020, when the nationwide lockdown was imposed due to COVID-19, the utmost urgency was felt to use telemedicine in the entire country. In this regard, on 25th March, 2020, the Medical Council of India (MCI) and NITI Aayog jointly released the telemedicine practice guidelines, which allows the Registered Medical Practitioner to provide healthcare consultation remotely using digital platforms(Ministry of Health and Family Welfare, Government of India 2020). Soon after this, on April 13, 2020, the Ministry of Health & Family welfare launched **National Teleconsultation service** via an online portal “**eSanjeevani OPD – Stay Home OPD**” for the purpose of teleconsultation(Ministry of Health & Family Welfare, Government of India 2020).

“**eSanjeevani OPD – Stay Home OPD**” is a doctor to patient telemedicine system deployed under Ayushman Bharat Scheme of Government of India. It has been developed by the Centre For Development Of Advanced Computing situated in Mohali, India. It is the first of its kind online OPD service offered by a nation government to its citizens. It aims to provide healthcare advice online to the patients from doctors in their homes. This initiative has been very useful during COVID-19 pandemic.“The main objective of E Sanjeevani OPD is to provide health advice to the individuals with the help of digitalisation who are finding it difficult to visit hospitals due to the pandemic of coronavirus”(Reena Sharma 2021). This service allows even people living in the remotest areas to get their health related consultation. It saves their time and money, and also bring transparency in the system.



Source: Sharma, Reena. 2021. "E Sanjeevani OPD: Patient Registration, Esanjeevaniopd.in Appointment." 2021. <https://pmmodiyojana.in/e-sanjeevani-opd/>

Current Status of eSanjeevani OPD

The National Teleconsultation service: eSanjeevani OPD is functional in 28 states and Union territories in the nation (ANI 2021). Overall, the eSanjeevani OPD portal has crossed more than 3,000,000 consultation since its launch in April 2020. More than 300 speciality OPDs have been set up on eSanjeevani OPD. As per the latest press release, the top states in terms of number of e-consultations via eSanjeevani OPD are Tamil Nadu (986,400), Uttar Pradesh (733,370), Karnataka (696,929), Gujarat (202,042), Kerala (127,559) and Uttarakhand (102,464) (ANI 2021). A new feature 'National OPDs' is being planned to be rolled out on eSanjeevani OPD which will enable doctors to offer remote health services to patients in any part of the country.

Salient Features of eSanjeevani OPD

The salient features of eSanjeevani OPD are:

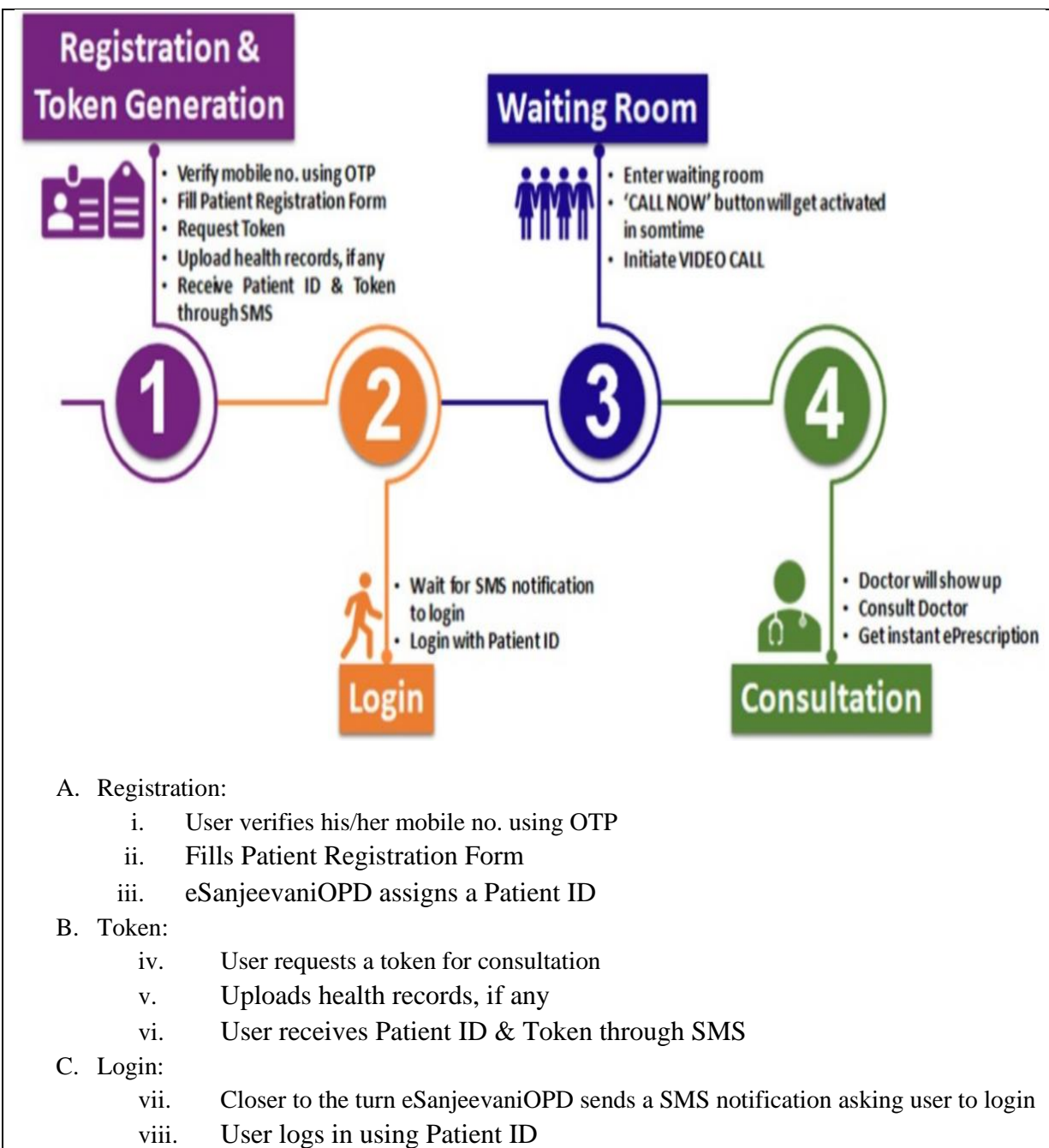
1. Patient Registration
2. Token Generation
3. Queue Management
4. Audio-Video Consultation with a Doctor
5. ePrescription
6. SMS/Email Notifications
7. Serviced by State's Doctors
8. Free Service

9. Fully Configurable (no. of daily slots, no. of doctors/clinics, waiting room slots, consultation time limit etc.)

Steps to get Teleconsultation via eSanjeevani OPD

The sequence of steps to get e-Consultation via eSanjeevani OPD platform is shown in Figure 1 (Ministry of Electronics and Information Technology, Government of India 2021). Some of the other provisions of eSanjeevani OPD platform are mentioned in the Annexure 1.

Figure 1: Steps to get e-Consultation via eSanjeevani OPD



ix.	Patient enters the clinic and is placed at the end of the existing queue. If there is no queue you will be placed at serial no. 1
D. Wait:	
x.	eSanjeevaniOPD assigns a doctor to the patient (time interval depends on the length of the queue)
xi.	As the doctor is assigned to the patient “CALL NOW” button gets activated
xii.	User is required to click “CALL NOW” button within 120 seconds*
xiii.	Upon clicking “CALL NOW” within 10 seconds the doctor shows up in video
E. Consultation:	
xiv.	Patient consults the doctor
xv.	During the consultation doctor has an access to the patient’s health records (if uploaded at v)
F. ePrescription:	
xvi.	During the consultation, doctor prepares an electronic prescription (ePrescription)
xvii.	At the end of the consultation doctor sends the ePrescription and closes the call
xviii.	ePrescription shows up on patient’s end.
xix.	Patient logs out after saving/printing the received ePrescription
xx.	After the call eSanjeevaniOPD sends SMS notification to the patient with a link to download ePrescription

Source: Ministry of Electronics and Information Technology, Government of India. 2021. “National TeleConsultation Service.” 2021. <https://esanjeevaniopd.in/Flowstep>

Challenges

The three main challenges in the way of successful adoption of eSanjeevaniOPD on a large scale include abuse of the eSanjeevani OPD platform, shortage of doctors/specialists and platform access by the digitally excluded population(Khanduja, Goli, and Singh 2021).

Abuse: One of the limitations of eSanjeevani OPD platform is that registering with it does not require any proof of identity. The registration is a two-step process. In the first step, patient is asked to verify his/her phone number via a one-time password (OTP). In the second step, a complete registration form needs to be filled with personally identifiable information such as name, age, sex, and address.

Without the requirement of any identity proof, eSanjeevaniOPD becomes susceptible to abuse. Potential abusers may misrepresent their details and enter the platform without being traced back. Though OTP verification is there, but it only serves to confirm if mobile number is accessible to the patient at the time of registration. The system requires verification features that

can enable law enforcement agencies to trace back the patient in case of misuse. Use of Aadhaar verification can serve as a promising solution.

Shortage of doctors/specialists: Another challenge in delivering online consultations via eSanjeevani OPD is the shortage of doctors and specialists. There have been reports from patients about long waiting time due to unavailability of doctors (Khanduja, Goli, and Singh 2021). Getting consultation from a specialist is even more challenging for patients. Further, with the surge in COVID-19 cases in the country, requirement of doctors to treat COVID-19 patients have increased thereby making it even more difficult for doctors to provide online consultation. To deal with this issue, the government has recalled retired doctors from Armed Forces Medical Services (AFMS) to provide online consultation (Ravi Sharma 2021).

Access issues: The eSanjeevani platform is solely video-based and requires patient to have a smartphone or laptop with internet connection. However, as of October, 2019, around half of India's population is digitally excluded which includes the individuals which either have feature phones with no internet connection or they do not have a mobile phone (Khanduja, Goli, and Singh 2021). Moreover, the patient is required to fill registration form online, available in English language only. In such a situation, the most vulnerable segment of the population will not be able to access remote consultation services. To ensure services are accessible to all sections of the population, government should make use of asynchronous modes of communication for teleconsultation such as video, audio, text-based consultation which are permissible under the telemedicine practice guidelines.

To deal with the access issues, on 21st June 2021, the Government of India has launched use of eSanjeevani OPD application through Common Service Centres (CSCs) in rural areas¹. Online Outpatient Department (OPD) consultation service would be available to citizens in rural and remote areas via a network of more than 374,000 Common Service Centres (CSCs) in the country (Our Bureau 2021). Steps to access online OPD consultation via Common Service Centre are as below:

1. Once the patient visits the CSC centre, the Village Level Entrepreneur (VLE) will register the patient and fill in the details on the eSanjeevani OPD app.
2. The VLE will then receive 16-digit Patient ID and a token.
3. Once the SMS is received, the VLE will log in with patient ID.
4. When the 'Call Now' button is activated, the VLE can initiate the video call and help the patient get consultation.
5. Following the consultation, the VLE can download the e-prescription sent by the doctor.

Other issues: A team of Metrolife-Deccan Herald reporters did a reality check of the eSanjeevani OPD application. They found that while using the eSanjeevani application patients suffer from issues like poor connectivity, long waiting time, no room for queries/questions etc. (see Figure 2) (Anien et al. 2020).

¹ <https://www.trendsmap.com/twitter/tweet/1406579762084990977>

Figure 2: Reality check of the eSanjeevani OPD application by Metrolife-Deccan Herald reporters

Case: Poor Connectivity

Department: General OPD
Wait time: 20 min over 2 days

The patient was on the waiting list with three patients. In a couple of minutes, it became four. After waiting for 10 minutes, the patient gave up. The next day, she logged in with a new token number and waited with three others. In 10 minutes, a doctor was assigned, but he couldn't hear properly on the video call. The doctor waited for a couple of minutes and then placed the patient on hold again. Soon, the app sent the patient back to the waiting list.

Case: Didn't get a doctor

Department: Psychiatry
Wait time: 110 minutes

The app didn't download until the phone cache was cleared. The patient found the registration process simple. She sought a psychiatric consultation. No doctor was available. The app doesn't work in the background, so each time the patient left the app, she had to login again. Despite a wait of two hours, no doctor appeared.

Case: No room for questions

Department: Dermatology
Wait time: 5 min

For this patient, after entering the waiting room, the 'Call now' option popped up, and said 'Due to unavoidable reason, the doctor could not respond to your call. Please try again.' After trying twice, she was taken to a chat box with the doctor, where she raised her concerns about dandruff and pimples on her forehead. After questions about earlier treatment, a few minutes of silence followed. A window then showed that the consultation was over. In the prescription section, the doctor had advised a lotion for the scalp for three days, and two creams. He asked her to call again after two weeks. The app did not allow her to ask any questions.

Source: Anien, Tini Sara, Anila Kurian, Theres Sudeep, Krupa Joseph, and Saloni Pradhan. 2020. "Telemedicine App Works." 2020. <https://www.deccanherald.com/metrolife/metrolife-your-bond-with-bengaluru/telemedicine-app-works-892638.html>

Comparison with Global Platforms

Figure 3 compares services offered by eSanjeevani OPD platform with the services offered by other telemedicine platforms, namely Practo and 1mg in India, Ping An Good Doctor (PAGD) in China, and Amwell and Teladoc in the USA (see Annexure-2 for description of these platforms)(Khanduja, Goli, and Singh 2021). Some of the services provided by these telemedicine platforms include online consultations, e-health profiles, express drug delivery, health management plans, appointment services, health check-ups, hospital referrals, second

opinions, inpatient arrangements, and domestic/overseas medical services (see Annexure-3 for description of these services).

Figure 3: Comparison of eSanjeevani OPD with Global telemedicine Platforms

Services	Mode	eSanjeevani	Practo	1mg	PAGD	Teladoc	Amwell
Online consultation	 Online	✓	✓	✓	✓	✓	✓
e-health profile	 Online	✓	✓	✓	✓	✓	✓
Express drug delivery	 Online	✓	✓	✓	✓	✗	✗
Health plans	 Online	✗	✓	✓	✓	✓	✓
Appointment services	 Offline	✗	✓	✗	✓	✓	✗
Health check-up	 Offline	✗	✓	✓	✓	✓	✗
Hospital referral	 Offline	✗	✓	✓	✓	✓	✗
Second opinion	 Offline	✗	✗	✗	✓	✗	✗
Inpatient arrangement	 Offline	✗	✓	✓	✓	✓	✗
Domestic/overseas services	 Offline	✗	✗	✗	✓	✗	✗

Source: Khanduja, Puneet, Venkat Goli, and Suhird Singh. 2021. "Reimagining the Indian Government's Telemedicine Platform." 2021.

<https://www.microsave.net/2021/02/10/reimagining-the-indian-governments-telemedicine-platform/>

Some of the services which are currently not provided by eSanjeevani OPD platform include customized health plans, booking of appointments through a centralized system, thorough

physical examination, hospital referral, second opinion, inpatient arrangement and domestic/overseas services.

Evidently as comparison shows, there is an enormous potential to build eSanjeevani into a world-class teleconsultation platform. It could be achieved by integrating it with the larger healthcare ecosystem which connects various hospitals, clinics, laboratories, pharmacies, diagnostic centers, and doctors offering in-person consultations. This vision could be realized via Government of India's National Digital health Mission (NDHM).

Study Proposal

The National Teleconsultation service is a new initiative by the Government of India. Therefore, it is important to explore the experiences of users and healthcare providers who are using this service. Dinesh et al. conducted a study to analyse the utilisation of eSanjeevani OPD in Rajendra Prasad Govt. Medical College in Northern India. They found that use of eSanjeevani OPD substantially reduced the OPD workload and chances of getting COVID infection for both the healthcare workers and patients (Dinesh et al. 2021). AK et al. analysed the parameters that influence teleconsultation service from the patients perspective during Covid-19 pandemic. They found that patient's convenience was one of the strengths of eSanjeevani OPD platform, while incomplete patient assessment was one of its weakness (AK et al. 2021). Mahajan et al. in their paper discusses some of the issues such as lack of physical examination, medico-legal considerations, confidentiality, informed consent, technological issues, training of medical professionals etc. that needs to be resolved to increase the acceptability of telemedicine in Indian population (Mahajan, Singh, and Azad 2020).

Purpose

The purpose of this study is to explore the factors that act as facilitators and barriers to utilisation of eSanjeevani OPD. The perception of both the patients and healthcare providers would be taken into account. This study will inform the government about the necessary actions that should be taken to further improve the utilization of eSanjeevani OPD.

Aim

Assessing the facilitators and barriers to utilization of eSanjeevani OPD

Objectives

- To determine the underlying factors that act as facilitators to utilization of eSanjeevani OPD
- To determine the underlying factors that act as barriers to utilization of eSanjeevani OPD
- To explore the perceptions of patients (users) and service providers of eSanjeevani OPD
- To provide recommendations/ suggestions to improve the utilization of eSanjeevani OPD

Study Duration

The study is proposed to be undertaken during the year 2022-2023.

Study Location

The study is proposed to be undertaken in two states in India. Districts will be selected based on their geographical spread, socio-economic criteria and health outcome indicators. The use of eSanjeevani OPD in both rural and urban parts of the district will be explored. The use of eSanjeevani OPD platform via Common Service Centres will also be examined.

Study Type

This will be an exploratory study.

Methods

Both Quantitative and Qualitative methods will be implemented for data collection.

Study Tools

Structured questionnaire will be prepared to gather data from patients and service providers using eSanjeevani OPD. In-depth Interviews will be conducted with a sample of patients (users) and the service providers. The data collection will be done telephonically.

Ethical Approval

Approval from officials at the state /district level will be taken as needed prior to the initiation of the research work. Approval from local Ethics Committee will be taken to conduct this research work. The informed consent will be taken from each participant prior to their participation.

Communications Plan

The study results will be submitted to scientific & public health journals and for conference presentations. The results will include further actions needed to improve the utilization of eSanjeevani OPD in India. A specific report outlining the policy implications of the study will be disseminated among the health policy makers.

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Annexure

Annexure 1: Other provisions of eSanjeevani OPD

- eSanjeevaniOPD is yet a web-application, however, it's development has been based on responsive web design approach. Hence eSanjeevaniOPD is expected to respond to the user's behaviour and environment based on screen-size, platform and orientation. It is possible to use eSanjeevaniOPD on large screen tablets and smartphones.
- For a smooth full-motion video consultation experience internet speed of at least 1Mbps is recommended.
- Once registered patient's name, age, gender, patient ID cannot be altered, however, patient can update email / mobile number and address
- Every patient is assigned a unique 16 digit patient ID, it is generated using Luhn Algorithm (mod 10 algorithm).
- Every consultation will be assigned a unique consultation number.
- Patients residing in a particular State will get connected with one of doctors on the panel of doctors set up by the corresponding State's health department.
- If (at xi) patient misses to click "CALL NOW" in 120 seconds, eSanjeevaniOPD will move this patient few slots lower in waiting room queue and the patient next in queue will take the turn.
- All tokens (used & unused) will expire at the end of the day.
- For using the system again the user will need to follow same steps, registration form will show up auto filled with details existing in eSanjeevaniOPD, hence the user will upload health records if any and then generate token.

Source: Ministry of Electronics and Information Technology, Government of India. 2021. "National TeleConsultation Service." 2021. <https://esanjeevaniopd.in/Flowstep>

Annexure 2: Telemedicine platforms used for comparison

Practo is a platform based in India that seeks to simplify healthcare by connecting the entire healthcare ecosystem, which includes patients, doctors, pharmacies, diagnostics, clinics, hospitals, and testing labs, among others. Patients can consult doctors virtually and book appointments with them for in-person consultations, order medicines, as well as book tests and check-ups. Practo offers a management software to clinics and hospitals to facilitate activities, such as appointment booking. It enables doctors to create their profiles to increase their online presence and offer online consultations and also allows patients to make appointments for offline consultations. 1mg is another Indian online healthcare service that

serves primarily as an online pharmacy. It also offers online consultations and allows patients to book lab tests.

1mg is an online health platform operating in India. 1mg aims to make access to healthcare a hassle-free experience by addressing all health needs of an individual remotely. One can avail of allopathic, ayurvedic, homeopathic medicines, vitamins & nutrition supplements and other health-related products delivered at home. The company also collects samples for lab tests at the patient's home and provides a platform to consult doctors.

Ping An Good Doctor (PAGD) is a healthcare software company that operates in China, headquartered in Shanghai. PAGD utilizes the internet and artificial intelligence (AI) to address gaps in the Chinese healthcare system. Its objective is to become a one-stop healthcare platform by integrating healthcare information, medical services, drugs, health supplements and equipment, as well as health plans. This includes doctors, hospitals, pharmacies, physiotherapy centers, health check-ups, fitness, beauty care, insurance, and e-commerce. PAGD offers online consultations, e-health profiles, express drug delivery, health management plans, health headlines, centralized appointment services for offline consultation, health check-ups, hospital referrals, second opinion, inpatient arrangements, and domestic or overseas medical services (medical tourism).

Amwell is a telemedicine company based in Boston, Massachusetts that connects patients with doctors over video calls. For healthcare providers, Amwell sells its platform as a subscription service to place their medical professionals online. Its software development kits, APIs, and system integrations enable clients to embed their system into existing workflows.

Teladoc Health, Inc. is a telemedicine and virtual healthcare company based in the US. It provides telehealth services, medical opinions, AI and analytics, and licensable platform services. Teladoc Health uses telephone, video conferencing, and mobile apps to provide on-demand remote medical care.

Source: <https://www.microsave.net/2021/02/10/reimagining-the-indian-governments-telemedicine-platform/>

Annexure 3: Description of services used for comparing telemedicine platforms

Online consultation: Patients can talk to physicians online and consult them through video or voice calls for diagnosis, prescriptions, and other services

E-health profile: Digital version of a patient's health chart that includes real-time health records, which capture their medical history, diagnoses, medications, treatment plans, immunization records, test results, etc.

Express drug delivery: Medicines can be delivered to patients soon after a consultation, through a delivery platform

Health plans: Customized health plans based on e-health profiles of patients

Appointment services: Booking of appointments through a centralized system

Health check-up: Thorough physical examination, including a variety of tests based on the age and health of a person

Hospital referral: After consultation with a physician, if more advanced care is required, the doctor can refer the patient to a hospital

Second opinion: After an unsatisfactory diagnosis, a patient can request to consult a different doctor for a second opinion

Inpatient arrangement: Arrangement for admitting patients to a hospital for surgery or other procedures

Domestic/ overseas services: Travel arrangement for patients who wish to travel to a different location for medical treatment or care

Source: <https://www.microsave.net/2021/02/10/reimagining-the-indian-governments-telemedicine-platform/>