आरोग्य SANGAM: Boosting Doctor Availability and Appointment Management in Hospitals through Digital Innovation

Issues in the Current Health Care System

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1. Problems in the Current Health Care System
     - India's health system is plagued with inefficiencies, especially in hospital management, resource allocation, and appointment scheduling. This includes:
     - Poor Appointment Scheduling
     - Patients wait long hours to see a doctor, and hospitals are overcrowded. The average waiting time for a doctor's availability is 40-60 minutes in urban areas and even more in rural areas.
     - Lack of access for rural and non-tech individuals, which leads to an inequality in the healthcare system.
     - Manual booking processes are prone to errors, prolonged delays, and even potential biases.
2. Mismanagement of Resources and Medicines
     - Even with government efforts such as the Pradhan Mantri Janaushadhi scheme, most medicine distribution is still inefficient. Studies show that 30-40% of medicines are out of stock in government hospitals. 10-15% of medicines expire due to poor management of inventory leads.
     - Patients buy costly substitutes from private pharmacies as essential medicines are scarce. 8-12% of medical prescriptions are fraud, according to a study.
     - Inventory is fragmented, and stock management is a mess, and disputes over medical supplies.
3. No Central Digital System
     - Many hospitals use manual record-keeping, which is an outdated practice that can lead to inefficiencies and corruption. According to stats, 60% of government hospitals have moved to digital system but only 25% of government hospitals have done so.
     - Lack of real-time data leads to inefficient tracking of doctors' availability, patients' appointments, and medicines' stocks.
     - Most patients end up showing up to hospitals needlessly because doctors have no visibility in their current surroundings, which only adds to the congestion.

Introducing आरोग्य SANGAM

Taking care of hospital efficiency and building facilities for appointment management and medicine distribution, it is a digital solution designed by and for the hospitals of the future on the basis of the most advanced technology called the आरोग्य SANGAM. This initiative will consist of the following key elements:

1. Smart Appointment Scheduling
- A system, through SMS, which enables patients to make quick appointments without the need for the internet. There are 1.2 billion mobile subscribers, and 75% of rural households have mobile phones, making SMS-based systems efficient.
- Patients are assigned an automated time slot sent by SMS to confirm the appointment time.
- A digital allocation system arranges doctor availability according to hospital workload and patient requirements.

Efficient Medicine Distribution

- OTP-based authentication and verification for medicine authentication and a secured, digitized medicine allocation system.
- Patients get unique OTP when they get their prescription, which they need to show to take their medicine, decreasing fraud.
- This ensures real-time inventory monitoring to avoid stock-outs and excess stock.

Hospital resource management in optimal way

- We use data analytics and predictive technology to best allocate doctors and patients.
- Real-time insights enable hospitals to optimize the use of medical personnel and resources.
- Retention of records is done automatically without paperwork, reducing administrative burdens.

Integration with Government Healthcare Schemes

- Flexible integration with government initiatives such as Ayushman Bharat to ensure greater reach.
- This centralization of the digital record ensures that patients who are eligible can receive their benefits without unnecessary bureaucratic friction.

Remote Consultations via Telemedicine

- Allows doctors to do tele-consultation for small ailments, which helps prevent un-necessary visits to the hospital.
- Other(b) Enhances access to healthcare for rural and underserved populations.

3. How आरोग्य SANGAM Addresses Current Issues

Easier Process to Make an Appointment

- Our app makes the appointment process easier by using SMS so that those who don't have smartphones can also book an appointment.
- Decongests the hospital by enabling patients to schedule and confirm visits off-site.
- Optimizes doctor availability, allowing better management and streamlining of patient flow.

Managing Medicine Inventory in Real-Time

- OTP is given to the patients to collect prescribed medicines to avoid misuse.
- Unused OTPs trigger healing action on unutilized prescriptions.
- Thus, smart demand forecasting prevents stock shortages and unnecessary surpluses.

Improved Transparency and Accessibility

- A well-integrated, digitized, available system reduces corruption. If you want to get health care service, you have to pass through every step starting from registration to prescription.
- Patients can also track their appointments and the availability of medicines through SMS.
- Doctors' schedules may be optimized, and hospital resources may be allocated more efficiently.

4. Key Features of आरोग्य SANGAM

Appointment Scheduling System

- Patients send an SMS (for example, "BOOK HOSP123") to request an appointment.
- The system assigns an appointment time and sends a confirmation SMS.
- Patients have six hours to confirm in order to book their slot.

Medicine Dispensing System

- OTP-based availability enhances verification of medicines, as only the rightful patient will be receiving them.
- OTPs that remain unused point to potential problems like erroneous prescriptions or fraud.
- Real-time stock updates save medicine.

AI-Driven Efficiency

- Doctor availability and patient scheduling are optimized through AI-based algorithms.
- This helps keep track of real time data to ensure inventory level or hospital resources are up to date.
- The system is easy to use and can be scaled to public and private hospitals.

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5. Competitor Analysis

Although several healthcare options provide various services, none offer the SMS-based appointment booking and OTP-based medicine delivery that आरोग्य SANGAM does.

Limitations of Existing Solutions:

- Practo: Not effective for rural population, requires internet access and smartphone app
- Government Hospital Management Systems: Outdated, decentralized, and devoid of AI-powered efficiency.
- Costing high and difficult for lower income group to access such services, No AI based hospital management in private healthcare portals.

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6. Future Prospects and Scalability

आरोग्य SANGAM is intended to be forward compatible with upcoming technology evolution and changing health care needs.

AI-Driven Enhancements

- AI-assisted preliminary diagnoses are in the pipeline.
- Machine learning models help in the analyzation of a patient's history to recommend preventive measures.

Unifying Government and Public Health

- In synergy with Ayushman Bharat and other schemes for effective service delivery.
- The system can enable hospitals to accelerate insurance claims and patient eligibility verification.

Expansion into Telemedicine and Rural Healthcare

- Ample teleconsultation services to minimize hospital visits.
- Partnership with mobile network companies to extend rural healthcare

7. Conclusion

About आरोग्य SANGAM: A Transformative Initiative to Strengthen Digital Solutions in India. It provides unique features such as SMS-based appointment registration and OTP-enabled medicine dispensing that enable:

- Improved patient experience with shorter wait times and easy access to healthcare services.
- Used data till October 2023 to analyze patterns and allocate limited doctors.
- The third component is the clear and secure medicine distribution that makes sure every patient has access to an even distribution system.

Implementing this system would allow private and public healthcare providers to operate with more efficiency, less administrative costs, and an improved equitable healthcare environment. If continued innovation and expand, आरोग्य SANGAM has the potential to transform health care access across India by making quality health care available to all, no matter their socio-economic status or geographical location.