Can AI give doctors their time back?

Shankar Venkatagiri, Chairperson-Information Systems, IIM Bangalore, explores how AI can ease doctors' workloads, the urgent need to digitise patient records in India, and the roadmap for developing smart AI solutions tailored to healthcare

Artificial intelligence (AI) has been powering tasks for multiple occupations. Over the last decade, drivers have begun to enjoy increasing amounts of autonomy. Waymo taxis operate in many US cities without the need for a driver. Mahindra has incorporated automatic lane assist and parking into its vehicles. Can AI assist doctors likewise and reduce the drudgery of their tasks, as they navigate the complex landscape of medicine in crowded hospitals? We examine the healthcare setup in India and highlight the need to digitise patient records. We then describe the uses of AI assistants. The article concludes with directions to develop smart AI solutions for our specific context.

Indian healthcare is a tale of contrasts – rural versus urban, public versus private, younger versus older, insured versus uninsured, and so on. 80 crore citizens living in rural areas rely on government run PHCs and hospitals. Care quality varies widely, depending on training levels of staff, upkeep of equipment, availability of medicines, and so on. Starting with the 1990s, large hospitals were established in cities, aided by foreign investments and capital markets. 60 crore Indians living in towns and cities access both private and public centres. Successive governments have switched from building hospitals to offering insurance schemes with modest premiums that cover a range of procedures.

The longevity of the Indian male has climbed steadily from a dismal 32 years in 1947 to 71 today; women live a few years more. With improving health indicators, 15 crore Indians are over 60. Diseases of age such as cancer, respiratory disorders, and dementia warrant frequent visits to health centres. For a nation of 140 crores, there are only 4 lakh specialists, who are all overwhelmed. Their daily routine

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can include 70-100 OPD consultations, a few surgeries, and ward rounds. Every patient encounter must be documented in detail. At most public hospitals, clinical notes are made on paper and inserted into a file.

Patients in India do not always carry their health records, leaving doctors to piece the puzzle together during a visit. Any errors of omission can be deadly and are blamed on the physician. Electronic health records (EHR) are the way forward, but this requires financing. In the

US context, a third of the citizens constituting children, elderly, and unemployed are covered by public health schemes such as Medicare and Medicaid; beneficiaries may seek treatment at private centres. Through the 2009 HITECH Act, the US government incentivised healthcare providers to implement EHR systems; noncompliance would lead to delays in reimbursements. Subsequently, EHR solutions from Epic, Cerner (Oracle), and Meditech have cornered nearly

70 per cent of the market share.

Hospitals in India have taken to engaging IT consultants to manage patient appointments, digitise their records, settle insurance claims, and so on. Smaller clinics use desktop solutions with limited functions. Free and open-source software like OpenEMR is an option for medium-sized practices. Cloud providers such as ekaCare and Practo have made it easy for providers to embrace EHRs. Given the complexities of protocols with in-patient care, these systems may not be comprehensive. The National Cancer Grid initiative aims to develop EHRs focused on oncology for interoperable use by a network of over 360 cancer centres.

There is a flip side to this digitisation. The burden of documenting every interaction on an EHR system has driven many American clinicians to burnout. Patients are annoyed to see their doctors staring at screens and typing into boxes. AI assistants from outfits such as Suki, Abridge, and Nuance in the US, and Augnito in India, are helping doctors interact with EHR systems via voice commands. Moreover, these assistants can ambiently listen in on a conversation, allowing the doctor to look at their patients. A large language model (LLM) encoded with medical knowledge structures this encounter into a clinical note; this can in turn be uploaded to the EHR system after a review.

Medical professionals are better off attending to patients by saving time on retrieving information. Doctors could enquire an AI assistant about their schedule for the day, a patient's vital signs, the dosage level for a drug, symptoms of a condition, adverse interactions of a drug with existing prescriptions, and so on. Open AI's GPT-4 LLMs can interpret radiological images. Google's AMIE LLMs can guide a physician through a dif-

ferential diagnosis. Information submitted to an LLM may be used for training, so care must be taken to preserve patient privacy. LLMs are not perfect: they suffer from hallucinations. Therefore, it is critical for the doctor to scrutinise all responses from AI assistants.

There remain several challenges in the Indian setting. There are hundreds of EHR systems, thanks to bespoke implementations undertaken by each provider; integrating an AI assistant with these systems is not straightforward. Patients engage doctors in a variety of languages, so speech transcription and translation can be tricky. Software developers could build Indic language support into the assistants. For a doctor who has moved into a region that speaks a different tongue, this is a heavensent feature. On a basic level, Internet connectivity remains a problem, so it is pragmatic to store transcripts locally on the devices and upload periodically.

The Ayushman Bharat Digital Mission (ABDM) offers 50 crore citizens insurance cover for treatment at government centres and empanelled private providers. This mission could become a crucible for the development of application programming interfaces (APIs) that can enable secure, authorised access to the repository of EHR records and insurance claims. An AI assistant that connects with ABDM servers can help doctors and researchers resolve questions about disease prevalence, treatment outcomes, survival rates, and so on. Serious issues would arise if the records were not anonymised, so they must be stripped of all personally identifiable information.

Indians have shown the world what they can accomplish with UPI and seamless financial transactions. They can repeat this success with a much more complex set of transactions in the realm of healthcare.