PSYCHOLOGY AND EDUCATION (2021) 58(5), ISSN 1553 - 6939
Article Received: 22th November, 2020; Article Revised: 26th March, 2021; Article Accepted: 26th April, 2021

Meeting the Challenge: COVID-19 and Healthcare

Saugata Banerjee
Assistant Professor, Dept. of Hospital Management, GNIT, Kolkata
Tarpan Chakrabarty
Assistant Professor, Dept. of Hospital Management, GNIT, Kolkata
Debashruti Ganguly
Assistant Professor and Head, Dept. of Hospital Management, GNIT, Kolkata
Debattri Das
Assistant Professor, Dept. of Hospital Management, GNIT, Kolkata

ABSTRACT
In late 2019, a new virus emerged in Wuhan, China, causing an infectious disease. This disease quickly spread across the globe. On March 12, 2020, the World Health Organization declared the spread of COVID-19 a global pandemic. Covid-19 (Coronavirus) has significantly affected the global economy. The series of recent migration crises, immigration rules have also been strengthened in many countries [1]. The impacts of coronavirus are most apparent at the international business level due to the restrictions on travel. The aim of this article is to discuss about the loss acquired by the hospitals and to overcome form this crisis. Suggestions for acting in a more dynamic and innovative manner are provided that highlight the importance of utilizing telemedicine and artificial intelligence(AI) in healthcare delivery in time of crises. Telemedicine has become an increasingly popular option for long distance or virtual medical care and education. Telemedicine ventures during the conceptualization phase can play a pivotal role in reducing risks and costs, while increasing their probability of success [2]. AI can deliver effective insights and solutions in a timely, wide scale fashion to help halt the current pandemic [3].

Keywords
pandemic; medical tourism; management; healthcare; telemedicine; AI

I. INTRODUCTION

COVID-19 has been declared a pandemic by the World Health Organization (WHO). [4] After the initial description in Wuhan and China, Italy was hit first in Europe and the impact has been immense [5]. The virus spread very rapidly all over the globe. Many countries took strict control in international travel and later on international travel was restricted. Due to this restriction huge loss has happened in the medical tourism industry. In medical tourism, citizens of highly developed nations bypass services offered in their own communities and travel to less developed areas of the world for medical care. Medical tourism is fundamentally different from the traditional model of international medical travel where patients generally journey from less developed nations to major medical centers in highly developed countries for medical treatment that is unavailable in their own communities.

Although there are no verifiable statistics regarding the magnitude of medical tourism, the available information suggests that a substantial number of patients travel to developing nations for healthcare. In 2004, 1.2 million patients traveled to India for healthcare and 1.1 million medical tourists traveled to Thailand. [6, 7] It is estimated that medical tourism to Asia could generate as much as

$4.4 billion by 2012, with approximately half of this revenue going to India. [8] In nations that have long waiting lists for certain procedures, medical tourism provides a mechanism to clear backlogs by sending patients to foreign countries without expanding local capacity. [9] Although this idea has not been explored, there may be novel opportunities to use low-cost offshore medical destinations to provide care for unfunded low-income patients while simultaneously relieving the burden on domestic healthcare facilities and philanthropic organizations.

This restriction of travelling will badly affect the international business of healthcare and the revenue acquired from the international patients will be reduced. Due to this restriction hospitals are losing their international patients as well as international patients are also having problems. The domestic patients are also not willing to enter the hospital for this pandemic. In short hospitals are losing international as well as domestic patients. Huge loss are happening due to this pandemic and it's really very tough for the corporate hospitals to

afford fixed cost. To meet this challenge implementation of artificial intelligence and wide spread of telemedicine must be encouraged.

Telemedicine may reduce the need for physical attendance and can encourage the social distancing protocols. [10] Thereby minimizing contact exposure where possible. Telemedicine has become an increasingly popular option for long distance or virtual medical care and education.
Although it originated in the developed world, the concept of telemedicine has been quickly integrated into developing countries. Apollo Telemedicine, Aravind Tele-Ophthalmology, Sky Health was chosen for discussion based on their large reach and longstanding success. These telemedicine systems emphasize the value of saving money and time through reducing transportation costs rather than simply making healthcare more convenient. Faster access to medical care through telemedicine is particularly valuable in developing countries because of the high patient-to-doctor ratio compared with developed countries.

Apollo Telemedicine

Apollo Telemedicine Networking Foundation (ATNF) is a nonprofit organization started in 1999 by Apollo Hospitals Group, the largest private healthcare provider in Asia. It connects Apollo secondary care hospitals with Apollo specialty centers in India in order to mitigate the shortage of specialists in rural areas. The ATNF has become India's largest telemedicine provider, with 40 medical specialties in over 100 peripheral centers in India with additional centers overseas. [11] Apollo Telemedicine utilizes a strong local network and customer base to maintain a successful operation at each center. Although the program does receive external funding to subsidize consultations for certain areas, centers are also utilized and financially supported by patients who pay.

Aravind Tele-Ophthalmology

Aravind is the largest eye care system in the world, founded in 1976 in Madurai, India. Since its inception, Aravind has been working to eliminate needless blindness. Aravind started to implement primary vision centers in 1996 in Theni, India, in order to provide quality and affordable eye care to people living in rural villages. [12] The primary vision centers are connected to higher-level vision hospitals via tele-ophthalmology. An ophthalmologist interacts with the patient sitting at a remote location through videoconferencing aided by a local doctor who uses ophthalmic diagnostic equipment to transfer the images. The primary vision centers are connected to higher-level vision hospitals via tele-ophthalmology. An ophthalmologist interacts with the patient sitting at a remote location through videoconferencing aided by a local doctor who uses ophthalmic diagnostic equipment to transfer the images. [13] Aravind has a unique model that utilizes revenue from paying patients to subsidize disadvantaged patients. To achieve this social value, volunteers and local hiring strategically reduce costs Aravind also has a streamlined and efficient operating system, which allows for increased number of operations and decreased staffing cost. [14]

SkyHealth

SkyHealth is a pilot franchise telemedicine program started in 2008 that combines family planning and female health in rural areas around New Delhi, India. Sky Health operates under the non-governmental organization World Health Partners. In an 18-month pilot period, SkyHealth provided 25,000 tele consultations and 188,401 couple-years of protection (estimated protection provided by contraceptive methods during a 1-year period)—effectively preventing 107,658 unwanted pregnancies. Sky Health has a hierarchical network of 1,200 SkyCare rural health providers, 120 telemedicine provision centers (TPCs), 16 franchise centers, 9 diagnostic clinics, and 1,400 rural pharmacies. {15. 16] the extensive supply chain of SkyHealth creates jobs at different organizational levels. This franchising system in turn provides much more publicity for the program than advertising alone. Each part of the supply chain is able to capitalize on its relationship with other customers. This triage system makes processes more efficient by reserving time for important medical problems. Specialized cases that are referred to the TPC will receive more attention from a doctor, whereas basic problems can be resolved with the rural health provider. Hierarchical levels in the supply chain increase revenue and value for the entire business model.

Several types of AI are already being employed by payers and providers of care, and life sciences companies. The key categories of applications involve diagnosis and treatment recommendations, patient engagement and adherence, and administrative activities. Although there are many instances in which AI can perform healthcare tasks as well or better than humans, implementation factors will prevent large-scale automation of healthcare professional jobs for a considerable period. Artificial

intelligence (AI) and related technologies are increasingly prevalent in business and society, and are beginning to be applied to healthcare. These technologies have the potential to transform many aspects of patient care, as well as administrative processes within provider, payer and pharmaceutical organizations.

Physical robots

Physical robots are well known by this point, given that more than 200,000 industrial robots are installed each year around the world. They perform predefined tasks like lifting, repositioning, welding or assembling objects in places like factories and warehouses, and delivering supplies in hospitals. More recently, robots have become more collaborative with humans and are more easily trained by moving them through a desired task.

They are also becoming more intelligent, as other AI capabilities are being embedded in their 'brains' (really their operating systems). Over time, it seems likely that the same improvements in intelligence that we've seen in other areas of AI would be incorporated into physical robots Surgical robots, initially approved in the USA in 2000, provide 'superpowers' to surgeons, improving their ability to see, create precise and minimally invasive incisions, stitch wounds and so forth. 6 Important decisions are still made by human surgeons, however. Common surgical procedures using robotic surgery include gynecologic surgery, prostate surgery and head and neck surgery. [17]

Robotic process automation

This technology performs structured digital tasks of administrative purposes, i.e. those involving information systems, as if they were a human user following a script or rules. Compared to other forms of AI they are inexpensive, easy to program and transparent in their actions. Robotic process automation (RPA) doesn't really involve robots – only computer programs on servers. It relies on a combination of workflow, business rules and 'presentation layer' integration with information systems to act like a semi-intelligent user of the systems. In healthcare, they are used for repetitive tasks like prior authorization, updating patient records or billing. When combined with other technologies like image recognition, they can be used to extract data from, for example, faxed images in order to input it into transactional systems. [18]

In brief, COVID-19 has accelerated two powerful trends for the future implementation of **AI** and encouragement of telemedicine in **healthcare** delivery systems. The greatest challenge to **AI** in these healthcare domains is not whether the technologies will be capable enough to be useful but rather ensuring their adoption in daily clinical practice. It also seems increasingly clear that **AI** systems will not replace human clinicians on a large scale, but rather will augment their efforts to care for patients. Widespread population can only be treated by proper utilization of **telemedicine**. Developing and investing more in the telemedicine field is required to meet this challenge.

REFERENCES

1. Eg WTO, "Overview of Developments in the International Trading Environment. Annual Report by the Director-General (Mid-October 2018 to Mid-October 2019)", 29 November 2019, WT/TPR/OV/22.

2. Kijl B, Nieuwenhuis L, Huis in 't Veld RM, Hermens H, Vollenbroek-Hutton M. Deployment of e-health services—A business model engineering strategy. J Telemed Telecare 2010;16:344–353.

3. Becky McCall Copyright © 2020 The Author(s). Published by Elsevier Ltd. This is an Open Access article under the CC BY 4.0 license.

4. World Health Organisation (WHO) Coronavirus disease (COVID-19) outbreak webpage (https://experience.arcgis.com/experience/685d0ace521648f8a5beeeee1b9125cd) [accessed 15 March 2020].

5. Pellino G, Spinelli A. How COVID-19 Outbreak Is Impacting Colorectal Cancer Patients in Italy: A Long Shadow Beyond Infection. Dis Colon Rectum 2020. 10.1097/DCR.0000000000001685 [Epub ahead of print]. [PubMed] [CrossRef] [Google Scholar]

6. Great Indian hospitality can be biz too. The Economic Times (India) July 29, 2005.

7. Sen C. Thai health tourism gives India headache. The Economic Times (India) July 24, 2005.

8. Baliga H. Medical tourism is the new wave of outsourcing from India. India Daily. December 23, 2006. Available

at http://www.indiadaily.com/editorial/14858.asp Accesse d January 2, 2007.

9. Lancaster J. Surgeries, side trips for medical tourists. p. A1. Washington Post. October 21, 2004.

10. Augestad KM, Sneve AM, Lindsetmo RO. Telemedicine in postoperative follow-up of STOMa PAtients: a randomized clinical trial (the STOMPA trial). Br J Surg 2020; 107: 509–518. [PubMed] [Google Scholar]

11. Bigelow B. A Netflix for doctors: Myca Health's CEO Findlay offers health IT in the cloud. Xconomy. San Diego. 2010. http://www.xconomy.com/san-diego 2010/11/16/a-netflix-for-doctors-myca-healths-ceo-findlay-offers-health-itin the-cloud/2/ (last accessed March 4, 2013).

12. Bai VT, Muarli V, Kim R, Srivatsa S. Teleophtalmology-based rural eye care in India. Telemed J E Health 2007;13:313–32

13. Surana S, Patra R, Nedevschi S, Brewer E. Deploying a rural wireless telemedicine system: Experiences in sustainability. Computer 2008 41:48–56.

14. Subrahmanyan S, Gomez-Arias JT. Integrated approach to understanding consumer behavior at bottom of pyramid. J Consumer Market 2008;25: 402–412.

15. Clinical social franchising compendium. An annual survey of programs, 2011 San Francisco: The Global Health Group, University of California, San Francisco, 2011.

16. Chavali A. World health partners. Hyderabad, India: ACCESS Health International Centre for Emerging Markets Solutions Indian School of Business, 2011.

17. Davenport TH , Glaser J. Just-in-time delivery comes to knowledge management.*Harvard Business Review* 2002. https://hbr.org/2002/07/justin-time-delivery-comes-to-knowledge-management.

18. Hussain A , Malik A , Halim MU , Ali AM . The use of robotics in surgery: a review . Int J Clin Pract 2014 ; 68 : 1376 – 82 .