



## A place for disruptive technology in India's health sector

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**(Mains GS 2 & 3 : Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources & Recent developments and their applications and effects in everyday life)**

### **Context:**

- As frontline warriors fighting COVID-19 wearing mainly masks and gloves as the only protective gear have been exposed to great risk.
- It is in such a situation, the relevance of disruptive technology and its applications potentially helping to reduce the chances of contracting the infection.

### **Robotics in Covid-19:**

- There are reports in the global media of established innovative field hospitals using robots to care for COVID-19 affected patients.
- Hospitals in China use 5G-powered temperature measurement devices at the entrance to flag patients who have fever/fever-like symptoms.
- Other robots measure heart rates and blood oxygen levels through smart bracelets and rings that patients wear; they even sanitise wards.
- In India, the Sawai Man Singh government hospital in Jaipur held trials with a humanoid robot to deliver medicines and food to COVID-19 patients admitted there.

### **Emerging technology improve welfare:**

- New technologies can improve the welfare of societies and reduce the impact of communicable diseases.
- Technologies such as artificial intelligence (AI), autonomous systems, blockchain, cloud and quantum computing, data analytics, 5G. Blockchain technology can help in addressing the interoperability challenges that health information and technology systems face.

### **Blockchain in healthcare:**

- The health blockchain would contain a complete indexed history of all medical data, including formal medical records and health data from mobile applications and wearable sensors.
- This can also be stored in a secure network and authenticated, besides helping in seamless medical attention.

### **Big data and AI in healthcare:**

- Big data analytics can help improve patient-based services tremendously such as early disease detection.
- Even hospital health-care facilities can be improved to a great extent.
- AI and the Internet of Medical Things, or IoMT (which is defined as a connected infrastructure of medical devices, software applications, and health systems and services) are shaping health-care applications.

### **Medical autonomous system and cloud computing:**

- Medical autonomous systems can also improve health delivery to a great extent and their applications are focused on supporting medical care delivery in dispersed and complex environments with the help of futuristic technologies.
- This system may also include an autonomous critical care system, autonomous intubation, autonomous cricothyrotomy and other autonomous interventional procedures.
- Cloud computing is another application facilitating collaboration and data exchanges between doctors, departments, and even institutions and medical providers to enable best treatment.

### **Furthering UHC:**

- According to the World Health Organization, “Universal health coverage (UHC) is the single most powerful concept that public health has to offer.
- It is a powerful social equalizer and the ultimate expression of fairness.
- Studies by WHO show that weakly-coordinated steps may lead to stand-alone information and communication technology solutions, leading to a fragmentation of information and resulting in poor delivery of care.

### **India needs digital health strategy:**

- India needs to own its digital health strategy that works and leads towards universal health coverage and person-centred care.
- Such a strategy should emphasise the ethical appropriateness of digital technologies, cross the digital divide, and ensure inclusion across the economy.
- ‘Ayushman Bharat’ and tools such as Information and Communication Technology could be fine-tuned with this strategy to promote ways to protect populations.

- Online consultation through video conferencing should be a key part of such a strategy, especially in times when there is transmission of communicable diseases.

### **Using local knowledge:**

- In addition to effective national policies and robust health systems, an effective national response must also draw upon local knowledge.
- Community nurses, doctors, and health workers in developing countries do act as frontline sentinels.
- An example is the Ebola virus outbreak in Africa, where communities proactively helped curtail the spread much before government health teams arrived.
- Another example is from Indonesia, where the experience of backyard poultry farmers was used to tackle bird flu.
- Primary health centres in India could examine local/traditional knowledge and experience and then use it along with modern technology.

### **Possible challenges:**

- In the developing world including India, initial efforts in technology inclusion should involve synchronisation and integration.
- Developing a template for sharing data, and reengineering many of the institutional and structural arrangements in the medical sector will also be required.
- The possible constraints in Big data applications are a standardisation of health data, organisational silos, data security and data privacy, and also high investments.

### **Conclusion:**

- Disruptive technology can play an important role in improving the health sector in general.
- Thus, technology applications in the health sector should help hospitals provide the best facilities and at less cost, provide a level playing field for all sectors, and foster competition.