Tech Tonic

FIFTEEN INNOVATIONS THAT PROMISE TO CHANGE HEALTHCARE IN THESE TIMES OF CRISIS

By SINDU GOPAL RAO

medical science is a war that never ends. Viruses mutate. New pathogens emerge from primal Forests. Bacteria become resistant to antibiotics. Medical technology is changing by the minute. When Akshay Chaturvedi’s father had a variation in blood pressure, he reached out to his doctor immediately who ordered appropriate tests. “We saved 30 minutes because we had access to the medical records system (EMR). “Its seamless voice automation can be incorporated as elevator buttons, doorbells, card machines, ATMs, switches etc. The 30 percent airflow inside the mask sterilizes the surface it touches. The pen nib self-sterilises after each use. The pro easy to carry and use product with auto-off facility. COH: It has to be unfolded and folded back with each use WHERE TO USE: Home, office PRICE: Starts at ₹2,999

Tiny Fighter

Linc Pen and Plastics Ltd has launched this pocket-sized finger-free touch device. Designed to avoid contact with surfaces such as elevator buttons, doorbells, card machines, ATM buttons, switches etc. It is designed to be a reusable contactless device with a refillable cartridge. Deepak Jalan, managing director and CEO, Linc Pen and Plastics Ltd says, “The device uses fan-assisted positive pressure technology to supply cool, purified air inside the bubble and filtered air to prevent the wearer from infecting others as well.” says Dr Swapneil Parikh, co-founder, DIY Health.

PRC: One size fits all. Device doesn’t fog up. WHERE TO USE: Offices, crowded places PRICE: ₹10,000

Play Misty For Me

Globus ULV Disinfectant Fogger

This one-shot-size Disinfectant ULV Fogger from Globus Infocom Ltd has proven highly effective in curtailing the scope of infection. It applies sanitized and disinfectant liquid to high-touch areas to prevent cross contamination. “It generates a fog or mist formed by small Ultra Low Volume (ULV) droplets that remain in the air for several minutes after application. Studies have substantiated that droplets of smaller size are ideal for disintegrating and eliminating pathogens like coronaviruses that run from surfaces. They can reach most inaccessible parts where conventual disinfectants are unable to reach.” says Arun Dhain, CTO, Globus Infocom Ltd.

PRC: This cold fogger was 70 percent alcohol-based sanitizer, which can effectively reach large areas in the shortest time, and helps to break the chain of infection efficiently. WHERE TO USE: Hospitals PRICE: ₹12,400

Bubble Maker

PALPR (Powered Air Purifying Respirator)

This personal safety device offers the most 360-degree protection against infectious agents or pollutants in the air you’re in. It’s designed to mitigate the risk of airborne infections in closed environments such as hospitals, public transport and schools. The PALPR (Powered Air Purifying Respirator) conceals the personal space of the wearer with a transparent bubble. “The device uses fan-assisted positive pressure technology to supply cool, purified air inside the bubble and filtered air to prevent the wearer from infecting others as well,” says Dr Swapneil Parikh, co-founder, DIY Health.

PRC: One size fits all. Device doesn’t fog up. WHERE TO USE: Offices, crowded places PRICE: ₹10,000

Talkative Tech

Augmento

Vain to test in real-time becomes reality with Augmento, an accurate cloud-based software that guarantees error-free documentation. Safe, secure and scalable, it uses natural language voice commands and controls, it is SaaS Co-designed by doctors and leading AI scientists, Augmento empowers healthcare providers by driving and amplifying Electronic Medical Records systems (EMR). The seamless voice automation can be incorporated at every step from radiology to OPD to progress to surgical notes to discharge summaries and cold reports,” says Dr Swapneil Parikh, co-founder, DIY Health.

PRC: Available in English only. Regional language development in the pipeline. WHERE TO USE: Hospitals PRICE: Starts at ₹12,400

Desi Delight

Shudhdi Bindi

This makes-in-India gemstone product using VST Light comes in two categories—one disinfects office and electronic equipment while another, household items such as grocery. “The bangles are handmade products made of jewels from Kilimani embedded with its tech chip system manufactured in RIF and power handcraf products made of jute from Kolkata” says Preran Roy, CEO and founder, Aruna Yashi.

PRC: It is affordable, lightweight, foldable, easy to carry and use product with auto-off facility. COH: It has to be unfolded and folded back with each use WHERE TO USE: Home, office PRICE: Starts from ₹75,999

A Good Doze

GOQii Smart Vital smartwatch

This revolutionary device has an integrated Pulse Oximeter to measure the level of oxygen in blood with real time update of variations. The smartwatch also monitors blood pressure and sugar levels and is proven highly effective in early detection and management of Covid-19. To its unique features such as detecting sleep, steps, calories and heart rate, it goes a step further into various parameters that reflect the health and fitness of individuals. It can be connected to a centralised dashboard that enables remote, continuous monitoring of a large user group with minimal human intervention.” says Vishal Gondal, founder and CEO, GOQii.

PRC: Easy to wear and available in colourful straps WHERE TO USE: Home, office, travel PRICE: ₹5,999

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Data is the Prescription
Medical scientists and researchers across the world are engaged in intense dialogue on how to introduce and improve digital solutions to address the perils of global pandemic. The critical need is to mitigate burdens on already stretched healthcare systems. Without interventions, there is a high chance of global pandemic with elimination of interventions. The solution lies in leveraging the power of information and communication technologies.

Ten Promising Health Innovations

1. **Telemedicine**
A telemedicine platform provides diagnosis and treatment options for patients, allowing them to receive care remotely through video calls or other digital communication methods. This service is particularly beneficial for patients living in remote areas or those who have mobility issues, as it eliminates the need for in-person visits.

2. **AI-Powered Diagnostics**
AI-powered diagnostics can help in early detection and accurate diagnosis of diseases. These systems analyze vast amounts of medical data to identify patterns and anomalies that might be missed by human experts, leading to faster and more accurate healthcare decisions.

3. **Remote Patient Monitoring**
Remote patient monitoring involves the use of wearable devices or mobile applications to continuously monitor patients’ vital signs, such as heart rate, blood pressure, or blood oxygen levels. This data can be transmitted to healthcare providers in real-time, allowing for timely interventions.

4. **Digital Health Records**
Digital health records offer a centralized and secure way to store and share patient health information. This system improves the efficiency and accuracy of medical documentation, reduces the risk of errors in patient care, and facilitates better communication among healthcare professionals.

5. **Virtual Reality (VR) Therapy**
Virtual reality therapy offers an immersive environment for patients to practice various therapeutic exercises, such as managing pain, improving mobility, or dealing with anxiety. VR therapy can provide a safe and controlled environment to enhance therapeutic outcomes.

6. **Health Information Exchange (HIE)**
Health information exchange allows the sharing of patient health data among different healthcare providers in real-time. This sharing of information can improve patient care coordination and reduce duplication of services.

7. **Health Data Analytics**
Health data analytics involves the use of statistical methods and machine learning algorithms to analyze large datasets to identify trends, patterns, and insights that can inform evidence-based decisions in healthcare.

8. **Mobile Health (mHealth)**
Mobile health applications and platforms can provide patients with access to health information, resources, and services on their mobile devices. mHealth can help patients manage their conditions, receive timely health reminders, and connect with healthcare providers.

9. **Personalized Medicine**
Personalized medicine tailors medical treatment plans to individual patients based on their specific genetic makeup, lifestyle, and environmental factors. This approach can lead to more effective and targeted treatments.

10. **Robotics in Healthcare**
Robotic systems can be used in various healthcare settings, such as surgery, drug delivery, and patient care. These systems can perform tasks with precision and efficiency, reducing the risk of complications and improving patient outcomes.

Multiple Master Devices

For accurate and rapid patient monitoring, multi-parameter devices like stay connected devices can be deployed. These devices can monitor vital signs and transmit data to healthcare providers in real-time, enabling timely interventions. They are equipped with advanced algorithms to detect abnormalities and alert healthcare professionals.

Blood Brother

The Blood Brother system is a portable, handheld device designed to provide quick and accurate blood glucose measurement. It is simple to use and does not require any patient preparation or calibration. The device is small enough to be carried in a pocket or handbag, making it convenient for daily use.

Cerebral Champion

The Cerebral Champion is a non-invasive brain stimulation device designed to improve cognitive function and treat neurological disorders. It uses a combination of transcranial magnetic stimulation (TMS) and functional magnetic resonance imaging (fMRI) to provide personalized treatment plans.

Innovation:
Genetic modification
The AT04A vaccine is under development and is designed to target the Chikungunya virus. It uses a combination of synthetic DNA and a novel adjuvant to boost immune responses.

PRO:
- High accuracy in studies
- Simple to use and can be applied by a non-medical person.

CON:
- Under development
- There is just one pathologist per 1.5 million people in some countries.

Price: ₹7,999

Deep Relaxation

Deep Relaxation is a portable, handheld device designed to provide deep muscle relaxation and reduce stress. It combines targeted ultrasound therapy with thermal therapy to penetrate deep into muscles, providing relief from pain and stiffness.

Innovation:
Thermal therapy
Deep Relaxation uses a combination of ultrasound and thermal therapy to target specific muscle groups and promote relaxation.

PRO:
- High accuracy in studies
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Mr Clean

Mr Clean is a device that uses a combination of ultrasound and thermal therapy to remove plaque and tartar from teeth, improving oral hygiene. It uses a gentle vibration and heat to dislodge deposits and promote better oral care.

Innovation:
Thermal therapy
Mr Clean uses a combination of ultrasound and thermal therapy to target specific areas of the mouth and promote oral health.

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Deep Vein Thrombosis Prevention

Deep Vein Thrombosis Prevention (DVT) devices are designed to prevent deep vein thrombosis, a condition that occurs when blood clots form in the deep veins of the legs. The device works by applying gentle pressure to the skin to improve blood flow and prevent clot formation.

Innovation:
Thermal therapy
Deep Vein Thrombosis Prevention uses a combination of ultrasound and thermal therapy to target specific areas of the leg and promote blood flow.

PRO:
- High accuracy in studies
- Simple to use and can be applied by a non-medical person.

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Lung Power

Cough against COVID by Winodhine Institute
Winodhine Institute has developed a cough-driven and open innovation initiative to build an AI tool that uses cough sounds, symptoms, and other contextual information to screen for COVID-19. With just a smartphone, it can be used to be hailed for testing. Healthsystem and health care professionals need to be able to make the most of these tools. Winodhine Institute is doing this by testing their AI tool on real-world data. Results are being shared with government bodies and health care providers to help them improve their COVID-19 screening and treatment strategies for faster recovery. The research team has led by Prof. Pradip, CEO, and Prof. Subramanian, CEO, is trying to push the boundaries of technology and design to create the smallest refrigeration device in the world. This refrigeration device can be connected to a patient’s heart rate monitor to reduce the risk of complications.

Innovation:
Thermal therapy
Lung Power uses a combination of ultrasound and thermal therapy to target specific areas of the lung and promote blood flow.

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Wipeout Warrior

Wipeout Warrior is a device that uses a combination of ultrasound and thermal therapy to target specific areas of the brain and promote blood flow.

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Deeply Deep

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