1. UNIVERSAL HEALTH COVERAGE (UHC)

According to the WHO, UHC includes full spectrum of essential quality health services from health promotion to prevention, treatment, rehabilitation, and palliative care across the life span. It aims at reducing morbidity and mortality by facilitating easy, economical, and secure access to good quality health services to the masses.

Given the scale of poverty in the world, it is recommended that UHC should focus on:

▪ The proportion of population (among the general and the most disadvantaged groups) that can access essential quality health services (SDG 3.8.1).

▪ The proportion of population that spends a large amount of household income on health (SDG 3.8.2).

Timeline

▪ The concept of **Universal Health Coverage** (UHC) was first proposed by the **Bhore Committee** in 1946 highlighting that all individuals and communities should receive the health services without any economic stress. The committee recommended integration of preventive and curative services at all levels and laid out a plan for strengthening the primary healthcare.

▪ At global level, the **Alma-Ata Declaration** (1978) emerged as a major milestone in public health. It had identified *primary health care as the key* for attaining the goal of 'Health for All' by 2000AD. Thereafter, commitments set in the Millennium Declaration (2000) led to the formulation of Millennium Development Goals (MDGs).

▪ In 2015, UN General Assembly launched the Sustainable Development Goals (SDGs). Of these, the SDG-3 addresses health directly - "*Good Health and Well Being*", while the SDG-2 – "*Zero Hunger*", SDG-5 – "*Gender Equality*" and SDG-6 – "*Clean Water and Sanitation*" address health indirectly.

> The **Astana Declaration (2018)** is a shift towards UHC for attaining the SDGs and envisioned the:
>
> ▪ Governments and societies to prioritize, promote and protect people's health and well-being, at both population and individual levels, through strong health systems.
>
> ▪ Primary healthcare and health services to be of high quality, safe, comprehensive, accessible, available, and affordable for everyone and everywhere, provided with compassion, respect, and dignity by well-trained health professionals.
>
> ▪ Enabling and health-conducive environments in which individuals and communities are empowered and engaged in maintaining and enhancing their health and well-being.
>
> ▪ Partners and stakeholders to align in providing effective support to national health policies, strategies, and plans.

Universal Health Coverage - The Framework of Action

To achieve UHC, nations across the globe are trying to focus on its three major pillars: *Service Delivery, Health Financing, Governance*. The framework of action needs to be developed keeping in mind the following aspects:

i. Finance : Expand financial pool by promoting PPP and corporate-social responsibility (CSR); Increase domestic resource mobilisation and budget reallocation regularly and facilitate efficient and judicious time- bound utilisation.

ii. Health Services : Establish affordable, people-centric, and bias-free health services; Promote partnerships between the civil society and public/private sector to enhance access health services; Invest in pre-service medical and para- medical education.

iii.   Equity : Provide financial protection to each citizen of the country while targeting and expanding service delivery for marginalised and vulnerable groups (age, gender, demography, etc.); Scale-up safety net approaches including conditional cash transfers which directly/indirectly supports good health and well-being; Ensure fulfilment of basic rights especially of women, children and elderly.

iv.   Preparedness : Prepare and regularly improve National preparedness plans especially for natural disasters; Promote adherence to the International Health Regulations at National as well as State level.

v.   Governance : Strengthen national institutions and organisations through capacity building; Establish transparent monitoring and reporting on progress towards UHC and make it available on public domains; Ensure workable effective mechanisms for inter-sectoral dialogue and work.

Indian Scenario : RURAL HEALTH INFRASTRUCTURE

The healthcare facilities in rural areas under the National Rural Health Mission has part of the National Health Mission) have been developed as a three-tier system : *Sub-Centres, Primary Health Centres (PHC)* and *Community Health Centres (CHC)*.

One of the key components of the National Rural Health Mission is to provide every village in the country with a trained female community health activist - ASHA (Accredited Social Health Activist) who acts as the interface between the community and the public health system in rural India and is empowered with knowledge and a drug-kit to deliver first-contact healthcare. In lieu of their significant contribution -

- ASHA workers receive a fixed monthly incentive of Rs. 2,000 per month for undertaking routine and recurring activities.

- Under the Pradhan Mantri Garib Kalyan Package, an insurance scheme has been introduced for all health workers, including ASHAs to provide an insurance cover of Rs. 50 lakhs in case of loss of life on account of COVID-19 related duty.

- ASHAs are now additionally eligible for Team Based Incentives (TBIs) along with Auxiliary Nurse Midwives based on monitored performance indicators (up to Rs. 1000 per month).

- In the year 2018, the ASHA benefit package was introduced acknowledging significant contribution of ASHAs. The package provides coverage for:

  o Pradhan Mantri Jeevan Jyoti Beema Yojana (PMJJBY) with a benefit Rs. 2 lakhs in case of death of the insured (annual premium of Rs. 330 contributed by GoI).

  o Pradhan Mantri Suraksha Beema Yojana (PMSBY) with a benefit of Rs. 2 lakhs for accidental death or permanent disability, Rs.1 lakh for partial disability (annual premium of Rs. 12 contributed by GoI).

  o Pradhan Mantri Sham Yogi Maan-dhan (PM-SYM) with pension benefit of Rs. 3000 per month after age of 60 years (50 percent contribution of premium by Government of India and 50 percent by beneficiaries).

A cash award of Rs. 20,000 and a citation is also given to ASHAs who leave the programme after working for minimum of 10 years, as acknowledgement of their contribution.

National Health Mission (NHM)

The National Health Mission (NHM) encompasses its two Sub-Missions, **The National Rural Health Mission (NRHM)** and **The National Urban Health Mission (NUHM)**. The main programmatic components include Health System Strengthening, Reproductive-Maternal- Neonatal-Child and Adolescent Health (RMNCH+A), and

Communicable and Non-Communicable Diseases. The NHM envisages achievement of universal access to equitable, affordable & quality health care services that are accountable and responsive to people's needs. Some of the important areas of NHM support are:

i. Providing financial support in the form of untied funds, annual maintenance grants and Rogi Kalyan Samiti (RKS) funds for development of health facilities and ensuring services.

ii. Providing infrastructural support to State/UTs for constructing new health facilities and/or for upgradation of infrastructure.

iii. Operationalizing health facilities in rural areas - Financial support is provided to States for providing hard area allowance, performance-based incentives, providing accommodation and transport facilities in rural and remote areas including tribal areas, sponsoring training programmes, etc. to address the issue of shortage of doctors and specialists in the public health facilities.

iv. Various mechanisms like 'contracting in' and 'contracting out' of specialist services is provided under NHM. State/UTs have also been allowed to offer negotiable salaries to attract specialists including flexibility in strategies such as "You quote, we pay".

v. In addition, certain new initiatives have been undertaken like Janani Shishu Suraksha Karyakram (JSSK) (ref Page 6), the Screening for Non-Communicable Diseases (NCDs), Mothers Absolute Affection (to promote exclusive breast feeding), Pradhan Mantri Shurakshit Matratva Abhiyan (to improve access to specialist maternal care through voluntary participation of private providers), Pradhan Mantri National Dialysis Program, Ayushman Bharat programme, Mission Indradhanush (to immunize partially or uncovered population), Rashtriya Swasthya Bal Karyakram (RBSK) (ref Page 7), Kayakalp (to promote cleanliness, hygiene and infection control practices in public healthcare facilities), Labour room quality improvement initiative- LaQshya (Initiative to reduce preventable maternal and new-born mortality, morbidity and still births associated with the care around delivery in Labour room and Maternity OT and ensure respectful maternity care), Surakshit Matritva Aashwasan (SUMAN) (to end all preventable maternal and neonatal deaths), etc.

vi. Other major initiatives include implementation of Free Drugs and Free Diagnostics Service Initiatives, implementation of National Quality Assurance Framework in all public health facilities including in rural areas. Mobile Medical Units (MMUs) and Tele-consultation services are also being implemented to improve access to healthcare, particularly in rural areas.

Ayushman Bharat

A comparison of the data pertaining to some salient health indicators over a period of 70 years (1950-2021) indicates that the life expectancy at birth has nearly doubled; and that there is reduction in the fertility rate (by~2.7 folds), birth rate (by>2.5 folds), infant mortality (by~6.6 folds) and all-cause mortality rate (by~3.8 folds).

Launched under the Ministry of Health and Family Welfare (MoHFW), Ayushman Bharat aims to holistically address the healthcare system-covering prevention, promotion, and ambulatory care at all levels - primary, secondary, and tertiary.

Ayushman Bharat has two major components namely:

i. **Health and Wellness Centres (HWCs)** - It is envisaged that 1,50,000 Health and Wellness Centres (HWCs) would be created which would also involve the transformation of existing Sub-centres and the Primary Health Centres (PHCs). The major objective of HWCs would be to provide Comprehensive Primary Health Care (CPHC) that includes preventive, promotive, curative, palliative and rehabilitative services which is universal, free and close to the community.

ii.   **Pradhan Mantri Jan Arogya Yojana (PM-JAY)** -

a.   It is the world's largest health insurance/assurance scheme fully financed by the government which provides a cashless cover of Rs. 5 lakhs per family per year for secondary and tertiary care hospitalization across public and the empaneled private hospitals in India.

b.   The inclusion of households, both from the rural and urban areas, is based on the deprivation and occupational criteria of Socio-Economic Caste Census-2011 (SECC 2011). It would also provide cover to the beneficiaries earlier covered under Rashtriya Swasthya Bima Yojana but currently not included in the SECC 2011 database. It also provides support to the beneficiaries of Employees State Insurance Corporation (ESIC/ESI). There is no restriction on the family size, age, or gender.

c.   It covers up to 3 days of pre-hospitalization and 15 days post-hospitalization expenses incurred on diagnostics and medicines. All pre-existing conditions are covered from day one.

d.   Benefits of the scheme are portable across the country i.e. a beneficiary can visit any empaneled public or private hospital in India to avail cashless treatment.

e.   Services include all the costs related to treatment - including but not limited to drugs, supplies, diagnostic services, physician's fees, room charges, surgeon charges, OT, and ICU charges, etc.

f.   Public hospitals are reimbursed for the healthcare services at par with the private hospitals.

iii.   PM Ayushman Bharat Health Infrastructure Mission (PM-ABHIM) till 2025-26 envisages increased investments in public health and other health reforms to provide better access to health in rural areas by:

a.   Strengthening of HWCs in villages and cities for early detection of diseases.

b.   Addition of new critical care-related beds at district level hospitals.

c.   Supporting Block Public Health Units (BPHU) in 11 high focus states.

d.   Integrating district public health laboratories in all districts.

Positives

▪   Ayushman Bharat has facilitated successful implementation of the COVID-19 vaccination drive. Online registration, geo-reference maps with GPS coordinates, mapping of COVID-19 vaccination centres (for cold chain) were some of the characteristics of this largest vaccination drive in the world.

▪   After two years of successful implementation, the Government of Jammu & Kashmir decided to extend the benefits of AB PM-JAY to the entire population through 100 percent government funding mechanism and launched UHC (AB PM-JAY SEHAT) on 26th December, 2020.

▪   The India COVID-19 Emergency Response and Health Systems Preparedness Package Phase-II(ECRP-Phase-II) is under implementation from July 1, 2021, to March 31,2022. It aims to prevent, detect, and respond to the continuing threat posed by COVID-19. Under this scheme, support is being provided to the States/UTs for provision for establishing District Pediatric Units including Oxygen Supported beds and ICU beds throughout the country.

2. MATERNAL and CHILD HEALTH

Introduction: UN Sustainable Development Goal (SDG) 2.2 calls for "*ending all forms of malnutrition for children under the age of five by 2030*." Despite progress, India is still falling short of meeting SDG 2.2, as the percentage of stunted, wasted, underweight, and anemic children in India is 36 percent, 19 percent, 32 percent, and 67 percent, respectively as per NFHS-5.

Timeline of policies and programs catering to maternal and child health:

Year	Policies and Programs Catering to Maternal and Child Health
1975	Integrated Child Development Services (ICDS) - includes provisions of nutritious fortified meals, preschool education, Primary Health care, immunization, and health care to children under 6 years of age and their mothers (pregnant and lactating women).
1993	National Nutrition Policy - includes nutrition specific and sensitive interventions.
2005	National Rural Health Mission
2007	National Food Security Mission - includes increased production of rice, wheat and pulses through area expansion, productivity enhancement, restoring soil fertility, enhancing farm level economy.
2013	National Urban Health Mission
2013	National Food Security Act - provides subsidized food grains to approximately two thirds of the country's 1.2 billion people.
2017	**Pradhan Mantri Matru Vandana Yojana (PMVVY)**- As a part of the National Food Security Act of 2013, the Maternity Benefit Program has been implemented in all regions of the country starting January 1, 2017, titled as PMMVY. This scheme is covered under the ICDS umbrella and is a maternity cash incentive scheme for pregnant and lactating women to provide conditions for safe delivery and nutrition practices.
2018	**POSHAN Abhiyaan** - India's flagship program to improve nutrition through inter sectoral convergence - technology and community mobilization. *Anemia Mukht Bharat* strategy launched.
2020	**POSHAN 2.0** - POSHAN Abhiyaan was merged with existing supplementary nutrition program. Region specific diet charts were introduced for pregnant women by National Institute of Nutrition.

In India, schemes for maternal and child health are mostly implemented through the flagship programmes of two ministries:

i.   The Ministry of Women and Child Development's ICDS programme.

ii.   The Ministry of Health and Family Welfare provides micronutrient supplements (IF and Calcium), deworming tablets, weight gain monitoring, and nutrition advice to pregnant women as part of their antenatal care.

Janani Suraksha Yojana (JSY) - The NRHM's JSY aims to reduce maternal and infant mortality by promoting institutional delivery among pregnant women. It also offers performance-based incentives to ASHA who promote institutional delivery among pregnant women. Eligible pregnant women can get JSY benefits straight into their bank accounts. In April 2005, the JSY was started by amending the National Maternity Benefit Scheme (NMBS). Pregnant BPL women who have reached the age of 19 were eligible for financial support up to two live births

under the NMBS. All BPL/SC/ST women are entitled for cash assistance in accredited private institutions in all states.

Pradhan Mantri Surakshit Matritva Abhivan (PMSMA) -Janani-Shishu Suraksha Karyakaram (JSSK) – JSSK was launched to eliminate out-of-pocket payments for pregnant women and unwell newborns seeking treatment at a public health facility in 2011. It provides free drugs, free diagnostics, free blood and diet, free transport from home to institution, between facilities in case of a referral and drop back home to pregnant women. To identify and follow-up high-risk pregnancies under POSHAN Abhiyan, red stickers have been included to the Mother and Child Protection Card of high risk women under this programme. A mobile/web-based application has been designed to help pregnant women find their nearest PMSMA facility.

Rashtriya Bal Swasthya Karkyakram (RBSK) - It aims early detection and intervention for children aged newborn to 18 years, covering the four 'D's: *Birth Defects, Deficiencies, Diseases, and Developmental Delays including Disability*. The first stage of screening is carried out by current Medical Officers, Staff Nurses, and ANMs at all delivery points. ASHA will screen newborns at home after 48 hours and up to 6 weeks as part of the Home Based New-born Care (HBNC) programme. Dedicated Mobile Health teams will conduct outreach screenings for children aged 6 weeks to 6 years at Anganwadi Centres and for children aged 6 to 18 years at schools. After examination and referral from any of these points of identification, the necessary treatment is provided to the family at no cost.

Household Air Pollution – As per NFHS-5, 14 States/UTs have less than 50% of the households using clean fuel for cooking which a major cause of chronic obstructive pulmonary disease (COPD) and ischaemic heart diseases. In 2016, the Pradhan Mantri Ujiwala Yojana (PMUY) was launched to provide LPG connections to the entire nation by 2019. The scheme also complemented the Prime Minister's 'Give It Up' campaign which encourages voluntary surrender of the cooking gas subsidy by those who can afford to pay the market price for LPG. The same can be complemented with strategies for enhancing awareness about the health impact of traditional biomass chulhas, deploying agri-and forest-based biomass in a clean and efficient manner, focusing on aspects of kitchen design and ventilation, streamlining subsidies for cooking energy with better targeting of consumers and leveraging alternate financing solutions.

The Road Ahead: Three main areas have been identified -

i. Policy Strengthening:

   a. Adopting and adapting evidence-based success stories in regions needing more support: The government must open up opportunities for innovation where more action is needed. E.g., home-based newborn care program, ideas to promote exclusive breastfeeding for 6 months, maximize deworming and immunization, reduce consumption of unhealthy ultra-processed foods high in fats, sugars, and salt.

   b. Using financial levers for maximum impact: Enable access to healthy and sustainably-produced foods to all sections of society through the alignment of subsidies, taxes, incentives and reviewing policies targeting food environments. E.g., Mexico's increased taxation on sugar sweetened beverages led to a drop in its consumption and is bound to have positive impacts on health outcomes especially obesity and type 2 diabetes.

c. Restricting advertising and marketing of unhealthy and unsustainable foods targeted towards children, youth, and other vulnerable groups: especially the food advertisements in apps, social media, and video blogs.

d. Applying effective and efficient food labelling laws and regulations: A simplified pro-health positive labelling mechanism is required. Packaged food in India has been ranked lowest in terms of its healthiness in a major global survey of packaged foods and drinks.

e. Push for agricultural policies emphasizing quality, nutritious and sustainable food production practices rather than concentrating only on producing greater quantities of food: A lot of tribal populations have switched majorly to wheat and rice from the public distribution system (PDS) and rate of NCDs (like diabetes, hypertension, heart problems) have gone up in these populations too.

f. Urgently investing in public policies and innovations that will reduce food loss and food waste: Food production is responsible for up to 30% of global GHG emissions and 70% of freshwater use. Important international conventions/organizations such as the Convention on Biological Diversity (CBD), the Ramsar Convention on Wetlands and the WHO have all endorsed that policy agendas of health promotion, climate change adaptation and biodiversity conservation need to be aligned for effective action.

ii.   Address Logistic Challenges:

a. Convergence and coordination still remains a huge challenge amongst Union Ministries and departments.

b. Vacancies and manpower: Problems in health supplies, cold chain maintenance, manpower, reaching migrant workers, etc. are often reported.

c. Fund utilization: While many States report underutilization of funds under designated nutrition activities, others report a shortage of supplies, etc.

d. Better planning and maximal use of data being collected under national programs and schemes.

e. Improved monitoring and surveillance with use of technology must be effectively implemented.

iii.   Improve Education, Research, and their Dissemination:

a. Encourage research to create an evidence base of systemic drivers and actions, including indigenous and traditional approaches to health and wellbeing.

b. Youth ambassadors and messengers can be India's influencers across the country and globally too.

c. Healthy and sustainable food education should be embedded into national school curricula.

d. Ensure capacity building mechanisms - All certified nutrition and health professionals working in the field must have a demonstrable level of competence in public nutrition.

e. Create platforms to work collaboratively on all forms of malnutrition. This can be promoted by multi-disciplinary teams working on a common nutrition problems like anemia, poor breastfeeding rates, etc.

3.   E-HEALTH SERVICES AND TECHNOLOGY INTERVENTIONS

Introduction: e-Health can be described as the delivery of healthcare services using electronic information and communication technologies provided in a setting where healthcare providers and patients are not indirectly in contact through electronic means. It consists of different electronic health data exchange such as:

- **Telemedicine:** Telemedicine also referred to as telehealth, can be described as the remote delivery of healthcare services including medical examinations and consultations using telecommunication services.

- **mHealth (mobile health):** It refers to the practice of medicine and welfare using mobile smart devices.

- **Electronic Health Records (EHR):** EHR is systemised online repository of medical records of a patient stored electronically that can be accessed across multiple formats, facilitating continuity among different healthcare providers, affordability of service, and a better decision support system.

- **Wearable Sensors:** Wearable sensors refer to the health monitors which help in tracking an individual's body functions like heart rate, sleep quality, oxygen levels, etc. These can play a key role in providing up to date monitoring of high-risk patients.

The World Health Organisation defines three key areas of e-Health as:

i.   Delivery of health information and records, for both the professionals as well as the consumers.

ii.   Using the power of information technology and e-commerce platforms to improve the public health infrastructure.

iii. Use of e-commerce and -business practices in health management systems.

Advantages:

- **Efficiency:** Using modern technology within healthcare enables professionals to reduce inefficiency, save time and accurately diagnose and treat diseases.

- **Reduction in cost:** More efficient treatments, e.g., dodging duplicative assessment through improved communications between healthcare providers, and EHR, lead to reduction in cost.

- **Empowerment:** e-Health services enable both the consumers and healthcare providers to feel more empowered by making available the knowledge base of medical data and health records over the internet.

- **Better relations:** e-Health services can enable better relations between the patient and the expert since it provides clear and easier channels of communication.

- **Equity:** It enables equitable healthcare access irrespective of age, race, gender, ethnicity, geography, etc. Digital health also enables access of better healthcare facilities to remote locations.

- **Education:** e-Health services are beneficial for educating healthcare professionals of any medical advancements and consumers about personalised preventive healthcare.

- **Faster decision making:** With the advent of decision-making software and increased automation, decision making in medical situations have become much faster and more efficient.

Trends in Digital Health

- **Smartphones:** These devices can be used to effectively operate digital technology to support healthcare facilities, address the growing health concerns and support the use of m-health services.

- **Big Data:** Big data can lower rate of medication errors.

- **Virtual Reality:** Virtual Reality is providing support in treating anxiety, post-traumatic stress and stroke, and can play a major role in complicated surgeries.

- **Wearables:** Same as above

- **Artificial Intelligence (AI):** The power of AI can be seen in areas such as precision medicine, medical imaging, drug discovery and genomics. Additionally, the use of chatbots and virtual assistants shall see a sharp increase in the times to come.

- **Blockchain:** This technology is being used to create digital versions of medical charts.

Steps Taken By the Government

- Among the first steps taken by the GoI was establishing the National eHealth Authority (NeHA) in 2015 that would serve as a promotional, regulatory and standards-setting organisation in the health sector with a goal to enable the organisation, management and provision of effective people-centred health services to all in an efficient, cost-effective and transparent manner.

- The MoHFW, through a comprehensive nation-wide e-health programme, hopes to address the gap in human resource and ensure efficiency, improve patient safety through access to medical records, reduce healthcare cost, improve training and capacity building, and aid in evidence-based planning and decision making. To this end, the ministry outlined various initiatives in the National Health Policy, 2017 that aim to deploy digital tools achieve the same.

- Standards for EHR have been determined and notified in December 2016. The guidelines for their interoperability and exchange were determined and notified by the Ministry of Electronics and Information Technology in 2018 under which all public and private health facilities have been issued a National Identification Number (NIN). So far, 99% of public health facilities in India have been allocated an NIN.

- A Hospital Information System (HIS) is being implemented for computerised registration and capturing or patients' EHRs. These centralised digital repositories are easily accessible to individual patients too on a single online personal medical record storage platform which can be shared with physicians at ease thereby improving efficiency and delivery of services to patients.

- The MoHFW has also implemented a framework for the National Health Stack (NHS) that has recommended a National Digital Health Blueprint which details a pathway for the holistic adoption of digital technologies based on global best practices. Key features of the blueprint include a Federated Architecture, Unique Health ID (UHID), privacy and consent management, national portability, EHR, applicable standards and regulations, health analytics and above all, multiple access channels like Call Centre, Digital Health India portal and MyHealth App.

- Telemedicine is a key component of digital healthcare considering the growth of telephone/ smart phone subscribers in India. A survey by Indian health-tech company Practo revealed that India witnessed a 67% decline in in-person doctor visits and a 500% growth in online medical consultations just between 1st March 2020 and 31 May 2020 during the pandemic.

  o To facilitate greater adoption of telemedicine, the government has undertaken the implementation of the National Telemedicine Network (NTN) that provides telemedicine services to the country's most remote areas by upgrading existing government healthcare facilities in all states.

  o The GoI also manages the eSanjeevani portal, a doctor-to-patient telemedicine system under Ayushman Bharat Scheme. Through eSanjeevani OPD (Outpatient Delivery), any individual may seek medical advice and medication through audio and video.

- The MoHFW has launched a website to monitor HWCs. For LaQshya ref Page 3.

- The National Health Portal (NHP) aims to improve health literacy, improve access to health services, decrease burden of diseases through awareness by serving as a single point of access for consolidated healthcare related information for Indian citizens.

- Other ministry initiatives include a programme that makes informative calls about safe motherhood and natal care to beneficiaries, a website dedicated to mental health awareness, an emergency medical response website, and a website that facilitates the collection, collation, transmission, analysis and feedback of India's vaccine safe data from the country's peripheries.

Examples of Success: Developed in a record 21 days, the AarogyaSetu app quickly became the most downloaded COVID-19 tracking app in the world. The app continued to serve by checking for the availability of and registering for COVID-19 vaccines.

4. ATAL INNOVATION MISSION : SUCCESS STORIES OF INCUBATION CENTERS

- **CloudSpital Private Ltd.** is a platform manufacturer which aggregates doctors and hospitals. The platform provides self-check-up, free workout, diet and lifestyle plans, focuses over school health and hygiene management and also aims to generate employment for Trained Nursing Staffs. The recent Paediatrics ICU (PICU) digitalisation project of Bihar Government is done by Cloudspital in association with AIIMS. Cloudspital telemedicine project is running under the guidance of AIIMS, Patna. In 2020, they developed "*a remote stethoscope*" which can operate in real-time scenario, and it can be connected to a normal mobile device. Even in areas with no internet connectivity the heart oscillation can be heard on a voice call.

- **Thermaissance -** Thermaissance's mission is to reduce the healthcare-associated and community-acquired infections. The start-up has developed nanotechnology-based textiles that has been scientifically tested in various ISO certified laboratories and can successfully inactivate various viruses including Corona virus , bacteria and fungi. *The technology works 24/7 by disrupting the membrane of viruses and bacteria, eventually killing them by hindering their ability to thrive.* The start-up uses these fabrics to make various medical textiles such as scrubs, gowns, patient clothing, lab-coats, masks, gloves, head caps, reusable PPEs, reusable coveralls, etc. Further, the textiles are certified as non-toxic, fire resistant and safe to use, skin friendly and provide day-long comfort to the wearer. Their products are reusable, recyclable and non-toxic. These can reduce the solid waste generation by over 99 percent and carbon emission by over 63 percent vis-à-vis disposables.

- **Edith Robotics Solutions LLP -** The start-up has developed isolation pods for infection control. Patients infected with infectious diseases or immune-compromised patients can be isolated within negative/ positive pressure chamber and patients' exhale is filtered and sterilised before mixing up with the air in the environment to prevent the spread of any airborne virus/bacteria/fungi, by providing biosafety level 4 protection at healthcare facilities. Its advantages include treatment of multiple infection patients at same place, low cost and portable negative pressure chamber with filtration and sterilisation to provide healthcare facilities in rural area. It is India's first individual patient isolation solution for healthcare facilities.

- **TickTalkTo -** For people facing emotional difficulties, TickTalkTo is a mobile-based platform that connects them with mental health experts. Mental health is three-pronged challenge -

- Firstly, there is a huge mental illness burden. TickTalkTo leverages technology to provide telepsychology platform which can improve access to mental healthcare at scale.

- Secondly, there is a grossly inadequate mental healthcare support structure. TickTalkTo is able to increase efficiency of existing practitioners by automating mechanical tasks. In addition, the platform also generates flexible livelihood opportunities for skilled mental healthcare workers workforce.

- Finally, the uptake of mental health services is very low on account of lack of awareness, access, affordability; and stigma. TickTalkTo improves access and affordability to mental healthcare in a stigma-free safe space.

- **Rises Analytics Solutions Private Limited -** RISES is working on AI healthcare solutions for timely medical intervention and to extend diagnostic decision support to healthcare professionals with innovative technology-TRAP (Treatment Response Assessment and Predictions). In case of COVID-19, it helps in finding the co-morbidity, risk score and other pulmonary disorders using patient data along with modalities like x-ray and CT scan.

- **Acupace Technologies Private Limited –**

- Its product acuCLEAN focuses on sanitization by inactivating the microorganisms such as viruses, moulds, bacteria, and various other pathogens.

- The IoT healthcare-based product, smart insole is digital and is helpful for the millions of people suffering from memory impairment which can be caused by Alzheimer's disease, Dementia, Autism, etc.

- **Perkant Tech Private Limited -** It has developed and designed first ever multi-diseases prognosis system "**Abhay Parimiti**", that can detect many diseases with just a 20 second finger placement including Hypertension, Diabetes, COVID-19, COPD, CKD and many other respiratory and cardiac diseases. It is indigenous and patented.

- **Agatsa Software Private Limited -** Its AI and IoT driven platform called "SanketLife" has a series of affordable, made in India, pocket-sized devices that can perform complete medical grade 12-Lead ECG tests and also offer multi-parameter monitoring range of devices (BP. Sp02, temperature).

- **Ubigare Health –** It's a health startup whose **mobility-Healthcare-as-a-Service(m-HaaS)** platform enables specialists and hospitals to deliver specially follow-up care to post-acute and chronically ill patients at home especially to remote patients.

- **Redspectra Instruments Private Limited –** It is involved in R&D and manufacturing of AI based Spectroscopic Probiotic Beverage Fermentation, reducing the time of fermentation without compromising quality. It is also involved in manufacturing of Pro-Biotic Beverages and *Intelligent Tapping System (Beverage Dispenser + spectroscopy + AI)*, to dispense the beverage with antioxidants, vitamins, living good bacteria, yeast and without any preservatives which is affordable and immunity boosting.

5. YOGA & GOOD HEALTH

History: It was revealed by Patanjali, a great Indian sage, over 2000 years ago in the classic text known as *Yoga Sutras*. Patanjali defined Yoga as "the cessation of the movements of consciousness". Yoga experts recommend that the concept of yogic diet-'Ahara'.

Timeline:

- The United Nations on December 11, 2014 proclaimed June 21 as International Yoga Day. June 21 is the Summer Solstice and the longest day of the year in the Northern Hemisphere.

- More than 1 crore people around the world took part in the Global Surya Namaskar programme on Makar Sankranti on January 14, 2022. The Surya Namaskar or sun salutation is a set of 12 asanas performed with

coordination of the body and mind. The Ministry of AYUSH launched 75 crore Surya Namaskar Initiative in line with the commemoration of 75 years of India's independence, 'Azadi ka Amrit Mahotsav'.

Benefits:

- A study conducted by doctors of AIIMS in 2020 found that yoga can reduce not just migraine but even lower treatment cost of the disease.

- Yoga can also contribute to treatment of epilepsy.

- Peptic ulcer can be managed with naturopathy and Yoga, without any side-effects.

- Pranayamas like *Nadhishuddhi* pranayama (alternate nostril breathing), *Shitali*, *Shitakari* (cooling pranayamas) can help to reduce the abdominal burning sensation, pain, and enhance the recovery by relieving acute and chronic stress.

- Thyroid problems can be eradicated with Kapalbhati, Sarvaangasan, Ujjal Pranayam and Bhujangasan.

- Diabetics can do Mandook Aasan, Shashakasan, Yogmudrasan, gomukhasan, anulom-vilom, kapalbahati.

- Women with gynecological problems can do Shashakasan, Kandrasan, Naukasan, Dhanurasan, Kapalbhati, anulom-vilom, Bhastrika among others.

- Patients with back ache are prescribed Markatasan and Bhujangasan.

Further: The AYUSH Ministry has launched the 'Namaste Yoga' App to help people find Yoga teachers. The App is an information platform for those looking for Yoga centres, events and trainers. It has also launched the 'Yoga break' App, a mobile app to enable professionals de-stress at workplace.

6. NATIONAL FAMILY HEALTH SURVEY (NFHS) - 5

Factsheet of key indicators on population, reproductive and child health, family welfare, nutrition and others for 14 States/UTs of India (clubbed under Phase-II) of the 2019-21 NFHS-5

- The Total Fertility Rates (TFR), an average number of children per women has further declined from 2.2 to 2.0 at the national level. All Phase-II States have achieved replacement level of fertility (2.1) except Madhya Pradesh, Rajasthan, Jharkhand and UP. Manipur (2.2), Meghalaya (2.9) and Bihar (3.0) having a TFR above replacement levels.

- Overall Contraceptive Prevalence Rate (CPR) has increased substantially from 54 percent to 67 percent at all-India level with an exception of Punjab.

- The unmet need for spacing has come down to less than 10 percent in all the States except Jharkhand, Arunachal Pradesh and Uttar Pradesh.

- Full immunisation drive among children aged 12-23 months has recorded substantial improvement to 76 percent at all-India level and it is highest (90 percent) for Odisha owing to 'Mission Indradhanush' launched by the government since 2015.

- Institutional births have increased substantially to 89 percent at all-India Level. Institutional delivery is 100 percent in Puducherry and Tamil Nadu. There has also been a substantial increase in C-section deliveries in many States/UTs especially in private health facilities.

- Child Nutrition indicators haven't improved significantly at all-India level as Stunting has declined from 38 percent to 36 per cent, wasting from 21 percent to 19 percent and underweight from 36 per cent to 32 percent at all India level. Drastic changes in respect of these indicators are unlikely in short span period.

- More than half of the children and women (including pregnant women) are anaemic in all the phase-II States/UTs and all-India level.

- Exclusive breastfeeding to children under age 6 months has shown an improvement in all-India level to 64 per cent in 2019-21.

- Women empowerment indicators portray considerable improvement in regard to women operating bank accounts is 79 percent at all-India level.

7. MAKE IN INDIA

It is being implemented by Ministry of Commerce and Industry focusing on 25 sectors including automobiles, aviation, biotechnology, defence manufacturing, etc. A keystone of Make India is the Production Linked Incentive (PLI) scheme. The aim is to create a robust manufacturing sector by not only inviting foreign companies to set up operations in India but also enhance India's exports and manufacturing capabilities for high-quality, competitive products. Both these initiatives also aim to improve India's rank on the Ease of Doing Business index by eliminating unnecessary laws and regulations, making bureaucratic processes easier, and making the government more transparent, responsive and accountable.

Highlights:

- India is now 4th amongst the world's most attractive investment destination. India remains an attractive destination for FDI on account of healthy prospects of economic growth and its skilled workforce

- According to UN, India is forecast to becoming the fastest-growing major economy in the world in 2022.

- India ranks among the top 50 nations in the latest 2021 edition of the Global Innovation Index (GII).

- India has held onto its position as the world's 7th most valuable nation brand.

- India maintained 43rd rank on an annual World Competitiveness Index compiled by the Institute for Management Development (IMD) that examined the impact of COVID-19 on economies around the world this year.

Major Sectoral Success Stories of Make in India

› **Defence**:

o Big defence projects currently being pursued under Make in India include the Light Combat Aircraft Tejas, transport aircraft C-295 (to be manufactured by Tata-Airbus, deal with the government in final stages), and the AK-203 rifles (to be made in India as part of a joint venture between the Ordnance Factory Board, Kalashnikov Concern, and Rosoboron export, the Russian state agency for military exports).

o iDEX is a defence ministry initiative to encourage start-ups.

o The Defence Acquisition Procedure 2020, prioritises capital acquisitions from domestic players over foreign ones.

o The INS Visakhapatnam, one of the four stealth guided-missile destroyer ships under Project 15B, has been indigenously manufactured by the Mazagon Dock Shipbuilders.

o Boeing announced setting up a factory to assemble fighter planes, either the Apache or Chinook defence helicopter in India, and to manufacture of the F/A-18 Super Hornet.

› **Manufacturing:**

o The manufacturing sector is expected to contribute about 25% to India's GDP by 2025. As per the World Bank, manufacturing contributed about 16 percent to the country's GDP in 2016 which is high compared with the global average of about 15 percent in 2015.

o Samsung recently started manufacturing mobile display panels at its Noida.

o Taiwanese Apple supplier Foxconn will start to assemble the iPhone 12 in India, marking the first time the flagship device has been made outside of China.

› **Automobiles:**

o The Indian automotive industry is the fifth largest in the world and is slated to be the third largest by 2030. The policymakers are developing a mobility option that is "Shared, Connected, and Electric" and have projected an ambitious target of achieving 100% electrification by 2030.

o To boost Electric Vehicles in India, the FAME India Scheme is proposed to be implemented over a period of 3 years for faster adoption of electric vehicles in the country. 100 percent FDI has been allowed in the electric vehicle industry in India.

o Kia established its first manufacturing plant in India in Anantapur, Andhra Pradesh.

o American company Tesla Inc. has entered into India by incorporating its subsidiary, Tesla India Motors and Energy Pvt Ltd, in Bengaluru.

o Ather Energy is India's first intelligence EV manufacturer.

o In March 2021, Ola Electric, the subsidiary of the unicorn Indian ride-hailing start-up announced that it would be setting up the world's largest electric scooter plant in Hosur, near Bengaluru.

› **Renewables:** India aims to achieve 40% of installed power generation capacity from non-fossil fuel sources and reduce emission intensity of GDP by 33-35% by 2030 from 2005 level. India submitted its Intended Nationally Determined Contribution (INDC) to the UNFCCC, on its goal of installing 175 gigawatts (GW) of renewable power capacity by 2022 by setting a new target to increase the country's share of non-fossil-based installed electric capacity to 40 percent by 2030.

› **Pharmaceuticals:** Indian pharmaceutical sector supplies over 50 percent of global demand for various vaccines. Globally, India ranks 3rd in terms of pharmaceutical production by volume and 14th by value.