

DIGITAL HEALTH SYMPOSIUM

ON
ADVANCING, DIGITAL
HEALTHCARE, MANAGEMENT,
INNOVATION, RESEARCH AND
ENTREPRENEURSHIP
ADMIRE

A DIGITAL HEALTHCARE INITIATIVE BY
IHMR BANGALORE



26 November 2022
9:30 AM to 4:30 PM



The Chancery Pavilion
Bangalore

OUR KNOWLEDGE PARTNERS



Executive Summary

Times are changing and healthcare industry is getting smarter than it was ever. Artificial intelligence, Machine Learning, Big Data, Internet of Things, Telemedicine, Robotics & Wearables are the new hands and brains in healthcare enabling the fundamental shift in the way healthcare is delivered and the way outcomes are measured. While the digital technology is disrupting healthcare industry, there is an increasing pressure to perform and sustain while facing a continuous challenge of assimilating the right technology at the right place, for the right use to serve the new age of tech-savvy patients.

IIHMR Bangalore organised a **Digital Health Symposium** for healthcare professionals, healthcare administration students, aspirants of healthcare industry and launched Centre for 'Advancing Digital Healthcare, Management, Innovation, Research and Entrepreneurship (ADMIRE)'. The symposium focused on the transition enabled by technology, challenges, strategies to move from conventional to digital healthcare enterprise and new job roles in the sector.

Digital health symposium was held on 26th NOVEMBER 2022 at The Chancery Pavilion, Bangalore. Event started at 9:30 AM and inaugurated by Dr. S D Gupta Trusty Secretary IIHMR Society, Prof. S Sadagopan Former Director IIIT-B, Dr. C S Kedar IAS (Retd.) Former Director General ESIC and Dr. Usha Manjunath Prof. & Director IIHMR-Bangalore. Event continued with Technical Session on various themes which include Digital Health Transformation, Strategies for Sustaining and Managing Digital Health Advancements, Managing Change in Digital Health Ecosystem and Moving Forward Academia Industry Collaboration followed by panel discussion with experts from healthcare, MedTech, Health-Tech and Pharma Industries. The symposium was attended by three hundred plus delegates includes students, healthcare professionals, experts from industries (MedTech, Health-tech and Pharma) and academicians.

Symposium had a special event called Start-Up Mela, which involved Digital Health exhibitors. It was a platform for many startups to showcase their products and services in advancing digital healthcare services, mela included companies like Autoyos, Renalyx, EMIDS, IIHMR-B and also government digital health initiatives were showcased by Health and Family Welfare Services Government of Karnataka and Employees' State Insurance Corporation (ESIC) Government of India. The digital health exhibition covered areas of Telemedicine, AI ML powered Non-invasive diagnosis devices in Orthopaedic and Ophthalmology, advanced device in Nephrology and other digital healthcare products like open source EMR & EHR, sensor based robots to assist healthcare services etc.

When symposium was running with wonderful technical sessions and digital exhibition, there was extraordinary event was presented by IIHMR-Bangalore which was launch of **Centre for 'Advancing Digital Healthcare, Management, Innovation, Research and Entrepreneurship (ADMIRE)'**. Centre for ADMIRE was launched by a Special Guest Sri. Randeep D, Commissioner Health and Family Welfare Services, Government of Karnataka and Congratulated the launch through sending letter by Hon'ble Chief Minister Sri Basavaraj Bommai and accompanied by Dr. S D Gupta Trusty Secretary IIHMR Society, Prof. S Sadagopan Former Director IIIT-B, Dr. C S Kedar IAS (Retd.) Former Director General ESIC and Dr. Usha Manjunath Prof. & Director IIHMR-Bangalore.

Symposium also had a platform for digital Health poster presentation, where ten plus posters were presented by students & healthcare professionals. Best three posters were awarded and encouraged presenters to further innovate and improve in the area of digital healthcare transformation. IIHMR-Bangalore also recognised and felicitated the Alumni Entrepreneurs.

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I. Genesis of ADMIRE

Centre for Advancing Digital Healthcare

IIHMR, Bangalore is a premier Institute for Hospital and Health management education in South India. Our motive is to create positive impact in the dynamic health sector through knowledge creation, capacity development and management research. We are constantly striving to impart best practices in healthcare management profession to our participants with our training programmes.

As we are entering a new era of digitalization and entrepreneurship, the digital age has entered the healthcare industry. COVID-19 has rapidly accelerated the adoption of digital technologies in healthcare to help keep up with evolving organizational and patient needs. Furthermore, organizations face increasing pressure to offer digital or digitally enhanced tools and services. To stay competitive, new strategies and ways of working are necessary.

IIHMR-Bangalore launched a unique platform called Centre for 'Advancing Digital Healthcare, Management, Innovation, Research and Entrepreneurship (ADMIRE)'. The Centre for ADMIRE's area of focus are Digital Health Education, Research, Innovation & Entrepreneurship and Simulation Lab.

Centre for ADMIRE aim to develop advance trainings programs in Pharma Analytics, IT, Bioinformatics space for industry professionals, digital healthcare space for industry, Promote syndicated research initiatives in Digital Healthcare services including Telemedicine, AI based Biomedical Devices, Clinical Research, Database Management, digital health and business transformation and Collaborate with industry leaders, Healthcare Providers, Department of Health, Medical Education and Pharma to bring onboard the intellectual capabilities and promote startups Incubation and entrepreneurship. Also it plans to skilling and upskilling of healthcare professionals on different areas through simulation lab.

Idea behind the launch of Centre for ADMIRE is to develop a unique platform to promote advance education, research, and innovation in digital healthcare and develop a range of executive education training programs for industry professionals in various Digital healthcare domains.

The need for action is more urgent than ever, Centre for ADMIRE enables coaching & mentorship to accelerate the development and growth of student entrepreneurs, early-stage start-ups, co-operatives, and small businesses focused on digitalization of healthcare in collaboration with Industry partners, also plot to create foster simulation-based learning platforms for skilling and upskilling of healthcare personnel.

IIHMR-Bangalore, Centre for ADMIRE achieves its goal by Collaborating with Universities, hospitals, healthcare organizations, start-ups, MedTech and health-tech companies in India and abroad.

IIHMR-Bangalore, Centre for ADMIRE plans to collaborate with different state government to enhance skills of healthcare professionals into skilled digital healthcare personnel.

The goals of the Digital Health Symposium include bringing together the stakeholders from all sectors, strengthening international cooperation, finding answers to major health challenges, facilitating constructive conversation, and setting digital healthcare agendas.



II. Inauguration of Centre for Advancing Digital Healthcare, Management, Innovation, Research & Entrepreneurship



Inauguration light lamp (above picture) followed by Digital Launch of Centre for 'Advancing Digital Healthcare, Management, Innovation, Research and Entrepreneurship (ADMIRE)' by Sri. Randeep D IAS, Commissioner Health and Family Welfare Services, Government of Karnataka (Middle) followed by Prof. S Sadagopan Former Director IIIT-B (towards Left), Dr. S D Gupta Trusty Secretary IIHMR Society (Left Corner) Dr. C S Kedar IAS (Retd.) Former Director General ESIC (towards right), and Dr. Usha Manjunath Director IIHMR-Bangalore (Right Corner) Pic 01.



Welcome Address



Dr. Usha Manjunath

Professor & Director IIHMR-Bangalore

centre for excellence, promoting & advancing digital health, management, innovation, research, and entrepreneurship. Centre for ADMIRE will focus on addressing the challenges of research, data validation, data quality, ethical reviews, testing and marketing options of emerging digital health technologies to support startups. She also mentioned centre for ADMIRE plans to bring research & education into incubation space with simulation lab and allowing innovation & entrepreneurship to flourish along with capacity building, skilling, and upskilling of the healthcare sector personnels.

Dr. Usha Manjunath, Prof. & Director IIHMR-Bangalore, opened the welcome address speech with a beautiful quote "Logic will get you to A to B, and imagination will get you everywhere",. She informed that IIHMR-B is here today for launching Centre for ADMIRE.

She also introduced IIHMR-Bangalore and its flagship PGDM courses, Research Projects, Learning & Development programmes, accreditation & Collaborations to the delegates of Digital Health Symposium.

She revealed that the IIHMR-Bangalore ADMIRE will be

Setting up the Context on Centre for ADMIRE



S D Gupta

Trustee Secretary

Indian Institute of Health Management Research
University (IIHMR)

He also said at the time of establishing IIHMR-Bangalore in 2004 the purpose was to educate & train on digital health but somehow it was unable to bring information technology friends & healthcare friends together. Now after 18 years we have broken the ground and this symposium is the testimonial of togetherness. Centre for ADMIRE initiate is not only to educate and train healthcare professionals on digital health information technology, but also to educate and train information technology professionals on healthcare. this will be a platform to bring IT professionals & healthcare professionals to achieve universal health coverage & larger sustainable development goals with digital health solution.

Dr. S D Gupta started off by welcoming the dignitaries and gathering at the event. He mentioned launch of IIHMR-Bangalore centre for ADMIRE is truly a world class beginning of a very important transformation process of Healthcare in to Digital Healthcare.

He briefed about history of IIHMR University. Idea behind establishment of IIHMR was to improve efficiency, impact and to enhance standard of healthcare. Focus area of IIHMR in 1980s was "Health Management", and meant ahead to create and set agenda for policy in healthcare & development.

He smiles and says "he & his team had never imagined when they had designed the program that students would totally transform the management of healthcare and now it has happened and we are proud of it".

Keynote Speech



PROF. S. Sadagopan

Distinguished Visiting Professor, IIMR-Bangalore &
Former Director IIT-B

Prof. S Sadagopan started his speech by Upanishad quote “Namah Sadasayai Namah Sadasaspatayai” meaning greeting & welcome to delegates & audience and to dignitaries on dais. He said year and half ago post his retirement, Dr. C S Kedar and Dr. S D Gupta met him in his office and said “lets do something together”. He quotes “this day will be marked in gold in the history of country”.

He says we the IT guys, started digitization with photographs and much more, but two very important areas digitisation of Education and Healthcare and we have been attending it from very long time but with disastrous way. He says all the digitisation in the area of education and healthcare was a demo and it never became real, and it became real in a completely unexpected way called Covid 19 but these are only tips of ice burg. He mentioned we are going to digitalise end to end in next 2 to 3 decades.

He said “we engineers go to doctor only when he is unwell same way a doctor says engineers are good but not good for our work”, so to make doctors and engineers work together we have built Centre for ADMIRE. He say, we expect to do through ADMIRE is, we will teach surtain things, make you experience and also we will tell you some tricks but more important we will create much more opportunities both for grownups and as well as for startups. At last he says we would get Saraswathi, Lakshmi & Shakthi in one place, where Saraswathi means Digital, Lakshmi means Health and Shakthi means Care.

Thoughts from Special Guest on Digitalization of Healthcare

He began his speech saying “no bars on earth can stop an idea whose time has come, I think digital healthcare time had come long back, but somehow government sector took own time to converge the efforts. Secondly, even private space, while did see innovations in digital healthcare, they largely existed in silos.

He says what has changed in the last few years has been the thought process of how we could converge all the efforts and bring it on a common platform. He said Karnataka probably have the largest number of health facilities approximately 400 plus under a common HMI system, and it is supported by home grown NIC team who very well adopted and integrated HIMS in State.

He also mentioned Karnataka probably stands second in Nation for largest number of teleconsultations. Now Karnataka is trying to push to create ABHA amongst individuals and tried to register hospitals under the health facility registry and provide unique ID to all healthcare professionals to identify themselves on digital platform.



Sri. Randeep D IAS

**Commissioner, Health and Family Welfare Services
Government of Karnataka**

He said using the platforms like Centre of ADMIRE to create innovative products & ideas is encouraged by Government and he is ready to support in the means in creating bridge between the gaps in digital healthcare.

Launch Closure Speech



Dr. C S Kedar IAS (Retd.)
Former Director General ESIC
Senior Advisor, IIHMR-Bangalore

Dr. C S Kedar started his speech with a funny dialogue "First time in my life I am trying to do something called vote of thanks". He praised Sri. Randeep D IAS, Commissioner, HFWS Karnataka, for his support, proactiveness and interest in new innovation in healthcare.

He mentioned about the challenges faced in getting ethical clearance for research, data collection, data analysis and validation, he said all the challenges now can be addressed by IIHMR-Bangalore Centre of ADMIRE through its Ethical committee which can give you worldwide recognition. He says Ethical committee is accessible to all who wants to do research, work on data collection, analysis etc., can approach Centre for ADMIRE for clearance and activities required in above said areas.

He also mentioned digitalisation of healthcare can increase the efficiency of doctors by factor of 10 and will reduce time spent on routine activities which are not critical.

He closed the session by saying, IIHMR-Bangalore Centre for ADMIRE will be one stop shop for Digital Education, Research, digital innovation, entrepreneurship, and investment for digitalisation of Healthcare in Bangalore.

III. Technical Sessions

Digital health symposium technical session themed into four different aspects focused on areas like Digital Health Transformation, Strategies for Sustaining and Managing Digital Health Advancements, Managing Change in Digital Health Ecosystem and Moving Forward Academia Industry Collaboration.

Technical sessions had ten plus individual sessions topics, addressed by industry experts & healthcare professionals. Bits of individual session topics follows.

Session Topic: Digitalisation, unleashing opportunities and bridging the gap in healthcare.



Mr. Raja Sekhar Kommu
Co-founder and chief technology officer
Karkinos Healthcare

He highlighted key determinants of the digitization of healthcare in the private and public sectors. He actively leveraged data of comprehensive analysis, the implementation of telehealth and teleconsultation, E-Sanjeevani and its applications, hype cycle for emerging digital health. He also enlightened the audience about the implication of digital tech in public health to bring transparency and how the implementation of ABDM is taking the health sector towards digitalization. He also spoke about the supply-demand mismatch and how the gap can be bridged by digitalization. he gave a quote: **“Tech for tech would not work”**.

Session Topic: Digital Health: Democratizing Health in India

He inspired the audience with his innovative **DONUT MODEL** to understand health better. He also quoted that the dream of digital health from 2000 has come to reality only during 2018- 2019. He explained that Telemedicine consultation will guide clinicians, and a portable device for checking symptoms and other technology like AI must be incorporated for accurate diagnosis, forming a **COMPLETE DIGITAL PLATFORM**. He highlighted the session with his words that though India is democratic It's still a challenge for standardized dataset collection to bring out more diagnostic models with effective interpretation.



Dr. Sathish Prasad Rath
Digital Health Scientist & Professor Aster
DM Healthcare

Session Topic: Strategies for Sustaining and Managing Digital Health Advancements



Mr. Rajarajan S
Chief Operating Officer MGM Healthcare,
Chennai

He explained the strategies for sustaining and managing digital health. He also spoke about the challenges in digital transformation and implementation, reasons to implement digitalization, and HCPs adoption. Digital transformation in CRM software and modules is being led by AI&ML at its core. The reason to implement AR, VR, &MR in surgical practice on the dummy with a detailed 3D visualization, is to provide assistance for healthcare professionals to learn and adopt the potential of emerging technology.

He further highlighted that design thinking innovation and distributions act as a catalyst in the healthcare industry. He mentioned while there are pebbles in our pathway, the need at present is to implement this new technology.

Session Topic: Redefining Healthcare with AI; An Indian Context

He explained how Redefining healthcare with AI is the way forward. His main focus was on the areas that helped explain what AI is, its uses in the telecom, what are OTT platforms, how they have supported digitalization, and what are chatbots. He also highlighted the problems in AI implementation as it is not supported by infrastructure and there is no standardization. This will lead to increased complications within the state. He further talked about HIPPA guidelines and data misuse by the end-user due to the lack of clarity in regulations on how to train AI algorithms.



Mr. Rejesh Bose K
Project Manager, Global Health Team
Qure.ai

Session Topic: Digital Health Strategy accelerated by Covid -19



Mr. Nishant Sagar

Deputy Director- Public Health Confederation of
Indian Industry (CII)
Digital Health Strategy accelerated by Covid -19

He explained the present scenario in public and private hospitals and highlighted the disruption and overburden generated by COVID on the Indian Healthcare system. He also spoke about the gaps in care and how that has led to rising in inequity, inaccessibility, higher cost, and degradation in the quality of healthcare. He went on to mention how the development of telemedicine apps, Cowin, Ayushman Bharat, Tele ICU, etc. are aiding in filling those gaps. In his talk, he highlighted how wearables like a smartwatch are very useful to us in terms of monitoring and personalizing healthcare. He emphasized that if we implement the digital transformation correctly it will improve the quality of care and make it more convenient for patients. He concluded by saying that we should provide a strong digital ecosystem for the Indian healthcare system.

Session Topic: Managing experience for tech-driven patients

Dr. Ramesh opened the talk by bringing into perspective how health is our own responsibility and how “the most expensive bed is the hospital bed”. He spoke about how the integration of quality healthcare and advanced technology is the key to delivering the dream patient journey for every individual. He further illustrated examples of Malaffi in Abu Dhabi and how it is improving healthcare with digital innovation. He shared how in his experience he has seen healthcare and digital integration evolve and make the industry better for patients. He concluded by saying that sickness is the only thing that cannot be outsourced and hence we should start taking care of our own health and live a healthier lifestyle consciously.



Dr. Karthik Ramesh

Vice President - Client Partner Provider
& Lifesciences EMIDS

Session Topic: Managing Changes-Transition to Digitalisation in Hospitals



Mr. Sunil Krishna C N

Vice president, Head- Business Transformation & ESG, Lead Key-Initiatives, Narayan Health

Mr. Sunil Kumar C N spoke about how to work differently to improve the healthcare ecosystem. He shared his experience on covid 19 and the challenges hospitals faced, such as high manual operation, limited automation, lower efficiency ratio, and too much labor. He explained how Hospitals combatted and achieved Digitalisation. He emphasized on how the change need to be worked out and need to be Focused, Targeted, and sustainable.

He Highlighted the resistance faced by hospital organizational and Individual differences. He briefed on the change models of different companies some of which are process-oriented and some patient-oriented. He believes that managers should use these strategies to initiate change. Then further monitor change to attain sustainable results. He also shared some knowledge on the change curve and how to implement a digital appointment system with a lack of acceptance can also be implemented successfully. He concluded by pointing out that change is difficult but it's important to have a convincing reason for change over time.

Session Topic: Digital Health: Democratizing Health in India

Dr. Muralikrishna introduced Triple Helix, which is open Innovation approach for Digital Health Transformation. It is focusing on the implications of IoT, Virtual & Augmented Reality, Telehealth, and Continued Innovation. He further sensitised the audience about interactions between Academia, Industry & Government. He spoke about basic concepts of design thinking and claimed that technology push is important. He also stated that to make a product for customer satisfaction specific thinking should include empathy, prototyping, designing, implementing, and validation. Dr. Muralikrishna mentioned the importance of Lean Project Management for transforming the field of Digital Healthcare and bringing data to life as well as applying Geospatial AI. He specified diagnostic, descriptive, predictive, and prescriptive data to be addressed.



Prof. Dr. Muralikrishna Iyyanki

Former Dr. Raja Ramana distinguished Fellow, DRDD & Prof., and Director (R & D) JN Technological University.

IV. Panel Discussions

Technical sessions continued with the panel discussions which included highly qualified technical and domain experts. Panel discussion had two topics which were dedicated on emerging trends & opportunities in Digital Health and reimaging healthcare with new digital concepts & tools. The panel discussion insights as follows.

Panel 1 Topic: Emerging Trends and Opportunities in Digital Health: 2022 and beyond

There was a superlative discussion on the topic of EMERGING TRENDS AND OPPORTUNITIES IN DIGITAL HEALTH: 2022 AND BEYOND. The panel discussed the enormous development in teleophthalmology and the future view of DIGITAL TWIN for every person with a personalized process of data for personalized medicine prescription and care.

Our panelist highlighted that health is not only about hospitals, but it's also an integrated healthcare unit and the success of technology is when it is applicable. For the question of what the current challenges and solutions are to mitigate,

Dr. Vasudev Rao quoted that "Healthcare is too busy to change". Mr. Praveen discussed the important facts that the digitalization of Banking and Healthcare is very slow for the past 20 years until the DEMONITISATION and COVID PANDEMIC have come into play respectively, bringing exponential progress in digital health.

The panel also discussed the trust, adaptability, patient safety of technology, and validation of apps. The panelist highlighted that the day of singularity is not too far away. The moderator prioritized the point of basic need for accurate data capture, safe data practices, and capacity building for the same.



Dr. Shyam Vasudeva Rao,
Director and Founder,
Forus Health, Renalyx, and Rx DHP



Mr. Praveen Srivatsa,
Director,
Asthrasoft Consulting



Panel Moderator - Dr. Uma Nambiar,
Managing Director,
Zeeden Life Sciences Pvt Ltd



Mr. Pankaj Srivastava,
Vice President,
Biotexus Pharma



Dr. Dileep Raman,
Co-Founder,
Cloudphysician Healthcare, Bengaluru

Panel 2 Topic: Reimagining healthcare with new digital concepts and tools



Dr. Ananth N Rao,
Chief Operating Officer,
IHH Healthcare India



Mr. U K Ananthapadmanabhan,
Director and CEO,
Tenxhealth Technologies Pvt Ltd,
Coimbatore.



Dr. Vinod Singh,
Founder and Consultant,
Hospitech Healthcare Consultancy

The panel discussed a health organization requires a preferred use for how the case requires specialized service. They discussed about triage protocols, a built-in medical database, and natural language capabilities to understand clinical terminology. Highlighting the role of digital innovations, they discussed about purpose-built chatbots and the need to equip them with the ability to securely integrate health data from Fast Healthcare Interoperability Resources (FHIR) or electronic medical records (EMR) to drive engaging interaction. The real-time medical information that is returned eliminates shifting the consumer to a medical record application. Beyond these core capabilities, consider infusing the chatbot with artificial intelligence (AI) that delivers cognitive skills that can be used to personalize and enrich the overall design.



Mr. Shafi Ahamed,
CEO,
HxCentral



Dr. Nagesh R,
Head - Medical Services,
Kauvery Hospital



Dr. Dinesh M S,
Senior Scientist,
Philips Innovation Centre, Bengaluru

V. Digital Health Exhibitors

Health Tech and MedTech India is an ideal platform for all key stakeholders associated with healthcare sector like doctors, specialist, public health officials, policy makers, medical tourism, medical insurance, hospital administrations, procurement professionals, medical institutions, medical students and medical colleges to witness the latest innovation and cutting-edge technology in the healthcare product and services, medical devices and technology, diagnostic, lab, pharma, consumables and wellness.

Digital Health Symposium “Startup Mela” created an extremely effective platform to showcase the products / services to the current & potential customers. It is also a great platform to establish and enhance foothold in the digitalization environment and to stay up to date with the global industry’s trends and technological advancements to get ahead of the competition.

There were ten plus digital health exhibitors which includes digital health initiatives from Central and State Governments, Innovative startup, MedTech & Health Tech companies, and Healthcare Management Organization. A gist of startup mela follows.



Digital Health Exhibitors



Renalyx





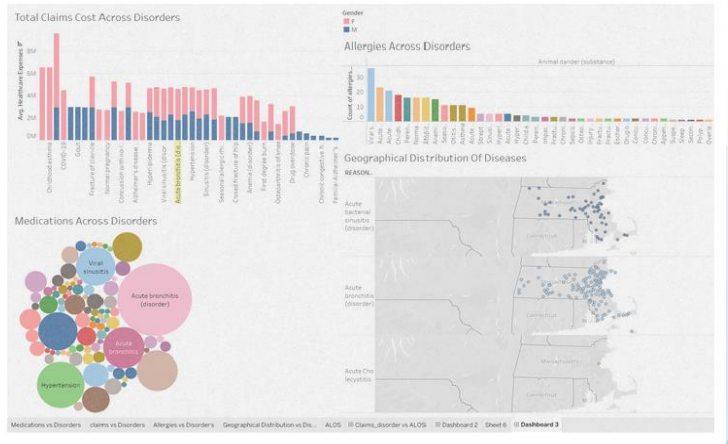
Digital Health Exhibitors Profile


INSTITUTE OF HEALTH MANAGEMENT RESEARCH BANGALORE (IIHMR-B)

IIHMR Bangalore students presented their work on Digital Health. Total of five students presented their posters during the ADMIRE Exhibition. The work was reviewed and discussed by the Commissioner Health and Family Welfare Services and Industry experts visiting the exhibition.

Dr Bhargavi and Achyut presented their work on the Open EMR using MIRTH connect, the idea was to develop a low-cost Health Management Information System using Open EMR for the health clinics. The idea was well received by the Commissioner, and he enquired if the technology can be used at PHC level for Government of Karnataka.


Dr Shiva Sai presented his work done on IOT and IQMT technology to regulate the temperature of vaccines during transportation. The work was well acknowledged by the visitors.





Theme 4: Moving Forward Academia-Industry Collaboration

Benchmarking an evidence-based curriculum for Health Informatics in India - a comparative analysis of the skills required by the jobs and skills imparted by accredited courses



INSTITUTE OF HEALTH MANAGEMENT RESEARCH
South Campus, IIHMR Group

Author details - P S Karpaga Priya, Shushruta Batka, Upasana Rajpat PGDHM Student IIHMR, Bangalore

PHASE I
Analysis of the health IT related job postings in India between August and October 2022 using Career 360 job board, naukri.com, monster.com

PHASE II
Using careers360.com as a resource, we looked through 77 educational institutions offering health care management courses throughout India

PHASE III
After analysing the job description of all 44 jobs, following skills were classified as mandatory/ required for seeking employment in health IT sector

SKILLS REQUIRED	
Quality Measurement	1
Oracle	1
Data manipulation skills	1
Data visualization	1
Communication Skills	1
Python	1
Customer centric	1
Data modelling skills	1
Microsoft office	1
Problem solving skills	1
Project management skills	1
SQL	1
Tableau	1
Product development skills	1
Decision support skills	1
Experience/knowledge in US healthcare	1
Knowledge of EMR/EHR	1
Health information system knowledge	1
Biomedical/clinical experience	1
JAVA	1

RESULTS
Descriptive Analysis of Job Postings

VARIABLES ASSESSED		N=44
Job Categories		
Analyst		23 (53%)
Research analyst		3 (7%)
Expert		2 (4%)
Knowledge management associate		1 (2%)
Associate manager		5 (11%)
Manager		4 (9%)
Consultant		3 (6%)
Quality control executive		1 (2%)
Data scientist		2 (4%)
Hiring organization type		
Health system		12 (27%)
Consultancy		8 (18%)
IT service management		18 (40%)
Pharmacy		2 (4%)
Academics		2 (4%)
Job Types		
Full-time		43 (98%)
Part-time		0
Internship		1 (2%)
Degree Required		
Bachelor's and above		25 (56%)
Master's and above		13 (29%)
PhD/ M.D or equivalent		2 (4%)
Not listed		4 (9%)
Experience required		
1 to 2 years		7 (15%)
3 to 4 years		8 (18%)
5 to 7 years		25 (56%)
8 to 10 years		4 (9%)
Not listed		2 (4%)
Salary		
40000- 80000		10 (23%)
80000- 120000		15 (34%)
120000- 160000		1 (2%)
160000 and above		2 (4%)
Not listed		16 (36%)

Distribution of skills required for various jobs

Oracle	1
JAVA	2
Quality Measurement	3
Biomedical/clinical experience	4
Health information system knowledge	4
Customer centric	6
Knowledge of EMR/EHR	6
Experience/Knowledge in US healthcare	6
Decision support skills	7
Product development skills	7
Tableau	9
SQL	9
Python	10
Communication Skills	11
Project management skills	11
Problem solving skills	14
Microsoft office	16
Data visualization	24
Data manipulation skills	26
Data modelling skills	26

DISCUSSION
As time goes on, new breakthroughs occur in all areas of education, changing the operational domain, theoretical advances, and employment requirements

In India, there is a growing emphasis on health information and knowledge management systems, underscoring the need for health professionals skilled in these systems' development and implementation

The results of our study served in identifying knowledge, skills, and expertise that match employer expectations and helped ensure that curricula satisfy those criteria in this quickly changing job market

The necessity for informatics training in the healthcare industry is highlighted by recent trends in the information technology field

Depending on the role, different qualities such as problem solving, project management, knowledge of EMR/EHR, and expertise/knowledge of US healthcare are required

DESCRIPTIVE ANALYSIS OF EDUCATIONAL PROGRAMS

Percentage of colleges offering the following modules

Hospital Information System	63%
Global Health Systems	53%
Analytics for Healthcare	68%
IT in Healthcare Management	79%
Quality Management in Healthcare	84%
Business Communication	79%
Project Management in Healthcare	79%
Health Insurance	79%
Supply chain management in Healthcare	95%
Marketing Management	100%
Healthcare Operations Management	100%
Strategic Management in Healthcare	89%
Human Resource Management in Healthcare	100%
Financial Management for Healthcare	100%
Organizational Behaviour	84%

Ms Karpaga Priya, Ms Sushruta and Ms Upasana presented their case study on the status on Health IT curriculum structure and benchmarking with the industry standards.

Commissionerate – Health and Family Welfare Services, Karnataka

Commissionerate, Health and Family Welfare Services, Karnataka, showcased the digital health initiatives undertaken by government of India and Government of Karnataka. The product showcased are ABDM-ABDH.

The Ayushman Bharat Digital Mission

The Ayushman Bharat Digital Mission (ABDM) aims to develop the backbone necessary to support the integrated digital health infrastructure of the country. It will bridge the existing gap amongst different stakeholders of healthcare ecosystem through digital highways. It is important to standardize the process of identification of an individual across healthcare providers.

Department of Health and Family Welfare
AYUSHMAN BHARAT DIGITAL MISSION
Creating a digital healthcare ecosystem

Shri Basavaraj S. Bommai
Hon'ble Chief Minister

CITIZENS & PATIENTS at the center, surrounded by stakeholders: Central Government, State Governments, Program Managers, Administrators, Regulators, Associations, Development Partners/NGOs, Non-Profit Organization, Healthcare Professionals, Other Practitioners, Providers, Hospitals, Clinics, Labs, Pharmacies, Wellness Centers, TPAs, Insurers, Health Tech Companies, Doctors, Modern Medicine, Ayurved.

Building blocks of ABDM: ABHA Number, Health Facility Registry, Health professional Registry, ABHA APP.

ABDM Core Values: EFFICIENT, AFFORDABLE, SAFE, TIMELY, INCLUSIVE, ACCESSIBLE.

Karnataka leading the ABDM in the country EARLY ADOPTER STATE

Your Health, Our Responsibility.

DEPARTMENT OF HEALTH AND FAMILY WELFARE

Key achievements in terms of health record linkage at public hospital using NIC e-Hospital, an ABDM-compliant Hospital Management & Information

- Karnataka is 2nd in the country with 4.58 lakh records linked to ABHA.
- 16 among the 20 top ranking public hospitals are from Karnataka.
- Among the total healthcare records (6.03 lakh) linked in public hospitals using a Govt.-approved ABDM-compliant HMIS*, 77% are from Karnataka (4.66 lakh).

Rank 1 K C General Hospital

Rank 2 Bharwad District Hospital

Rank 5 General Hospital Jayanagar

Rank 7 District Hospital Mysuru

Rank 9 Sri Channarayana HEMS Teaching Hospital, Hassan Institute of Medical Sciences

Rank 10 Krishna Rajwade Hospital, Mysore Medical College & Research Institute

Rank 21 Karnataka Institute of Medical Sciences (KIMS), Hubli

Rank 22 Victoria Hospital, Bangalore Medical College & Research Institute (BMCRI)

Rank 26 Vaniwala Hospital, BMCRI

Rank 30 Kollage Institute of Medical Sciences Teaching Hospital, Madhavu

Verified Healthcare Professionals registry (HPR):
Topmost in the country with 28,643 doctors and nurses having an HPR ID.
Verified Healthcare Facility registry (HFR):
2nd in the country with 27,244 facilities with HFR ID.
Ayushman Bharat Health Account (ABHA):
7th position in the country with 1.35 crore people having an ABHA member name.

* Govt. ABDM-compliant HMIS used in hospitals of the country e-Hospital by NIC, e-Sanjeevani by CEM, e-Aarogya from Dabur & Nagar Health IT

This is the only way to ensure that the created medical records are issued to the correct individual or accessed by Health Information User through appropriate consent. In order to issue the UHID, the system must collect certain basic details including demographic and location, family/relationship, and contact details. Ability to update contact information easily is the key. The ABHA (Ayushman Bharat Health Account) Number will be used for the purposes of uniquely identifying persons, authenticating them, and threading their health records (only with the informed consent of the patient) across multiple systems and stakeholders.

Employees' State Insurance Corporation

ESIC showcased the digital health platforms used in the day-to-day activities to attend and treat patients in OPD and IPD. The "e-sanjivini OPD-Stay Home OPD" which is one of the telemedicine platforms used in government sector and the data capture is completely centralized.

ESIC has its own hospital management system (HMS) named "ESI Dhanwantri" which includes hospital workflow (referral & admissions), inpatient workflow and Laboratory workflow.

ESIC also showcased a platform used in collaboration with national health program called "Integrated Disease Surveillance Program (IDSP)", which is one of the major national health programs under NHM for states and UTs. It is a decentralised laboratory based IT enabled disease surveillance system for monitoring epidemic prone disease.

APPLICATIONS USED IN ESIC HOSPITALS IN COLLABORATION WITH GOVERNMENT

eSanjeevaniOPD - Stay Home OPD

National TeleConsultation Service

Follow these steps to consult doctor:

- Verify your mobile number
- Generate token after registering
- login upon getting notification
- Wait for your turn & consult doctor
- Download ePrescription

A new initiative by ESIC for providing Telemedicine services

53 hospitals of ESIC have so far started on Government eSanjeevani

GeM - Government e Marketplace

GeM - Government e Marketplace

Efficient • Transparent • Inclusive

Access to Government Buyers

- No Bidding Cost
- No Registration Cost
- No Middleman

4 Reasons to grow eprocurement with GeM

Why is GeM the most sought after platform?

- Quality of suppliers & products as per demand
- Quality of offer provided by sellers in terms of discount offered, quality
- Access to Government buyers

www.esic.nic.in @esichq

Hospital Workflow - Referral and Admission

1. Patient referred by ESIC Hospital
2. Patient admitted to ESIC Hospital
3. Patient referred to ESIC Hospital
4. Patient admitted to ESIC Hospital
5. Patient referred to ESIC Hospital
6. Patient admitted to ESIC Hospital

Inpatient - Workflow

1. Patient admitted to ESIC Hospital
2. Patient referred to ESIC Hospital
3. Patient admitted to ESIC Hospital
4. Patient referred to ESIC Hospital
5. Patient admitted to ESIC Hospital

Imaging workflow

Workflow - Laboratory

ESIC - Home Page

ESIC - Dashboard

ESIC - Covid Dashboard

ESIC App - AAA+

AAA+

Ask An Appointment

Book an Online Appointment for Out Patient Services in ESIC Health Centers

Dhanwantri - Your e-Health Portal

www.esic.nic.in @esichq

Applications used in ESIC Hospitals in collaboration with government bodies and others

INTEGRATED DISEASE SURVEILLANCE PROGRAMME

This web portal is for online reporting under Integrated Disease Surveillance Programme (IDSP), one of the major National Health Programme under National Health Mission for all States & UTs. The key objective of the programme is to strengthen/maintain decentralised laboratory based IT enabled disease surveillance system for epidemic prone diseases to monitor disease trends and to detect and respond to outbreaks in early rising phase through trained Rapid Response Team (RRTs).

Electronic Vaccine Intelligence Network (eVIN)

Electronic Vaccine Intelligence Network (eVIN) is an innovative technological solution aimed at strengthening vaccine supply chain systems across the country.

In 2015, the Ministry of Health and Family Welfare, Government of India introduced eVIN to strengthen Universal Immunization Programme (UIP) under National Health Mission (NHM). The effectiveness of UIP depends largely on a functional end-to-end immunization supply chain system. eVIN is an indigenously developed technology system that aims to provide real-time information on vaccine stocks, flows and storage temperatures of the vaccines across all cold chain points in the country.

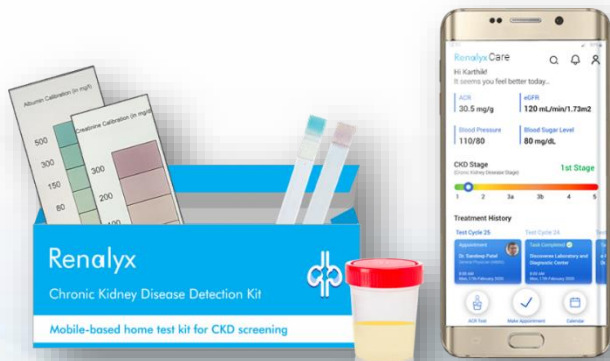
Get Vaccinated in 3 Easy Steps

2,18,00,24,725 8,840 1,10,00,00,000

Renalyx

Renalyx is working on to "create innovative and inclusive solutions for comprehensive renal care", which includes early detection of CKD with point of care solution and providing better quality of life with affordable and accessible dialysis treatment.

Renalyx showcased three different products from their innovative bucket Point of care – CKD detection kit, Renal Information Management System and Dialysis Machine as follows.



Point of Care - Detecting CKD

Program for screening diabetic and hypertensive patients. CKD problems are detected at early stage using strip-based urine tests. These strips are calorimetrically analysed by an App running on Android mobile phone.

Renalyx-Care - Renal Information Management System (Teleneephrology)

Renalyx-Care system helps in delaying patient's progression from CKD Stage-1 to Stage-4 by providing right diet, medicines, and counselling. Renalyx-Care uses a cloud-based Nephrology Information System to maintain the patient records. Renalyx-Care educates and advises user on managing CKD.



Renalyx

Dialysis Machine

Machine is manufactured by Renalyx is to treat CKD stage-5 (ESRD) patients. The amazing technology which is built by renalyx is, the vital statistics during dialysis can be monitored remotely as needed by qualified nephrologists. The device looks compact and easily portable.

EMIDS

EMIDS are working at the intersection of design, engineering and domain expertise, their passionate team of problem solvers work closely with customers to blaze new trails that will positively impact the future of health. Using this technology and insights, we move nimbly and provide trusted advice, seeking ways to amplify results. They provide in creating transformative outcomes for patients, providers and partners. EMIDS committed to bettering healthcare and empowering wellness. Weaving DE&I into the Fabric of Emids

EMIDS have a responsibility to nurture an inclusive culture, one where our diverse viewpoints, opinions, thoughts, and ideas are used to make the most of the opportunities before us to positively impact health – both ours and that of others. EMIDS believe that creating a culture of diversity and belonging can help us co-create better solutions for our teams, our customers, and our communities.

EMIDS is a global provider of healthcare technology expertise and consulting services and solutions that serve both payer and provider organizations. Headquartered in Nashville, EMIDS helps bridge the critical gaps in accessible, affordable, high-quality healthcare by providing advisory consulting services, custom application development, and data solutions. Services include EHR application deployment and management, analytics, data integration and governance, software development and testing, and business intelligence.

Provide Services:

- Consulting
- Design-Led Engineering
- Data Engineering
- Automation
- Healthcare Core Platforms
- Emids Platforms
- Low Code Solutions
- Emids Healthcare



<https://www.emids.com/>

iNTUVISION Labs Private Limited

Intuvision Labs is hyper-focused on creating a ground-breaking Innovation in Ophthalmology. Intuvision Labs aims to ensure eye-care wellness of the community through a network of partners, ophthalmologists, hospitals, clinics, and NGOs. Intuvision Labs have innovated non-invasive ophthalmology devices to diagnose multiple medical issues in the human eye. The devices are so well equipped that the reports are generated instantly and the procedure for diagnosis is completely non-invasive. The products are small, compact and easily portable to any location. Additionally, the intuvision labs have created a cloud-based platform called "Intu Cloud Telemedicine", where clinicians can easily share/upload the retinal images remotely and get support instantly in analysing & report generation from the specialist team.



<http://intuvisionlabs.com>

Features of iNTUVISION iNTUCAM-45

- Non-Mydriatic & Mydriatic imaging
- FOV – 45 Degrees
- Sony CCD 3.1 Megapixel Camera
- Flash Intensity Controller
- LED Ring Illumination
- High quality Imaging
- Indigenous System Design
- Image Annotation
- Customized Report generation
- Tele-medicine Enabled.
- Email and Print support
- Low power consumption

iNTUVISION
A COMMITMENT TO THE COMMUNITY

Features of iNTUVISION iNTUCAM-PRIME

- Non-Mydriatic & Mydriatic imaging
- FOV 40 DEGREE
- MIN PUPIL SIZE 2.5mm
- Sony 6 MP Camera
- ANTERIOR IMAGING Capability
- High quality Imaging
- Indigenous System Design
- Image Annotation
- Customized Report generation
- Tele-medicine Enabled.
- Email and Print support
- Low power consumption



SYMBIONIC Tech Private Limited

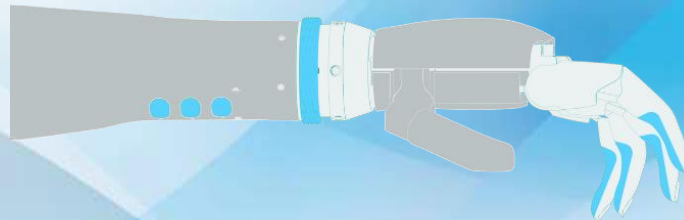
Symbionic tech is the brainchild of Rishi Krishna, a 27-year-old entrepreneur who works with his team to build bionic arms for people with missing limbs. Symbionic's idea is to build custom-made bionic arms for people at a very affordable cost with the help of artificial intelligence to help them overcome their sense of loss, be more confident about themselves and feel empowered, Further, Symbionic aims to improve the quality of life for amputees by building high end, cost-effective assistive technology.

As its flagship product, it aims to engineer an affordable and user intuitive electromechanical prosthetic arm for trans-humeral (above elbow) amputees, controlled through a sensor network consisting of electromyography and stretch sensors with Artificial Intelligence (AI) based pattern recognition at its core " Smart Arm for Smart Future ".



 **symbionic**

<https://symbionic.co/contact/>



AUTOYOS

Autoyos aim to be at the forefront of the technological transformation of the eye-care industry, bridging the existing gap between care seekers and care providers. In order to address the acute lack of ophthalmic specialists and restricted usage of products/services, have come up with intelligent Autonomous Medical Systems which can provide comprehensive eye care in non-clinical and resource-poor settings without depending on skilled manpower.

iRobo : A PATHBREAKING SOLUTION

An intelligent autonomous system for end-to-end eye care delivery

Features:

- Fully automated
- Remote Diagnosis
- Operator variability removed
- Real-time audio guidance
- Smart & Intelligent with AI and ML
- No pupil dilation
- Computerized screening report
- Non-invasive

Conditions Detected:

- Diabetic Retinopathy
- Refractive Error
- Macular Degeneration
- Glaucoma
- Cataract

EYE CARE AT DOORSTEP



AUTOYOS

<https://autoyos.com/>

HOW AUTOYOS HELPS

• For Care Seekers



Doorstep Care



Reduced Disease-Burden



Early Detection



Safe, Secure, Authentic

For Care Providers



Enhanced Reach



Reduced Operator Error and Variability



Remote Diagnosis and Tele-Ophthalmology



Higher Throughput and Increased Revenue

CYCLOPS MedTech Private Limited

Cyclops MedTech is the provider of an AI and VR-based eye tracking solution for eye balancing and testing. It offers a balanced assessment tool which is a wearable (HMD) clinical device to diagnose conditions such as vertigo, migraine, epilepsy, concussion, ADHD. The company claims to build a prototype in the form of spectacles with eye-tracking cameras and sensors which can capture the required data when the attack occurs.

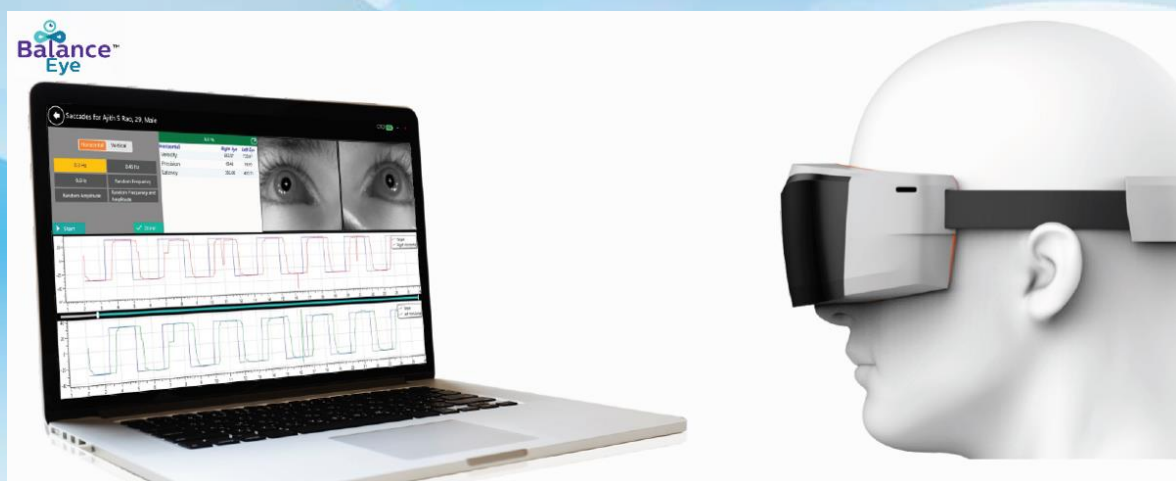
Cyclops Medtech thrives at the confluence of deep tech and healthcare. They are blending the power of frontier technologies like eye tracking, VR, smart sensors etc with deep learning to build diagnostic and therapeutic products in the areas of Neurology, Neurotology, Physical Therapy, Audiology and Ophthalmology.

Products offered:

- Balance eye Vog
- Balance Eye DVA
- Balance Eye Whit
- Balance Eye Vrt
- Balance Smart



<https://www.cyclopsmedtech.com/>



MedTel Healthcare

MedTel visioned, to ensure that no emergency or complication of a patient goes undetected. To accomplish this, they have built a connected care ecosystem, using IoT enabled devices and a smartphone app, which is especially needed in chronic disease management. While chronic diseases are not completely curable these definitely can be managed to help patients live a happy and healthy life! Regular monitoring and lifestyle changes are key to managing such diseases.



All-In-One Health Kit
Tele-Diagnostics + Doctor Consultations

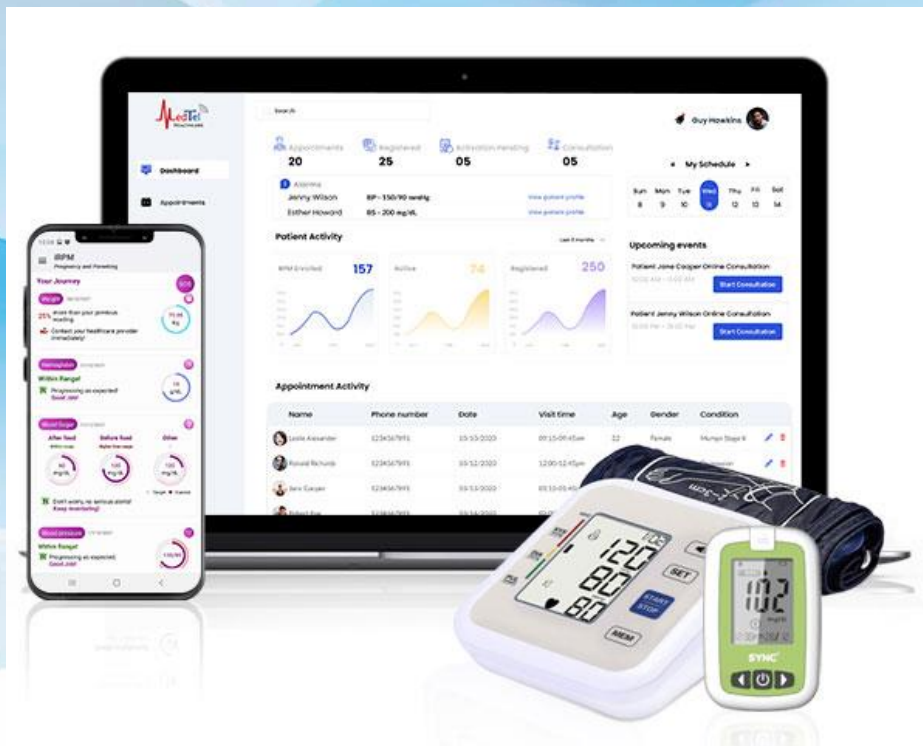
MedTel Healthcare | medtel.io | Phone: 9583328000

The advertisement features a woman in a blue lab coat looking at a tablet. In front of her is an open black carrying case filled with various medical devices: a digital blood pressure monitor, a body composition scale, a glucometer, a pulse oximeter, and several sensors. To the left is a closed carrying case with the MedTel logo. The background includes icons for Wi-Fi and Bluetooth connectivity.

MedTel's RPM platform incorporates connected diagnostic devices, a smartphone app, and a web-based dashboard for hospital access and review. These devices include the digital blood pressure machine, body composition monitor, glucometer, pulse oximeter, and many more. MedTel advanced solutions manage diseases like diabetes, hypertension, and COVID by providing timely interventions. They also provide remote pregnancy care which reduces physical clinic visits and monitors complication parameters.



<https://medtel.io/>



The image displays the MedTel Healthcare dashboard on a laptop, a smartphone app, and two medical devices: a digital blood pressure monitor and a glucometer. The dashboard shows a search bar, navigation tabs for 'Dashboard', 'Appointments', 'Patient Activity', and 'Appointment Activity'. The 'Dashboard' section includes statistics for 'Appointments' (20), 'Registered' (25), 'Appointment Pending' (05), and 'Consultation' (05). It also features a 'My Schedule' section with a calendar view and 'Upcoming events' for 'Patient Jane Dwyer Online Consultation' and 'Patient Jenny Wilson Online Consultation'. The 'Patient Activity' section shows three line graphs for 'Blood Pressure', 'Blood Sugar', and 'Weight'. The 'Appointment Activity' section includes a table with columns for Name, Phone number, Date, Visit time, Age, Gender, and Condition.

Name	Phone number	Date	Visit time	Age	Gender	Condition
Jane Dwyer	823456789	05-15-2023	09:15-09:45am	52	Female	Hypertension Stage 1
Jenny Wilson	823456789	05-12-2023	12:00-12:45pm	35	Female	Diabetes Type 2
John Doe	823456789	05-18-2023	08:30-09:00am	65	Male	Chronic Kidney Disease

HxCENTRAL

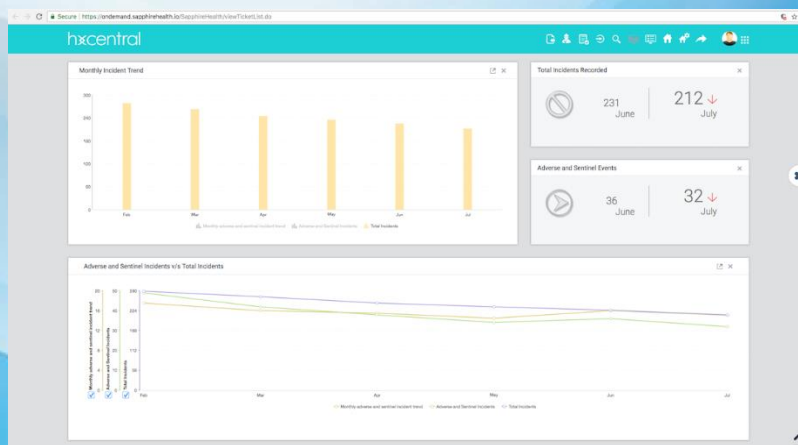
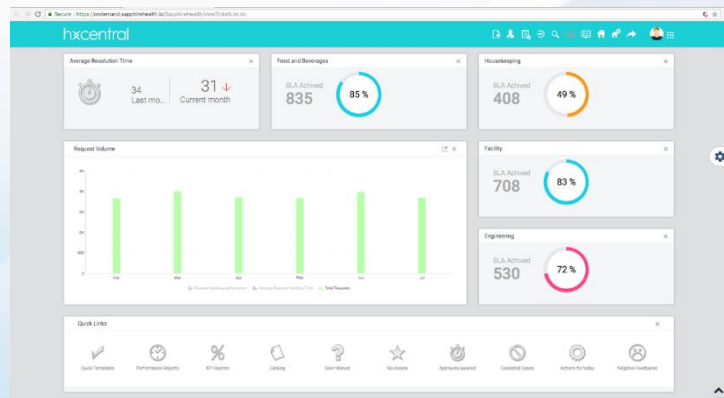
HxCentral, a cloud-based solution, helps hospitals reduce their medical errors and improve the quality compliance and patient experience. Patient safety and experience have become key priorities for hospitals to sustain and grow in the digital age. While the hospitals are implementing digital solutions on the front-end, the core is still run manually.

HxCentral digitizes the core processes of a hospital, such as incident management, quality management, bio-medical asset management to drive the patient experience and safety. HxCentral is a healthcare division of Sapphire IMS and has experience of implementing solutions in 120 hospital units across India and Southeast Asia.

They have a unique Quality Management driven approach that will help healthcare providers to rapidly manage incidents, be compliant to standards, improve asset utilization and deliver predictable service levels. HxCentral suite of solutions helps healthcare providers to stay relevant and run the core operations in an extremely nimble fashion while reducing costs and investing more in 'grow-the-patient experience' initiatives.

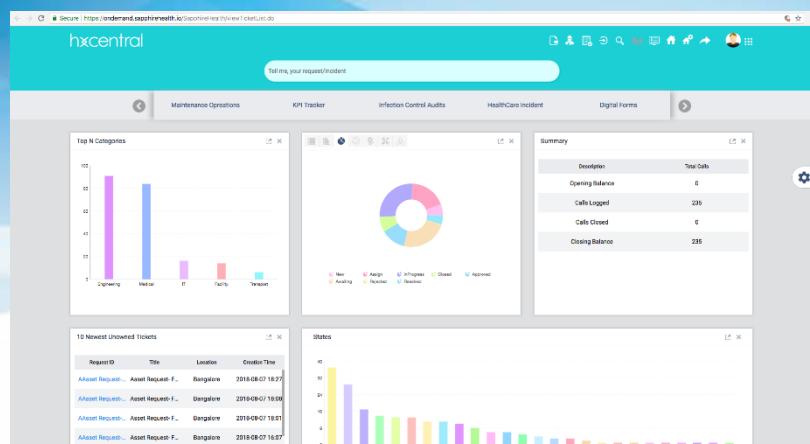
HxCentral Solutions:

- Healthcare Incident Management
- Infection Control Management
- Healthcare Quality Compliance



- Healthcare Service Desk
- Patient Feedback Management
- Healthcare Asset Management

hxccentral
<https://www.hxccentral.com/>



VI. Poster Presentation

Digital Health Symposium hosted poster presentation event to highlight the work happening on digital health and the important role that digital health technology will have in advancing human health and healthcare and also the place we all have in ensuring these innovative advancement benefit our community.

We heard from investigators and healthcare leaders from both institutions and from industry and government partners about the inspiring work being led on digital health with potential to improve lives globally using digital technology.

The symposium accommodated fifteen poster presentation out of which three were considered for best poster presentation.

Sl. No.	Title	Authors	Organization
1.	A Digital Health Consortium Initiative to attain Universal Health Coverage in India: A collaborative model of education, research and service.	Ms. Subha	Institute of Health Management Research, Bangalore
2.	MEDWRITES	M.Srilekha & P.Likitha,	BV Raju institute of technology, Telangana.
3.	The virtual health modification of medical management in India after COVID-19	Rajakarthikeyan U, Premnath K, Saranraj L, & Lakesh M	Shri Venkateshwara College of Pharmacy, Ariyur, Puducherry
4.	Ethics of Artificial Intelligence in Healthcare- Boon or Bane?	Preethi Sekaran & Dr. M Varalakshmi	School of Medical Sciences University of Hyderabad Hyderabad, Telangana
5.	Emerging Trend of Artificial Neural Network in The Oral Squamous Cell Carcinoma - Diagnosis and Prognosis – A Systematic Review	Dr. VIJAYALAKSHMI D P	Institute of Health Management Research, Bangalore
6.	Patient Safety: Improving Quality Through Digitization	Dr. Preethi Gopinathan Nair & Dr. Ashia Anwar	HxCentral
7.	Healthcare analytics commercial platforms: A Literature Review	Dr. Pallab Roy, Dr. Richa Vishwakarma & Dr. Aroma Ganguly	Institute of Health Management Research, Bangalore
8.	Artificial Intelligence in Diagnosis and Treatment of Breast Cancer	Ms Chuki Gurung Dr Shivangi Billu & Ms M Harshita	Institute of Health Management Research, Bangalore
9.	The Realm of Augmented Reality – Virtual Reality in Digital Dentistry	Sripriya Bellam & Alekhya Vellanki	Mallareddy Institute of Dental Sciences Hyderabad, India
10.	Augmented Reality and Virtual Reality: Integrating the real and digital world	Dr. Sandeep Patil Dr. Shivani Dattani & Dr. Swathi	Institute of Health Management Research, Bangalore

11.	Knowledge, Attitude and Practices About Use of Digital Technology for Health Literacy.	Diksha Walia, Aprajita Singla, Naveen Goel & Savita Prashar	Centre for Public Health, Panjab University, Chandigarh
12.	Digitalization of Patient Experience Feedback System for Healthcare Organization	Dr Asfiya Anjum	Lead Solution Consultant
13.	Digital Health Transformation India and Beyond - Roles of AI in Digital Health	Ms. Ashwini Basappa Bijjur & Dr. Akanksha Shrivastava	Institute of Health Management Research, Bangalore
14.	Digital health education delivery in conjunction with in-hospital health education for imparting life-saving family caregiving skills	Mr. Shreyas Prakash	Noora Health
15.	Sarathi: A technological companion for mitigating the ambulance crisis in healthcare infrastructure	Gaurav & Sumit Gupta	University Institute of Technology, The University of Burdwan, Golapbag (North), West Bengal, India



Best Poster Presentation award winners as follows.

Best Poster Award - First Prize Winner

"Augmented Reality and Virtual Reality: Integrating the real and digital world".

Authors

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Aim: To enhance healthcare surgery outcomes with the help of digital technologies like Augmented Reality and Virtual Reality.

Background: Virtual Reality (VR) is a computer-generated environment with scenes and objects that appear real, making the user feel immersed in their surroundings. Augmented reality (AR) is a technology that integrates digital information into the user's real-world environment. AR is so much more than holograms and VR is not just games and entertainment; AR/VR offers a new approach to treatments and education in medicine. These tools facilitate the medical practitioner to improve the quality of learning, accuracy and precision for diagnosis, telemedicine, medical imaging, surgeries, and other medical procedures by providing 3D models. In recent times, surgeons' have shown tremendous interest to improve the safety and efficacy of surgical procedures and outcomes by harboring the potential of digital technologies like Augmented Reality (AR) and Virtual Reality(VR) for surgeries.

Methodology: We performed a review of available literature by searching PubMed, Google Scholar, and Research Gate using the terms "augmented reality", "virtual reality" and "surgery". The initial search yielded 108 studies, out of them 62 studies were filtered to remove duplicates and include studies published in journals, by the reading of the abstract 33 studies were found relevant and 12 references were gathered resulting in a total of 45 articles being considered for the studies.

Findings: Considering all the studies, currently AR/VR research is included in the diagnosis and surgery of various clinical departments like Neurology, Orthopedics Surgery, Hepatobiliary System and pancreas, and Oral and Maxillofacial surgery. AR may also compensate for the lack of tactile feedback usually experienced during laparoscopic surgery by presenting the surgeon with visual clues, thus improving hand-eye coordination and orientation, even in Robotic surgery. The main benefit of using AR/VR during surgery is that the surgeon does not have to look away from the surgical site, as seen in common visualization techniques. Various AR/VR-based software and tools are being researched, developed, and implemented by leading global companies like Philips Corp., SentiAR, Medical Augmented Intelligence, and Immersive Touch.

The AR/VR technology provided by ImmersiveTouch is already being implemented for surgeries in ANMS, Delhi. The surgical outcomes were improved along with improved work efficiency, safety, cost, and reduced post-surgical hospitalization of patients.

Healthcare forms the second largest segment in the overall global AR/VR market. The AR/VR (Healthcare) market stood at \$1.2 B USD in 2020 and is expected to grow to \$5.1B USD by 2025.

Conclusion: AR/VR is set to revolutionize the healthcare industry by not only enhancing surgical outcomes but also the experience of patients undergoing the surgery.

Keywords: "Augmented Reality", "Virtual Reality", "Surgery", "Digital Health"



Best Poster Award – Second Prize Winner

Digital health education delivery in conjunction with in-hospital health education for imparting life-saving family caregiving skills

Author

Mr. Shreyas Prakash

Abstract: Nurses comprise an integral part of our public health workforce, providing timely care for patients. However, they are severely understaffed, with an estimated 2.65 million healthcare workers serving the 2.66 billion population across India and Bangladesh. Life-saving family caregiving skills are important to be imparted to the patients and family members, yet there are challenges for the nurses to provide such an education. On average, nurses can only spend roughly 2.5 minutes with patients and family members. This paper addresses the impact of digital health education delivery in conjunction with in-hospital postnatal education by nurses for a broader impact. Noora Health's Care Companion Program enabled digital postnatal education through various channels such as (a) Chat/Chatbots, (b) Teletrainer-enabled voice calls, and (c) IVR (Integrated Voice Response) for reaching patients and family members from low-income populations. The poster outlines the strategies, key learnings, and success metrics adopted for providing tech-enabled continued care in health education.



Best Poster Award - Third Prize Winner

EMERGING TREND OF ARTIFICIAL NEURAL NETWORK IN THE ORAL SQUAMOUS CELL CARCINOMA - DIAGNOSIS AND PROGNOSIS – A SYSTEMATIC REVIEW

Author

Dr. VIJAYALAKSHMI D P

AIM: To review the accuracy, sensitivity, and specificity in diagnosis and prognosis of oral cancer with ANN.

METHODOLOGY: For this systematic review, Data search was mainly carried out through an electronic search with keywords such as "Artificial Intelligence, Prediction, Diagnosis, Prognosis, Oral Carcinoma, Artificial Neural Network, Malignant transformation, Accuracy, Sensitivity, Specificity" in several renowned databases, which mainly included PubMed, Google Scholar, and Web of Science, for articles that were published between 2000 to 2022. A total of 50 articles were yielded by database search based on area of research, the title, and the abstract. Out of these, 39 Articles were selected based on inclusion criteria and deduplication. Inclusion criteria includes prediction of oral carcinoma using ANN, patients between the age of 20 to 60, articles analysing the accuracy, sensitivity, and specificity of prediction.

RESULT & CONCLUSION: After reviewing the articles taken into consideration for the study, ANN provides effective accuracy, sensitivity, and specificity in diagnosis of oral cancer at the stages of benign, precancerous, and malignant conditions. It also predicts the survival rate of malignant patients and risk of recurrence. Thus, ANN aids the physicians in making effective clinical decisions in treatment plan for better prognosis. Though the existing ANN models are accurate in prediction, there can be potential improvement by providing more weightage to input variables which are homogenetic characteristics of oral carcinoma. For example, prime risk factor inputs like tobacco consumption, sharp tooth, sunlight exposure, painless lesion for more than one-month etc holds more importance over other factors such as denture irritation, excess body weight, poor oral health, malnutrition etc. These inputs must be given with their proper weightage to improve the ANN, which ultimately achieves higher accuracy in diagnosing the carcinoma. Unlike other type of cancers, oral carcinoma is more heterogenous in nature with complex etiology. Training of ANN requires lot of interactions with variables. This paves a way for branching cohort studies, which provides huge diverse data that could be processed to standardise the datasets for ANN. In this way, achieving more accurate ANN is possible that acts as an effective diagnostic tool with less biased prediction in false positive, false negative and true cases at the early stage.

KEYWORDS: Artificial Intelligence, Prediction, Diagnosis, Prognosis, Oral Carcinoma, Artificial Neural Network, Malignant transformation, Accuracy, Sensitivity, Specificity.



PILLARS of Centre for ADMIRE

Patron



Dr. S.D GUPTA

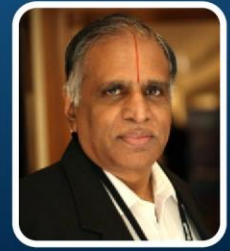
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IIHMR

Chief Mentors



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Senior Advisor, IIHMR Bangalore
& Former Director General-ESIC



PROF. S. SADAGOPAN

Distinguished Visiting Professor, IIHMR Bangalore
& Former Director IIIT-Bangalore

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Programme Manager,
IIHMR Bangalore

DIGITAL HEALTH SYMPOSIUM

ON

ADVANCING, DIGITAL HEALTHCARE, MANAGEMENT, INNOVATION, RESEARCH & ENTREPRENEURSHIP

(ADMIRE) – a Digital Healthcare Initiative by IIHMR Bangalore

SCHEDULE

TIME	SESSION	TOPIC	SPEAKER
08:30AM - 09:30AM	Registration		
09:30AM - 09:40AM	Welcome and Orientation	Welcome the gathering and introduction to Symposium	Mr. Piyush Kumar Associate Dean-Training, Associate Professor, IIHMR Bangalore
09:40AM - 10:00AM	Session 1	Digitalisation, unleashing opportunities and bridging gap in Healthcare	Mr. Raja Sekhar Kommu Co-founder & Chief Technology Officer Karkinos Healthcare
10:00AM - 10:20AM	Session 2	Digital health	Dr. Satish Prasad Rath Associate Vice President-Commercial; Business Development, AWACS
10:20AM - 10:40AM	Panel Discussion: Emerging Trends and Opportunities in Digital Health: 2022 and beyond		
	Dr. Uma Nambiar (Moderator) Managing Director Zeeden Life Sciences Pvt Ltd Consultant Indian Institute of Science Mr. Praveen Srivatsa Director Asthrosoft Consulting	Dr. Vishal U S Rao Dean, Professor and Director Head Neck Surgical Oncology and Robotic Surgery, HCG Cancer Centre, Bengaluru Dr. Dileep Raman Co-Founder Cloudphysician Healthcare, Bengaluru	Dr. Shyam Vasudeva Rao Director and Founder Forus Health, Renalyx and Rx DHP Mr. Pankaj Srivastava Vice President Biotexus Pharma
10:40AM - 10:45AM	Announcement on upcoming Initiative		Mr. Piyush Kumar Associate Dean-Training, Associate Professor, IIHMR Bangalore
10:45AM - 11:00AM	Tea break		
11:00AM - 12:15PM	Inaugural Ceremony	Welcome address	Dr Usha Manjunath Director, IIHMR Bangalore
		Setting the context	Dr S D Gupta Trustee Secretary, IIHMR
		Keynote speaker	Prof S Sadagopan Distinguished Visiting Professor, IIHMR Bangalore & Former Director, IIIT-Bangalore

TIME	SESSION	TOPIC	SPEAKER
		Chief guest address	Sri. Basavaraj Bommai Hon'ble Chief Minister Government of Karnataka
		ADMIRE launch	
		Address by Guest of Honour	Sri. Dr. C. N. Ashwath Narayan Minister of Electronics, Information Technology - Biotechnology, Science and Technology
		Address by Guest of honour	Sri. Dr. K. Sudhakar Hon'ble Minister, Health and Family Welfare and Medical Education of Karnataka
		Address by Special Guest	Sri. Randeep D, IAS Commissioner, Health and Family Welfare
		Address by Distinguished Guest	Smt. Meena Nagaraj, IAS Director, Electronics, IT, BT and MDKIT
		Leveraging technology in healthcare	Dr. C.S KEDAR Senior Advisor, IIHMR Bangalore & Former Director General ESI
		Vote of Thanks	Mr. Piyush Kumar Associate Dean and Associate Professor (Trainings) IIHMR Bangalore
12:15PM - 12:25PM	Group activity	Kahoot	Dr. Deepashree M R Assistant Professor IIHMR Bangalore
12:25PM - 12:45PM	Session 3	Strategies for Sustaining and Managing Digital Health Advancements	Mr. Rajarajan S Chief Operating Officer MGM Healthcare, Chennai
12:45PM - 01:05PM	Session 4	Redefining Healthcare with AI; An Indian Context	Mr. Rejesh Bose K Project Manager Global Health Team, Qure.ai
01:05PM - 01:30PM	Panel Discussion: Reimagining healthcare with new digital concepts and tools		
	Dr Ananth N Rao (Moderator) Chief Operating Officer IHH Healthcare India	Mr. U K Ananthapadmanabhan Director and CEO Tenxhealth Technologies Pvt Ltd, Coimbatore.	Dr. Vinod Singh Founder and Consultant Hospitech Healthcare Consultancy
	Dr. Dinesh M S Senior Scientist in Research Philips Innovation Centre	Mr. Shafi Ahamed CEO HxCentral	Dr. Nagesh R Head - Medical Services Kauvery Hospital Bangalore
01:30PM - 02:30PM	Networking and Lunch / Poster presentation		
02:30PM - 02:50PM	Session 5	Digital Health Strategy accelerated by Covid -19	Mr. Nishant Sagar Deputy Director- Public Health Confederation of Indian Industry(CII), Central Office, Delhi

TIME	SESSION	TOPIC	SPEAKER
02:50PM - 03:10PM	Session 6	Managing experience for tech-driven patients	Dr. Karthik Ramesh Vice President-Client Partner Provider & Lifesciences, EMIDS
03:10PM - 03:40PM	Session 7	Managing Changes-Transition to Digitalisation in Hospitals	Mr. Sunil Kumar C N Sr Vice President, Head Business Transformation & ESG, Lead Key Initiatives Narayana Health
03:40PM - 03:50PM	Tea break		
03:50PM - 04:10PM	Session 8	Connected Research for Connected Health	Prof. Dr. Muralikrishna Iyyanki Former Dr. Raja Ramanna Distinguished Fellow, DRDO & Educational Consultant Administrative Staff College of India (Asci)
04:10PM - 04:20PM	Poster presentation result declaration and award ceremony		Dr. Kirti udayai Associate Dean Academics and Student Affairs , IIHMR Bangalore
04:20PM - 04:30PM	Alumni felicitation and award ceremony		
04:30PM - 04:45PM	National anthem		
04:45PM - 04:50PM	Vote of thanks		Dr. Kirti udayai Associate Dean Academics and Student Affairs , IIHMR Bangalore
04:50PM - 04:55PM	Group photo		

About IIHMR Bangalore

Institute of Health Management Research (IIHMR) - Bangalore, established in 2004, is the South Campus of IIHMR Jaipur Group. IIHMR-B is the first educational Institute in India to be accredited by NABET as Hospital and Healthcare Consultant Organization for NABH standards. Our aim is to provide leadership and competency building among health/hospital managers, planners, decision-makers, trainers, and research scientists at the national and international levels. The Learning and Development Centre at IIHMR Bangalore aspires to bridge the gap in skills and knowledge between professionals/students and the healthcare Industry. The team at IIHMR Bangalore leverages on the collective strength of adjunct and visiting faculty, research officers and networked industry experts. This multidisciplinary team consists of Doctors, Public Health experts, IT specialists, Social Change Innovators, Data Analysts, Health and Hospital Management Specialists who are equipped and up skilled to conduct high-end research projects and to address emerging healthcare issues.





Venue
The Chancery Pavilion
Bangalore



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