InnoHEALTH 2016

Conference Proceedings

4-5th February, PHD House, New Delhi
http://innovatiocuris.com/conference/2016/

CONFERENCE ORGANISING TEAM

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	Special Address	Dr. Samir K.Brahamchari , J. C Bose National Fellow, Founder Director, CSIR-Institute of Genomics & Integrative Biology Former Director General, Council of Scientific & Industrial Research
	Address by Guest of Honour	H.E. Viljar Lubi , Ambassador of Estonia to India
	Inaugural Address	Sh. Konda Vishweshwar Reddy , Member of Parliament, Lok Sabha
	Vote of Thanks	Sachin Gaur , Director Operations, InnovatioCuris
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Day 1, February 4th, 2016 (Main Auditorium)

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1:30 – 2:15 PM	Lunch	Lunch

Day 2, February 5th 2016 – Main Auditorium Program

2:15 – 3:30 PM	SESSION 4: Startup Opportunities & Challe nges	Session Moderator: Mr. Pradeep K.Jaisingh , CEO, HealthStart, India Speakers – Dr. Anil Wali , Managing Director, Foundation for Innovation & Technology Transfer, IIT Delhi, India – Atin Sharma , Head Investments, Round Glass Partners – Deepak Sahni , CEO & Founder, Healthians – Rajandeep Singh , Founder, Kivi Health
3:30 – 3:45 PM	Closing address followed by tea	Closing address followed by tea

Day 2, February 5th 2016 – Raunaq Room

Thought Leaders' Forum: Innovate Ideas that can transform healthcare

Session Co-ordinator – Shiban Ganju

Parallel Session: Closed door session with Health Sector Leaders and Decision makers (Entry only by invitation)

8:30 – 9:00 AM	Registration	
9:00 – 9:15 AM	Setting the tone	Dr.V.K.Singh , Managing Director, InnovatioCuris
9:15 – 10:15 AM	Subtheme: Responsive Healthcare system	Session Brief: How to educate and enhance healthcare human resource and accessibility? Keynote: Dr Shiban Ganju , USA Session Moderator: Dr. Ronald Heslegrave , Chief of Research, William Osler Health System, Canada
10:15 – 10:30 AM	Tea Break	Tea Break
10:30 – 11:30 AM	Subtheme: Innovate Cost Optimization and Quality Improvement	Session Brief: How do we finance healthcare? Session Moderator: Dr. Prem Nair , India Keynote: Prof. Paul Lillrank , Finland

11:30 – 12:30 PM	Subtheme: Start Up India - Leapfrog	Session Brief: How to improve primary healthcare delivery? Should we leapfrog? Keynote: Dr Sanjeev Kumar , India
12:30 – 1:30 PM	Subtheme: Learning From Developed Economies	Session Brief: Developing nation -wide health data and IT infrastructure. Session Moderator: Maj Gen Dr. A.K. Singh , India
1:30 – 2:15 PM	Lunch	Lunch
2:15 – 3:15 PM	Concluding Remarks	Concluding Remarks including framing recommendations: Dr. Shiban Ganju , USA
3:30 – 3:45 PM	Closing address of conference in Auditorium followed by tea	Closing address of conference in Auditorium followed by tea

Day 1 (Inauguration Session)

Opening remarks of the conference was given by Dr. V.K. Singh, Managing Director, InnovatioCuris. While welcoming the distinguished guests, speakers and delegates, he stressed upon to build a community platform, where best minds of the health sector can come together and share with the community.

He said, InnoHealth is a gathering of academicians, IT people, innovators and politicians on one platform to not just to discuss the issues but also to come up with the solutions as well. GoI is now putting stress on innovation diplomacy, start-ups, make-in-india, shine-in-India etc. India has a huge population and needs to have an affordable healthcare, cost effective medicines and for that innovations are key. He also gave an example of Sabarkantha district of Gujarat, where Mr. M. Nagarajan created first innovation lab, which is now being made available for all district students to innovate. He ended with the note that not only we need to cut the cost of the healthcare but we also need to reduce the burden of the healthcare as well.

Dr. Sameer Brahamchari, JC Bose Fellow, gave the special address. He talked about the buzzword innovation. He said that today's problems couldn't be solved using two-decade-old tools and techniques. We need to provide healthcare to all in an affordable format. So, we need high quality solutions, low cost medicine and healthcare devices and that should be the millennium goal. Change in intellectual property laws, net neutrality, and data sharing etc can today change the perspective of healthcare tremendously. He stressed on open innovation and gave an example of e-rickshaw, that how it reduced TB rates in mechanical rickshaw pullers in Delhi. He ended by saying that Healthcare should be a right, not business.

H.E. Viljar Lubi, Ambassador of Estonia to India gave the guest of honor address. He discussed the success of e-prescription in Estonia, which is a win-win situation for doctors and the patients. He advised to focus on three points: i) Personalized health is important for quick recovery, ii) Security of patients' data, iii) Speed to develop such systems and scale them in the country. He ended with the quote that collaboration between patients and doctors are required and IT and medicine need to come-up together to link them.

Shri Konda Vishweshwar Reddy, Member of Parliament, Lok Sabha, presented the inaugural address. He talked about the possibility of having a futuristic way of prescription and drug treatment and it can be possible by using newer cutting edge technologies like chip based diagnosis, nano-delivery drug method etc. He said that even today after 20 years of his experience, the healthcare system in India is same, there is no communication from hospital to hospital or doctors to doctors. He stressed to have 5 standards in healthcare system: i) matching identity, ii) Matching right codes, iii) Contents and formats, iv) Messaging standards & v) Security. He also said that India needs to have NATIONAL DRUG CODES to exchange the data from one place to another, and that required "Drug Knowledge Base", where one can discuss the prescription, contra-indications, adverse reactions, pharmaco-kinetic properties, doses and the dosing schedule, etc and GoI is currently looking forward to get such bills passed in coming parliament sessions. Indian healthcare needs 3 folds' increase in terms of availability of doctors, nurses, hospitals beds, etc. And he wished that one day will come when healthcare will move from Hospital to Clinic, Clinic to Home and from Home to your work place or playground.

InnoHealth inaugural session was also used to inaugurate the book "Innovations in Healthcare Management: Cost-effective & sustainable solutions" written by Dr. VK Singh and Prof. Paul Lillrank in India.

Mr. Sachin Gaur gave the Vote of thanks. He took this opportunity to thank all the dignitaries and delegates.

DAY - 1

First Session: Transforming Healthcare Innovate for Tomorrow

Moderator: Prof. Paul Lillrank, Professor, University Aalto, Finland

First Speaker:

Mr. Mudit Narain is an investor who is operating a fund called Bharat Innovation Fund in the areas of clean technology,sustainability, healthcare and digital technology for rural masses. Mr. Narain also runs a business incubator affiliated to IIM Ahmedabad called the Centre for Innovation Incubation and Entrepreneurship.

India needs 3 million doctors, 3.6 new million beds every year, while that is an opportunity as an investor. Mr. Narain stressed that it is difficult for India to follow healthcare trajectories of developed countries where focus is on care in the hospital. Indian trajectory has to be different. India needs to maximize efficiency of doctor patient interaction, reduce travel time to hospital, patients access doctors from wherever they are. Approaching these opportunities will change how we access health care in future.

Several innovations have happened in Indian healthcare sector. For example, there are platforms for searching healthcare professionals. There are apps that have been designed to get appointment of doctors. These, however, are just very surface of innovation that India will see. A lot more innovation will come in the areas of home healthcare, biomaterials, therapeutics etc. Customized hardware and software needs to be developed. And these innovations have to move from tier 1 cities to tier II cities and tier III cities and then peri-urban and rural areas.

Healthcare regulations in India needs to be more transparent and user friendly. Way must be devised to engage with regulators, that is more transparent, more responsive.

He emphasized that we are making a case where a lot of multidisciplinary research will happen in business incubators, accelerators that will create new entrepreneurs, young innovators of different backgrounds.

Mr. Narain stressed on that start-up entrepreneurs invest own time and money in developing products / solutions. Once such projects gain traction with potential customers, the big companies get more interested in them. Such an approach makes innovation fundamentally more imaginative and efficient.

A risk-taking entrepreneur has a lot more at stake compared to an employee working for a salary. It is behind such innovations many investors including Mr. Narain and his team will put their money.

Second speaker:

Chris Lloyd, Chief Financial Officer, Simpler Consulting, UK

He is working for Simpler Healthcare for the past twenty years.

Speaker stressed on the importance of acquiring skills from different industries like aerospace and automotive industry and apply to healthcare industry to improve efficiency, quality and patient satisfaction. He also highlighted importance of learning how to use information generated from big population and apply it to create innovation. Chris Lloyd discussed two approaches of innovation. First involved a continuous improvement of processes leading upto six-sigma business process reengineering. If such process improvement is not possible, it may be necessary to adapt breakthrough or disruptive innovation, where a complete step change of performance is needed. Application of disruptive innovation results in a dramatically greater speed of improvement.

Speaker shared how his organization has adopted industrial practices and industrial training that have been used by Toyota to develop new vehicles in less time with comparable level of quality and affordability than many competitors. First step involves application of very rigid research phase for a patient population in a territory. It is possible to understand that makes the drive to design a new model. At the second level involves redesigning of a product or service and make it more efficient. At the third level we can completely change the system.

Third Speaker:

Mr. Harpreet Singh, Chief Technical Officer, Oxyent. Mr. Harpreet Singh talked about an app called Integrated Child Health Record (ICHR) that his company has launched. ICHR is a unique mobile-based application, available with doctors and parents. System is activated the day baby is born and parents are familiarized with digital record of their baby. The system is paperless, authenticated and secure. System informs parents about vaccination, it is possible to track those who are missing vaccination, provides interactive growth chart and long term monitoring of babies.

Second Session: Technology Innovation in Public Healthcare

Moderator: Dr. V. K. Singh

First Speaker:

Mr. M Nagarajan, IAS, District Development Officer, Sabarkantha, Gujarat

He stressed that innovation in public healthcare in India is very important because it touches billion people. Mr. Nagarajan mentioned innovation is not just about technology but application of right technology for right problem. He said that bottom of the pyramids solution does not require very high technology. Fortunately, or unfortunately, whatever is required is already there with us, what is lacking is the will.

Mr. Nagarajan talked about several endeavor of his team on public healthcare. One program involved use of mobile technology in managing maternal and infant mortality in Sabarkantha District of Gujarat. Mr. Nagarajan and his team attempted to have an impact on maternal and infant mortality. They had used an application called Swasthya Samvedana Sena, Health Awareness Army, and equipped anganwadi workers with mobile tablets. Tablets were packed with audios and videos that were used to change behavior in terms of acceptance of vaccination, acceptance of good practices, nutrition etc. The tablet works in offline mode, once data is collected in offline mode it can be synced backed to server when connectivity is available.

Mr. Nagarajan listed many positives of the project which included online monitoring of ground staff activity, healthcare workers need not carry loads of education material weighing in kilos, content could be updated more frequently, computer literacy improved among anganwadi workers, lot of peer group learning occurs and message retention was much better among healthcare workers. A system of competition was created, where healthcare workers scored points for playing more videos.

Mr. Nagarajan also discussed some of the challenges, which included non-availability of collaborator, lack of application of technology, lack of right pricing mechanisms and lack of product that suits the rural market. He also highlighted lack of digital literacy among anganwadi workers and rigid mindset of villagers.

Second Speaker:

Prof. Suman Kapur, University wide Dean International Programs and Collaborations, BITS, Hyderabad.

Prof. Kapur highlighted the menace of antibiotic resistance in India and world over. Not only existing antibiotics are becoming ineffective, new antibiotics are not coming into the market. There is no appropriate diagnostic tool available that can detect antibiotic sensitivity in a speedy and cost effective manner.

Prof. Kapur talked about right biotech that offers a portable device, which can finish the process of antibiotic sensitivity in 4 hours times at a cost of 350 rupees per test. Presently, the system is geared to test urinary tract infection against a panel of fourteen antibiotics. The system at present gives antibiotic sensitivity, bacterial load and type of bacteria. The panel of biological samples can be increased over time. The technology comprises of a proprietary media, a normal electronic technology to sense the growth of bacteria, and novel software, which interprets the results from an optical sensor. Technology has been licensed to a start up company – Excellence in Bio-innovations, operating out of BITS, Pilani Campus. The technology is IPR protected, with IPR resting with BITS, Pilani.

Third Speaker:

Prof. Ajay Kumar, Prof. and Head, Pediatrics Orthopedic Unit, King George's Medical University, Lucknow

Prof. Ajay Kumar started with a question, should India imitate west or rely on its own innovation. He talked about importance of smart health policy and e-health. He defined e-health as the adoption of information and communication technology in the health system. Combination of e-health with mobile technology of smart phones in the health care system creates smart health system.

e-Healthcare can be divided into five sectors, namely hospitals, pharmaceuticals, diagnostics, medical equipment and supplies, and medical insurance. Mobile health has shown good results as far as we know about awareness of TB and Beti Bachao. We are in the phase where we have just started, though in pockets and not at the national level.

Challenges to e-healthcare include proper digital healthcare infrastructure promoting the concept of

mobile health with doctors making proper policies. MCI has to come forward for acknowledging this kind of practice of telecom industry and to give us a special tariff for this type of activity.

Fourth Speaker:

Mr. Prabhakar, Vice President, Human Resource and Social Initiative, Agri Business Division, ITC Limited

As early as 1978 in Alma Ata declaration it was declared Health for all, primary health care, fundamental health, use of appropriate technology etc. Seventy years on we are still discussing the same. There is clearly a gap in execution.

ITC started with the idea that poverty, water, education, equality, sanitation are all interdependent which can actually impact the overall outcome of health. With the idea to have a holistic impact, ITC wanted to be part of entire value chain – procurement, harvesting, logistics and processing. In 2000 ITC started the concept of e-chaupal in tier III cities like Badaun, Hatras, Pilibit, Ratlam and others. A technology base was set up in the house of a lead farmer with printer, internet access, computer, dish antenna etc. so that all the people in that particular village could benefit from it.

Mr. Prabhakar said that technology is far beyond mobile. The idea of tele-medicine was also started in MP and Maharashtra. The attempt failed, because technology was a challenge those days, secondly no doctor was staying in the location for more than 4 months, and finally, people were not accepting the concept of telemedicine.

ITC changed approach in 2010 and shifted their focus. In collaboration with USAID, women aged 25 – 50 were hired as health champions who are community mobilisers, social workers with expertise in the health space. Village health champion apart from creating awareness for maternal and childcare in the villages, this also gave them some income generating opportunity. The attempt gave a sense of purpose and pride to village women along with financial freedom.

Finally, impact is achieved when 5Ts come together, Temperament, Trust, Teamwork, Task at hand, and Talent to succeed. Standalone, technology and apps can't do much. Technology by itself impresses no one; experience you create with it is everything.

Third Session - "Best Practices in hospital management"

Session moderator: Dr. Shiban Ganju

First Speaker:

Matthew Saunders, Healthcare architect

Matthew Saunders spoke about how emphasis is shifting from sickness to wellness in the healthcare in developed world. Plan is to move healthcare away from hospital to community. Several reasons for such thought was ageing population, increase in the incidence of non- communicable diseases, and increase in cost of healthcare. UK NHS spends on healthcare increased from 5% in 1998 to 8% in 2010. NHS went about reducing the cost by freezing doctors pay, reducing number of administrators, selling or leasing property and finally moving hospital care to community and close to home.

A comparison to Singapore was established when Mr. Saunders moved from UK to Singapore. Singapore has a mature healthcare system like UK. Singapore in 2010 was building its healthcare to attain 1.8 beds per 1000 people by 2020. Singapore was spending less than 5% of GDP and their model was 65% out of pocket expense. Singapore was trying to reduce hospital beds and reduce health care costs because in a study it was observed that 20% admitted patients contribute to 80% readmission and of which 10% was actual hospital related. So, Singapore designed their program to encourage home care.

In the end, it was recommended that India should learn from the mistakes of developed countries and decentralize healthcare from acute hospitals to community healthcare, nursing homes and polyclinics.

Second Speaker:

Major General A. K. Singh (Retd.), Advisor Telemedicine Health Informatics, Rajasthan

Maj. Gen. A. K. Singh spoke about health information system undergoing disruptive innovation. Dr. Singh shared his experience about Mahatma Gandhi Health Institute, Jaipur, where his group is managing telemedicine for 33 districts of Rajasthan. Dr. Singh has setup systems and 14 districts have gone on line.

In India, patients are increasingly getting tech savvy. Many wear implants and devices on their body, which can predict health status based on parameters. Question is how to manage so much information and yet provide quality healthcare in a cost efficient manner.

Hospital Information System is an expensive proposition needing continuous budget allocation. Many small hospitals cannot afford big service providers. Many small hospitals are approaching smaller startups, and start-ups are going to provide them HIS based on mobiles and a central server. This is probably disruptive innovation. Classical hospital information system has to evolve into cost effective and scalable solution to cater the needs of patients.

The challenge is to put all information and data in one server as hospitals, doctors and patients are swapping data up and down in consumer applications like Whatsapp, hospital management also runs on mobile.

Third Speaker:

Dr. Vishal Dhakal, Founder and CEO of Health at Home Foundation, Nepal

Health at Home started seven years back in Nepal when not many players existed. Today, home healthcare has become entrepreneurial, scalable and value oriented. At present, Health at Home is a very nuclear social franchise operating across Nepal with 100+ nurses, 500 ground staff, having reached out to more than 5000 client household, offering fifty odd menu of services.

As an organization, Health at Home has faced several issues, which include: (i) HR management issues, (ii) issues with vital monitoring, (iii) monitoring quality assurance problem, (iv) patient communication (v) standardization problem, (vi) payment management and (vii) scaling and investment problems. These issues got plugged in due course of time.

It is established that, (i) home healthcare complements conventional healthcare; (ii) home healthcare is scalable and many people can invest in it; (iii) home care is a robust healthcare model; (iv) homecare is very much protocol driven. Every process has to be remotely and virtually controlled for every one employed; (v) home care is not equal to nursing agency, because multiple array of services are integrated in it; (vi) home care is not for geriatric patients. Many actually cater to cradle to grave service. Health at Home has cared for prematurely born kids, elderly cancer patients, as well as for patients with extremely drug resistant tuberculosis.

Home healthcare can complement hospital care in several ways (i) it decreases the work load which actually is going to soak in over their work overhead management (ii) decreases per patient care concentration with improvement in quality (iii) increase in bed cycle and increase in revenue in both ends by reducing the readmission and also faster exit of patient so that they can have more intervention (iv) improve quality of care which is the end goal for everyone.

With progress in technology, future of healthcare is seen as personalized, portable, preventive and available at a fair price. Next frontier for healthcare has to be portable medical equipment and solutions that's going to complement all these. Homecare providers would be a platform and a channel partner for service providers of those innovation portable equipments.

Fourth Speaker:

Dr. Amit Tomar, General Manager, Consortium of Accredited Healthcare Organizations, India.

Hospital acquired infections are becoming a global menace. Nosocomial infections not only kill patients, healthcare cost runs in billions of dollars. Dr. Tomar talked about how human ergonomics can help control spread of infections in a hospital.

Human ergonomics deals with understanding of interaction among humans and others elements of the system. By applying principles of ergonomics to proper hand-wash by clinical staff, it is possible to reduce the nosocomial infection by more than 50%. It is possible to improve human ergonomics, if we control the following factors: organizational, environmental, personal and latent factor.

Organizational factor deals with clear policy decision about hand washing and infection control by management. Such decision should be clearly communicated to staff and patients. There should be a safety culture debriefing at regular interval. Evidence based practice should be followed and awareness level of staff should be checked at regular interval.

Environmental factor involves the surrounding how the people are going to interact with it. It deals with (i) Availability of hot and cold water, Sensor taps and/or elbow operated taps should be there in all clinical area. (ii) Water velocity should be controlled to avoid splashing; (iii) Availability of soaps as well as hand cream, to minimize appearance of cracks in hands that can harbor infection; (iv) Encourage use of paper towel in place of cotton towel; (v) Hand sanitizing zones should be located at strategic spots; (vi) High touch areas should be identified and should be routinely cleaned. (vii) Wash basins should be setup after studying movement of staff to maximize utilization; (viii) Follow bare elbow policy.

Personal Factors should be controlled by becoming a role model and leading from the front. This factor is difficult to control as it involves human behavior.

Technology should be employed to control infection and check sanitation status of employees. Regular monitoring and audit should be done. If monitoring is strong, people tend to follow rules.

Patient involvement: Patient can be empowered to ask improvement in personal factor and hand hygiene.

Latent factor lie dormant in the organization. These appear when situation turns favorable. All incidence and near misses should be reported so that all latent factors can be identified. Audits should be done and organization needs to be proactive.

Fourth Session: Global best practices

Moderator: Dr. Sanjiv Kumar, Executive Director, National Health System Resource Centre India

First Speaker:

Dr. Ronald Heslegrave, Chief of Research, William Osler Health System, Canada

Ronald Heslegrave talked about the challenges that exist when we do not trust the research we are getting. William Osler is one of the community hospitals, with busiest emergency department in Canada. Majority of people that attend hospitals are born outside the country and half of those are of South Asian descent.

The aim of the hospital is to reduce unnecessary emergency hospital visits, discover innovative practices and build an evidence based fully sustainable healthcare. Dr Ronald stated that they seek out

non-traditional partnership and funding sources and are interested in applied research, clinical trial and health services sector.

Research is vital to the advancement of social policy, economic agendas and medical improvements. It is also vital that there should be trust in this for policy the decision maker so they can make clinical and economic decisions. There is pressure on researchers to succeed. All people involved in innovation needs some oversight to make them true and honest to the data they collect.

In Canada an expert panel defined research integrity to be having coherent and consistent application in terms of values principles to encourage the achievement of excellence. They notified and identified five key values of honesty, fairness, trust, accountability, and openness.

Canadian council on research integrity was established to provide confidential advice gather information to some degree of dissemination, reporting and promote best practices. So we took the step we wanted to create a positive environment that would foster research integrity rather than negative environment that focused on sanctions.

Second Speaker:

Rajeev Mudumba, Vice President Strategic Alliances hcentive, US

Mr. Rajeev shared his perspective of what is going on in the west. How do we move from a sick care economy to a well care economy? Healthcare system in the US is expensive and inefficient. A study done by WHO, in the year 2000, ranked US healthcare at 37th among 191 member states. WHO study concluded, health and wellbeing of people depends on the performance of the health system in the country and not on the money spend. Virtually all the countries were found to be underutilizing their resources. A more recent Common Wealth funds study done in 2009 – 10, found US healthcare to be expensive, lacking in afterhours care, and facing a weak primary care.

Obama care emerged as a reform measure to US healthcare system. Obama care recommended the following: (i) need for premium assistance in low-income population. People can buy subsidized

insurance from federal exchanges; (ii) need for medical aid expansion, a program for children and poorer people to get subsidized health care. With Obama care everyone has to be treated equally irrespective of past history.
Insurances are still new in India. India must learn complexities of insurance sector from the west before system becomes unmanageable. Insurance in the west has become very complicated and expensive. Many have to pay 30 – 40% of insurance premium out of pocket. West is also looking at the east for primary care. When I grew up in India if I fell sick I would go to the doctor pay about fifty rupees and take some medicine head back home. In the US, there are startups – e.g. Medlion, that have started similar concept, a subscription based primary care program with a network of doctors.
There are several reasons for high healthcare cost in the US. (i) US spends 17.1% of GDP, nearly 2 trillion dollars on healthcare. Nearly, 700 billion dollars is spent correcting preventable mistakes. (ii) Around 4.4 billion dollar was spent in 2009 for patients that were harmed in hospital. Nearly 26 billion was spent on patients who were readmitted. That's lot of money to be wasted on things that can be improved. (iii) West has invested money in finding innovative cures for diseases through best of drugs, the best of treatments. Someone has to pay for it. Investment on the west has been done to a certain extent that is responsible for the high healthcare costs. (iv)In the US, every doctor is ready with their malpractice insurance because they don't know when they are going to get sued.
Startup environment is very vibrant in India. For the first time products are being built in India to serve our own people here. It is a great place to be in. Many innovations have happened in India that have reduced cost of originator products. An ECG machine costing 4000 dollars has been produced at 400 dollars. A baby warmer that used to cost 1200 dollars is being produced at 300 dollars. There are other types of innovations happening in India. Narayana Hrudayalaya does 600 operations /week which is almost 6 months of work in the US. It brings economies of scale and enormous skill because of repeated performance. Wockhardt hospital in Bangalore initiated cost effective and time efficient heart surgeries. Arvind eye hospital in Madurai, does 2.5 million eye surgeries every year.
Third Speaker:
Dr. David Dror and Dr. Dinesh Baliga, David Dror, Founding Chairman and Managing Director, Microinsurance Academy, India
David Dror worked for the UN, taught health economics at Erasmus University and worked in rural India, Nepal, Rwanda, Malawi and several other places. Microinsurance academy believes in bottom up approach and empowering communities.
The world has moved on to a different way of dealing both with merchandise and services. The health industry on the other hand is one of the most top down industry that has not yet found its way to about catalyzing demand.
India is going private in healthcare. The model India has chosen is a western model. If India ignores western experience it is bound to relive history. Private insurance companies who collect premium and a lot of subsidy may not work in India. Primary care in India is not within the healthcare sector. RMPs have redefined primary initial care. They provide quick fix medicine, doorstep medicine and cheap medicine. We have to think out of the box.

Dinesh Baliga: Graduated from AFMC in 1985. I have been working in WHO also in national Polio surveillance. Disillusioned with top down approach he started working with Dalits and adivasis. Way back in 2008 he joined microinsurance academy.
What I want to tell is hardship financing is most important to everyone. Proper health care can be provided by private or government hospitals, but where is financial protection. In a commercial insurance individual has no say in risk coverage, product servicing and product design. There is a lack of trust between the individual and insurer. Commercial insurance companies have inefficient business processes and often process fraudulent claims.
In our model people own and run health insurance with community involvement in formation of benefit package, design premium collection, and claims management. Enrollment is voluntary, informed and

contributory. There is no subsidy and every member pays. Program is contextualized. Risk transfer of insurance can be done for crop and livestock but not for health. People get empowered, local governance becomes strong and claims are settled promptly. Claim ratio is about 60 – 85% and financial sustainability in such program or scheme requires about at least 4 years of operation in an area.
MIA provides technical support to the company, at no charge, and ensure people move from no risk management to risk pooling at community level. MIA has high renewal rates, with a membership of a hundred thousand people. MIA works in rural India.

Day 2: Session 1

The session was moderated by Prof. S. Venkataramaniah Associate Professor of IIM Lucknow, India and jury members were Associate Professor Saurabh Gupta from NIT Raipur, Mr. Lalit Singhla, Director, Optum.

Paper Presentation Sessions:

1. Mr. Anish Sharma
2. Mr. Abhishek Soni
3. Mr. Shubham Manu

First presentation was given by Mr. Anish Sharma, 3rd year undergraduate student of biomedical engineering NIT Raipur. He presented Neonatal reusable ECG Band Electrode to detect the HRB (Heart rate beat) in babies. The survey data of 2013 says that the main cause of death in neonate is heart disorders and it has increased in neonates. The main disadvantage of disposable electrode was the size, its bigger (diameter is 2.5cm) than limb of neonate. So when it's removed from neonate, it leaves

rashes on body of neonate and gel causes the irritation. Due to that, the neonate moves his/her hands, hence resulting signal is disturbed. To get rid of all these problems, it was suggested to use Neonatal Reusable ECG Band Electrode, specially designed to record the HRB. Its electrode has a good surface area and good bear-ability in neonates to avoid the irritation and noise in signal.

A chain of electroplating steel as base metal, and electroplated silver over copper was used, loop is of steel surface to receive the bio-potential signal and band used as a wrist watch. The comparison resulted that quality of transmission, maintenance of good body fixation, easy fixation, less noise, good signals. Reusable band is better than disposable and total cost is 590 Rs only. During the questions it was shared that quality of signal is a key differentiator in the old versus new design.
Second presenter was Mr. Abhishek Soni, presented model of Mecatronic cane for blind people. The name itself suggests a good combination of mechanical and electrical. Mecatronic cane consist of high torque wheel, motors, ultrasound sensor, GPS system and solar panels. This device driven by motors and with the help of GPS, a blind person can move anywhere on his/her path. The total cost of product is 5600 Rs. It was suggested by jury to put the features of available market products and compare.

Third presenter was Shubham Maru, NIT Raipur, The presentation was about the model of Insulin Pump which related to disease Diabetes. It's a simple insulin delivery device. He presented his model named Microfludic Paper with analytical device. The currently continuous subcutaneous infusion therapy devices are available in market having a major disadvantage of capital cost around 3-4 lakhs. Mode of operation, availability, and unskilled workforce can't afford and maintain it, as the cost is very high. Model consists of filter paper and on this paper there are two chambers. In chamber one, glucose level is detected; means how much glucose is present and second chamber will insert the insulin in required quantity. Its cheap device, operation mechanism even be handled by unskilled person and its versatile. Quality of paper is thin (10 cm). Advantage over current device is it can reshape, non-toxic and lightweight. It also gives quantitative test. It was suggested by jury, that there should be a detector in device, should have some detector with it for precision and accuracy, because a simple patient will not know how to detect high sugar, and how much insulin is required by the body.

SESSION 2:

"Panel Discussion on Transforming Indian Health Sector and Indovation"

Session moderator: Maj. Gen. R.K. Garg (Retd.), Panel Moderator, President, AHA

List of panelist:
1. Dr Suptendra Nath Serbadhikari, Project Director of Center of Health informatics, National Health Portal (NIHFW), India.
2. Dr Sandeep Bhalla, Faculty, Public Health Foundation of India.
3. Mr. Sidharth Sangwan, Founder & CEO of Hindustan Wellness Pvt. Ltd.

Question: The healthcare portal was a single point to access for authenticated Health information for students, health care professionals and researchers? Has it been able to achieve the desired goal? Parameters specified were vast.

Answer: The mandate is to reach the 1.27 billion Indians. It was formally inaugurated in November 2014. Internet penetration was less than 20%. So, a toll free number 180-1800-104 was launched, where if someone calls can get the information available in the portal in five languages (English, Hindi, Tamil, Gujarati and Bangla) and work is going on to add the sixth language (Punjabi). There are various campaigns going on the ministry like, to quit tobacco (using SMS services). ITU WHO had a campaign "Be Mobile, Be Healthy", which was received well. It was a one-way SMS in African countries and now they want to scale it up. They are doing it in a combination of Ministry and ITU WHO. You can give a missed call and register through the National Health Portal.

It is the technology that is advancing. India is not really a country, it's more of a subcontinent, so English plus twenty-two languages, is the ultimate goal of the National Health Portal. Whatever information is available will be available in all these languages, through the mobile apps, Voice web, etc. A mobile app is launched which is related to the hospital directory services, a blood bank services where Daily update of data from the blood bank at every level is being done. A lot more are in the pipeline. But the answer to it is, straight away No! NHP has a long way to go.

Question: What kind of impact of application has made since its inception?

Answer: The application is not yet formally publicized. These mobile apps are the way, in fact for digital India, that is getting a very high priority and process of developing a bunch of mobile apps. Maybe, within the next six months will be done. So, they are also trying to get all the languages on board and then will go for a bigger publicity, through Kiosks which would draw the data, from mobile app, so that would be at all the airports, major railway stations, metro stations, print media, Radio, Television.

Question: Dr. Sandeep Bhalla, what initiative has been taken by PHFI to enhance the public health objective?

Answer: PHFI is a public private partnership model, which was launched by the then Prime Minister of India. PHFI was launched to act as catalyst in the field of Public Health. The vision is that we should have something in the field of public health. Create institutes in the field of public health, which act as a catalyst for the country and can upgrade the public health and also cater to the huge demand of trained workforce. PHFI has started in multiple campuses (Delhi, Hyderabad, Gandhinagar, Bhubaneswar, Shillong) so PHFI is working very closely with the states. We have an ancillary campus at Bangalore, which is providing technical assistance to Family and Health welfare. PHFI has a big workforce of 13,000 people in PHFI working on multiple focus areas. We have trained 15000 workforce in a period of 5 years of medical doctors in chronic conditions, for which we have also got an award for recognition (PHD chambers award in 2015).

Question: Now the question again for Dr. Sandeep about Millennium Development Goals and since we have not been able to achieve them. Now, we have adapted is to sustainable goals. There is a big burden of non-communicable diseases in India (lifestyle diseases). What innovative strategies are being held in dealing with such situations?

Answer: In PHFI we have a center for chronic conditions and injuries headed by Prof. D. Prabhakar and this center is working closely with GoI providing them with tech assistance at a policy and capacity building level. This unit has given the GoI a unique system in non-communicable diseases (NCDs). 60% of mortalities are due to NCDs. Earlier we were talking about communicable diseases in a very big way and now you have seen the prevalence of HIV, it has gone down, but why it has gone down nobody knows and nobody wants to know that. Why it has gone down is because huge work in the advocacy in the systematic way of the monitoring system, which has, been put up by the national aids control organization. We need a robust mechanism for the NCD control also. And for that we have a unique system of training for the primary care physicians because, if you see the number of the specialist, Number of super specialists is hardly 400 endocrinologists. Out of pocket expenses will be high in a super specialist centric model so everybody cannot go to these super specialists for the simple diabetes treatment or hypertension. For the treatment to be affordable you would need to upgrade the skills of a primary care physician because these are the people based in the interior of the places and the majority of our public is going to that. So that is the task PHFI has taken over and PHFI training program has created and lot of courses in various topics of diabetes and cardiovascular diseases, thyroid diseases. We are entering into a MoU with British hypertension society and international hypertension society. This is a big unit in PHFI run by around 60 people working for this to conduct trainings all across country. These are not metro centric courses; the beauty is interior places like Kakinada, Kumbakonam etc. People can get the training from those places itself. We are choosing gynecologists, endocrinologists etc; and providing them training and support. Unless and until the government ownership is not there, no private body can do that because, government ownership is needed to scale up the activities and that is what is needed at this hour and now our honorable Prime Minister has started a national skill development scheme and they are looking for innovation.

Question: Mr. Siddharth, please share about your organization?

Answer: We started in September 2013. Health field is not a sector for making profits. We saw an opportunity, which was not in terms of building business but to make an impact. We have a business in healthcare. If one starts a business in healthcare and if the idea is to make profits, then probably that is not the industry one has to go into. There are other great industries like energy, ecommerce, etc;

If somebody starts up in health care, part of the reason should be to make an impact. That would be a big factor to be successful in long term. So when we started there was a clear gap that we identified. In India, healthcare generally means 'go to the hospital and get treated'. Nobody talks about 'how not to go to a doctor?'. More over in India, preventive healthcare means preventive health checkup. In India, two types of institutions were doing preventive health checkup. The first type of institution was a hospital, which was doing this, and the second kind of institution is a lab, and then there is the third kind, which I would call as Health brokers, which would push you towards Hospitals or labs. What is the business of a hospital? To have a busy OPD and IPD. Their business is to cure people. So they are curative, but not preventive. That is the way hospitals make money. They are situated on prime properties and a health checkup of 5000 or 10000 INR would not cover their expenses or give them enough revenue. So they do the preventive health checkup units as patient hunting units or the lead generation units. And whenever they find a person with a disease, without suggesting the person to stay away from the hospital, they would do the opposite by pushing the patient to the hospital bed and they would suggest a treatment. This is contradictory to the whole philosophy of the preventive health checkup.

Second model we found was a pathology lab or a diagnostics centre. These labs, we found to be very transactional. Patient goes to the lab, gives body samples and gets a report. They never call you back or try to find out about your progress.

Third are the health care brokers who would eventually push you to one of the above-mentioned institutions.

With the gap created by above-mentioned institutions, we found our scope. Rather than going into preventive checkup we thought we would focus on preventive healthcare. There was no such institution

3 years back, which would say that they were preventive health care company. So, how did we become a preventive healthcare company? We said we were not going to treat patients and we are very clear about it. The future of Hindustan Wellness is not to treat patients. Our idea is to help customers not turn into patients. So we targeted normal people on how to improve their lifestyle, how to improve their health and stay away from the doctors.

Question: Suppose a person undergoes a preventive health check up and he has been found to have some kind of disease, so obviously the preventive care aspect starts subsequently once the disease has been treated. So the patient has to go to the hospital and get treated and then subsequently follow a preventive regime so that the disease cannot be aggravated.

Answer: Correct. What we found was ten percent is the number of the people from a population who need cure and we would still recommend them to go to the hospital and come back to us and be our customer for the preventive care. Five percent people are fine. Around eighty five percent of our customers are suffering from some kind of lifestyle disorder. They have high cholesterol, prone to diabetes so, they're going to eventually have diabetes. But they're not able to manage it because of their lifestyle. Most of the people are working from six to nine (work hours have stretched). So the lifestyle has gone really haywire. So the idea was that, for these 85% people, can we improve their health? We can help them improve their health. The way we did it was that we clubbed the health checkups, along with the doctor consultation on phone and then after a diet and fitness management on phone, on app and online and there after the complete healthcare management. Hindustan Wellness is a healthcare management company, which has its own diagnostics center and has a unit of doctor consultation and diet consultation on phone and we have combined all of them. We didn't look at it as mindset problem that the doctors will not be ready. We looked at it as a technology problem. Probably there was no platform for such kind of a system. Hindustan Wellness thought why not give a platform for the doctors and the customer or what if we have a health manager which would patch the doctors and the customers. With this idea in mind, we started with a pilot. Today we have done over 40,000 doctor consultations on phone majorly in Delhi NCR, Mumbai and Bangalore. Currently we are working towards how to approach the tier 2 and tier 3 cities because that is where the opportunity lies. For example, a doctor consultation in NCR ranges between 800 INR to 1800 INR. The people in NCR can afford it. Imagine in a radius of 250 kilometers of NCR affording it. The answer is a no! But they would be ready to spend 150 INR for a doctor consultation over phone. We may not be able to address the issue over phone comprehensively. But, let us say 40% of the issue can be addressed. At least there is this 40% chance that the advise can be affordable. Moreover the services do not stop here. You give the customer the end results; empower them through the doctor consultation because the doctor demystifies the complete report. Customers are happy paying us for providing a personalized solution to their healthcare monitoring. Now when you take the ownership from the customer, the customer develops that loyalty and we develop the loyalty. So the large part of the revenue we get is from the repeat customer.

Question: How does the future look in India's geriatric population growing from 100 million to 300 million with regards to the home care?

Answer: These are the two factors. Whenever we see a talk in the health sector, there are two challenges. We always feel proud that we have a large number of young population with us and our honorable Prime Minister has also said that the work force is available only in India and he is inviting the other countries by letting them know that if they need work force, then it is available. But on the other hand, the major problem is coming with the geriatric population, which is increasing the patient base. The homecare concept in India presently, it has not started as much as it has in the other parts of the world but there is a definite need because of the urbanization, which is going on in a big way. Nowadays, the nuclear family concept has started. The geriatric population has started feeling neglected. Earlier it was a joint family concept and if one member of the family is not available, there are other members of the family who would be available to take care of the geriatric members of their families. But now with the increase in urbanization and nuclear family concept, the need for geriatric

care has increased. He also mentioned that there are not many courses available in geriatric medicine. There is no systematic way for the geriatric medicine. So there is an urgent need. The more geriatric age group is there, the more the disease aggravation takes place. We need to train work force power for taking care of the increasing geriatric population.

Question: Now the question was about training to people and medical professional and how to take or make top quality impact?

Answer: Siddharth replied, the level of expertise or level of knowledge that would like to have, is not available hence re-training is required,

For maintaining the quality, we have used technology to our advantage by recording everything that has been happening in the fraternity. One is the interface, which customer sees it, and the second is the back-end system. This information is placed on a

CRM. Now the next time a person working with us looks into the recording, he would easily be trained. Also, there is a quality team, which monitors the quality of the recordings.

Question: This type of activity throws a question on the privacy of the customer data. How can you explain that?

Answer: In a hospital, to say that the hospital people would not access information is wrong. Of course hospital people will access the information. We have a strict policy on the data. The question is that, we have a strict policy about the data and that is an absolutely, non-negotiable thing from our side. So the person has an online login and through that she can define a family.

Question: What after doctor consultation?

Answer: This part is more cognitive. We do not leave the customer. We try to get in touch with them and know the progress that they have been making.

We are planning to launch an app with diet managers, where a patient can easily get his or her medical history in database.

SESSION 3: "Panel Discussion on Learning from Emerging and developed Economies"

Session moderator: Mr. Harsh Vardhan, MD, HR Biocare Pvt Ltd

Panelist:

1. Dr Saurabh Gupta, Asst professor of NIT Raipur,
2. Mr. Mika Heinonen, Member of Board and Founder, Medipoc, Finland
3. Dr. Namrata Singh, Director Medical Services, Turacoz Health Care Solution

Harsha: Can we go deeper in our discussion on Indian economy and Innovation?

Dr. Namarta replied, we should have the data to understand the innovations being generated and how they are implemented. Such a central database would enable us to know how much we have to spend and how much return we can expect.

Mr. Mika replied- we have huge brain storm activity in IT and innovation in IT sector. We all have innovations, as people are in need, but how to implement them in India? Development of an innovative product has high cost in west, hence it is difficult to replicate in a country like India.

Dr. Saurabh replied - we have different scenario with Bharat and India, as we heard about like home care and all, we should stop thinking number of beds, and leverage technology solutions like telemedicine to the care to unreached.

Question: What are the emerging trends in medical field of India?

Dr. Namarta replied: Research is either conducted at initial stage, so many guidelines to share, integrity, which all accessible in mobile, do we have informed content?

Second, publication in big journals, they require original raw data. We need to communicate doctors and researchers to keep the data in a way to be presented anywhere.

Mr. Mika replied: the first step is to identity of gap. There is already genetic research going on, lot more in cancer research. In India, people are more experienced now, clinical trials are effective and reliable, that's the reason, and we would like to spend here. So that information can be shared.

Dr. Saurabh said we have developed the attitude now to get the technology in health care.

Question: what do you think of frugal innovation in health care?

Dr. Namarta replied – Yes! To make it optimally utilization of the innovation, we need to have very clear plan. We should have some goal for innovation; lot of brainstorming is required, what happened in previous years and now?

Dr. Saurabh replied: IT helps a lot in frugal innovation, For example: these days if people have skin diseases then they can search it on Google and find the solution.

Question: what role each stakeholder has, as government is not funding innovations?

Dr. Namarta replied: basically stakeholders have to be user friendly. Awareness campaign should be started, supportive activity should be there.

Dr Saurabh replied: great innovation comes from great labs and from great institution, so we need more and more great labs.

Question: what we can do for patient education and learn from developed economy?

Mr. Mika replied that education starts from school. Also, mobile apps can be developed for breast cancer screening and other conditions. If money is available then advertisement of public health campaigns can also be explored.

SESSION 4: "Startup Opportunities and Challenges"

Session Moderator: Dr Pradeep K Jaisingh, CEO Healthstart India

Dr. V K Singh started the session with few background details and sharing the concern about innovation being a common buzzword and often abused.

Speaker 1: Mr Anil Wali, Managing Director, Foundation for Innovation and Technology transfer, IIT Delhi India

Mr. Wali shared his experience on starts-ups, innovations and technology transfer. He said it is always good to talk about failure. India has seen entrepreneurs from very early days; India has done lot of start-ups and innovation. However, in the modern times, we do not have Google, Cisco, etc.
We are lacking in hardcore facilities for manufacturing. However, services we are good enough. We should have a formal mechanisms to work on an idea, to generate the value and technology business incubators, technology transfer organizations.
At IIT Delhi, people are fairly involved. Formal mechanism is there and most important thing that funding is there. In terms of commercialized strategies, these start-ups should be evaluated. He concluded that just see what we have and how we have implemented, and then how to make innovation and apply it.

Panel Discussion:

1. Dr Pradeep K Jaisingh, CEO, Healthstart India,
2. Mr. Atin Sharma, Head Investment, Round Glass Partners,
3. Mr. Deepak Sahni, CEO and founder of Healthians,
4. Mr. Rajendeep Singh, Founder of Kivi Health

Discussion was made on following topics: what's happening in innovations in healthcare? Entrepreneurs in India and ecosystem and successful health care startups?

Thought Leaders' Forum
Executive Summary

Session 1: How to educate healthcare human resource and enhance accessibility?
Keynote: Dr. Shiban Ganju
Session Moderator: Dr. Ronald Heslegrave, Chief of Research, William Osler Health System, Canada

1. Study the demand side of health care versus the supply side.
2. Religious outreach can be a good model for building health literacy
3. Converting Information to knowledge is a key to behavior change
4. Handling misinformation can be done at the ground level by making repeat contact with population with your healthcare message
5. Bringing change is easier in population when addressing them as a group rather than an individual
6. It will take thousand plus year to scale the Save A Mother model if done in a traditional way. We need IT interventions to scale such a proven model

Session 2: How do we finance healthcare?
Keynote: Prof. Paul Lillrank, Finland
Session Moderator: Dr. Prem Nair

1. Steam Engines to Toyota Production System are good examples, where practice came before the theory. Studying practice of healthcare in India might lead us to interesting theories to replicate success
2. Health systems should focus on producing health outcomes than just producing care
3. Revenue models that are linked to outcomes can outperform existing systems. Improving outcomes can also lead to reduction in cost of healthcare

Session 3: How to improve primary healthcare delivery? Should we leapfrog? Developing nation wide health data and the IT infrastructure
Keynote: Dr Sanjiv Kumar, India
Session Moderator: Maj. Gen. Dr. A.K. Singh (Retd.), India

1. The access to health includes three broad areas: access, quality and affordability. All three are interconnected; you can't have one without the other
2. Most of the population is healthy. And how do you keep them healthy; that should be your primary concern. Public health hallmark should be wellness and prevention and not cure as being done now
3. The National Health Innovation Portal can enable scaling up of healthcare innovations nationwide. We need to stress more on dissemination of good innovations and ensure that they can be scaled up
4. The Internet infrastructure being laid in India has connected 50,000 villages already (which is a work in progress) with a participation of population from villages can make the models of connecting the healthcare experts with the village population work.

Summary: The New Delhi statement on health care transformation
Delivery of Healthcare in a country like India should be reconsidered from a point of view of ensuring those who are healthy stay healthy. Healthcare revenue models should be linked with healthcare outcomes.

To address the healthcare needs of rural population. An important aspect is outreach to the population. Outreach, which uses the rural population itself, can be cost effective as well as of impact in changing behaviors and ensuring the population is healthy.

A systematic evaluation of disease burden combined with right outreach and timely diagnosis can bring down the disease burden of the country. Scaling up of good healthcare innovations would need aggregation platforms and a systematic outreach effort. IT systems can ensure that various healthcare systems are streamlined and individual efforts add up to make a bigger impact.

Keeping the conversation alive!
InnovatioCuris as the organizer of the Thought Leaders' Forum is continuously working towards to create a platform for the Industry, academia and government to catalyze innovations in Health Sector.
Below are few activities where you can link up to keep the conversation alive:

a. Annual Conference, InnoHealth 2017: http://innovatiocuris.com/conference/
b. Quarterly Webinars: http://innovatiocuris.com/webinars/
c. Quarterly Magazine (To Be Launched in July 2016): http://innovatiocuris.com/magazine/
d. Innovators group on LinkedIn: https://www.linkedin.com/groups/7043791/members

List of Attendees

Saurabh Garg	Associate Director	United Health Group
Abhishek Nirwal	Sr. Business Analyst	United Health Group
Lalit Singla	Director	Optum
Dr. Harsha Vardhan	MD	H R Biocare Pvt. Ltd.
Prem Nair	CEO	Amrita Institute of Medical Science
Dr. Shiban Ganju	Chairman	Atrimed Pharma & Save A Mother Foundation
Paul Lillrank	Prof.	Aalto University, Finland
Dr. Sanjiv Kumar	Executive Director	NHSRC, India
Ronald Heslegrave	C.R.O.	William Osler Health System, Canada
Christopher Llyod	C.F.O.	Simpler, UK
Rajeev Mudumba	VP	hCentives, USA
Matthew Saunders	VP Healthcare	Singapore
Maj. Gen. A.K. Singh	Project Head, Telemedicine	Govt. of Rajasthan, India
Prof. Suman Kapur	Dean	BITS Pilani, Hyderabad Campus, India
Surg Rear Admiral V.K. Singh	Managing Director	InnovatioCuris, India
Dr. Bhupesh Sharma		Institute – Technology Business Incubator
Vishal Bansal	C.E.O.	Healthstart, India
Varun Sharma		Embassy of Estonia
Dr. Farah Deeba	Healthcare Consultant	
Tabrez Ahmed	Secretary General	OPPI
Rajesh Narwal	Technical Officer	WHO
Maj. Gen (Dr.) R.K. Garg (Retd.)	President	Academy of Hospital Administrations
Ashvini Goel	Director	Army
Prof. Satya Bhusan Dash	Professor	IIM Lucknow
Molshree Pandey	Head of Innovation Centre Denmark	Innovation Centre Denmark, The Royal Danish Embassy
Twinkle Jawrani	Innovation Officer	Innovation Centre Denmark, The Royal Danish Embassy
Soura Bhattacharyya	Co-founder, C.E.O.	Lattice Innovations
Dr. Sharmila Anand	Addl. Managing Director	Santosh Medical College
Mrs. Upasana Arora	Director	Yashoda Hospital