Office of the Principal Scientific Adviser
to the Government of India

RICH
Research and Innovation
Circle of Hyderabad

HEALTHCARE AND PUBLIC HEALTH

THEMATIC REPORT

ALL CLUSTER MEETING RECOMMENDATIONS

1. About O/o PSA

The Government of India established the Office of the Principal Scientific Adviser (PSA) in November 1999. The PSA's office aims to provide pragmatic and objective advice to the Prime Minister and the cabinet in matters of Science and Technology. The Office of PSA was placed under the Cabinet Secretariat in August, 2018.

The Office of the Principal Scientific Adviser (PSA) serves as a high-level advisory body providing strategic guidance and scientific advice to the government on matters of science, technology, and innovation. The primary objective is to align scientific advancements with national development goals and address complex challenges across different sectors. The PSA's office coordinates and facilitates scientific efforts across ministries and departments. It plays a pivotal role in formulating science and technology policies, fostering collaboration between academia, research institutions, and industry, and promoting innovation-driven solutions. The O/o PSA acts as a bridge between the scientific community and the government, advising policymakers on the integration of cutting-edge research into governance strategies. This includes recommendations on harnessing technology for sustainable development, promoting scientific temper, and addressing critical issues such as climate change, healthcare, and national security.

The Office of the Principal Scientific Adviser plays a pivotal role in shaping a nation's scientific and technological landscape, ensuring that advancements in science contribute meaningfully to societal progress and addressing contemporary challenges.

2. About Clusters

The Union Budget observed that many of our cities have various research institutions, universities, and colleges supported by the Government of India. Hyderabad for example has about 40 such major institutions. It proposed setting up formal umbrella structures (Science and Technology Clusters) so that these institutions can have better synergy, while also retaining their internal autonomy.

The Science and Technology Clusters works in areas of national importance, leveraging the existing strengths in geographical proximity, driving future economic growth, wealth creation, and enabling rapid and direct knowledge exchange. Seven such city clusters have been initiated under the Office of PSA at Bengaluru, Bhubaneswar, Chandigarh, Delhi, Hyderabad, Jodhpur, and Pune.

These clusters are supported by the O/o PSA on the recommendation of the Prime Minister's Science, Technology and Innovation Advisory Council (PM-STIAC) to create an Atmanirbhar Bharat through S&T. These clusters create strong linkages between existing academic institutions, national & state research laboratories, and other stakeholders like relevant ministries, industry partners, start-ups, MSMEs, state governments, philanthropic foundations, and international organizations.

3. Health Vertical Impact Numbers

4. Health Vertical Projects

4.1 COVID-19 Initiatives & Pandemic Preparedness

4.1.1 Hyderabad Reagents Consortium by RICH

Project description:

One of the major challenges faced during the COVID-19 was the need to import RT-PCR kits which were expensive and in short supply. RICH worked with the national consortium initiated by the Office of the Principal Scientific Adviser, Government of India to support indigenous testing kits, reagents and components available from Indian MSMEs and start-ups.

Partners:

Industry Partners

HUWEL LIFESCIENCES PVT.LTD
thriving with science

bioserve
A REPROCELL COMPANY

Bioartis

LAURUS Bio

Sapala

promea®

Research Partners

CCMB

Funding Partners

FIND

BILL & MELINDA GATES foundation

Impact

- 100% of the local demand for affordable testing kits and high-quality reagents and components met by indigenous manufacturers.
- Established consortium of MSMEs to enable them to cater to national and global demand.

4.1.2 Understanding COVID-19 comprehensively at the city level by PKC

During the pandemic, a national-level consortium called The Indian SARS-CoV-2 Genomics Consortium (INSACOG) was created jointly by The Union Health Ministry, The Department of Biotechnology (DBT), The Council for Scientific & Industrial Research (CSIR) and The Indian Council of Medical Research (ICMR). The consortium consists of premier academic, research, philanthropic and industry organizations which came together to conduct nationwide genomic sequencing to track SARS-CoV-2 variants and accelerate national data sharing of sequences and bioinformatics - based research.

PKC was a part of this consortium and has helped synergize a multi-stakeholder collaboration in Pune to upscale genomic surveillance by ramping up sequencing efforts, bio-informatics, and data sharing based on a sampling strategy predicated on epidemiological data and clinical meta-data (Fig mentioned below). PKC facilitated prospective, clinical, and retrospective sequencing of samples with a focus on vaccine breakthroughs and reinfection cases. Experts correlated the epidemiological dynamics and clinical outcomes of patients and aided in the implementation of appropriate public health and medical countermeasures. Environmental Surveillance focused on the collection and analysis of sewage and wastewater samples from various parts of the city to complement human surveillance and enable early detection of disease, considering that a large proportion of infected people are asymptomatic.

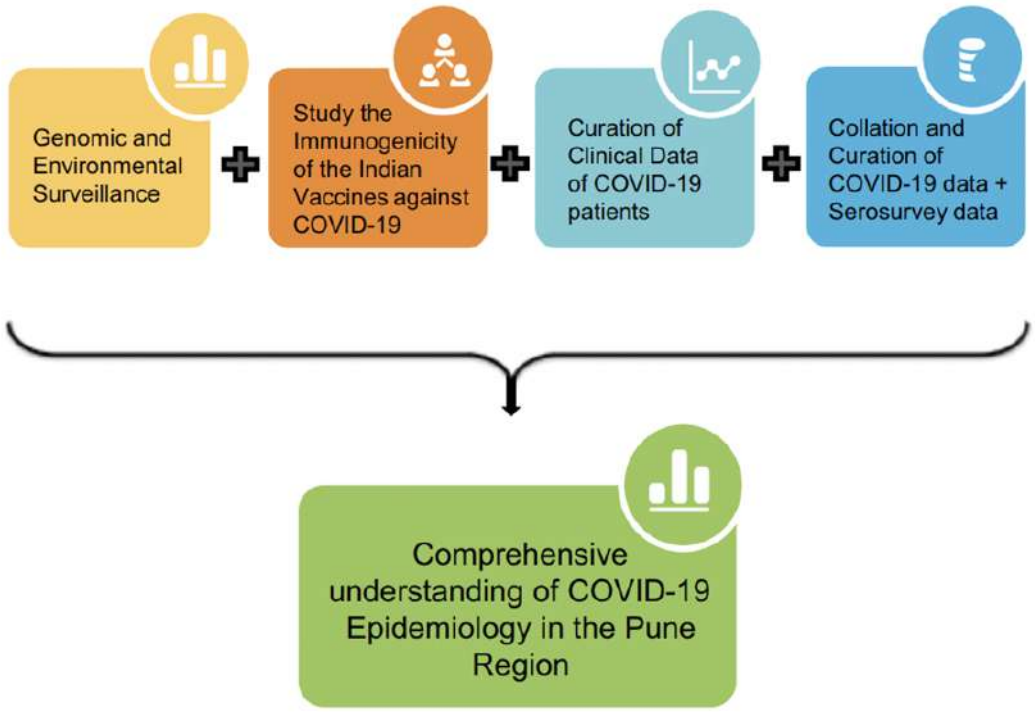
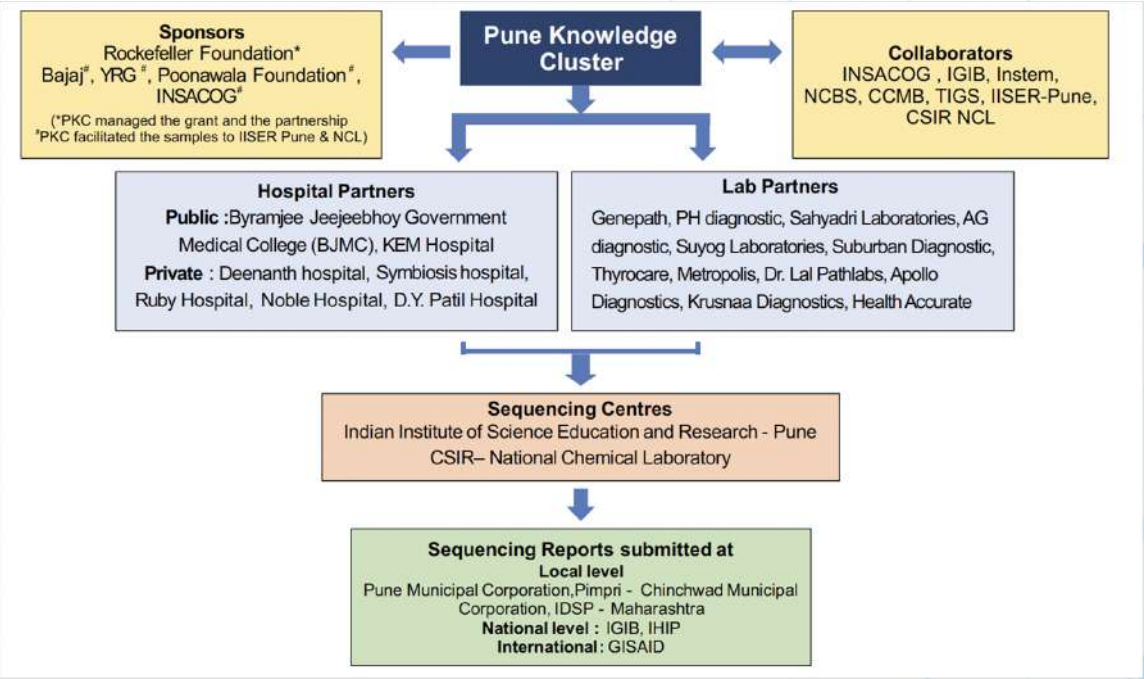


Fig. 1: PKC's strategy for understanding COVID-19 comprehensively at the city level

4.1.2 a COVID-19 Disease Surveillance and Genomic Sequencing

Description:

PKC as a part of the Indian SARS-CoV-2 Genomics Consortium (INSACOG) consortium, has helped synergize a multi-stakeholder collaboration in Pune to upscale genomic surveillance by ramping up sequencing efforts and bio-informatics. Genomic sampling strategy was based on epidemiological data and clinical meta-data.



Sponsor:

Rockefeller Foundation

Impact

- The project contributed significantly to COVID-19 sequencing efforts in India. Through the project, 2% of all positive samples from Pune have been sequenced and 6% of all data submitted to INSACOG was facilitated by PKC.

- Built a consortium that can be used to support disease surveillance (diseases other than COVID-19)

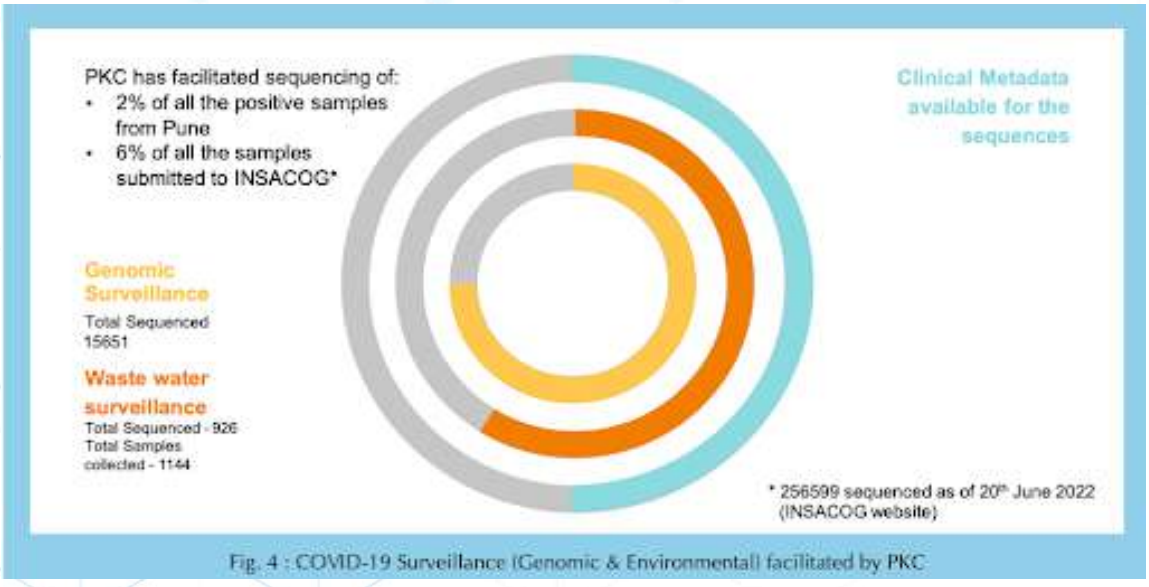


Fig. 4 : COVID-19 Surveillance (Genomic & Environmental) facilitated by PKC

Publications:

- Mave, V., Shaikh, A., Monteiro, J. M. et al. Association of national and regional lockdowns with COVID-19 infection rates in Pune, India. Sci Rep 12, 10446 (2022). https://doi.org/10.1038/s41598- 022-14674-0

- Bogam P, Joshi A, Nagarkar S, Jain D, Gupte N, Shashidhara LS, Monteiro JM, Mave. VBurden of COVID-19 and case fatality rate in Pune, India: an analysis of the first and second wave of the pandemic. IJID Reg. 2022 Mar;2:74-81, Epub 2021 PMID: 35721428; PMCID: PMC8690685 https://doi.org/10.1016/j.ijregi.2021.12.006

- Dharmadhikari, T., Yadav, R., Dastager, S. et al. Translating SARS-CoV-2 wastewater-based epidemiology for prioritizing mass vaccination: A Strategic Overview. Environ. Sci. Pollut. Res. 28, 42975–42980 (2021). https://doi.org/10.1007/s11356-021-15169-7

- Dharmadhikari, Tanmay, et al. High throughput sequencing based direct detection of SARS-CoV-2 fragments in wastewater of Pune, West India. Science of The Total Environment 807 (2022): 151038. https://doi.org/10.1016/j.scitotenv.2021.151038.

4.1.2 b COVID-19: Wastewater Surveillance

Description:

Environmental Surveillance focused on the collection and analysis of sewage and wastewater samples from various parts of the city to complement human surveillance and enable early detection of disease, considering that a large proportion of infected people are asymptomatic.

This is the first study in India to demonstrate the utility of sequencing in wastewater-based epidemiology to identify mutations associated with SARS-CoV-2 virus fragments from wastewater as an early warning indicator system. The emergence of new SARS-CoV-2 outbreaks on a community level can be monitored through wastewater surveillance. Combined with clinical testing, sentinel surveillance and epidemiological data, wastewater surveillance for SARS-CoV-2 can help track and identify the virus at an early stage and also estimate its geographical spread and intensity of transmission.

Partners:

- CCMB
- NCBS
- NCL, Pune
- Symbiosis School of Biological Sciences
- Ecosan Services Foundation
- Fluid Robotics Pvt. Ltd.
- IISER, Pune

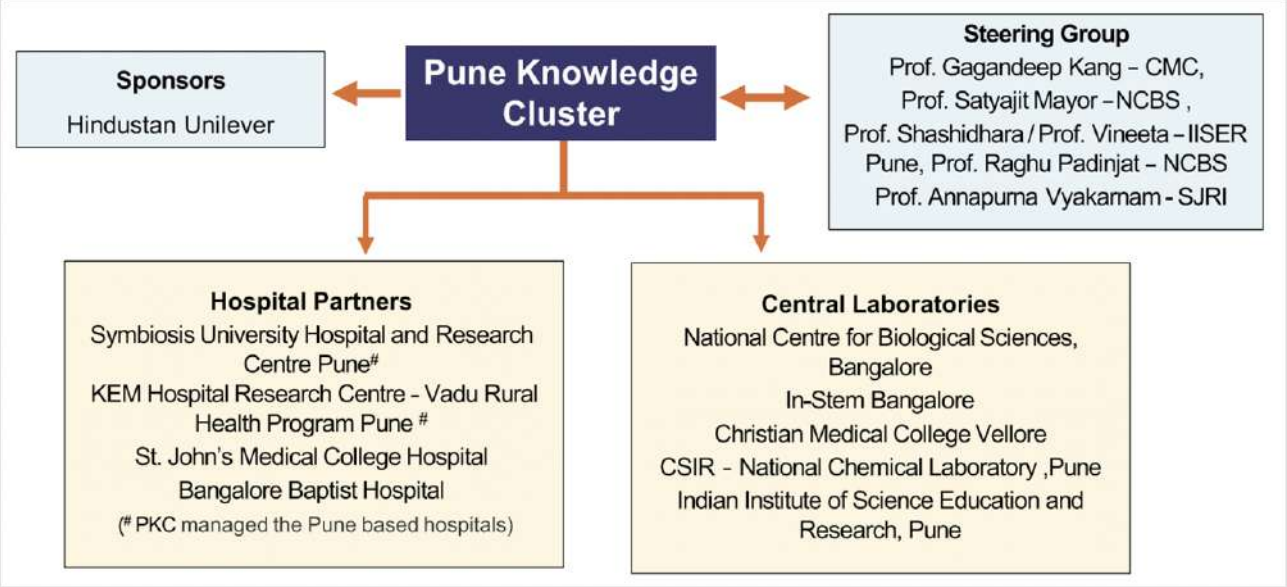
Impact:

- 1 paper published
- 7 papers in review/submitted for publication /being written
- Identification of the first SARS-CoV-2 Omicron variant of concern sample in Pune city.
- Wastewater Dashboard prepared

4.1.2 c COVID-19: Vaccine Immunogenicity Consortium

Description:

The kinetics and longevity of immune responses generated by COVID-19 vaccines in the Indian population are not completely understood. To bridge this knowledge gap, a research study for multi- dimensional understanding of immune responses to SARS-CoV-2 was conducted in two cities including Pune (Fig.. 5). The primary objective of the study was to understand differences in magnitude and longevity of humoral and cellular immune responses generated after vaccination with Indian vaccines for COVID-19 in individuals with or without evidence of prior SARS-CoV-2 infection based on sero-positivity.



Sponsor:

Hindustan Unilever Ltd.

Impact

- More than 300 individuals from Pune city participated in the COVID-19 Long Term Immunogenicity Study over a 9-month period.
- Insights were generated for the role of innate immunity, microbiome, and micronutrient biomarkers on the immune response to the COVID -19 vaccine in the Indian subpopulation (Manuscripts under preparation).
- Paper has been drafted and submitted to The Lancet Regional Health – Southeast Asia., Received comments.
- Potential impact on vaccine policy

4.1.2 d COVID-19: Epidemiological and Clinical Database

Description:

PKC aims at curating sequencing data, mapping cases geographically, taking into account epidemiological data and environmental parameters and then correlating the various datasets to make city level models for disease impact and progression. PKC has collected clinical data for 11000+ patients—digitization of this clinical data is in progress to build a comprehensive database that can be used for analysis.

Partners:

- Byramjee Jeejeebhoy Medical College, Pune
- AG Diagnostics
- Sahyadri Hospital
- Suyog Diagnostics
- Suburban Diagnostics
- Thyrocare
- PH Diagnostics
- Jehangir Hospital, Pune
- Ruby Hall Clinic
- Symbiosis University Hospital and Research Centre, Pune
- Noble Hospitals and Research Centre

Technology Partners:

- EPIC-Health Information Management
- Strand Life Sciences

PKC has used a data driven approach to understanding and implementing measures for COVID-19. Over the past 2 years, PKC in collaboration with hospitals, research organizations and civic bodies in Pune has collected and curated data for COVID-19 at various levels. This includes data for disease prevalence, hospitalized patients, testing and mortality. PKC is working to build comprehensive open source databases consisting of epidemiological, clinical and genomic data for COVID-19 which can be used by researchers and civic authorities to build city level models for understanding disease impact and progression.

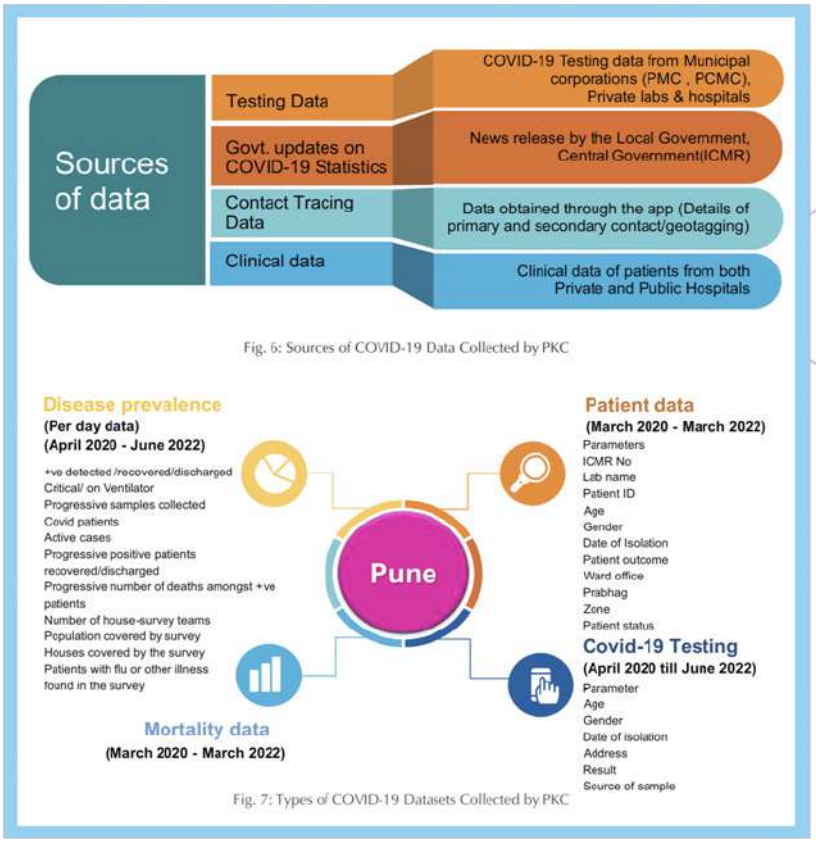
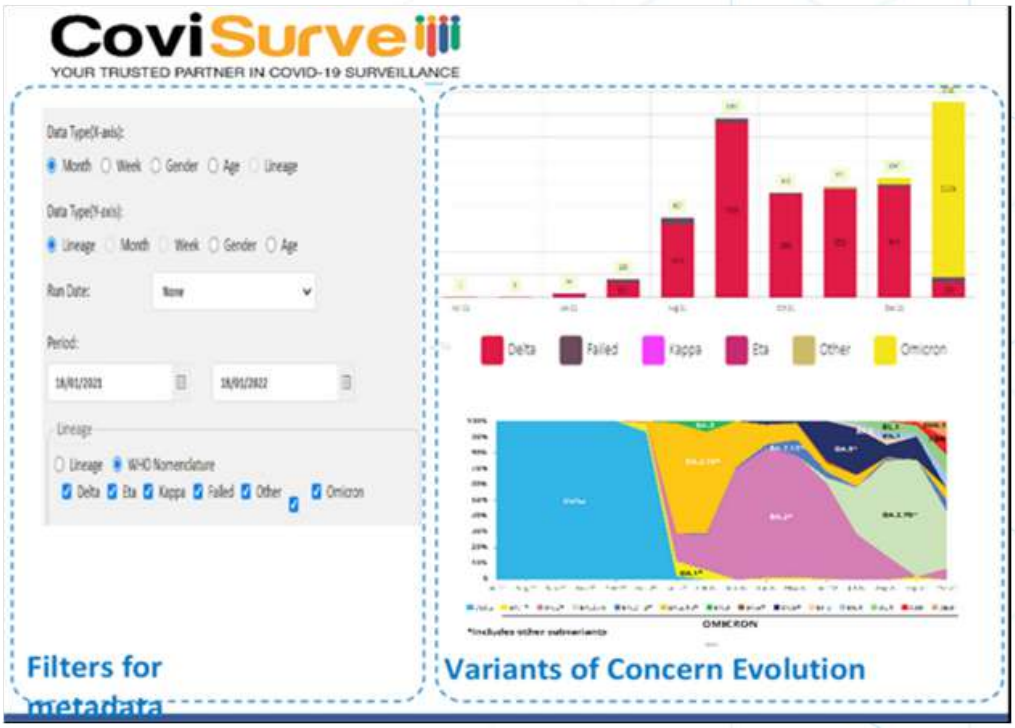


Fig. 6: Sources of COVID-19 Data Collected by PKC

Fig. 7: Types of COVID-19 Datasets Collected by PKC



4.1.3 Pandemic Preparedness: Early Warning Systems with AI/ ML by DRIIV

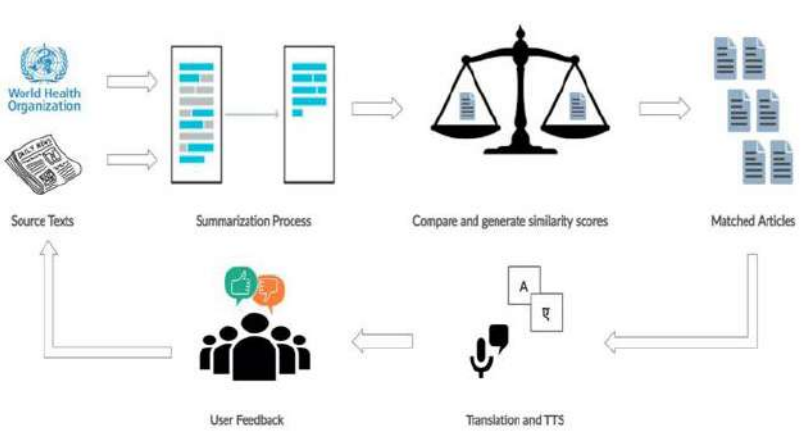
4.1.3.a WASH KARO engine: ML-based application for raising WASH awareness in the times pandemic

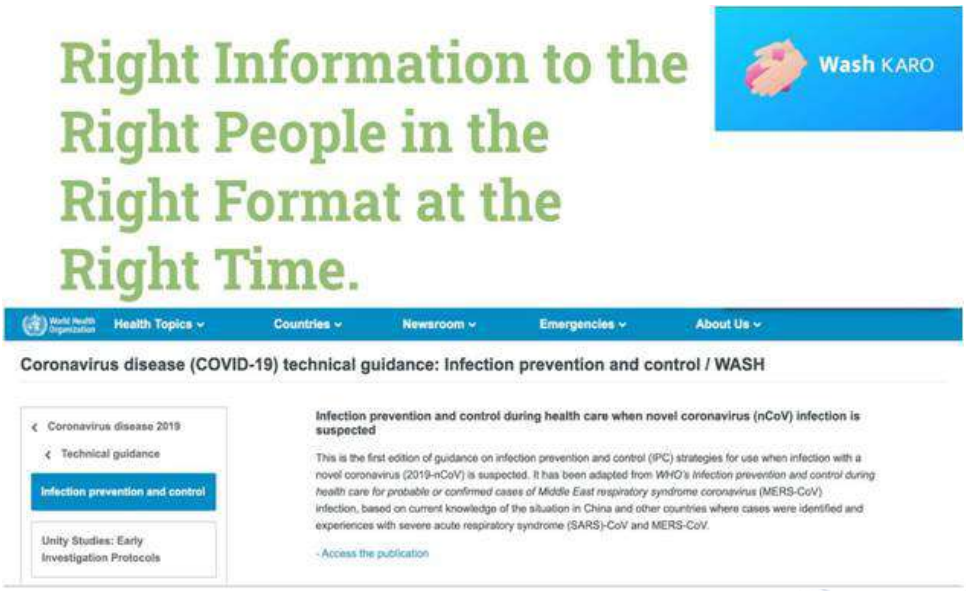
Description:

DRIIV in collaboration with IIT Delhi created WashKaro, a multi-pronged intervention for mitigating misinformation through conversational AI, machine translation and natural language processing. WashKaro provides the right information matched against WHO guidelines through AI, and delivers it in the right format in local languages.They have come up with several strategies in a short interval of time to raise awareness among the people regarding the Coronavirus and has furnished tools that can help them maintain a safe distance from the disease.

Partner

- IIT Delhi





Impact:

- WashKaro App was incorporated in Delhi Corona App [Govt. of NCT, Delhi]

4.1.3.b Early warning systems for pandemic outbreaks by Integrated Federated Healthcare Platform

Description:

A comprehensive COVID AI stack comprising of 3 dashboards; Strainflow (Model for Genomic Surveillance and Surge Prediction), Evidenceflow (publicly available web-application for emerging trend prediction, based on data mining with AI), VacSim (model for Vaccine resource allocation across India).

Partner:

- Integrated Federated Healthcare Platform

3.2.1 AI Based Genomic Surveillance: Genomic surveillance model for surge prediction with 2 month lead-time, accurately forecasted case surges in all three waves in India.

3.2.2 Evidence Mining with Artificial Intelligence: Capturing & predicting emerging COVID 19 research trends for actionable insights

3.2.3 AI for Resource Allocation: Effective strategies for resource allocation (vaccine distribution)

Impact:

- Model taken up by ICMR

4.2 One Health & Antimicrobial Resistance (AMR)

4.2.1 One Health by BeST

Description

BeST aims to build a network of practitioners and scientists who will engage with and inform policy makers, city planners, health authorities, NGOs, municipal bodies and citizens to minimize infectious and zoonotic disease risks to people and mitigate the challenges that novel outbreaks may bring. Bengaluru One Health model focuses on the following outcomes:

- Governance
- Capacity building
- Human disease surveillance
- Environmental and vector surveillance
- Disease ecology
- Model and predict
- Partnerships and public engagement

In this regard, BeST cluster launched the 'One Health Bengaluru City Consortium' as a significant first step towards the goal of integrating existing one health efforts, facilitating collaboration, and building a one health framework for the city of Bengaluru. Representatives from 25+ organizations consisting of researchers, academicians, technologists, industry experts, practitioners, policymakers, city planners, health authorities, not-for-profit organizations, and civic officials were gathered for the launch of the One Health Bengaluru City Consortium on 3rd March 2023, with a goal toward integrating existing one health efforts, facilitating collaboration, and building a One Health framework for the city of Bengaluru.

BeST
Bengaluru Science & Technology Cluster

Office of the Principal Scientific Adviser to the Government of India
Science & Technology Cluster

Launch of The One Health Bengaluru City Consortium

on 3rd March 2023

ONE HEALTH BENGALURU CITY

Partner:

ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
Bruhat Bengaluru Mahanagara Palike

C-CAMP
Centre for Cellular and Molecular Platforms

TIGS
Tata Institute for Genetics and Society

INDIAN INSTITUTE OF SCIENCE
भारतीय विज्ञान संस्थान

ncbs

Molecular Solutions Care Health

biome
environmental trust

Impact goals:

- Integration of real-time surveillance and scientists in the field
- Involvement of local institutions
- Plan in place to mitigate outbreaks of prevalent diseases
- Social group and political groups involvement for implementation
- Citizen involvement

4.2.2 Dashboard to track Antimicrobial Resistance (DRIIV)

Description:

In the process of developing a Scalable, NDHM compliant, and AI-enabled Antimicrobial Resistance Tracker: An AI enabled data port, analytics platform and federated AI platform for predictive modeling in (re) emerging epidemics data visualizations and temporal tracking of AMR will be carried out upon specific datasets. This portal is created in collaboration with AIIMS from an antibiotic resistance database of **0.7 million records** globally. It is an android app based on active surveillance of AMR.

Impact:

- Nationalized AMR dashboard on UTI infections (based on data across 20 cities) being launched with ICMR

4.2.3 Antimicrobial Resistance Study by PKC

Antimicrobial resistance (AMR) poses a critical global health threat, undermining the efficacy of antibiotic treatment in clinical settings. Pathogenic bacteria, linked to various diseases, display variable AMR patterns influenced by regional antibiotic usage. Prolonged and widespread antibiotic application in human and animal healthcare, alongside inadequate waste disposal, fuels the emergence and dissemination of AMR. The interconnectedness of global travel facilitates swift microbial transfer, exacerbating the spread of AMR. This complex challenge demands interdisciplinary efforts on a worldwide scale. As resistance escalates, treating common infections and conducting life-saving procedures becomes increasingly precarious, prompting international initiatives and governmental actions emphasizing the pivotal role of surveillance in combating AMR. Regular monitoring across diverse environments and attention to potential zoonotic sources are imperative for effective intervention.

Project Description:

In 2023, PKC and its Pune partners aim to comprehensively map the prevalence of Antimicrobial Resistance (AMR). The initiative involves supporting the Delhi cluster through leveraging hospital connections to furnish Antibiograms. Utilizing Whole Genome Sequencing (WGS), the project identifies genotypes of AMR in clinical hospital inpatients, hospital environments, and animal sources, employing molecular surveillance for bacterial pathogen sub-groups.

Impact:

- Enhanced Regional Collaboration: Strengthening connections between Pune and Delhi clusters fosters collaborative efforts in combating AMR through shared resources and information.
- Advanced Genomic Surveillance: WWS and WGS technologies enable precise identification and cataloging of AMR genotypes, providing crucial insights for tailored interventions.
- Holistic Understanding of AMR: By studying bacterial pathogens and AMR genotypes in diverse settings, including animal sources like raw milk, the project contributes to a comprehensive understanding of AMR prevalence, aiding targeted mitigation strategies.

4.2.4 Metropolitan Surveillance Unit by PKC

The PM Ayushman Bharat Health Infrastructure Mission. Strengthening surveillance of infectious diseases and outbreak response. Support for 20 Metropolitan Surveillance Units, 5 Regional NCDCs and implementation of IHIP in all states.

Pune is one of the 20 MSU sites; PKC is working with the PMC to establish the MSU in collaboration with Jhpiego.

PKC hosted a closed-door meeting with PMC, Jhpiego and other partners on the 27th of July 2023 to discuss the development plan of MSU.

4.2.5 Efficient Electron Transfer Engineering in Advanced Composites for Enhanced Antibacterial Activities by BCKIC

Description:

The proposed project is aimed at developing various quantum engineered alloys, composites which can be used as antimicrobial agents and can also complement and reduce the usage of major metals like copper with easily available ones like aluminum.

Lead Institution:

Partner Institutions:

Impact Envisaged

- Preparation, characterization of graphene oxide and process optimization for coating the surfaces
- Comparison and validation of antimicrobial properties with respect to bare metals
- Prototype development and validation with cost economics

4.3 Data & Digital Health

4.3.1 Digitalization of Clinical Data by RICH

Description:

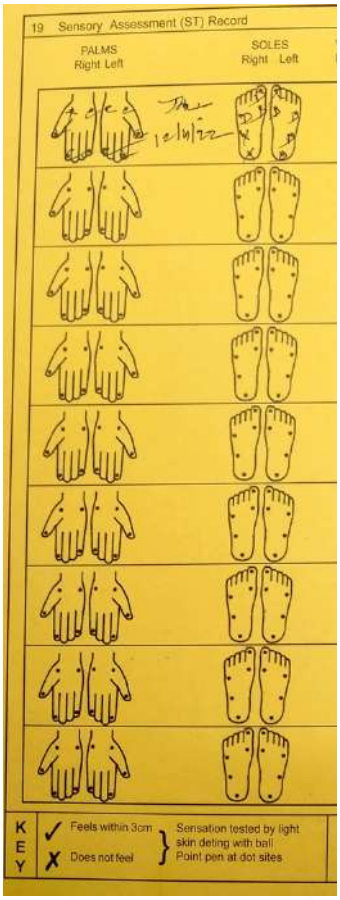
LEPRA Society – INAI, IIIT-Hyderabad's INAI institute is building a digital tool and database for LEPRA Society's clinical data collected from past 20 years.

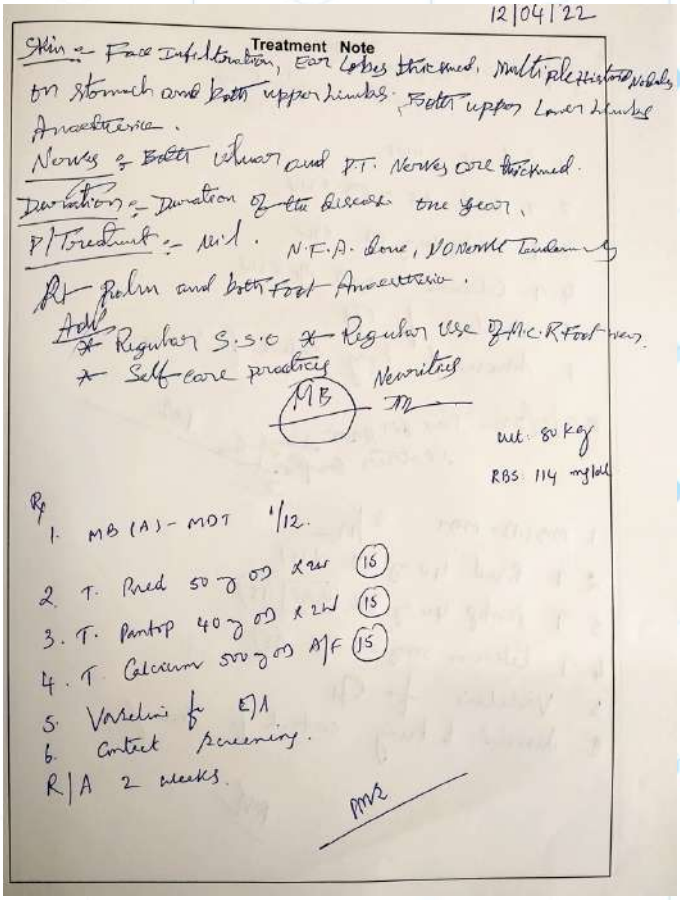
Partners:

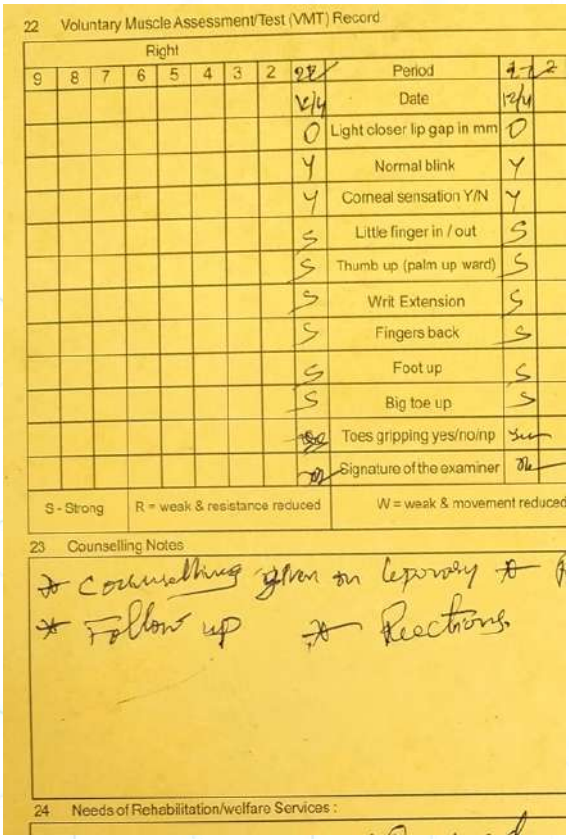
Impact:

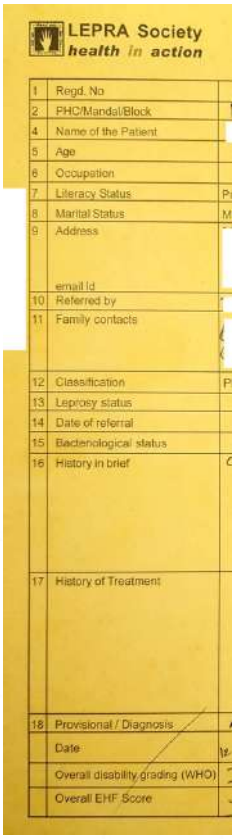
- Helping the LEPRA Organisation with the digitisation of patient records

Sample case sheet:







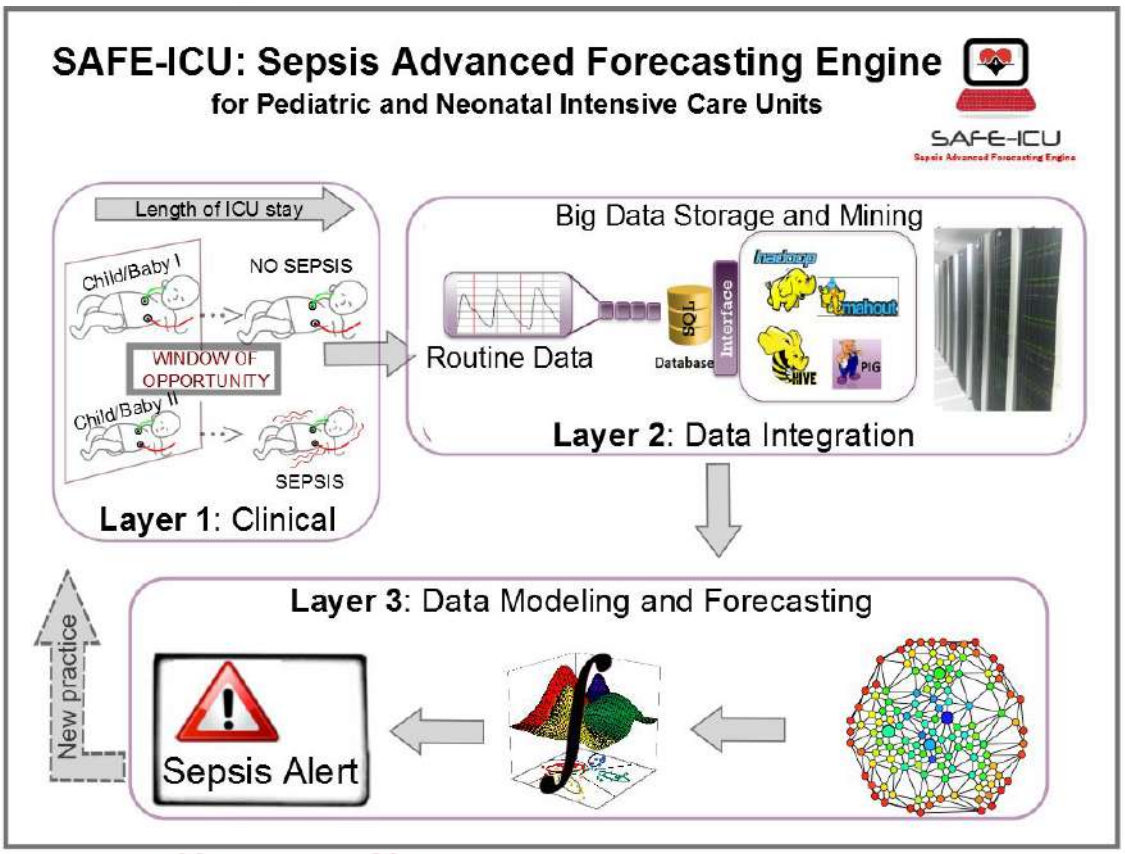


4.3.2 AI - Enabled Clinical Decision Use-cases by DRIIV

a. SAFE-PICU: Sepsis Advanced Forecasting Engine

Description:

Integration of ML based **Clinical Knowledge** addressing gaps in critical care.for early prediction of **hemodynamic shock & hypothermia**



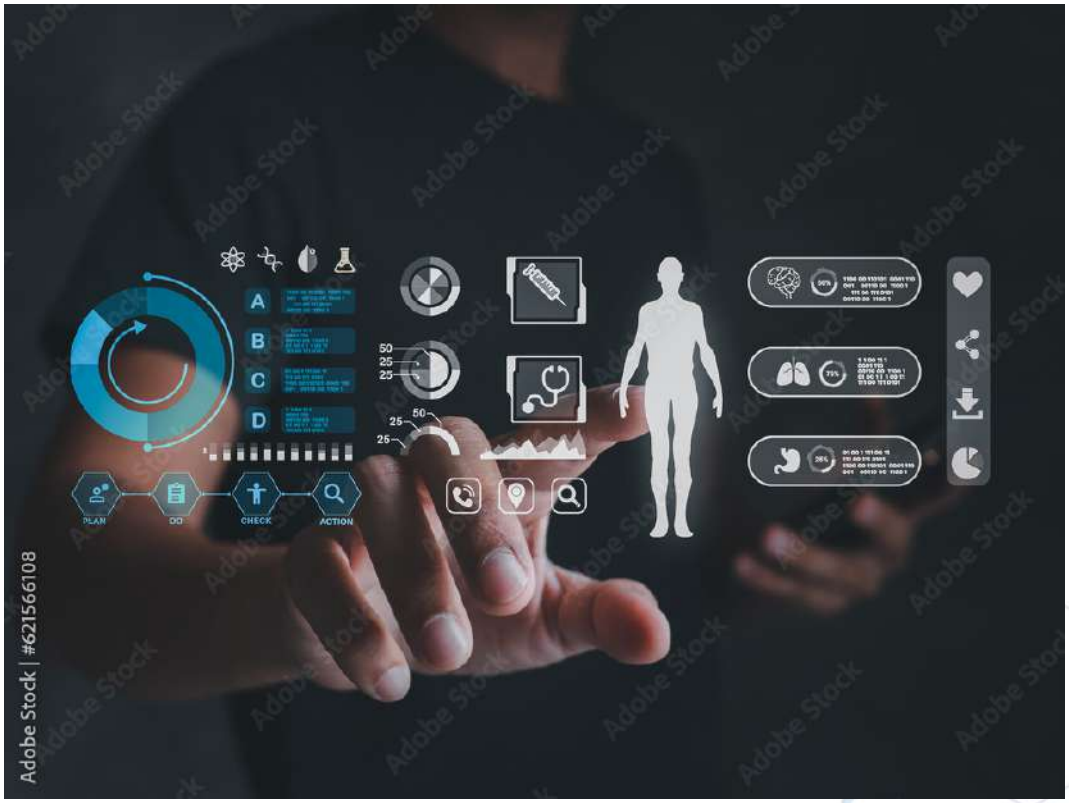
Impact:

- AI-based early detection of Sepsis adopted in pediatric intensive care units at AIIMS

b. Decision support system for Primary Healthcare

Description:

Digitization of PHC by designing & implementing digital health interventions at the primary care level.Includes clinical decision support systems, e-health records, client-friendly & privacy-protecting data systems. Real-time health dashboards being developed from mobility data for policymakers.



Impact:

- Digitization of primary health-care (mohalla clinics & polyclinics)

4.3.3 Digital Health by BeST

Description:

The project aims to develop and deploy digital foot clinics focusing on the following outcomes:

- Accessible and affordable screening and triaging diabetics for foot ailments.
- Customization algorithms and software, Manufacture of dynamic self-offloading footwear for diabetic foot
- Clinical validation and certification

Partners:

KARNATAKA INSTITUTE OF ENDOCRINOLOGY AND RESEARCH

INDIAN INSTITUTE OF SCIENCE
भारतीय विज्ञान संस्थान

MMYK

FOOT SECURE

Impact:

- 80% of amputations can be prevented with early interventions. On average, a patient can save up to INR 1.3 lakhs.
- It is estimated that about 6,500 people per year will benefit by setting up one Digital Podiatry Kiosk.

4.4 Disease & Wellness Interventions

4.4.1 Creation of Biobank by RICH

Description:

The project aims to create a biobank by preserving digitised health records and samples of a large number of patients undergoing treatment at an apex government hospital

Partners:

FIND

LEPRA
Registered as LEPRA Society
A GuideStarIndia certified NGO

Impact:

- Preservation of digitised health records and samples of a large number of patients, truly representative of the population
- Open data sets of disease trends, patient demographics, medicine prescriptions, and samples of pathology, radiology, and other labs
- Effective Government funds allocation and policymaking for researchers to identify big problems, and for innovations to be tested and fast-tracked
- National and international universities, and industry collaborations for research purposes
- Generation of employment for high-skilled biotech professionals

4.4.2 Indian Cancer Genome Atlas

Description:

The project aims to do whole genome, epigenome, metagenome and transcriptome sequencing of Indian stomach and biliary duct malignancy patients to uncover the whole mutational, immunological and infection landscape that shall help in identifying actionable mutations and elucidate functional or clinical implications of these identified mutational signatures.

Partners:

Hospital Partners:

AIG HOSPITALS

BASAVATARAKAM INDO-AMERICAN CANCER HOSPITAL & RESEARCH INSTITUTE

KIMS HOSPITALS

Research/Academic Institutes:

CCMB

Impact:

- Next-generation sequencing of gastric carcinoma and biliary duct tumours and control tissue will help to understand the events involved in the onset and progression of gastric cancer and the identification of new targets for drug development.
- Identification of pathogenic and driver mutations, characterization of the molecular profile of tumours, and prediction of clinical outcomes for the patients
- Identification of genetic, epigenetic, and metagenomic disease-modifying factors
- Development of risk scores for prognostication/therapy.

4.4.3 Infectious disease screening model

Description:

An innovative AI-based mobile screening tool designed for the efficient detection of infectious diseases, with a primary focus on vulnerable populations such as migrant workers. This tool facilitates screening initiatives conducted by social organizations, leveraging artificial intelligence to enhance accuracy and speed in identifying potential cases. The platform extends its intelligence to prioritize childhood pneumonia and tuberculosis (TB) surveillance, employing advanced algorithms for early detection and intervention. This holistic approach aims to significantly improve the effectiveness of disease screening, particularly in marginalized communities, ensuring timely identification and intervention for better public health outcomes.

Impact:

- Migrant workers in Mohammadpur, Delhi, screened for TB using AI-based mobile screening tool

4.4.4 Development of Sanitary Pads for Improved Women Hygiene

Description:

The proposed project aims to develop an eco-friendly women's hygiene product for the tribal and economically weaker region of the state focusing on enhancing health, entrepreneurship, and skill development.

Partners:

Impact:

- Production through third-party manufacturing for a standardized process development.
- The product shall be distributed in a controlled environment for user feedback.
- Awareness program on Hygiene Menstrual Practices and the use of sanitary pads.

5. Deep-Tech Start-Up Related Activities/ Projects

5.1 Acceleration Initiative for Devices & Diagnostics (AID) by RICH

Description:

A 6 month programme followed by 5 year need based market entry support. AID in association with AIC-CCMB, I-Venture@ISB & Malla Reddy Health City aims to enable the early stage and mid stage start-ups through workshops, one on one interactions and valuable connects in the areas of IP, Regulatory, Clinical Validation, Product Development and Fund Raising.

Partners:

Knowledge Partner

Business Domain Partner

Clinical Validation Partner

Impact:

- Supported 36 Startups PAN India
- Helped 3 startups (Briota Technologies, CareNx, Nemo Care) through the validation studies at the Hospitals by providing with the test bed support
- Clinical validation and usability assessment by the clinicians
- More than 6 Cr funds raised and corporate connected
- 35 Mentors onboarded
- 20 Domain workshop organized
- More than 50 one on one mentoring sessions conducted

5.2 IHF Quest Grand Challenge focused on Infectious Diseases by BCKIC

Description:

India Health Fund, a TATA Trusts Initiative in partnership with BCKIC Foundation scouted and supported innovations to address pressing problems affecting control, care, and cure of infectious diseases. Through Quest, the science and technology-backed, platform-based multi-disease/modular innovations, which have the potential to scale and percolate to primary healthcare levels were being identified and supported.

Partners:

Impact:

- 55 applications received
- 10 technologies selected for final screening
- 2 technologies supported
- Funding support of 91 Lakhs provided

Startups supported:

OmiX Labs Pvt Ltd

Transforming Nucleic Acid Testing of Antimicrobial Resistance (AMR) with innovations in Automation, Molecular Biology and Data Science

Salcit Technologies Pvt Ltd

Artificial intelligence platform as a screening tool and diagnostic aid in the assessment of respiratory diseases

5.3 UK – India Healthtech Bootcamp for Digital Health Startups by BCKIC

Description:

The Academic Health Science Network, Yorkshire and Humber, Bhubaneswar City Knowledge Innovation Cluster Foundation and KIIT TBI organized a 3 day fully funded bootcamp for 25 selected Indian healthcare companies on the UK healthcare market, access to subject matter experts and the opportunity to engage directly with UK NHS stakeholders.

Received a total of 148 applications across PAN India and finally top 25 companies were invited for the 3 days tailormade bootcamp sessions. Furthermore, 6 startups will be selected for a 5 days UK NHS Immersion program at Yorkshire, UK to explore the commercialization and deployment aspects at NHS.

Impact:

- 6 selected startups for UK NHS Immersion Program

a. Avay Biosciences Pvt Ltd

Sector: Biomedical Engineering

Innovation: Development of Advanced 3D Bioprinter

b. Karkinos Healthcare Pvt Ltd

Sector: Tele-Health

Innovation: A Technology Led Purpose Driven Oncology Platform

c. Manentia Advisory Pvt Ltd

Sector: Biomedical Devices

Innovation: 3D AI based deep leaning platform for analysis & monitoring of CT lung cancer

d. LarkAI Healthcare Pvt Ltd

Sector: Biomedical Devices

Innovation: ThoraCare: A non-invasive easy to use early stage heart and lung abnormalities screening device

e. Cutting Edge Medical Devices Pvt Ltd

Sector: Tele-Health

Innovation: SCINTIGLO: Point of care diagnostic device for democratizing healthcare

f. Stimveda Neurosciences Pvt Ltd

Sector: Digital Health

Innovation: Personalised brain stimulation and digital cognitive-emotional therapy

5.4. Startup Technology Deployment Activities

a. MedTel Healthcare Pvt Ltd

iLAB & iRPM: Remote Patient Monitoring System
Innovation: MedTel's RPM platform incorporates connected diagnostic devices, a smartphone app, and a web-based dashboard for hospital access and review
Deployment Strategy: Deployment at Zila Swasthya Samiti, Balangir, Odisha, Berhampur Household, PMSMA, Kalahandi, Odisha

b. OSMO Systems: Safeguarding Lives from Air & Water Borne Infections

Innovation: Eta Purification's micro-cavity plasma systems (COSMO) offer 100% chem cal-free, eco-friendly, human safe and sustainable method for decontamination of water, air & surfaces to safeguard lives in healthcare, transit/ transport, institutions, industries and more.

Deployment Strategy: The technology has been deployed at multiple hospitals and care centers as well as in Chennai Metro Rail Limited. Further, deployments are in pipeline at various other hospitals and clinics, institutions and transportation modes.

c. IOT-enabled Point-of-care Blood testing Device for affordable and accessible healthcare powered AI/ML algorithms

Innovation: Mobilab™ is a Portable, Affordable, Easy-to-Use Diagnostic Device for early Detection of multiple parameters of Kidney, Liver, Heart and Pancreas at a 10x affordable price.

Deployment Strategy: The PoC device can be deployed at testing labs, care centers, hospitals, clinics, govt and private establishments at remote locations such as AIIMS Delhi, GNRC Hospital – Assam, GMCH – Assam, JL Rohtagi - UP

d. Sanjivani QCPR : Resuscitation Ecosystem For Cardiac Arrest Victims

Innovation: Sanjivani CPR assist device can enable common public to provide effective chest compressions with real time audiovisual feedback and connectivity to nearest hospital & ambulance

Deployment Strategy: At various public places like railway stations, Malls, community halls, large educational institutes, Indian army training institutes & Simulation centers through CSR / Govt or institutional purchase such as Fortis Hospital, Mumbai, Startup Odisha Office, Bhubaneswar

e. The Smartest Cardiac health monitoring device

Innovation: A portable device that replaces several distinct elements of a traditional ECG and Stethoscope setup. A novel AI algorithm which diagnose early stage real-time heart impulse and valvular disease for futuristic predictive analysis

Deployment Strategy: The PoC device can be installed and deployed in both rental as well as buy model at various hospitals, clinics, care centers, gyms and fitness centers, etc. Currently, the deployment is in progress at various UPHCs across Bhubaneswar city.

5.5 Forging Global Alliances: Fueling Innovation Through Collaborative Diplomacy. British Deputy High Commission Explores Innovation Potential of MedTel.

Description:

Bhubaneswar City Knowledge Innovation Cluster (BCKIC) Foundation and the British High Commission in India demonstrated the power and necessity of local organizations and international diplomatic entities collaborating and coming together.

One of the emerging Digital Health Startup, MedTel Healthcare showcased the incredible range of their innovative products to the representatives of British High Commission.

The event laid the foundation for fruitful partnerships, knowledge sharing, and the exchange of ideas that will pave the way for innovation and development

6. Regional Ecosystem Strengthening

6.1 ABCs of Medical Devices & IVDs Commercialization Journey by RICH

Description:

Month-long series focussed on creating awareness along with in-depth support to understand the various stages involved in scaling a proof-of-concept validated idea to a marketable product. The series was divided into 4 tracks related to intellectual property, regulatory, industry immersion and Clinical Exposure, followed by a highlight event of Medical Devices and IVDs startup showcase.

Partners:

IP Partner

AVID INVENT
Your Innovation Partner

Regulatory Partners

CENTRAL DRUGS STANDARD CONTROL ORGANISATION
CDSCO CDSCO
MINISTRY OF HEALTH, GOVERNMENT OF INDIA

igrf
IKP GLOBAL REGULATORY FORUM

IKP

industry Partner

Akriti®
Simplifying Eye Care

HUWEL LIFESCIENCES PVT.LTD
thriving with science

PathnSitu
Biotechnologies

SMT

Clinical Partners

AIG HOSPITALS

ExcellHospital.com


Launch of
ABCs of Medical Devices &
Commercialisation Journey


awareness & hands-on workshop series
Track 2
Workshop on regulatory
Track 4
Clinical exposure and start-up showcase
Akriti


SMT
Launch of
ABCs of Medical Devices & IVDs
Commercialisation Journey
A month-long awareness & hands-on
workshop series


Akriti

6.2 Sustainability and Digitalisation Roadmap for Chemical Industry

Description:

RICH, in partnership with Dr. Reddy's Institute of Life Sciences and the Royal Society of Chemistry, organised an online conclave to help the chemical industry achieve its United Nations Sustainable Development Goals (UN SDGs), which serve as a blueprint to achieve a better and more sustainable future for the world. The objective of the conclave was to discuss innovative design, creation, processing, and usage, through which the chemical industry can play a major role in helping humanity to meet current environmental, economic, and societal challenges without compromising the progress and success of future generations.

Partners:

ROYAL SOCIETY OF CHEMISTRY

DR. REDDY'S INSTITUTE OF LIFE SCIENCES

UNIVERSITY OF HYDERABAD

6.3 T-Health Café

Description:

RICH, in association with OJAS BioNEST at CIE-IIIT Hyderabad, has been organising a monthly event by engaging the MedTech consortium of research/academia institutes, hospitals, start-ups, incubators, investors, and industry to enable the MedTech, Healthcare, and Life Sciences innovation ecosystem.

Organising/Participating Entity:

- CIE-IIIT Hyderabad

6.4 Clinician Peer Support Program by BCKIC

Description:

The Clinician Peer Support Program (CPSP) is a pioneering initiative launched by the DST Centre of Excellence at KIIT Technology Business Incubator in association with BCKIC Foundation.

Objective

- The primary goal of CPSP is to build a dynamic platform that brings together
- clinicians, surgeons, and professionals from diverse medical disciplines to foster healthcare innovations.

Offerings of the program

- Capacity Building Training Program
- Clinician Immersion Program
- Prototyping & Product Development Assistance
- Team building activities & spinoff creation

CLINICIAN PEER SUPPORT PROGRAM

Impact:

- 80 Clinicians Engaged
- 60 Healthcare Startups Engaged
- Funding Support of 25 lakhs provided
- 30 IPs Facilitated

6.5 Compliance Forum Fridays by BCKIC

Description:

Compliance Forum Fridays, was a one-of-its-kind initiative of KIIT TBI in collaboration with Valnizen Healthcare that offered startups a platform to explore regulatory insight and to understand the go-to-market strategy requirement for various healthcare and food tech innovations and technologies. This series was an opportunity for startups & innovators to interact with the regulators to resolve their regulatory issues thereby facilitating them to seek market authorization.

Industry Partner Onboarded:

- Valnizen Healthcare Pvt Ltd as CRO

Impact:

- 130+ startups/Innovators Engaged
- 10 mentors onboarded
- 20 hrs total mentoring hours
- 15 Regulatory Projects Facilitated (Connected to the CRO)

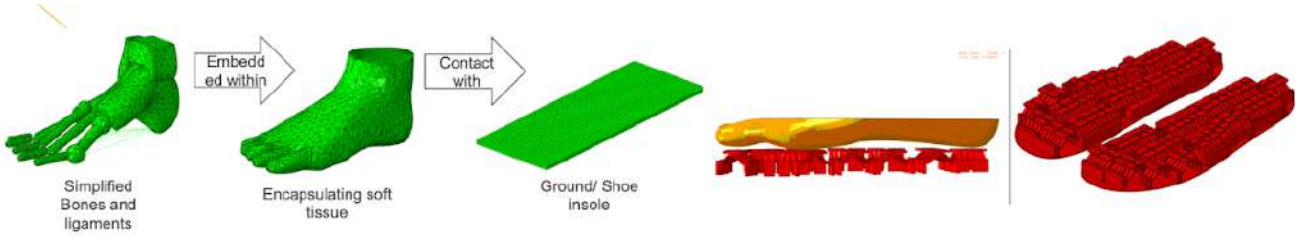
6.6 Joint programs in medical technologies (IIT J & AIIMS J)

Masters in Medical Technologies and Ph D program (MMT) joint degree Masters, PhD and Master-PhD programmes in Medical Technologies by IIT Jodhpur and AIIMS Jodhpur which aims to provide a common platform for doctors and engineers fostering knowledge sharing and innovation leading to development of indigenous healthcare devices and systems through the process of incubation and entrepreneurship.

7. Success Stories/Breakthrough Innovations

7.1 Diabetic Foot Kiosk Deployment / Patented self-offloading footwear technology by BeST

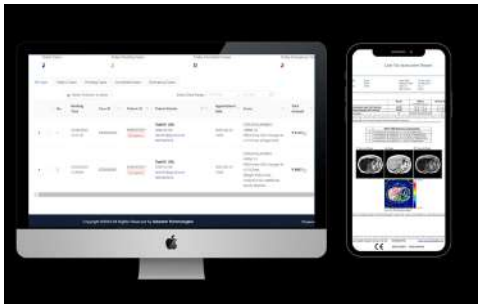
A pilot kiosk has been established at the Karnataka Institute for Endocrinology and Research Hospital. This innovative setup focuses on comprehensive patient screening, encompassing conditions such as calluses, ulcers, wounds, peripheral neuropathy, peripheral arterial disease, and abnormal plantar pressures. The kiosk employs cutting-edge technology, including a digital foot twin system, for predictive diagnosis and prognosis. As part of the initiative, patented self-offloading footwear is currently undergoing clinical validation, offering a potential breakthrough in the management of foot-related complications. This integrated approach underscores a commitment to advancing healthcare by leveraging state-of-the-art tools for early detection, monitoring, and intervention in foot health.



a. Alfaleus Technology Pvt Ltd

Funds Raised / Achievements

- INR 40 lakhs in Loan
- INR 64.3 lakhs in Grants (BIRAC)
- INR 44 lakhs in Equity



b. Aikenist

Funds Raised / Achievements

- Funds: 1.5 Cr INR from C-CAMP & MARL US fund
- Awards: Karnataka Elevate 100, TIDE 2.0 MEITY grant, CE Emerging Unicorn

c. Briota Technologies

Funds Raised / Achievements

- Supported by BIRAC Government of India and Technology Development Board Government of India, Briota has won several national and international awards including JanCare Healthcare Innovation Startup of India 2023, OPPI's Most Innovative MedTech Startup of India 2021, ZS Most Disruptive Healthcare Startup of India 2023, MIT Solve Global Healthcare Challenge Finalist 2023.

d. Startoon Labs

Funds Raised / Achievements

- Startoon Labs has successfully raised around 4.5 crores till date
- It is ISO9001 and ISO13485 certified and has been recognized for it's contribution to the ITSECTOR of the State of Telangana by Government of Telangana. Startoon Labs has stringent quality measures and its flagship product - PHEEZEE, is USFDA Cleared.

e. Medtel Healthcare Pvt Ltd

Funds Raised / Achievements

- BIRAC LEAP fund worth INR 50 lakhs
- Pre Series A: INR 5 Cr raised already. INR 2.5 Cr to be raised
- ~ 1000 units deployed across multiple districts in Odisha
- Conducted over 50 rural health camps across multiple remote locations of Odisha

f. Avay Biosciences Pvt Ltd

Funds Raised / Achievements

- Received INR 1 Crore from DST CAWACH
- Recognized as the first in India to provide a state-of-the-art technology to protect general public traveling through rapid urban transport
- Multiple units have been deployed in collaboration with Chennai Metro Rail Corporation

g. Dhanvantri Biomedical Pvt Ltd

Funds Raised / Achievements

- Raised INR 5 Lakhs from Social innovation immersion program by BIRAC
- INR 49.75 lakhs grant-in-aid from BIRAC BIG scheme
- Raised INR 48 lakhs fund from DST NIDHI4COVID
- Received INR 1 Cr from All Sharks in Shark Tank

h. ETA Purification Pvt Ltd

Funds Raised / Achievements

- Received INR 1 Crore from DST CAWACH
- Recognized as the first in India to provide a state-of-the-art technology to protect general public traveling through rapid urban transport
- Multiple units have been deployed in collaboration with Chennai Metro Rail Corporation

i. Inochi Care Pvt Ltd

Funds Raised / Achievements

- INR 49.07 lakhs grant-in-aid from BIRAC BIG scheme
- INR 3 lakhs grant-in-aid from DST NIDHI PRAYAS
- Winner for ASME 2022 and received cash prize worth 10,000 USD.
- DRDO TDF Funds of 65 lakhs
- Test license obtained from CDSCO
- Certified product from ISO, IEC & NABL
- Wholesale drug licence obtained from CDSCO

j. Larkai Innovations Pvt Ltd

Funds Raised / Achievements

- Received ISO and IEC Certifications for the product
- SASACT fund of INR 24 lakhs from KIIT TBI
- BIRAC BIG grant of INR 50 lakhs
- ACT Grant of INR 41 lakhs through IHF

SALCIT

k. Salcit Technologies Pvt Ltd

Funds Raised / Achievements

- Received ISO and IEC Certifications for the product
- SASACT fund of INR 24 lakhs from KIIT TBI
- BIRAC BIG grant of INR 50 lakhs
- ACT Grant of INR 41 lakhs through IHF

PRIMARY HEALTHTECH

l. Primary Healthtech Pvt Ltd

Funds Raised / Achievements

- INR 50 lakhs from BIRAC BIG Grant
- INR 25 lakhs from BIRAC SEED fund at KIIT TBI
- Raised INR 25 lakhs from Pontaq Venture & STPI
- INR 33 lakhs from MeitY SASACT
- INR 25 lakhs from Villgro
- Raised INR 1 Cr from Sage Venture
- Selected for MeitY SAMRIDH Matching fund of INR 40 lakhs

8. Testimonials

RICH

"Our participation in the AID Cohort gave us important connections to potential users which enabled us refine our Target Product Profile and prioritize use cases. Connection to a leading investor group enabled us to understand what the investor community expects from our kind of technology. Network with Clinical CROs enabled us to understand data and budget requirements for a first Human PoC study in our next phase."

Dr. Badri Viswanathan

CEO & Founder, Transform Scitech

"Our selection in AID-Cohort 4 gave us the required visibility for our product prototype, received guidance on preparation of test license application, CE process and developed fruitful network. Now we are validating our product for other areas including veterinary."

"Great work. Helped in clarifying lots of doubts. Paved the way for many potentially collaborative links. Would love to be a part of upcoming events. Thanks for providing the platform."

Dr. Roshan Naik

Founder, Diagopreutic Private Limited

"Thanks to RICH, Dr. Sushmitha Sundar, and Mr. Aravind Kumar for organizing the "ABCs of Medical Devices and IVDs Commercialisation Journey" and getting the stakeholders at one location for the startup showcase. Having been around for a while as a serial entrepreneur, I am confident to say that this is the first of it's kind I attended."

Mohamed Jameer Basha J

Caldor Health Technologies

PKC

"Waste water surveillance became a critical part of the fight against the Covid-19 virus, not just as an indicator at the macro scale but also to understand micro neighbourhood patterns. The study and dashboard developed by PKC has built onto that strength not just for the virus but also against other indicators including antibiotic resistant bacteria etc. which can go a long way in a city's monitoring and preparedness."

Mr. Shekhar Singh, IAS

Commissioner, Pimpri Chinchwad Municipal Corporation

"The one-day workshop on vector-borne diseases for field workers of Pune Municipal Corporation, organized by PKC together with Pune Municipal Corporation and ICMR-NIV has been very valuable. The field workers were happy to get in depth scientific knowledge about the different mechanisms of spread of vector-borne diseases, especially dengue. I thank all the organizers for this insightful workshop- it is the first time, that such kind of a workshop has been organized for the field workers and they would love to attend more such workshops!"

Dr. Suryakant Deokar

Assistant Medical Officer of Health, Pune Municipal Corporation

"Incepted during the pandemic, PKC had the foresight to initiate some very important work at the city level for COVID-19. KEMHRC, Vadu was privileged to be associated with PKC for several collaborative studies, including the VISION101 study which aims to understand the differences in magnitude and longevity of humoral and cellular immune responses generated following COVID-19 vaccination. Another study which we worked together on involved digitization and curation of retrospective data from confirmed hospitalized COVID-19 cases. These efforts will help in identification of correlations between virus genetics, clinical presentation, and the potential impact of interventions using machine learning and systems biology approaches. This is also an important capacity building exercise for all partner hospitals to venture into enhancing usability of hospital records which otherwise remain unutilized. Working with the PKC Team has been a pleasure because it gives a good sense of togetherness and confidence that data as well as knowledge generated will be used responsibly for the benefit of humankind."

Dr. Sanjay Juvekar

Vadu Rural Health Program, KEM Hospital Research Centre, Pune

"PKC has been a key partner with organizations across the country that have been using GenePath quantitative SARS-CoV-2 RT-PCR kits to monitor viral abundance in waste-water samples. This work has allowed advance prediction of localized spikes through the multiple waves seen in the country without the need to test individuals. In addition to all the practical benefits of the work carried out by the PKC-led coalition during the pandemic, there has also been a tremendous building of community, pan-organizational collaboration, and academic progress. We look forward to a continued long-term mutually beneficial association between all the partners under the PKC umbrella."

Dr. Nikhil Phadke

Founder-Director, Chief Scientific Officer, GenePath Diagnostics

9. Future plans

9.1 One Health & Antimicrobial Resistance (AMR)

RICH
Research and Innovation Circle of Hyderabad

The Hyderabad One Health model will comprise three essential components. Firstly, will focus on infectious disease surveillance and understanding disease ecology. Secondly, it will emphasize environmental, zoonotic, and vector surveillance in both urban and peri-urban settings. Lastly, it will encompass policy development, planning, efficient management, and effective implementation strategies to address One Health challenges comprehensively.

PUNE KNOWLEDGE CLUSTER
PKC

- Support the One Health Mission anchored by O/o PSA
- WWS- Concentrate on samples from specific confluences of humans and animals.

BeST CLUSTER

- Consortium-based projects to align with National One Health Mission: Bengaluru One Health Model
- Facilitate Development, Validation and Deployment of innovations related to Communicable diseases / Anti-Microbial Resistance (One Health Innovation Challenge with C-CAMP)

- **OneHealth** implementations for emerging epidemics & AMR
- Engagement with large pharma & digital health platforms for using **clinical data usage** for AMR models and gaining insights for designing interventions for chronic diseases (diabetes, heart diseases etc)

9.2 Data & Digital Health

- Building Indian population level cancer specific digital database with clinical and genomic multi-modal database for research and commercial purpose.
- Building AI-ML tool for personal and population level descriptive, prescriptive and predictive analysis of Telangana Government's T-Diagnostics platform providing population level pathological services.
- Deployment of a robust ABDM-compliant data platform for industry, academia and policy makers
- Digitalization solutions & data-centre creation with Mohalla Clinics & Polyclinics

9.3 Disease & Wellness Interventions

- Disease models in collaboration with IITM/ARTPARK/IMD-Pune. Integrate these disease-specific dashboards and analyses to the government for disease management. Some of these models exist, and PKC will work with PMC/PCMC for data and integration
- WWS, set it up in a hospital setting and make correlations with the disease data from the hospital. Correlations between caseload and observations in the WWS will help us extrapolate to the population level.
- WWS- extend our work to other diseases and rural settings.
- Dengue Policy Paper
- Work with State on the MSU
- Non-communicable diseases (Diabetes screening in PHCs, Sickle-cell anemia screening)
- Public Health (Robotic obstacle remover to replace manual scavenging)

» Center for Advanced Research on Cardiovascular Disease and Stroke Technologies (CARDIOTech)

10. Media Coverage

4th Cohort of RICH's Acceleration Initiative for Devices and Diagnostics Announced!

Narasimha Raju 7 months ago

Research and Innovation Circle of Hyderabad (RICH) today announced the members of the 4th cohort of its Acceleration Initiative for Devices and Diagnostics (AID) programme.

Hyderabad: RICH Launches Mission 10X-SIGs

By **Hyderabad Now**
Jul 20, 2022 #hyderabad, #Research and Innovation Circle (RICH)

Hyderabad: RICH Launches Mission 10X-SIGs

Hyderabad, July 20 (Hydnow): **Research and Innovation Circle (RICH)** of **Hyderabad** *(Hyderabad S&T Cluster)* and the *T-Incubators* and *Accelerators consortium* have launched the **Mission 10X – SIGs**, a three-month joint scale-up program for early-stage research connected startups.

Research and Innovation Circle of Hyderabad (RICH) Concludes the Workshop Series "ABCs of Medical Devices and In-Vitro Diagnostics (IVDs) Commercialisation Journey"

HYDERABAD: A month-long awareness and hands-on workshop series called "ABCs of Medical Devices and In-vitro Diagnostics (IVDs) Commercialisation Journey" came to a successful end. It was attended by aspiring entrepreneurs, researchers, start-ups, MSMEs, SMEs, and industry players. This was the first edition of this workshop series by Research and Innovation Circle of Hyderabad (RICH).

The series was divided into four tracks: intellectual property, regulatory, industry immersion, and clinical exposure. Each track was led by experts in the field, providing participants with in-depth knowledge and practical insights into the various stages involved in scaling a proof-of-concept validated idea to a marketable product.

"The journey of bringing a novel medical device to market is a long, complex, and daunting one," said Rashmi Pimpale, CEO of RICH. "Within the realm of MedTech innovation, risks and uncertainties loom even larger. However, with a clear process and collaborative efforts involving key stakeholders, success becomes attainable. The participants unanimously agreed that the series not only enriched their understanding but also facilitated the creation of beneficial connections."

The intellectual property track focused on ideation research, patent due diligence, and patent navigation under

the guidance of experts from AvidInvent, who are in the HealthTech and MedTech intellectual patent spaces. The regulatory track covered the key stages in bringing a medical device or IVD to market, including regulatory compliance, market authorisation, and post-market surveillance. Officials from Central Drugs Standard Control Organisation (CDSCO) under the Directorate General of Health Services, Ministry of Health & Family Welfare, Government of India, along with ICICI Knowledge Park's (IKP) Global Regulatory Forum (IGRF) provided participants with a detailed understanding of the regulatory process for entering the Indian market.

The industry immersion track gave participants the opportunity to visit leading medical device and IVD companies in Telangana, such as Sahajanand Medical Technologies (SMT), Akriti Opthalmic, Huwel Life Sciences, and PathnSitu Biotechnologies, and learn about their manufacturing processes and compliance requirements. Finally, the clinical exposure track provided participants with the opportunity to observe clinical trials and gain insights into the clinical validation process.

The series concluded with a start-up showcase, which also provided networking opportunities for hospitals and start-ups to come together and forge new collaborations.

"The ABCs of Medical Devices and IVDs Commercialisation Journey" reflects RICH's continued commitment to driving the growth and transformation of the life sciences sector in Telangana.

RICH is the nodal agency for the Hyderabad Science and Technology Cluster, an initiative spearheaded by the Office of Principal Scientific Adviser to the Government of India. Established in 2017 by the Government of Telangana, the organisation focuses its work across three primary verticals: Food and Agriculture, Life Sciences, and Sustainability. Through its various initiatives, RICH aims to solve complex local and national challenges by fostering collaborative networks among diverse stakeholders in the research and innovation space, and empowering innovators to transform scientific research into impactful solutions that generate wealth and create social good.

Pragati Express, July 28th 2023, Pg. No. - 2

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Events

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RICH concludes workshop series on ABCs of medical devices and IVDs commercialisation

Our Bureau, Bengaluru
Friday, July 28, 2023, 16:30 Hrs [IST]

Research and Innovation Circle of Hyderabad (RICH) of the first edition of the month-long awareness and hands-on workshop series called "ABCs of medical devices and in-vitro diagnostics (IVDs) commercialisation journey" came to a successful end. It was attended by aspiring entrepreneurs, researchers, start-ups, MSMEs, SMEs, and industry players.

The series was divided into four tracks: intellectual property, regulatory, industry immersion, and clinical exposure. Each track was led by experts in the field, providing participants with in-depth knowledge and practical insights into the various stages involved in scaling a proof-of-concept validated idea to a marketable product.

'Can adapt our covid model to any infectious disease'

1 min read • 07 Dec 2022, 09:05 PM IST

Leslie D'Monte

Join us

Shipra Misra, CEO & MD of Delhi Research Implementation and Innovation (DRIIV), talks on Project SAMEER to control air pollution in Delhi, the move to introduce solar-powered EV charging stations, and the use of AI in healthcare, among other things, in an interview

Companies

BENGALURU : Shipra Misra is chief executive and managing director of Delhi Research Implementation and Innovation

quickbiznews.com

DRIIV's Conference Spurs Global Dialogue on Equitable Climate, Health, and Open Access to Data

By Rabindra August 10, 2023 In Business No Comments

Climate Change May Release Ancient Germs Frozen In Ice: Experts

The experts, including NITI Aayog Member V K Paul and ICMR Director General Rajiv Bahl, highlighted another worry – heat-related injuries and as temperatures go up, the risk of getting hurt from the heat becomes higher

Press Trust Of India | August 9, 2023

The changing climate, causing more floods and heavy rainfall, could also lead to more waterborne and zoonotic diseases

New Delhi: Ancient germs frozen in ice for a long time might be released and pathogens could move to new places due to the climate change, experts have warned. The changing climate, causing more floods and heavy rainfall, could also lead to more waterborne and zoonotic diseases, they said at a conference by DRIIV (Delhi Research Implementation & Innovation), an initiative of the principal scientific advisor (PSA) to the government. The

HIGHLIGHTS: BANEGA SWASTH INDIA LAUNCHES SEASON 10

Oct 02, 2023 13:59 (IST)

And That's A Wrap! Brand Ambassador Ayushmann Khurrana And Singer Daler Mehndi Give A Delightful End To The NDTV-Dettol Banega Swasth India Season 10 Launch

Oct 02, 2023 13:52 (IST)

Singer Daler Mehndi Enthralls The Audience With A Power Packed Performance Of His All-Time Hit Songs At Season 10 Launch

Climate change may release ancient germs frozen in ice: Experts

The experts, including NITI Aayog Member V K Paul and ICMR Director General Rajiv Bahl, highlighted another worry - heat-related injuries.

PTI | AUGUST 10, 2023 / 12:34 AM IST

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Ancient germs frozen in ice for a long time might be released and pathogens could move to new places due to the climate change, experts have warned. The changing climate, causing more floods and heavy rainfall, could also lead to more waterborne and zoonotic diseases, they said at a conference by DRIIV (Delhi Research Implementation & Innovation), an initiative of the principal scientific advisor (PSA) to the government.

The experts, including NITI Aayog Member V K Paul and ICMR Director General Rajiv Bahl, highlighted another worry - heat-related injuries. As temperatures go up, the risk of getting hurt from the heat becomes higher.

The way diseases spread might also change. Pathogens, which are tiny things that can make us sick, could move to new places because of climate change, Paul said at the conference held here on Tuesday.

IIT Delhi, DRIIV collaborate to control air-pollution levels in Delhi-NCR region

SAMEER will bring together IIT Delhi researchers, government authorities, NGOs, and corporates to look into t matter.

FPJ Education Desk | **Updated:** Wednesday, November 02, 2022, 04:26 PM IST

IIT Delhi |

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DRIIV's Conference Spurs Global Dialogue on Equitable Climate, Health, and Open Access to Data

By **Sujata**

AUG 10, 2023

Armed with science & tech solutions, govt & IIT-Delhi come together to fight air pollution

Office of Principal Scientific Advisor and IIT are working with tech & industry partners to monitor the city's AQI. T project will run in Delhi NCR from Nov '22 to Feb '23.

MOHANA BASU 03 November, 2022 11:36 am IST

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Mayank Kumar 28 January

IIT Delhi, DRIIV collaborate to tackle air pollution in Delhi-NCR

Vishu Verma
Assistant Manager
New Delhi, Updated on Nov 3, 2022 13:12 IST

Technology-based pilot project called SAMEER (Solutions for Air-pollution Mitigation through Engagement, Engineering and Research) to be undertaken in Delhi-NCR from November 2022 to February 2023.

Delhi Research Implementation and Innovation (DRIIV), an initiative of the Office of the Principal Scientific Adviser to the Government of India, is conducting a technology-based pilot project called SAMEER (Solutions for Air-pollution Mitigation through Engagement, Engineering and Research) in Delhi-NCR from November 2022 to February 2023.

The initiative will bring together local government authorities, IIT Delhi researchers, tech startups, corporates, non-governmental organisations (NGOs) and communities to collectively address the air pollution menace in the winter months. Prof Sagnik Dey,

DRIIV, IIT Delhi Join Hands To Tackle Air Pollution

In a first-of-its-kind initiative of the Office of the Principal Scientific Adviser to the Government of India, DRIIV will conduct a technology-based pilot project called Project SAMEER (Solutions for Air-Pollution Mitigation through Engagement, Engineering, and Research) in Delhi-NCR, from November 2022 to February 2023.

Joymala Bagchi

NEW DELHI | **Updated: 02 November, 2022 5:01 pm IST**

IIT-Delhi, central initiative try steps to curb air pollution

TNN | Nov 1, 2022, 08.27 AM IST

NEW DELHI: Delhi Research Implementation and Innovation (DRIIV), an initiative by the Centre, and IIT-Delhi have initiated a pilot project to keep pollution under control in the city. Named Sameer (Solutions for Air-Pollution Mitigation Through Engagement, Engineering and Research), the project will be active from November 2022 to February 2023 and will be executed with the help of Delhi government.

"This is a first-of-its-kind initiative bringing together local government authorities, IIT-Delhi researchers, tech startups, corporates, NGOs and communities to collectively address the air pollution menace during the winter months. The project will have a public-centric approach and work by raising awareness and engaging the community and taking industries in loop by applying relevant technology to monitor and curb PM2.5 and PM10," said a statement from DRIIV.

The statement added, "Technological solutions can be deployed to bring down the pollutant levels. These solutions will be deployed in high AQI areas of Delhi and Gurgaon as a pilot to assess their efficacy. Senior leaders from the industry will be mobilised to adopt and support technological solutions to environmental problems."

Earlier reports by Teri and Automotive Research Association of India had named industrial activities as the greatest contributors to Delhi's noxious air quality, closely followed by road dust and transportation, which require an immediate solution.

‘Genomic data critical for future pandemic preparedness’

X Post

India Science Wire New Delhi, Wednesday, 21 June, 2023

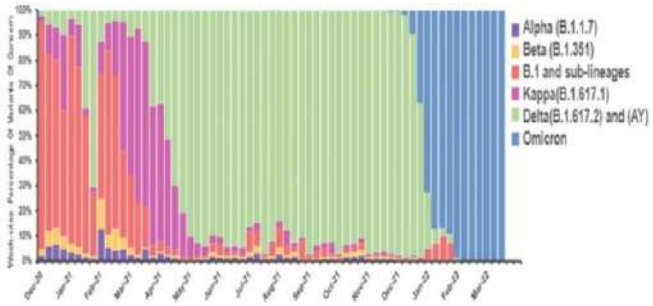


Figure Legend: The bar graph represents distribution of different variants from December 2020 to March-2022.

Different SARS-CoV-2 variants drove three major COVID-19 waves in India. A group of researchers has studied the effects of SARS-COV-2's Variants of Concern (VOC) using genomic surveillance.

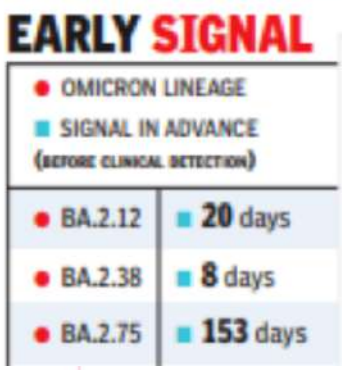
The study is based on the surveillance and sequenced samples in Pune during December 2020 to March 2022.

“The next-generation technology was employed to sequence SARS-CoV-2 genomes obtained from RNA samples of COVID-19 positive patients (by RT-PCR). For our study, we considered 10,496 samples which were sequenced using two different platforms at IISER and NCL, Pune,” informs Dr Krishanpal Karmodiya, the lead researcher.

'Omicron found in Pune sewage before detection in Botswana'

TNN | Mar 26, 2023, 09.19 PM IST

PUNE: Three out of 10 sewage sites in the city had traces of Omicron days before its first detection in a patient's sample at Botswana in southern Africa on November 11, 2021.
A wastewater study by Pune-based institutes CSIR-National Chemical Laboratory (NCL) and Indian Institute of Science Education and Research (IISER), Pune Knowledge Cluster, among others, revealed it. Omicron was initially touted as the South African variant after it was first detected in laboratories in Botswana.



Cities

Pune's Sassoon Hospital to start whole genome sequencing of dengue virus

Jul 22, 07:30 PM IST • 1 min read

Experts from Sassoon General Hospital (SGH) and BJ Medical College (BJMC) in Pune, India, will conduct whole genome sequencing of the dengue virus (DENV) in an effort to combat the disease. The study aims to identify the genotypes of the virus, any mutations, and specific serotypes or genotypes currently in circulation. The findings will help in developing vaccines against dengue and aid in managing and preventing outbreaks. The study is part of the Pune Knowledge Cluster's health...

Image used for representational purpose only

PUNE: The Pune Wastewater Surveillance project will also monitor H1N1, H3N2 and other subtypes of the influenza-A viruses along with the Covid-19 virus across the city.

Samples from treatment systems from several areas in Pune will be tested for early detection of community-wide disease prevalence.

The project by Pune Knowledge Cluster, funded by Rockefeller Foundation, started in August 2021.

In a first, Pune's B J Government Medical College to undertake genome sequencing of dengue virus

The project is facilitated by the Pune Knowledge Cluster and supported by the Rockefeller Foundation.

Can learnings from Covid genome sequencing and wastewater surveillance be leveraged to address the increasing problem of dengue? For the first time, concerted efforts have been taken under the aegis of the Pune Knowledge Cluster (PKC) — one of the six science and technology clusters established by the Office of the Principal Scientific Adviser to the Government of India — towards genomic sequencing of the dengue virus.

The B J Government Medical College (BJGMC) supported by the Rockefeller Foundation has taken up this ambitious project that has been facilitated by the PKC. Experts at the BJGMC will try to decipher the genetic material of the virus through the project.

"We want to track the spread of the viral infection, how it is changing and how this may affect public health," Dr Rajesh Karyakarte, state coordinator for genomic sequencing, told The Indian Express.

Consortium of national labs to upscale genome sequencing

'Continuously monitoring the situation in Bengaluru, Hyderabad, Delhi, Pune'

December 03, 2021 07:50 pm | Updated 07:50 pm IST - HYDERABAD

SPECIAL CORRESPONDENT

COMMENTS SHARE READ LATER

A consortium of national laboratories across four city clusters of Bengaluru, Hyderabad, New Delhi and Pune performing genomic surveillance of coronavirus is in the process of upscaling the work as part of the national efforts led by Indian SARS-CoV-2 Genomics Consortium (INSACOG), said top scientist Rakesh Mishra, the former director of Centre for Cellular and Molecular Biology (CCMB) on Friday.

Dr. Mishra, who is now the director of Tata Institute for Genetics and Society and is continuing to conduct research at his lab here, said the consortium is "continuously monitoring the situation in all the four cities and has upscaled its efforts to sequence as many samples as possible".

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THE TIMES OF INDIA

In just over a month, Omicron in 83% Covid samples in Pune

TNN | Jan 16, 2022, 10.24 AM IST

PUNE: Omicron is now the dominant SARS-CoV-2 variant here, fast replacing Delta in little over a month, an analysis of 1,769 samples sequenced at the Indian Institute of Science Education and Research, Pune, and the National Chemical Laboratory has revealed.

Genomic sequencing at the two institutes, between November 28 and January 8, found that Omicron was in just 1% of samples from November 28 to December 4. But in samples analysed between January 2 and January 8, the variant was in 83% of samples.

Scientists from the two institutes said the finding indicated that the new variant has been spreading in the community. The data also suggested that most of the Covid-19 cases being reported currently could be attributed to Omicron, Dr Krishanpal Karmodiya, professor of biology at IISER, told TOI.

Omicron present in 83% of samples sequenced in city

Delta, meanwhile, seems to have lost its hold on Pune, with just 0. 004% of samples sequenced in the latest week (January 2-8) reporting the variant and 14% reporting Delta sub-lineages.

Experts said though Omicron is seeing rapid spread, a silver lining is that it has replaced the more virulent Delta variant, which was associated with severe Covid and a large number of hospitalisations during the second wave.

The scientists, however, said the public needs to be cautious. "Omicron has exponential growth advantage which facilitates high transmission. This property of the virus threatens to offset any relief due to less severe disease caused by this variant," Dr Dhanasekaran Shanmugam, senior principal scientist and coprincipal investigator on the project at NCL, told TOI.

Pune Knowledge Cluster Plays Host to G20-CSAR Side Event on Pandemic Preparedness

लोकमत

साथरोगाच्या माहितीचे विश्लेषण आता 'एआय'द्वारे : डॉ. एल. एस. शशिधर

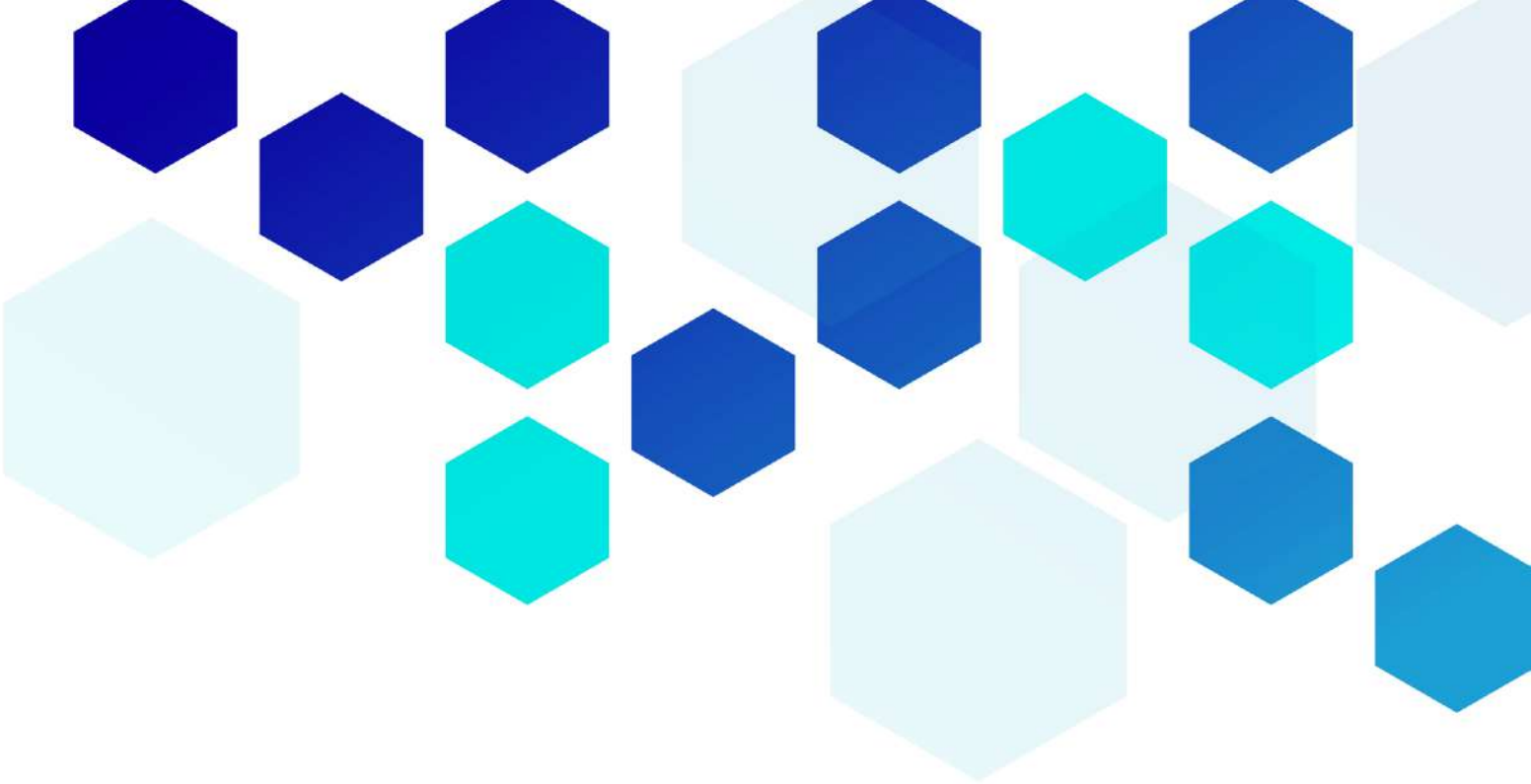
लोकमत न्यूज नेटवर्क

पुणे : साथरोगाचे सर्वेक्षण आणि त्या माहितीचे संकलन प्रत्यक्ष करावे लागते. परंतु, त्या जमा केलेल्या माहितीचे विश्लेषण हे आर्टिफिशिअल इंटेलिजन्सद्वारे शक्य आहे. भविष्यातील महामारी किंवा साथीच्या उद्रेकाबाबत धोक्याची घंटा आधीच समजू शकेल, अशा प्रकारे राष्ट्रीय आणि आंतरराष्ट्रीय स्तरावर प्रणाली विकसित होणे आवश्यक आहे, असे मत पुणे नॉलेज सेंटरचे सहसंस्थापक डॉ. एल. एस. शशिधर यांनी व्यक्त केले.

'जी-२० परिषदेंतर्गत प्रमुख संशोधक आणि वैज्ञानिक सल्लागारांचे आरोग्य, साथरोग सर्वेक्षण आणि जागतिक साथीची तयारी' या विषयावर चर्चासत्र आयसर येथे सोमवारी पार पडले. त्यावेळी बोलताना मान्यवर.

जी-२० परिषदेअंतर्गत प्रमुख संशोधक आणि वैज्ञानिक सल्लागारांचे आरोग्य, साथरोग सर्वेक्षण आणि जागतिक साथीची तयारी या विषयावर चर्चासत्र 'इंडियन इन्स्टिट्यूट ऑफ सायन्स एज्युकेशन ॲण्ड रिसर्च (आयसर) येथे सोमवारी पार पडले. त्यानंतर पत्रकारांशी डॉ. शशिधर बोलत होते. या परिषदेला जागतिक आरोग्य संघटनेच्या माजी प्रमुख वैज्ञानिक डॉ. स्वामिनाथन यांनी ऑनलाइन माध्यमातून सहभाग नोंदवला. याप्रसंगी आयसीएमआर-एनआयव्हीच्या संचालिका डॉ. शीला गोडबोले, वैज्ञानिक आणि औद्योगिक संशोधन परिषदेचे माजी महासंचालक डॉ. शेखर मांडे, टाटा इन्स्टिट्यूट फॉर जेनेटिक्स ॲण्ड सोसायटीचे संचालक डॉ. राकेश मिश्रा, पुणे नॉलेज सेंटरचे सहसंस्थापक डॉ. एल. एस. शशिधर आदी मान्यवर उपस्थित होते.

सौम्या स्वामिनाथन म्हणाल्या की, 'आजारांच्या सर्वेक्षणाची यंत्रणा अद्ययावत होणे आवश्यक आहे. मानव, प्राणी आणि पर्यावरणातील बदलांचा अभ्यास करून सर्वेक्षण यंत्रणा एकात्मिक आणि परस्परपूरक बनवण्यासाठी प्रयत्न करायला हवेत. डॉ. मांडे यांनी एक आरोग्य, सर्वेक्षण आणि साथींच्या आजारांची तयारी याबाबत चर्चेची आणि धोरणाची नितांत आवश्यकता आहे, असे स्पष्ट केले.



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