



RESEARCH INSIGHTS

• BRIDGING HEALTHCARE AND RESEARCH •

FEATURING:

**BREAKTHROUGH BULLETIN - TRAILBLAZING INITIATIVES | HONORING EXCELLENCE
HALL OF FAME - DISTINGUISHED PUBLICATIONS | SPOTLIGHT ON RESEARCH SUCCESS
IHHN ON THE GLOBAL STAGE | EVENTS HUB**

MESSAGE FROM THE PRESIDENT

As the President of the Indus Hospital & Health Network (IHHN), I am honored to introduce our inaugural Research Newsletter, **Research Insights**. This milestone marks a significant step in our mission to become a leading center for healthcare research and innovation. The newsletter reflects our commitment to cultivating a research-driven culture and addressing Pakistan's healthcare challenges through research and data-informed solutions.

Our Research Strategic Plan outlines a clear path to integrate research into our initiatives while promoting collaboration with local and global partners. By leveraging high-quality research and clinical evidence, we aim to improve patient outcomes, enhance safety, and deliver effective, patient-centered care. I am proud of the dedication and hard work of our team and invite everyone to join us in improving healthcare quality and advancing progress for a healthier, brighter future for Pakistan.



DR. ABDUL BARI KHAN
Indus Hospital & Health Network



MESSAGE FROM THE CEO

I am pleased to introduce our newsletter, Research Insights, a milestone in our journey towards fostering a culture of research, and innovation. Since its inception, IHHN has remained steadfast in delivering on its founding mission through an extensive network of healthcare facilities across Pakistan. To further enhance our impact, we now aspire to be a hub for medical research in Pakistan. The launch of our three-year Research Strategic Plan, drafted by the Scientific Research Committee (SRC), underscores this vision by placing research at the core of our mission. In Pakistan, where a lack of indigenous research perpetuates healthcare disparities; IHHN's research initiatives aim to bridge this gap. This transformation will create an ecosystem that empowers every employee to contribute towards evidence-based patient care.



DR. SYED ZAFAR ZAIDI
Indus Hospital & Health Network

The newsletter is a testament to our commitment to advancing healthcare through collaborative research. The newsletter highlights the incredible work of our researchers, showcasing their invaluable contributions to the scientific community and society. My heartfelt congratulations go to the IHHN Communication and Publication Sub-Committee and all team members whose dedication made this milestone possible. Thank you for your dedication and for being part of this exciting new chapter in our journey.



MESSAGE FROM THE CHIEF EDITOR

The launch of Research Insights, the first bi-annual research newsletter of IHHN marks a pivotal moment in the institute's journey towards research-driven excellence and overviews the research developments at IHHN, for the period July 1, 2023 – June 30, 2024. It showcases breakthrough developments of the SRC, celebrates high-impact research, updates on clinical trials, and grants. Additionally, it recognizes scholar awards, poster presentations, and new research initiatives. I would like to take this opportunity to express my sincere gratitude to Dr. Abdul Bari Khan and Dr. Syed Zafar Zaidi, whose visionary leadership has made this initiative possible. I am also thankful to Dr. Sohail Rao for his invaluable guidance in navigating the Research Strategic Plan. My heartfelt congratulations go to all members of the SRC – Communication and Publication Sub-Committee, whose dedication and hard work have made this a reality. Your efforts are truly appreciated, and I look forward to the continued success of our collective endeavor.



DR. SAMA MUKHTAR
Consultant Emergency Medicine, IHHN

MESSAGE FROM THE CHIEF SCIENTIFIC OFFICER

It is with immense pride and enthusiasm that I introduce both the Research Strategic Plan (2024–2027) and the first edition of our Biannual Research Newsletter. With this newsletter, we aim to foster transparency, collaboration, and engagement within and beyond IHHN. As a network that has grown from a single institution into a transformative force in healthcare delivery, we recognize that research and innovation are essential for addressing the pressing challenges of our time. The Research Strategic Plan is a testament to our unwavering commitment to advancing healthcare through cutting-edge research, collaboration, and evidence-based clinical practices. The key highlights of the plan include:

- Transforming culture by establishing research as a core value.
- Building a Robust Infrastructure i.e. biobank, analytics, and research facilities.
- Strengthening intramural and extramural collaborations.
- Driving Innovation and Commercialization to develop actionable healthcare solutions.
- Investing in research talent through professional development, mentorship, and career progression opportunities.

The strategic plan integrates transformative technologies i.e. Artificial Intelligence, Big Data Analytics, Blockchain, and Generative Intelligence to revolutionize how we conduct research, analyze data, and implement findings. The Newsletter will serve to highlight our achievements and showcase our groundbreaking research work. I invite the entire IHHN family to join us on this transformative journey. I extend my heartfelt gratitude to everyone who contributed to this strategic vision, particularly the dedicated members of the SRC.



DR. SOHAIL RAO

MD, MA, DPhil
CSO, IHHN

BREAKTHROUGH BULLETIN | TRAILBLAZING INITIATIVES

DR. SOHAIL RAO VISITS IHHN

By Dr. Javeria Aijaz-Member SRC

On September 12, 2024, Dr. Sohail Rao, CSO, IHHN; visited Indus University Hospital, Karachi, as part of SRC meetings to develop a 3-year research strategy. His visit emphasized shaping IHHN's research direction and included a two-hour session with the committee to finalize the strategy. Dr. Rao also toured key departments, such as ORIC, IT, EMR, and the clinical laboratory, to assess the research infrastructure.



The visit highlighted IHHN's mission to lead in indigenous research across various domains. The day concluded with a session launching the **Research Strategic Document**, outlining goals to foster a research-driven culture, enhance infrastructure, promote collaborations, and strengthen public-private partnerships. Dr. Rao's engagement marked a shift toward active faculty involvement in shaping IHHN's research future. The event underscored IHHN's commitment to long-term growth in healthcare innovation. A clear roadmap, complete with timelines and responsibilities, was set for implementing the strategy.

THE ANALYSIS & ANALYTICS UNIT, IHHN

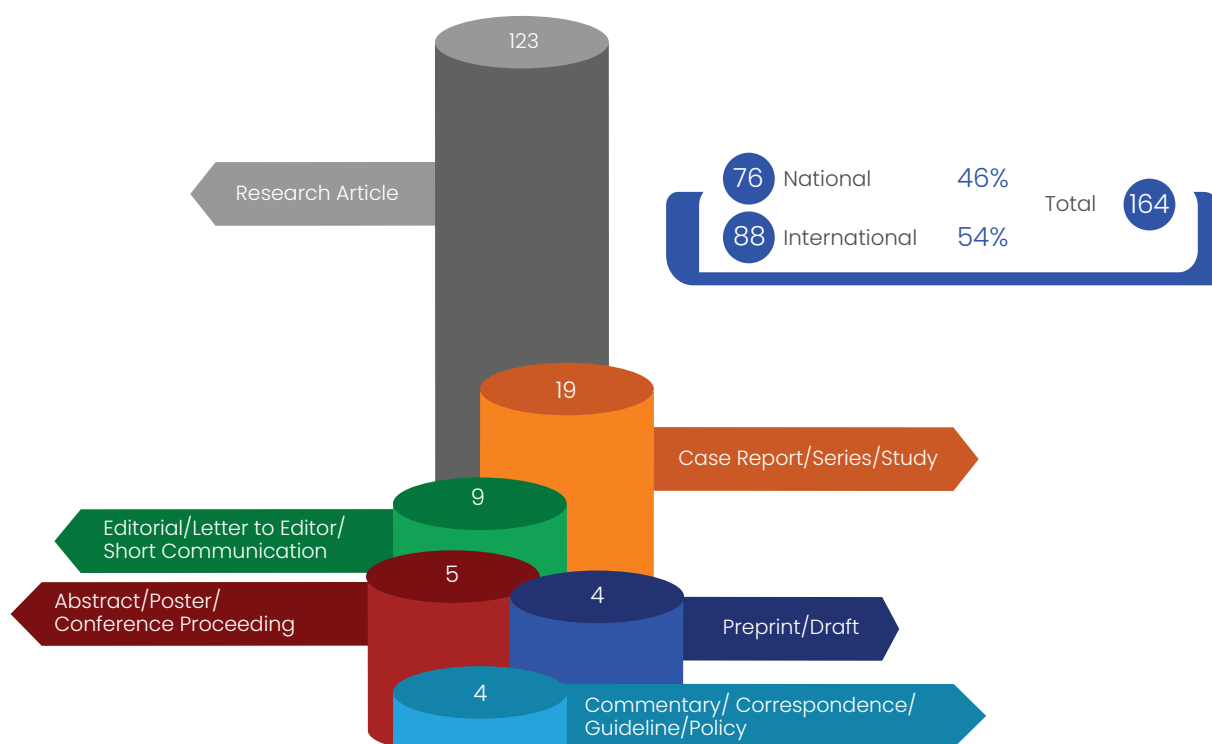
Revolutionizing Healthcare with Data-Driven Insights

The **Analysis and Analytics Unit** at IHHN, led by Dr. Syed Ghazanfar Saleem, with support from ORIC and Dr. Syed Zafar Zaidi, is an advanced platform that enhances data efficiency and complements the IT Department's efforts across IHHN. Key features include a centralized data repository, inter-operability, real time analytics, AI and machine learning, data visualization and reporting, alongwith clinical decision support. The expected key outcomes are improved patient care, and operational efficiency, cost reduction, scalability, and regulatory compliance.



HALL OF FAME | DISTINGUISHED PUBLICATIONS

PUBLICATIONS AT IHHN JULY 1, 2023 – JUNE 30, 2024



HIGH-IMPACT PUBLICATIONS | JULY 2023 – JUNE 2024

Manuscripts

- Kho, S., Seung, K.J., Huerga, H. et al. Sputum culture reversion in longer treatments with bedaquiline, delamanid, and repurposed drugs for drug-resistant tuberculosis. *Nat Commun* 15, 3927 (2024). <https://doi.org/10.1038/s41467-024-48077-8>.
- Letter regarding the article “Head-to-head comparison between recommendations by the ESC and ACC/AHA/HFSA heart failure guidelines” Laiba Amini, Samia Kazmi, Muhammad Junaid Patel. *European Journal of Heart Failure*, 2024. <https://doi.org/10.1002/ejhf.3121>.
- Khursheed N, Ahsan Q, Rattani S, et al. Point prevalence probing of antimicrobial prescription patterns from a developing country. *Expert Rev Anti Infect Ther*. 2023 Sep 15:1–8. doi: 10.1080/14787210.2023.2259098.
- Agha, S., Bernard, D., Francis, S., Fareed, A., & Nsofor, I. (2024). Determinants of Human Papillomavirus Vaccine Acceptance among Caregivers in Nigeria: A Fogg Behavior Model-Based Approach. *Vaccines*, 12(1), 84. <https://doi.org/10.3390/vaccines12010084>.
- Anis, S., Khan, M.A., Fatima, A. et al. Significance of Anti-COVID-IgA antibody response in COVID-19 breakthrough infection in vaccinated patients – a single-centered study from Pakistan. *Immunol Res* 71, 941–949 (2023). <https://doi.org/10.1007/s12026-023-09407-y>

Abstracts

- Aijaz, J., Naseer, F., Hussain, S., Raza, M. R., Jamal, S., Ashraf, S., ... & Wang, J. (2023). Feasibility and Accuracy of Nanopore Transcriptome Sequencing for Pediatric Acute Leukemia Lineage Classification in a Resource-Constrained Setting. *Blood*, 142, 5028.
- Baloch, K., Hafeez, A., Aamir, Z., Vaqar, M., Butt, S., & Alam, M. S. (2024). 450: EXPLORING THE INTERSECTION OF MALARIA AND AUTOIMMUNITY: A CASE OF MALARIA AND EVANS SYNDROME. *Critical Care Medicine*, 52(1), S199.
- Aqeel, A., Jabeen, S., & Herekar, F. F. (2023). Abstract# 1587016: Frequency and Characteristics of Nonobese Patients With NAFLD Visiting A Tertiary Care Setting. *Endocrine Practice*, 29(12), S160.

HONORING EXCELLENCE

MAJOR GRANTS FUELING IHHN'S VISION

- The **Pediatric Oncology** Department received a grant from My Child Matters by Foundation S (2023-2025) with the goal to improve access to care and reduce treatment abandonment by establishing shared care units in public sector pediatric departments in Sindh.
- In April 2021, the EPI Sindh, supported by the WHO, designated Indus University Hospital, Korangi Campus, as a sentinel site for typhoid surveillance. It aims to establish typhoid surveillance to assess disease burden, including drug-resistant cases and evaluate the impact of the Typhoid Conjugate Vaccine on children. The **WHO Typhoid Surveillance** Project has been renewed for 2024.
- The project **Implementation Evaluation of Shared Care for Pediatric Oncology Patients in Sindh Province, Pakistan** has received the St. Jude Global Scholars Project Grant.
- IHHN in partnership with Emory University, developed the **Prehospital Assessment and Transport to Hospital Application** (PATH) to assist bystanders in providing trauma care. Funded through a grant, the app has completed feasibility and usability testing and is now in the redesign phase
- Characterizing CD-19 chimeric antigen receptors in Jurkat cells and sequencing the CFTR gene to identify mutation profiles in Pakistan. **Molecular Biology** Department in partnership with Research Center, Germany focuses on drug resistance profiling of M.Tuberculosis. A collaboration with Erasmus MC, Netherlands; investigates immune responses in dog-bite victims.
- In July 2022, IHHN partnered with McGill University to investigate the impact of pulmonary tuberculosis on work capacity and income following successful treatment in Karachi, Pakistan. Funded by McGill University's MI-4 Seed Fund Grant, the study aims to analyze lung function and respiratory quality of life (RQoL) after TB treatment and their relationship with occupational and income status. Moreover, it aims to evaluate the effectiveness of exercise training in improving exertional capacity and RQoL in individuals with post-TB respiratory impairment. Data collection is ongoing with 231 patients enrolled in the cross-sectional study, and analysis is currently underway.

CLINICAL TRIALS

Exploring the Impact of the Fleming Fund in Pakistan

A UK grant focused on managing antimicrobial resistance in LMICs, was implemented in Pakistan by DAI. The IHHN lead the Clinical Engagement (CE) program as part of a consortium with Liverpool School of Tropical Medicine, Aga Khan University, and Health Security Partners. The CE Program Pilot Phase (2021-2022) engaged Jinnah Postgraduate Medical Center and Dr Ruth K. M. Pfau, Civil Hospital Karachi, Sindh; Sheikh Zayed Hospital and Nishtar Medical University Hospital, Punjab; Medical Teaching Institute Hayatabad Medical Complex, Peshawar; and Provincial Headquarters Hospital, Gilgit Baltistan.

In 2023, the CE program expanded to five hospitals, training 104 healthcare professionals through online sessions on AWaRe antibiotic classification, conducted by IHHN.

Hospitals	Wards	Rounds/Quarters	Teaching Sessions	Persons Trained on Average in Each Quarter
JPMC	8	153	128	223
CHK	7	135	1,112	129
NMUH	8	168	128	236
HMC	9	170	144	98
PHQ – GB	5	46	16	52

END-TB trial & Collaborating Partners

IHHN conducted two clinical trials; **endTB** (fluoroquinolone-susceptible MDR-TB) and **endTB-Q** (fluoroquinolone-resistant MDR-TB). Principal investigators included Carole Mitnick (Harvard Medical School), Lorenzo Guglielmetti (MSF), & Dr. Naseem Salahuddin (IHHN). The goals were to develop short, oral, and tolerable treatments using bedaquiline and delamanid. The **endTB** trial is a randomized, controlled, phase III clinical trial testing five new, all-oral, 9-month regimens in 754 patients from 8 countries. The results of the endTB clinical trial found three new drug regimens to treat MDR-TB.

The **endTB-Q** trial is a phase III clinical trial that enrolled 323 patients across 6 countries to find a simpler, less toxic, shorter regimen for fluoroquinolone-resistant MDR-TB. It documented bedaquiline, delamanid,



Mega-ROX Study

A multinational randomized trial with 40,000 patients, funded by the MRINZ. In patients with acute brain diseases, a conservative oxygen therapy approach will reduce mortality compared to a liberal approach. Dr. Komal Baloch, HOD, Critical Care Medicine, leads the project with support from ORIC.



HIP ATTACK - 2

A multi-center randomized controlled trial to determine if accelerated surgery for hip fracture in patients with Myocardial Infarction is superior to standard care in reducing death at 90 days. The trial is led by Dr. Syed Kamran Ahmed, HOD, Orthopedics, & supported by ORIC.



SPOTLIGHT ON RESEARCH SUCCESS

Dr. Javeria Aijaz, received the NIH R01 Award (2024) in collaboration with the University of North Carolina and St. Jude Children's Research Hospital, USA. The grant will explore Nanopore sequencing for pediatric malignancies.

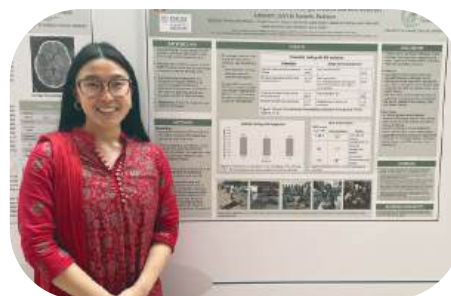
Dr. Shafaq Sultana, Dr. Madiha Ata, Dr. Ghina Shamsi, and Prof. Faridah Amir Ali; completed the Social Accountability Fellowship, a collaboration with TUFH, Northern Ontario School of Medicine, and the University of Limerick. Their work led to the publication and presentation of "Integration of Social Health Curriculum in Allied Health Sciences Program" at UBUNTU 2024, South Africa.

IHHN ON THE GLOBAL STAGE | WORKSHOPS | COURSES | PRESENTATIONS | CONFERENCES



Collaborative Advanced Trauma Care

Multidisciplinary trauma teams training for Emergency Medicine professionals conducted in Pakistan, Vietnam, Ethiopia. More than 400 participants have been trained so far. The data was presented at EM Congress meetings in Emirates and Africa.



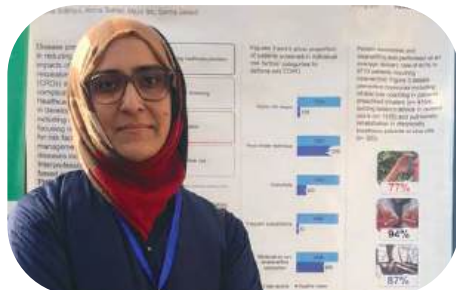
PATH Application

The PATH mobile app was developed by IUH & Emory University. Data on its feasibility and usability testing was presented in Oman.



Scientific Presentations & Conferences

- **Dr. Aqsa Mazhar:** Treatment of Microcystic Lymphatic Malformation at the Pediatric Surgery Conference, Islamabad.
- **Dr. Saima Saeed:** Obstructive Lung Disease Program Outcomes at the British Thoracic Society Winter Conference, London.
- **Dr. Ahmer Hamid:** Medulloblastoma Outcomes at the Pediatric Oncology Conference, Ottawa & Islamabad.
- **Dr. Madiha Siddiqui:** Incorporating Preventive Strategies in the Management of Chronic Respiratory Diseases in Primary Healthcare at the 13th International Public Health Conference, Islamabad.
- **Dr. Adeel Khatri:** Presented Low-Cost Ultrasound-Guided Central-Line Model & received Best Innovation Award at International Pediatric Simulation Society Conference, Denver.
- **Dr. Neelum Tahirkheli:** Treatment Abandonment in Pediatric Oncology at the ISPO Annual Meeting, Hawaii.
- **MIKD:** Chronic Kidney Disease Data and Mortality Analysis at Pakistan Society of Nephrology, 2024.
- **MIKD:** Thrombosis in Hemodialysis Patients at 26th PSH Annual Hematology Conference



WONCA SOUTH ASIAN CONFERENCE | MAY 3-5, 2024

Oral presentations

The Chat GPT Develops Multiple Choice Questions for Postgraduate Specialty Assessment – A Blessing or a Curse? – Faridah Amin, Salman Yousuf Sharif, Madiha Ata, Nirali Patel, Muhammad Rafay, Hasan Raza, Saima Perwaiz Iqbal

Poster Presentations by ORIC, IHNN, and IUHS

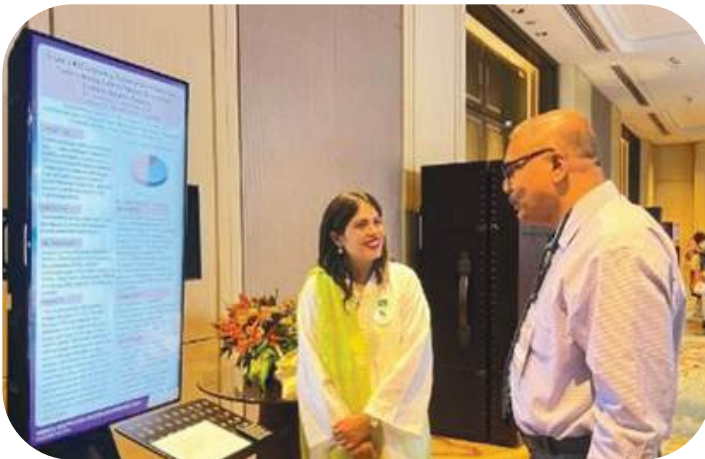
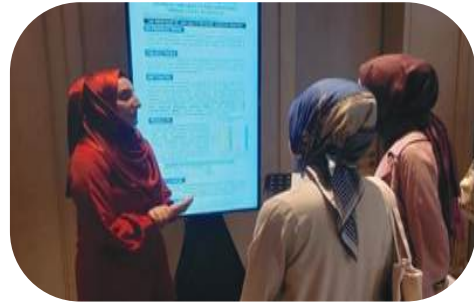
- Breaking Barriers: Exploring the Full Cup Test (FCT) Pain Scale at A Tertiary Care Hospital. – Nida Ghouri & Maria Mushtaq
- Prevalence of Diabetic Neuropathy in Type 2 Diabetes Patients and Its Impact on Quality of Life. – Nida Ghouri & Arsalan Bashir

Poster Presentations by Family Medicine

- Frequency, Knowledge, and Factors Associated with the Use of Self-Medication among Pregnant Women. – Noor-ul Huda Zaki, Hiba Ashraf
- Association between psychological distress and Health Risk behaviors among youth in Karachi. – Nourina Karim, Aiesha Faisal
- Vitamin B12 Deficiency: Frequency and Associated Factors Among Patients Presenting to Tertiary Care Hospital, Karachi, Pakistan. – Fakhrunnisa Fakhri, Mohammad Minhaj, Nida Ghouri, Faridah Amin, Junaid Patel

Poster Presentations by Indus college of Family Medicine and Public Health, ORIC, Health Professions Education, and IUHS

- Evaluation of an Online 'Train the Trainers' Course for Family Physicians in Pakistan: Expectations vs Reality. Faridah Amin, Madiha Ata, Shaista Saghir, Shafaq Sultana, Muhammad Imran, Salima Mehdi



EVENTS HUB

The IHHN Family Medicine Research Day on August 22, 2024, featured a poster competition with 15 presentations on advancements in FM and primary care, evaluated by Dr. Farah Ahmed (Ziauddin University) and Dr. Ammad Fahim (ORIC-IHHN). Interactive sessions included talks by Prof. Faridah Amir on "AI in Medical Research and Writing" and by Dr. Sumaira Panjwani on "Ethical Implications of AI," focusing on data privacy, AI bias, and responsible use of technology.



Newsletter Team

Front row (L-R): Prof. Faridah Amir Ali, Dr. Sama Mukhtar, Dr. Muhammad Fareeduddin
Back row (L-R): Ms. Sara Piracha, Dr. Zehra Kazmi, Ms. Sayyeda Reza, Dr. Madiha Ata