INDUS HOSPITAL
&
HEALTH NETWORK

RESEARCH STRATEGIC PLAN (2024 – 2027)

Setting a New Standard for Evidence-Based Patient-Centered Care Informed by Innovation, Research and Education

https://indushospital.org.pk/

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PRESIDENT'S MESSAGE

DR. ABDUL BARI KHAN

As the President of the Indus Hospital & Health Network (IHHN), it is my distinct honor to introduce this Research Strategic Plan, an ambitious roadmap that will define our vision for the future of healthcare in Pakistan and beyond. Over the years, IHHN has grown from a single institution offering free healthcare services to an extensive network providing life-saving care to millions across Pakistan. This growth has been made possible by our unyielding commitment to serve the underserved and our dedication to excellence in healthcare. Yet, as we look to the future, we recognize that clinical care alone cannot address the profound health challenges faced by our communities.

To truly make a transformative impact, we must integrate cutting-edge technologies alongside robust research practices. Emerging technologies like artificial general intelligence (AGI), autonomous artificial intelligence (AAI), machine learning, and advanced data analytics will allow us to gather and analyze clinical data with unprecedented accuracy. By harnessing telemedicine and mobile health platforms, we will extend our reach into remote and underserved areas, enabling real-time monitoring and access to innovative therapies.

This strategic plan lays out a structured approach to cultivating a research-driven culture at IHHN fostering innovation and supporting collaboration with local and international partners. By embracing new technologies, we aim to advance healthcare policy, transform patient care, and contribute to a healthier, more resilient society.

This strategic plan is not merely a document; it is a commitment to our patients, to Pakistan, and to the global community. It reflects our pledge to uphold the highest standards of healthcare, driven by data, empowered by knowledge, and sustained by the generosity of our supporters. I am deeply grateful to everyone who contributed to the development of this plan, particularly Dr. Sohail Rao, whose leadership as Chief Scientific Officer has been instrumental in guiding this vision.

As we embark on this journey, I invite every member of the IHHN family, our partners, and supporters to join us in realizing this vision. Together, let us build a future where healthcare excellence, scientific discovery, and technological innovation go hand in hand, ensuring that quality healthcare is a right accessible to all.

CHIEF EXECUTIVE OFFICER'S MESSAGE

PROF. SYED ZAFAR ZAIDI

After nearly 17 years, Indus Hospital and Health Network (IHHN) has earned its name in providing free health care services to the poor and the needy in Pakistan. This is a monumental achievement. But is it time for complacency, or should we do more? How do we continue this progress to sustain and enhance our impact on the health of the nation and how can we measure that impact? What more can we do, and how can we do it better? After all, we are the largest nonprofit organization in the health sector of Pakistan with a massive footprint across the country. People around the globe have trusted and funded us to deliver better health care. This is best possible by doing research in all that we do, be it clinical or clinical delivery systems with good quality data, well analyzed results, and global sharing of that knowledge.

For IHHN to truly excel, data must drive every decision. By harnessing new technologies such as artificial general intelligence (AGI), autonomous artificial intelligence (AAI), machine learning (ML), and blockchain technology (BC) we can transfer how we analyze, share and act on the knowledge we generate. These emerging technologies and predictive analytics will enable us to make data-driven decisions with unprecedented accuracy, optimize resource utilization, refine our approaches to patient care, inform healthcare policies and guidelines in the country, continue to deliver evidence-based medicine, and to ameliorate global challenges of health inequity. Blockchain will strengthen data security and integrity, especially in our biobanking initiatives, allowing us to uphold the highest standards of ethical research and foster transparent, collaborative partnerships.

It is time that IHHN reinvents itself with commitment and focus to research which emulates international standards. We must establish and widely permeate a culture of research and innovation that ultimately transforms our DNA and becomes an integral part of our daily operations. This we must do not just to be recognized as a center of excellence but as our duty to Pakistan and to humanity at large.

As we move toward these goals, I envision IHHN becoming a global hub for healthcare innovation. Our organization should attract national and international grants, form strategic partnerships, and lead in data-driven, evidence-based

healthcare. Our clinicians and researchers will not only be known for compassionate service but for pioneering contributions to medical science through advanced research and technological integration. This vision demands that we make research not just a priority but a defining pillar of our organization.

It is my mission to cultivate a culture that celebrates research, encourages continuous inquiry, and embraces innovation. Through investments in emerging technologies, data science, and digital platforms, we will empower our researchers and clinicians with the tools and infrastructure they need to deliver high-quality research and elevate patient outcomes.

I envision the fruition of our endeavors as a beacon of light for other healthcare providers, and a ray of hope for the patients and communities in Pakistan. The leadership at IHHN will commit to investing in infrastructure and human resources to enable discovery and innovation at every level and to make this vision a reality. These are of course big ideas. But then IHHN itself also started as an infinite idea. With our faith in Allah SWT, we managed to achieve our objectives. However, now the time has come for us to re-engage and reinforce what we do best and start working towards an even bigger goal...one that destiny may have chosen IHHN to fulfill!

Inshallah, the next three years will see IHHN firmly established as a world-class, data-driven, technology-enabled leader in healthcare. This Strategic Plan is our commitment to building a future in which quality healthcare is accessible to all, and where IHHN continues to set new benchmarks for research-driven, patient-centered service

The first step to this long and arduous journey, in which I am confident we will succeed with Allah's help, is to develop a Strategic Plan for enhancement of research capacity at IHHN. A group of dedicated people who believe in discovery and innovation and its crucial integral role in the delivery of evidence-based medicine, have worked hard to produce this Strategic Plan. I am immensely grateful to all members of the Scientific Research Committee, especially Prof. Sohail Rao, our Chief Scientific Officer, for his leadership in developing this plan. Together, let us embrace this vision and realize a future where our dedication to science and compassion drives healthcare transformation for generations to come. I am also very grateful to Ms. Sayyeda Reza for organizing all the meetings and managing the minutes.

SCIENTIFIC RESEARCH COMMITTEE

MEMBERS:

Prof. Sohail Rao: Chairman
Chief Scientific Officer IHHN, President & CEO, INNOVACORE Center for Research & Biotechnology, The Texas Institute for Graduate Medical Education and the HBond Foundation

Prof. Syed Zafar Zaidi
CEO IHHN and Dean IUHS

Dr. Saba Jamal
Senior Director Lab and Transfusion Services, IHHN

Prof. Salman Imtiaz
Prof of Nephrology, MD, Indus Hospital Badin

Prof. Faridah Amir Ali
Director Academics and Principal, Indus School of Family Medicine and Public Health

Dr. Saima Saeed
Consultant Pulmonologist

Dr. Javeria Aijaz
Head Section of Molecular Biology

Dr. Syed Ghazanfar Saleem
Chair, Emergency Medicine

Dr. Sama Mukhtar
Consultant, Emergency Medicine

Dr. Ammad Fahim
Chair, Office of Research, Innovation and Commercialization.

Ms. Kafeel Naz
Head of Department, Electronic Medical Records

Mr. Mufaddal Lanewala
Head of Department, Information Technology

Ms. Sayyeda Reza, Secretary
Manager Grants, Research, Innovation and Commercialization.

EXECUTIVE SUMMARY

Since its inception, Indus Hospital & Health Network (IHHN) has been delivering on its founding mission through an extensive network of healthcare facilities across the country. IHHN's unwavering dedication has made it a symbol of hope and compassionate care for millions of underserved patients. But now, IHHN aims to elevate its impact on healthcare by becoming, in addition, a powerhouse of medical research and innovation in Pakistan. With unwavering dedication to its vision of providing excellence in healthcare, free for all, IHHN has drafted a visionary 3-year strategic plan that places research at the heart of its mission.

The strategic planning process was initiated by forming a Scientific Research Committee (SRC) led by Professor Sohail Rao as Chief Scientific Officer. The process involved conducting an anonymous survey among key stakeholders to assess ongoing research activities, understand the importance of research, and identify internal challenges. A SWOT analysis was performed to identify strengths, weaknesses, opportunities, and threats, followed by the development of TOWS matrices to match internal capabilities with external opportunities and challenges.

The strategic plan outlines four main goals to incorporate research into the fabric of IHHN. At its core is a cultural revolution – a shift that will see research embedded in every facet of the organization, creating a workplace where innovation is celebrated, and where every employee feels empowered to contribute to the advancement of medical science. This will entail prioritizing research at the leadership level, celebrating innovation through events and recognition programs, while facilitating staff through measures such as protected time for research. But culture alone is not enough. The transformation being envisioned requires a sound research infrastructure, the focus of the second goal. This will include fully endowing the Office of Research, Innovation, and Commercialization (ORIC), identifying and supporting signature research programs, developing a state-of-the-art biobank, building a Division of Analytics & Decision Science, and promoting collaborative research and faculty exchange programs.

Collaboration is the lifeblood of modern research. The third goal thus places great emphasis on fostering partnerships both within and outside the organization. Key actions include providing seed funding for innovative research ideas, strengthening partnerships with external entities, and creating theme-based networking events. Perhaps most exciting is IHHN's commitment to translating research into real-world impact through enhanced public-private partnerships, a focus of the fourth goal. This will be achieved through incorporating industry expertise into signature programs, hosting industry workshops and think-tank meetings, developing a matched funding program, establishing an incubation center for advancements in translational & clinical research, soliciting support for endowed chairs, and creating a Public-Private Partnership Enhancement Board.

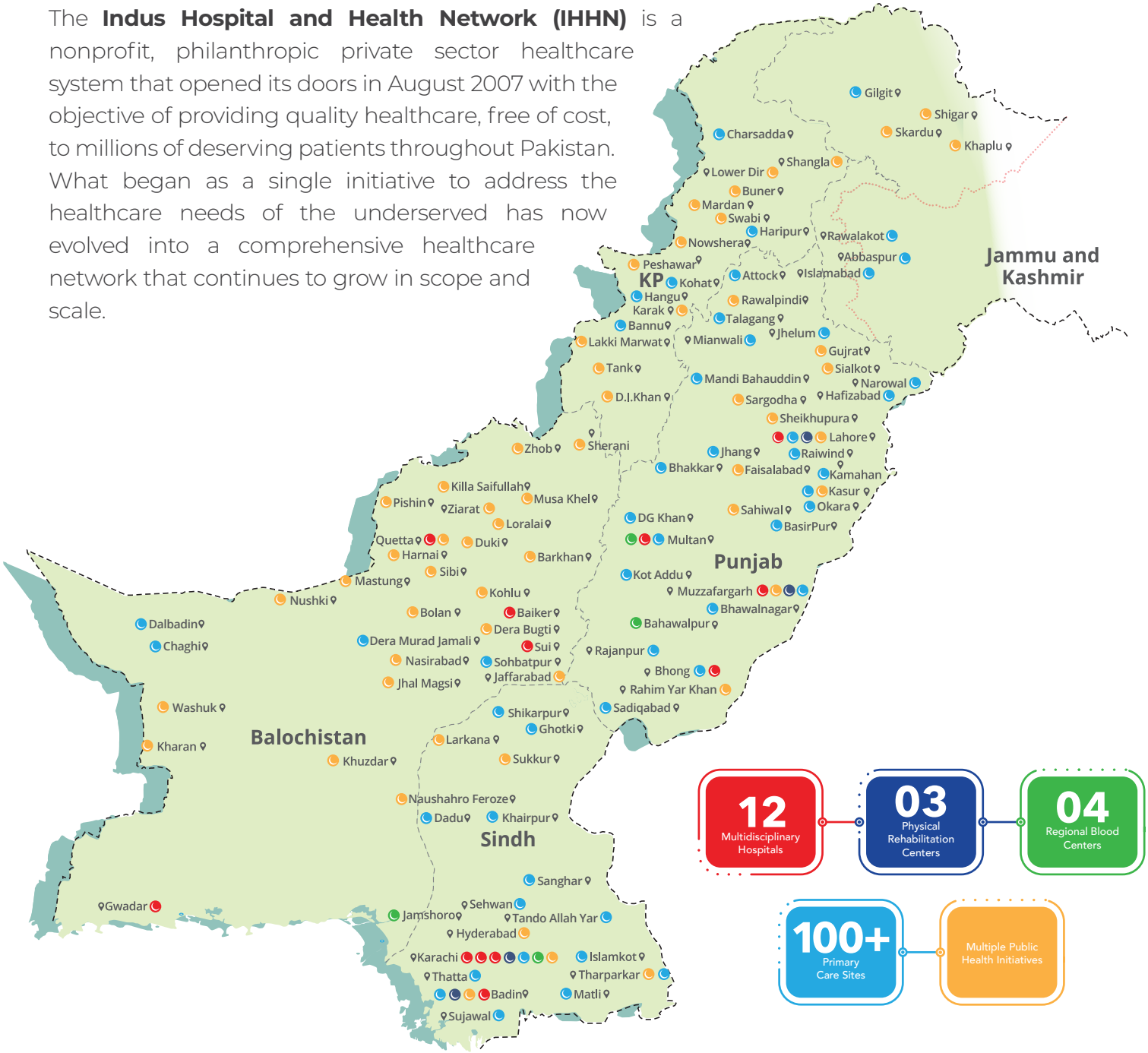
Throughout the process, a robust monitoring and evaluation framework will be established to track progress using KPIs and OKRs, with regular reviews and adjustments as needed. IHHN has already made some significant investments in research infrastructure. This includes Office of Research, Innovation, and Commercialization

(ORIC), which coordinates research activities, and ensures alignment with HEC standards. Two independent Institutional Review Boards (IRBs) oversee biomedical/clinical research and social/behavioral research to ensure ethical conduct. IHHN has also established a Clinical Research Unit equipped for conducting Phase I-IV clinical trials, and a biobank that centralizes storage of biological samples for research. A comprehensive Electronic Medical Record (EMR) system provides longitudinal data on millions of patients for retrospective and prospective research.

As IHHN embarks on this bold journey, it calls upon every stakeholder – from its dedicated staff to its partners and supporters – to rally behind this vision. The implementation of this strategic plan is not just an organizational priority; it's a moral imperative. In a country where lack of indigenous research means that healthcare disparities persist, IHHN's research initiatives have the potential to level the playing field, ensuring that even the most vulnerable members of society benefit from medical advancements. In the end, this strategic plan is more than a document; it's a promise. A promise to the people of Pakistan that IHHN will relentlessly pursue excellence in research to deliver healthcare that is not just free, but also at the cutting edge of medical science. It's a commitment to a future where quality healthcare is not a privilege, but a right accessible to all.

ABOUT THE INDUS HOSPITAL AND HEALTH NETWORK

The **Indus Hospital and Health Network (IHHN)** is a nonprofit, philanthropic private sector healthcare system that opened its doors in August 2007 with the objective of providing quality healthcare, free of cost, to millions of deserving patients throughout Pakistan. What began as a single initiative to address the healthcare needs of the underserved has now evolved into a comprehensive healthcare network that continues to grow in scope and scale.



12 Multidisciplinary Hospitals

03 Physical Rehabilitation Centers

04 Regional Blood Centers

100+ Primary Care Sites

Multiple Public Health Initiatives

IHHN now operates **12 hospitals, 100+ primary care sites, 4 regional blood centers, and 3 rehabilitation units** across Pakistan. The network's main hospital, located in **Korangi district, Karachi,** serves a population of over 2.5 million. Our reach, however, is not limited to Karachi; through the continuous expansion of our facilities, we aim to bring quality healthcare to even more underserved regions across Pakistan
.

Our vision, **"Excellence in healthcare service free for all to please Allah Subhanahu Wa Ta'ala,"** defines our very purpose and commitment to the communities we serve. It provides a clear, unwavering pathway toward our ultimate objective and serves as the guiding force behind our sustained efforts to enhance the quality and accessibility of our services. Our success is intrinsically tied to our ability to constantly redefine and improve our future.

To realize this vision, IHHN has adopted a strategic approach that goes beyond the provision of clinical services. Recognizing the importance of holistic growth, we have committed ourselves to building a research-driven organization capable of producing the evidence needed to continually inform and enhance the delivery of healthcare across Pakistan. In this context, IHHN has strategically bolstered its research mission to play a key role in enabling the delivery of evidence-based medicine (EBM), both locally and globally.

To support this expansion, IHHN has laid out a comprehensive mission anchored on the following five distinct signatures:

1. Create an excellence-driven, comprehensive, compassionate, free-of-charge, replicable healthcare system accessible to all.

• This goal underpins everything we do and serves as the foundation upon which we build every service, facility, and initiative. It is our promise to patients and communities that they will receive the highest standards of care, regardless of their ability to pay.

2. Serving people as a non-profit organization under the unparalleled Islamic ideology of Waqf through Zakat and donations.

• We continue to operate under the spiritual and ethical framework of Waqf, which drives our commitment to sustainability and selfless service. Through generous Zakat contributions and donations, we are able to provide free healthcare to millions, ensuring our mission of care is continually fulfilled.

3. Adhere to ethical best practices in all aspects of operations, in accordance with national laws and Shariah.

• Ethical conduct is a pillar of our organization. IHHN operates with the highest ethical standards, ensuring that our practices are in full alignment with both Shariah and national regulations. We continuously strive to set a benchmark in healthcare delivery ethics in Pakistan.

4. Provide resources and an environment for the spiritual and professional training of all employees and comrades working in any capacity in the organization.

• Beyond healthcare services, IHHN is also committed to human capital development. We invest in our employees by offering opportunities for spiritual growth and professional training, ensuring that they not only meet global standards but also work with compassion and dedication.

5. Continuous enhancement of capacity through quality education and research.

• As we look to the future, IHHN is determined to lead the way in medical education and research.

Through the establishment of **Indus University of Health Sciences (IUHS)** chartered in 2015, we have laid the groundwork for providing students with evidence-based and transformative education at undergraduate, graduate, and Indus College of Nursing & Midwifery

- **Indus College of Medical Technology & Allied Health**
- **Indus College of Physical Therapy & Rehabilitation**
- **Indus College of Family Medicine & Public Health**

Furthermore, our strategic vision includes the establishment of three additional colleges, which, inshallah, will be fully functional in the near future:

- **Indus College of Dentistry**
- **Indus College of Medicine**
- **Indus College of Pharmacy**

These institutions are designed to support the continued growth of IHHN's research capabilities, nurturing future healthcare professionals who are trained to meet the evolving needs of society and to contribute to the advancement of evidence-based medicine in Pakistan.

Strategic Priorities: Moving forward, IHHN has identified strategic priorities that will further elevate its position as a leading healthcare provider in Pakistan:

- **Expanding Healthcare Access:** We are committed to expanding our network of healthcare facilities across underserved regions, ensuring that quality healthcare reaches every corner of Pakistan.

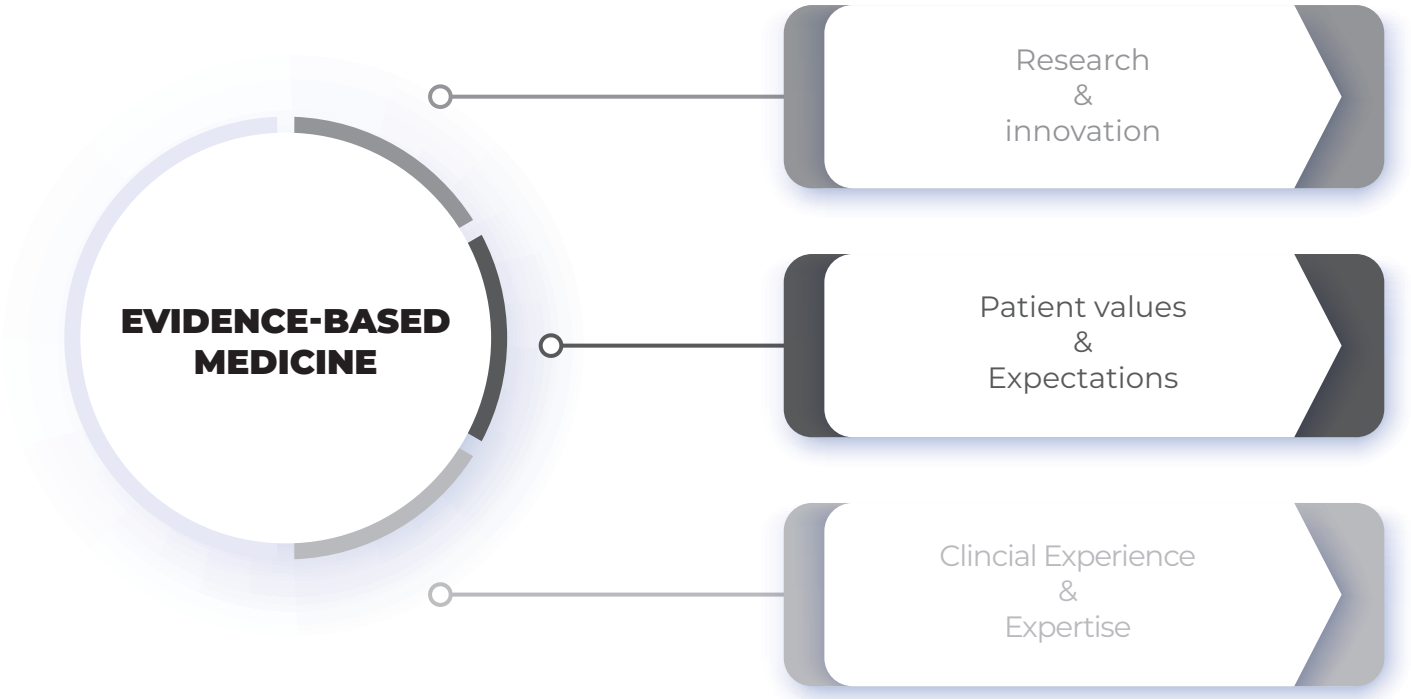
- **Strengthening Research Capabilities:** As a part of our strategic goals, we will invest in research infrastructure, focusing on public health, clinical research, and medical innovation. Our aim is to become a global leader in healthcare research, making significant contributions to evidence-based practices.

- **Sustainable Growth through Donations: IHHN** will continue to foster relationships with donors and international partners to ensure that our operations remain sustainable and that we are able to serve an even larger population with free, high-quality healthcare.

Our ultimate goal is to transform healthcare delivery in Pakistan and set a new standard for **patient-centered care driven by innovation, research, and education**. Through IHHN, we aim to lead by example and inspire future generations of healthcare professionals to serve with compassion and excellence.

ABOUT RESEARCH AT **INDUS HOSPITAL AND HEALTH NETWORK**

The practice of evidence-based medicine (EBM) is central to achieving the highest standard of healthcare delivery and it lies at the intersection of three core elements:



At Indus Hospital and Health Network (IHHN), we understand that these three pillars of evidence-based medicine must be dynamically integrated to ensure that our healthcare practices are both cutting-edge and aligned with the unique needs and preferences of our patients. While all three components are essential for sustainable, multi-specialty practice, research plays the most critical role in driving the continual evolution of medical care and improving patient outcomes. Our commitment to research is rooted in its ability to advance clinical practice, inform decision-making, and enhance patient safety.

The Importance of Research in Advancing Healthcare

The role of research in healthcare cannot be overstated. By investing in research, IHHN is not only ensuring that our clinical practices are grounded in the most up-to-date evidence but also advancing medical science, influencing healthcare policy, and shaping the future of healthcare both locally and globally. Research and innovation drive multiple strategic outcomes for the organization:

The Importance of Research in Advancing Healthcare

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- **Improved Patient Outcomes:** Through clinical trials and investigator-initiated research, IHHN ensures that our patients benefit from the latest advances in medicine, from cutting-edge therapies to new diagnostic tools. This directly translates into better health outcomes, quicker recovery times, and reduced complications.
- **Advanced Clinical Practice:** Research allows our healthcare providers to stay ahead of the curve, incorporating the latest scientific discoveries into their daily practice. This creates a learning healthcare system where continual improvement is not just a goal but a reality.
- **Informed Decision Making:** Healthcare decisions must be informed by rigorous data. Research empowers our physicians and administrators to make decisions that are not only based on clinical experience but also backed by evidence, ensuring that care is both effective and efficient.
- **Patient Safety and Quality of Care:** Research helps us to identify potential risks and to improve protocols and procedures that enhance patient safety. By incorporating the latest findings, IHHN is committed to delivering healthcare that prioritizes safety at every stage of the patient journey.
- **Cost Effectiveness:** Through research, we can identify interventions that offer the most value for patients and the healthcare system. Research supports cost-effective care by ensuring that treatments are based on efficacy and outcomes, helping us to allocate resources more efficiently.
- **Continued Professional Development:** Our commitment to research ensures that healthcare professionals within IHHN are continually exposed to new knowledge and skills, driving a culture of professional growth and excellence in service delivery.

Strategic Initiatives in Research at IHHN:

Recognizing the transformative power of research, IHHN has strategically aligned its operations to encourage clinicians and staff to engage in innovative research activities, including clinical trials and quality assurance projects. These initiatives are supported by dedicated infrastructure and designed to foster a culture of inquiry and discovery across the organization.

Key Facilities Supporting Research at IHHN:

IHHN has made significant investments in establishing a research infrastructure that supports its strategic goals. This infrastructure is designed to enable high-quality research across a range of specialties, with an emphasis on innovation, collaboration, and compliance. The following facilities are key to the success of our research initiatives:

- **Office of Research, Innovation, and Commercialization (ORIC):**

  Since 2008, IHHN's research operations have been coordinated through the Indus Hospital Research Center (IHRC), with the initial focus on community-based public health efforts. In 2016, IHRC's headquarters were moved to the Medical Directorate as part of our commitment to integrating research more deeply into clinical practice. As research needs have grown, IHRC has expanded its focus, supporting clinician-driven research, investigator-initiated studies, and public health projects that have significant implications for scaling up interventions at a national level.

  In 2022, with the establishment of the Indus University of Health Sciences (IUHS), the ORIC was launched to further expand IHHN's research capacity. This office consolidates existing research activities under a single umbrella, ensuring alignment with the Higher Education Commission (HEC) of Pakistan's standards and fostering public-private partnerships to promote the commercialization of research outcomes.

ORIC's Strategic Roles and Responsibilities include:

- Facilitating Effective Research Operations: Ensuring that all research activities are coordinated and streamlined, allowing for greater efficiency and impact.
- Promoting Innovation: Encouraging the development of new ideas and technologies that have the potential to improve patient care and advance medical science.
- Fostering Collaboration: Building productive partnerships both within IHHN and with external academic and industry partners to enhance the scope and scale of our research efforts.
- Capacity Building: Providing the training, resources, and infrastructure needed to support high-quality research, ensuring that our teams have the skills and knowledge to drive innovation.
- Facilitating Commercialization: Supporting the development of products and services that emerge from our research and ensuring they reach the market to benefit patients.
- Enhancing Technology Transfer: Ensuring that our research findings are translated into clinical practice through efficient technology transfer processes, improving care delivery.
- Ensuring Regulatory Compliance: Upholding the highest standards of ethics and compliance, ensuring that all research conducted at IHHN adheres to national and international regulations.
- Monitoring and Evaluation: Implementing robust processes to monitor the impact of research activities, ensuring continuous improvement and accountability.
- Institutional Review Boards (IRB): To ensure the ethical conduct of research involving human subjects, IHHN has established two independent Institutional Review Boards (IRB):
- IRB for Biomedical and Clinical Research: Focused on ensuring that all biomedical and clinical research conducted at IHHN adheres to the highest ethical standards, protecting participants' rights while facilitating advancements in medical science.
- IRB for Social and Behavioral Research: Responsible for overseeing social science research at IHHN, ensuring that participants' privacy, confidentiality, and welfare are protected throughout the research process.

- **Research Infrastructure:**

- **Clinical Research Unit:** IHHN's Clinical Research Unit is fully equipped to conduct Phases I-IV clinical trials, playing a vital role in testing new treatments and therapies. An even more advanced unit is under construction, which will further enhance our ability to support physician-investigators in conducting cutting-edge clinical research.

- **Biobank:** IHHN's biobank/biorepository is a critical resource for advancing scientific research. It provides a centralized repository for biological samples (such as RNA, DNA, bacterial and fungal isolates, PBMCs, and FFPE tissue blocks), which support research in genomics, proteomics, and personalized medicine. This facility is poised to become a pivotal asset in our quest to drive scientific discovery and enhance patient care.

- **Electronic Medical Record (EMR):** IHHN maintains one of the most comprehensive EMR systems in the region, with longitudinal data on many million unique patients. Supported by a dedicated team of data analysts and scientists, this resource is invaluable for conducting retrospective and prospective research, including meta-analyses that can uncover new insights into patient care.

Future Directions for Research at IHHN

IHHN is committed to continuously expanding its research capabilities in alignment with global best practices. Over the next three years, we aim to:

- Increase the number of clinical trials conducted at IHHN, particularly in areas where we can make the greatest impact on public health, such as infectious diseases, oncology, metabolism, urgent care, and cardiovascular health.

- Strengthen our partnerships with academic institutions and industry leaders to foster innovation and accelerate the development of new therapies and technologies.

- Expand our biobank and data analytics capacity, ensuring that we remain at the forefront of personalized medicine and population health research.

- Develop new educational programs and workshops to build research capacity within our organization, providing our healthcare professionals with the skills and knowledge they need to lead and participate in high-impact research.

- Robust use of Artificial Intelligence and Generative Intelligence, in all our processes of scientific research where possible so as to make them efficient, cost-effective and smart.

By pursuing these initiatives, IHHN will continue to set new standards in healthcare research and innovation, ensuring that the care we provide is not only compassionate and accessible but also rooted in the latest scientific evidence

OVERVIEW OF THE STRATEGIC PLANNING PROCESS

The strategic planning process for Indus Hospital and Health Network has been a deliberate and collaborative effort, aimed at aligning our research activities with the organization's broader mission of delivering quality, evidence-based healthcare. The process was initiated in response to a recognized need to enhance and expand the research capabilities of IHHN to keep pace with global advancements in healthcare and to address the complex health challenges faced by Pakistan.

A new Scientific Research Committee (SRC) was instituted at IHHN, bringing together a diverse group of faculty and staff from various departments across the organization. This committee was strategically formed to serve as the primary driver of research innovation and to build a culture that values discovery and evidence-based medicine. The SRC was tasked with overseeing the planning process, guided by the visionary leadership of Professor Sohail Rao, who was appointed as Chief Scientific Officer. His mentorship and guidance have been crucial in shaping the direction of the strategic plan.

To ensure that the plan was rooted in the realities of the organization, the SRC initiated a strategic assessment phase, which involved conducting an anonymous survey among key stakeholders within IHHN, including faculty members and SRC members. The survey aimed to:

- **Validate ongoing research activities:** By gathering input from stakeholders actively involved in research, the SRC was able to assess the scope, quality, and effectiveness of the current research efforts at IHHN.
- **Understand the importance of discovery and innovation:** The survey sought to gauge the stakeholders' understanding of research as a tool for improving patient care, enhancing the institution's reputation, and driving innovation within the organization.
- **Identify internal challenges:** The survey provided valuable insights into the challenges faced by researchers and clinicians, ranging from a lack of resources and infrastructure to a limited appreciation for the value of research within the broader organizational culture.

The survey results highlighted several critical issues that needed to be addressed in the strategic plan. Key among them was the lack of an established research culture within IHHN. While IHHN has long been recognized for its charitable healthcare services, research has not been consistently embedded as a core element of its operations. This gap highlighted the urgent need for a cultural transformation that places research at the forefront of IHHN's mission.

Armed with these insights, the SRC engaged in an exhaustive SWOT analysis, which is summarized in Appendix I. This analysis provided a comprehensive understanding of IHHN's internal strengths and weaknesses, as well as external opportunities and threats. The SWOT analysis was a key tool in identifying the strategic priorities that would form the backbone of the plan, ensuring that it was realistic, actionable, and aligned with the organization's long-term goals.

However, the SRC recognized that simply identifying areas for improvement was not enough. The transformation of IHHN into a research-driven institution would require a fundamental change in organizational culture, not just the introduction of new policies or procedures. To this end, the SRC explored various models of change management and concluded that the creation of a "sense of urgency" among stakeholders was essential to drive the necessary changes. This urgency was driven by the recognition that IHHN's future success depended on its ability to position itself as a leader in evidence-based medicine and healthcare innovation.

To facilitate this cultural shift, the SRC engaged in ongoing discussions and debates aimed at deepening the understanding of what change would look like for IHHN. These discussions were critical in creating a shared vision among the leadership, faculty, and staff. The SRC emphasized that while some stakeholders viewed the need for change as highly urgent, others needed to be brought on board through clear communication and the demonstration of tangible benefits.

One of the major outcomes of this process was the identification of commonalities across various departments and research units. These commonalities laid the groundwork for collaborative efforts that would enhance the impact of research across the organization. By aligning goals and leveraging shared resources, the SRC ensured that the research strategy would be comprehensive, inclusive, and synergistic.

As part of the strategic planning process, TOWS (Threats, Opportunities, Weaknesses, Strengths) matrices were developed, building on the results of the SWOT analysis. These matrices allowed the SRC to match internal capabilities with external opportunities and challenges, ensuring that the strategic plan was forward-looking and responsive to both the needs of the institution and the broader healthcare environment.

The strategic plan itself is structured around Key Performance Indicators (KPIs) and Objective Key Results (OKRs), which are designed to measure progress and ensure accountability at every stage of implementation. These metrics will be critical in tracking the success of the strategic initiatives, providing clear benchmarks against which IHHN can assess its progress and make necessary adjustments.

Throughout the planning process, Professor Sohail Rao has played an instrumental role in mentoring the SRC. His expertise in change management, coupled with his Fulbright Specialist background, has provided invaluable guidance in ensuring that the strategic plan is aligned with international best practices. Dr. Rao's continuous involvement—both through virtual weekly meetings and the WhatsApp group created for real-time communication—has kept the planning process dynamic and responsive to emerging challenges and opportunities. His planned visit to Pakistan in September 2024 as a Fulbright Specialist will mark a key milestone in the implementation phase, offering an opportunity to further refine and accelerate the execution of the strategic initiatives.

Strategic Action Points for Successful Implementation:

1. Communication and Buy-In: The SRC will implement a comprehensive communication strategy aimed at ensuring that all stakeholders understand the importance of the strategic plan and are actively engaged in its execution. This will include regular updates, workshops, and town hall meetings to create a unified commitment to research and innovation.

2. Cultural Transformation: The strategic plan will include change management programs to foster a culture that celebrates research and evidence-based practice. This will involve recognizing and rewarding research achievements and embedding research objectives into the annual performance reviews of faculty and staff.

3. Capacity Building and Resource Allocation: Resources will be allocated to ensure that researchers have the necessary tools, time, and support to conduct high-quality research. This includes providing protected time for research, enhancing infrastructure, and expanding training programs to build research capacity across the institution.

4. Monitoring and Evaluation: The SRC will establish a robust monitoring and evaluation framework to ensure that the strategic plan remains on track. Regular reviews of KPIs and OKRs will be conducted, with adjustments made as needed to address emerging challenges or capitalize on new opportunities.

5. Partnerships and Collaboration: The plan will emphasize the development of internal and external collaborations, fostering partnerships with academic institutions, industry leaders, and government bodies to enhance research capabilities and secure funding.

By executing these strategic actions, IHHN will successfully establish itself as a leader in evidence-based healthcare and medical research. The strategic planning process has laid a strong foundation for transforming the institution into a global center of excellence, ensuring that our commitment to quality, innovation, and patient-centered care continues to drive all our initiatives forward.

STATEMENT OF PURPOSE

At IHHN and IUHS, we are dedicated to providing excellent healthcare for all, inspired by our commitment to serve humanity in accordance with divine principles. Our initiative aims to establish a robust research culture, fostering collaboration and innovation and driving cutting-edge research to enhance healthcare practices. Through strategic investments and partnerships, we strive to advance knowledge and improve healthcare outcomes, ultimately serving the population of Pakistan with evidence-based solutions. We recognize that true excellence in healthcare extends beyond adopting best clinical practices; it involves continuously purposefully reexamining, relearning, and applying new knowledge, guided by indigenous research and innovation. This Strategic Planning document will guide us in our journey to establish a vibrant research culture, thriving on collaboration, inquiry, innovation and driving cutting-edge research to enhance healthcare practices.

We aspire to be a beacon of excellence, attracting international funding and fostering partnerships that propels our research endeavors forward. Through strategic investments and data-driven analytics, we seek to increase the quality and impact of our research publications, advancing knowledge and whilst driving a positive change in Pakistan.

At IHHN and IUHS, we are committed to build robust systems laying the groundwork where research is not just a pursuit; but a fundamental aspect of our identity. We are committed to enhancing the research productivity and capacity of our Institution, empowering our faculty and staff to push the boundaries of knowledge and innovation. We are embarking on a journey; join us, as we harness the power of research so as to fulfill our mission, honor our vision, and ultimately, to serve humanity in the most meaningful and impactful ways possible.

ASPIRATIONAL INSTITUTIONS

IHHN is cognizant of the importance of identifying aspirational institutions as benchmarks in driving organizational improvements in research by setting high standards, adopting best practices, and fostering innovation. In its insatiable quest to lead the practice of evidence-based clinical care in Pakistan, IHHN has identified the following international organizations as aspirational institutions:

National University Health System, Singapore[2]

- As an Academic Health System, National University Health System (NUHS) aims to bring medical advances to provide incredible care to patients, and to the people in the community. NUHS's unique position allows it to translate the research findings into novel clinical diagnostic tools, superior patient care, improved policies, and education by leveraging on the academic, research and creative resources of its member institutions within NUHS, and partners at the National University of Singapore, and through collaborations with leading healthcare and academic institutions.

St. Jude Children's Research Hospital, Memphis TN, USA[3]

- The mission and vision of St. Jude Children's Research Hospital and that of IHHN is very similar. We share a common passion to provide cost-free treatment to our patients and a strong commitment to generation of new knowledge and its timely integration into clinical practice.

Great Ormond Street Hospital for Children, London, UK[4]

- Our mission and vison for excellence in clinical care is analogous to that of Great Ormond Street Hospital for Children, UK. As an international center of excellence for childcare, it is the host of UK's Children's National Institute for Biomedical Research Center .

[2]https://www.nuhs.edu.sg/research/Pages/Research-NUHS.aspx
[3]https://www.stjude.org/
[4]https://www.gosh.nhs.uk/
[5]https://www.gosh.nhs.uk/our-research/our-research-infrastructure/nihr-great-ormond-street-hospital-brc/

STRATEGIC GOALS

IHHN is fully committed to enhancing its research capacity and ensuring the timely integration of research outcomes into clinical practice. Our ambition is to evolve into an organization where physician-investigators, healthcare workers, and administrative staff are deeply entrenched in the art of generating new knowledge and leading the charge in delivering cutting-edge, evidence-based clinical care. To achieve this ambitious vision, IHHN has delineated the following strategic goals, which provide a roadmap for institutional growth and transformation.

The ultimate goal is to institutionalize the importance of discovery and innovation, ensuring that these become core values that permeate the very fabric of the organization. To succeed, IHHN must not only create a robust research infrastructure but also actively cultivate a culture of innovation, collaboration, and leadership in healthcare delivery.

In the context of this vision, we have defined five overarching strategic goals:

Transforming the culture of IHHN is the first and most critical step in our journey toward becoming a research-driven healthcare institution. While IHHN's mission clearly articulates the value of research and innovation in the delivery of high-quality clinical care, the organization has traditionally focused on addressing the urgent need for providing free healthcare services to underserved populations. As a result, the emphasis on research has not been as deeply ingrained in the day-to-day operations of the organization as it needs to be.

To truly transform our culture, we must instill a mindset where research is not seen as an optional pursuit but as a fundamental pillar of clinical excellence. The challenges that have limited this emphasis on research include:

1. **Lack of Emphasis on the Importance of Research by Leadership and Key Stakeholders:** The strategic plan will address this by ensuring that research becomes a priority in decision-making at the highest levels of leadership.
2. **High and Consistently Growing Volume of Patients:** With our healthcare facilities often overwhelmed by patient demand, we must strike a balance between providing care and conducting research, with a focus on streamlining processes and expanding research capacity without compromising patient care.
3. **Overburdened Physicians and Staff:** Clinicians and staff must be supported with appropriate resources, including protected time for research and adequate financial and administrative backing.
4. **Lack of Incentives:** Establishing both intrinsic and extrinsic incentives to encourage faculty and staff to engage in research activities is crucial. We will implement a rewards system that recognizes and promotes research contributions.

Action Plan:

1. **Prioritize Research at the Leadership and strategic Decision-Making:** Ensure that research is a key focus in strategic discussions and decision-making processes across all levels of the organization. The Board and Leadership must commit to making research a foundational element of our institutional mission.

2. **Develop and Implement a Communication Strategy:** Create a communication plan to raise awareness about the significance of research, involving regular updates, success stories, and research opportunities through internal channels (e.g., newsletters, emails) and external platforms (e.g., social media, website). Using AGI/AAI powered platforms increased engagement by personalizing communications about research achievements, updates and opportunities can be achieved.

3. **Allocate Protected Time for Research and establish clear career pathways for research:** Establish guidelines for protected time for physicians and staff with research interest, balancing clinical responsibilities with research endeavors. This will need to be tied in with start of university. Create a formalized career progression framework that provides clear and structured career pathways for research staff, encouraging long-term commitment and reducing turnover.

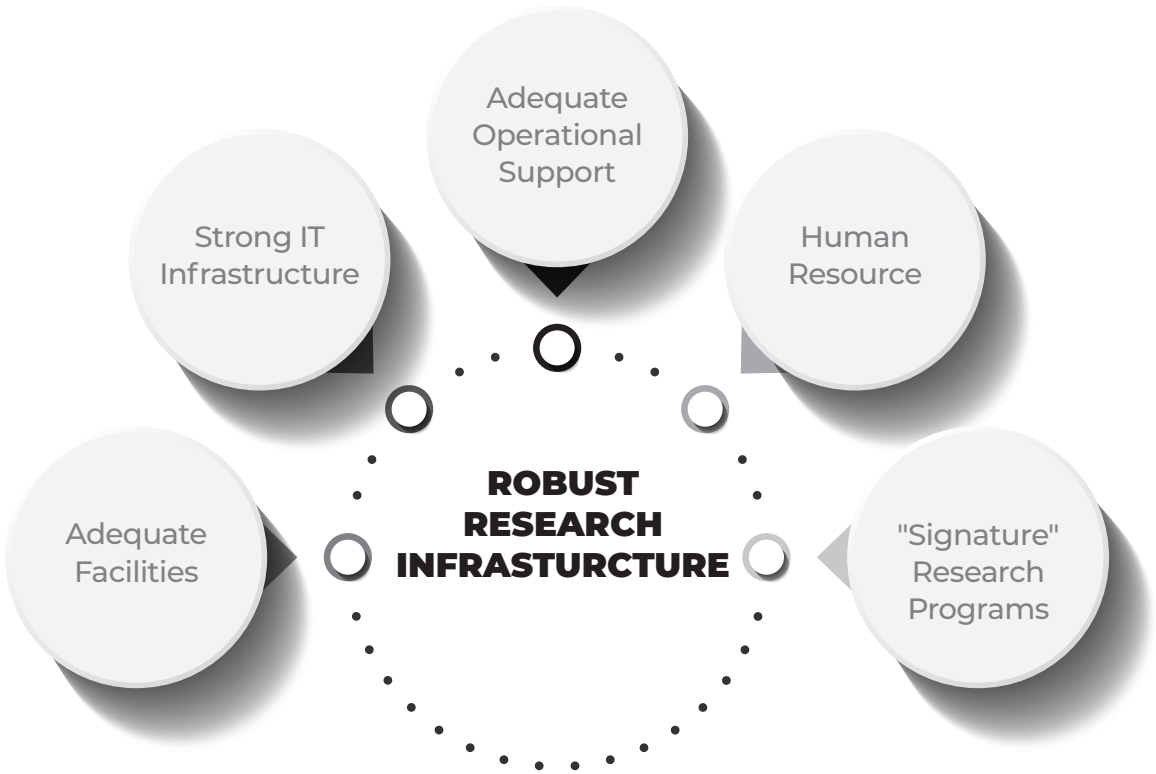
4. **Incorporate Research Contributions into Performance Evaluations of Research Faculty:** Integrate research contributions into the annual performance reviews of faculty and staff. This will ensure that research becomes an integral component of their professional development and institutional growth.

5. **Create a Research Incentives and Rewards Program that encourages innovation and high performance:** Develop a formal rewards and recognition program that incentivizes research contributions through financial bonuses, career progression opportunities, and public recognition. Create a vibrant research-driven environment that inspires innovation, recognizes outstanding performance, and motivates staff to excel in their research endeavors.
6. **Host Annual Research and Innovation Celebrations:** Organize an annual Research and Innovation Day to celebrate and showcase the research contributions of faculty and staff, highlighting key accomplishments through internal and external communication channels.

GOAL II: CREATE A ROBUST RESEARCH INFRASTRUCTURE

A strong and sustainable research infrastructure is essential for ensuring the success of IHHN's research agenda. This infrastructure will not only enhance the quality of the data we collect but will also drive innovation, collaboration, and operational efficiency across the organization. It will serve as the backbone of our research strategy, supporting clinical research, fostering multidisciplinary collaboration, and helping attract funding and new partnerships.

By building an infrastructure that supports all facets of research, IHHN will position itself as a leader in evidence-based healthcare and medical discovery. A robust infrastructure ensures the acquisition of high-quality data, enhances patient safety, streamlines operations, accelerates timelines, and promotes compliance with both national and international research standards.



Action Plan:

1. **Fully Endow the Office of Research, Innovation, and Commercialization (ORIC):** Provide the necessary financial, human, and technical resources to fully endow ORIC, empowering it to support investigators, streamline research processes, and ensure regulatory compliance. ORIC will serve as the hub for fostering innovation, identifying new grant opportunities, and facilitating the successful commercialization of research findings.

2. **Establish a Permanent Research Scientific Committee:** Create a dedicated Research Scientific Committee led by a Chief Scientific Officer (CSO) to oversee all research activities within IHHN. This committee will be responsible for the implementation and ongoing monitoring of the strategic research plan.

3. **Establish Sub-Committees of SRC as follows:**

a) Communications and Publication
b) Outreach and Partnership
c) Grants and Funding
d) Monitoring, Evaluation and Quality Assurance
e) Workforce Development
f) Infrastructure Development and Resource Allocation
g) Innovation and Commercialization

4. **Identify and Support Signature Research Programs:** Focus on Signature Areas of Excellence in research by providing significant resources and support to these key programs. This includes appointing dedicated directors for each signature program, ensuring that they have the authority and resources necessary to drive innovation and impact.

5. **Develop a State-of-the-Art Biobank:** Establish a biobank that systematically collects and stores biological samples, making them available for high-impact research studies. The biobank will be supported by a strong IT infrastructure to ensure data integrity and accessibility for researchers both within IHHN and in external collaborative projects. Use blockchain for the biobank to ensure data integrity and streamlined sample management while maintaining strict security.

6. **Leverage Data for Decision Science:** Build a Division of Analytics & Decision Science, comprising experts in biostatistics, bioinformatics, data engineering, and database administration. This Data Management Unit will focus on utilizing big data to enhance the quality of research, optimize clinical trials, and support evidence-based decision-making. The division should have AGI/AAI driven solutions for analytics for real time insights, predictive analytics and data driven decision making

7. **Enhance the Institutional Review Board (IRB) Processes:** Ensure that IRB standards meet international accreditation criteria such as those outlined by the Association for the Accreditation of Human Research Protection Programs (AAHRPP). This will help ensure that all research activities are ethical, compliant, and aligned with global best practices.

8. **Promote Collaborative Research and Faculty Exchange Programs:** Establish exchange programs with national and international universities to foster knowledge-sharing and collaborative research efforts. This will help bring global expertise to IHHN while exposing our faculty to cutting-edge research in other institutions.

9. **Establish an Intellectual Property (IP) Office:** Set up and operationalize the IHHN IP Office to protect and manage intellectual property rights and build capacity and awareness around IP management and commercialization. Facilitate commercialization of research and innovation through licensing and spin-offs. Use machine learning tools to manage intellectual property, stream line patent applications and evaluate market potential for new discoveries.

GOAL III: ENHANCE INTRAMURAL AND EXTRAMURAL COLLABORATIONS AND FUNDING

Collaboration is a cornerstone of successful research. By fostering both intramural (internal) and extramural (external) collaborations, IHHN will broaden the scope and impact of its research activities, attract diverse funding sources, and ensure that findings are translated into real-world applications. Building strong partnerships will enable IHHN to stay at the forefront of healthcare innovation and drive interdisciplinary research.

To truly drive change, research must be collaborative, transcending traditional boundaries between disciplines, institutions, and sectors. IHHN must seek opportunities for collaborative research that leverages the expertise of internal teams while establishing strategic partnerships with external academic, government, and private sector entities.

Action Plan:

1. **Provide Seed Funding for Innovative Research Ideas:** Launch an internal Seed Funding Program that supports innovative, investigator-initiated research ideas. Prioritize projects involving interdisciplinary collaboration and engaging learners

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2. **Strengthen Partnerships with External Entities:** Forge closer research partnerships with regional and international institutions, fostering knowledge exchange, co-authorship, and co-application for competitive grants. IHHN will seek to actively participate in multi-center trials and international research consortia.
3. **Encourage Joint Research Proposals:** Facilitate the development of joint research proposals with external collaborators, particularly those that seek to address global health challenges relevant to the population of Pakistan. Prioritize proposals that address global health challenges relevant to Pakistan.
4. **Host Seminars, Conferences, Joint meetings and networking events:** Foster new collaborative relationships through seminars. Organize theme-based networking events for researchers across departments and with external collaborators to foster new collaborative relationships through theme-based events.
5. **Engage Government Entities:** Increase engagement with government bodies for joint research projects.
6. **Attract Diverse Funding Sources:** Secure 20% of research funding from non-traditional sources such as private companies, NGOs, and philanthropic organizations
7. **Establish International Collaborative Centers:** Establish at least one international collaborative center focused on global health challenges.
8. **Track Research Impact:** Measure the impact of collaborative research in terms of citations, publications in high-impact journals, and translation into practice.

GOAL IV: ENHANCE PUBLIC-PRIVATE PARTNERSHIPS FOR INNOVATION & COMMERCIALIZATION

Public-private partnerships (PPPs) offer tremendous potential for driving healthcare innovation and bringing new discoveries to market. By leveraging the strengths of both sectors, IHHN can accelerate the development of new technologies, improve patient care, and generate new revenue streams that contribute to the sustainability of the organization.

To fully capitalize on the potential of PPPs, IHHN must adopt a proactive approach to identifying partners, nurturing relationships, and integrating industry expertise into its research programs. These partnerships will enable IHHN to become a hub of innovation, where research is not only conducted but also commercialized for the benefit of patients and communities.

Action Plan:

1. **Identify and Secure Strategic Industry Partnerships:** Establish and expand strategic collaborations with industry partners in biopharmaceuticals, healthcare technology, and instrumentation to enhance research and development efforts and drive commercialization. Create regular platforms for industry and academic collaboration to explore partnership opportunities, discuss technological trends, and generate innovative healthcare solutions. Establish an Industry Partnership Enhancement Advisory Board to provide strategic guidance and oversight for collaboration initiatives, enhancing the effectiveness and scope of public-private partnerships.

2. **Integrate Industry Expertise into Signature Research Program:** Incorporate industry expertise into IHHN's signature research programs to promote innovation, enhance project outcomes, and accelerate the translation of research into commercial applications

3. **Establish an IHHN Incubation Center for Translational & Clinical Research:** Design and implement an incubation center that facilitates the translation of research into commercially viable products and therapies, with industry mentorship and support. Using AGI/AAI this center can also provide virtual mentorship, training and collaboration with industry experts in real time.

4. **Establish Endowed Chairs in Key Interdisciplinary Research Areas:** Secure funding for endowed chairs in interdisciplinary research areas to attract top talent and foster collaboration across various scientific fields.

GOAL V: BUILD AND RETAIN RESEARCH TALENT

To build and retain research talent, IHHN will implement a comprehensive action plan that not only attracts top talent but also nurtures and sustains their growth. This plan will align with IHHN's strategic goal to become a leading research-driven healthcare organization, fostering an environment where researchers are empowered, supported, and committed to long-term contributions. Below is an action plan with targeted steps:

Action Plan:

1. Attracting Top Talent

- **Establish a Competitive Recruitment Process:** Develop an efficient recruitment pipeline focusing on early-career researchers, experienced scientists, and international experts in relevant fields. Use targeted outreach programs, partnerships with academic institutions, and research conferences to attract potential candidates.
- **Research Fellowships and Internships:** Offer fellowship and internship programs to attract new graduates and early-career researchers. These programs should emphasize skill-building and research mentorship to create a pathway into full-time roles.
- **Global Talent Sourcing:** Leverage international networks to bring in global expertise, inviting visiting researchers and experts to engage in short-term projects or as adjunct faculty, providing diversity in thought and practice.

2. Developing and Nurturing Talent

- **Comprehensive Onboarding Program:** Implement a robust onboarding process that introduces researchers to IHHN's mission, values, and infrastructure. Offer initial training on IHHN's research facilities, resources, and ethical standards.
- **Research Mentorship Program:** Establish mentorship between junior researchers and experienced mentors, fostering skill development, career guidance, and collaboration on projects. This should be a structured, ongoing program, with regular check-ins and career development milestones.
- **Protected Research Time:** Ensure researchers have dedicated time to focus on their projects without being overloaded by administrative duties. Protected time is critical for productivity and fosters a supportive environment for research excellence.
- **Access to Resources and Tools:** Provide researchers with advanced tools, lab resources, data analytics support, and funding for research materials. Access to cutting-edge technology will keep researchers engaged and efficient in their work.

3. Encouraging Continuous Learning and Growth

- **Professional Development Programs:** Offer ongoing learning opportunities, including workshops, seminars, and conferences focused on new research methodologies, data science, and healthcare innovation.
- **Collaborative Research Opportunities:** Foster internal and external collaboration with other healthcare and research institutions. This allows researchers to participate in multi-institutional studies and expand their professional network, enriching their experience and knowledge base.

- Career Development Plans: Develop individualized career development plans for researchers, providing clear pathways for advancement within IHHN. Include roles for progression, such as Senior Research Scientist, Research Director, and opportunities for those with administrative or leadership potential.

4. Recognition and Retention Strategies

- Research Recognition Programs: Recognize achievements with annual awards, such as Researcher of the Year or Innovation Awards, along with monetary prizes, to celebrate significant contributions.

- Publishing and Presentation Support: Assist researchers in publishing in high-impact journals and presenting at conferences. Offer publication bonuses and cover costs associated with presenting research findings, raising both the researcher's and IHHN's profiles.

- Performance-Based Incentives: Introduce incentive programs tied to key research milestones, successful grant applications, or high-impact publications. These financial and non-financial incentives encourage long-term commitment and excellence.

By pursuing these strategic goals, IHHN will transform itself into a leading research institution that not only delivers evidence-based clinical care but also generates new knowledge that influences healthcare practices globally. Each goal is supported by a detailed action plan designed to ensure measurable outcomes and sustained success.

RESOURCE PLANNING

Through careful and strategic resource planning, IHHN will establish a strong foundation to drive its ambitious research agenda. This holistic approach ensures that IHHN has the financial, human, infrastructural, technological, and logistical resources necessary to build a world-class research ecosystem that serves both its mission and the broader healthcare needs of Pakistan. This involves allocation of financial, human, technological, and infrastructural resources to support research objectives and maintain momentum toward becoming a leading healthcare research institution.

1. Financial Resources

- **Budget Allocation and Forecasting:** Establish a dedicated research budget covering initial setup, operational costs, training, and talent development. Allocate specific funding for key areas like biobank development, data analytics, and specialized lab equipment. Regularly review and adjust budgets to meet emerging needs.
- **Grant Acquisition Strategy:** Identify and pursue external funding sources, including national and international grants, donations, and partnerships. Target high-impact research areas with significant potential for grant funding and create dedicated teams to handle proposal writing, grant management, and reporting.
- **Public-Private Partnerships and Endowments:** Engage with private-sector partners and philanthropists to establish endowed funds for long-term research initiatives. Endowed chairs and research fellowships can provide sustained funding for specific research roles or projects, reducing dependency on annual budgeting.
- **Internal Funding Mechanisms:** Develop internal funding avenues, such as a seed funding program, to support innovative pilot projects. This can empower researchers to initiate new studies, attract external funding, and demonstrate research viability.

2. Human Resources

- **Workforce Planning and Recruitment:** Project staffing needs for core research departments, including the Office of Research, Innovation, and Commercialization (ORIC), the biobank team, analytics, and data science specialists. Develop job roles, skill requirements, and recruitment timelines aligned with the growth trajectory of IHHN's research goals.
- **Training and Development Programs:** Allocate resources for continuous training in research methodologies, data analysis, and regulatory compliance. Offer professional development grants for researchers to attend international conferences, workshops, and specialized certification programs.
- **Retention and Succession Planning:** Invest in talent retention initiatives to reduce turnover and sustain institutional knowledge. Introduce succession planning for senior roles within research departments to ensure continuity and minimize disruptions due to staff transitions.

3. Infrastructure Resources

- **Research Facilities and Lab Space**: Allocate

resources for expanding and equipping research facilities, including dedicated lab space for molecular biology, pharmacology, and clinical trials. Ensure facilities meet national and international safety and ethical standards to attract top-tier research professionals and partnerships.

- **Biobank and Sample Management:** Invest in state-of-the-art storage and tracking systems for biobanking, including robust cold-chain storage facilities and inventory management software. This will support efficient handling, preservation, and retrieval of biological samples essential for high-quality research.

- **Data Analytics and Decision Science Division:** Build a central analytics hub equipped with advanced data processing tools, machine learning platforms, and software for managing complex datasets. This division will support real-time data analysis, predictive modeling, and decision-making across research initiatives.

- **Electronic Medical Record (EMR) Integration:** Extend EMR capabilities to facilitate seamless data access for retrospective and prospective studies. Enhance EMR with advanced analytics features to enable real-time data analysis and longitudinal research capabilities.

4. Technology Resources

- **Advanced Research Software and Data Management Systems:** Implement and maintain software for clinical trial management, data storage, and analysis (e.g., REDCap, SPSS, SAS). Ensure compliance with data protection regulations, enabling secure data handling, collaboration, and reporting.

- **Artificial Intelligence (AI) and Machine Learning Capabilities:** Invest in AI tools for predictive analytics, particularly in areas like adaptive clinical trials, patient recruitment, and outcome forecasting. Utilize advanced algorithms to enhance the scalability and precision of research activities.

- **Cybersecurity and Data Privacy:** Allocate resources to cybersecurity infrastructure that protects sensitive patient data and research findings. Invest in encryption, secure access protocols, and compliance with international standards, such as HIPAA and GDPR, to ensure data integrity and confidentiality.

5. Operational and Logistical Resources

- **Resource Allocation for Collaborative Research:** Establish operational budgets that support collaborative studies with national and international institutions. Allocate funds for networking events, faculty exchange programs, and travel, promoting cross-institutional knowledge sharing and innovation.

- **Project Management and Monitoring:** Designate project management resources to oversee the implementation and tracking of the strategic plan. Implement robust project management software to ensure timelines, resource utilization, and progress metrics are transparently tracked and adjusted as needed.

- **Procurement and Maintenance of Equipment:** Set up procurement protocols for high-quality lab and research equipment. Develop a maintenance schedule and replacement plan to prevent downtime and ensure researchers have reliable access to essential tools.

IMPLEMENTATION & MONITORING OF THE STRATEGIC PLAN

IHHN is committed to timely implementation and monitoring of its Research Strategic Plan to ensure that it is executed with precision, accountability, and adaptability. By embedding monitoring and evaluation practices at every stage, IHHN will not only achieve its strategic objectives but also foster a culture of continuous improvement, responsiveness to challenges, and commitment to long-term impact in healthcare research. This comprehensive approach supports IHHN's mission to set new standards for research-driven, patient-centered care in Pakistan and beyond.

1. Implementation Framework

- **Leadership and Governance Structure:** IHHN has established a Research Scientific Committee (SRC), led by senior leaders from research, clinical, and administrative branches, to oversee the strategic plan. The committee will include representatives from the Office of Research, Innovation, and Commercialization (ORIC), the biobank, analytics, and external partnerships. This group will meet quarterly to ensure alignment, troubleshoot issues, and guide the implementation.

- **Strategic Goals and Project Teams:** For each of the plan's strategic goals, IHHN has created dedicated project teams responsible for operationalizing and tracking progress on specific objectives. Each team will report to the SRC and be responsible for developing action steps, resource allocation, and stakeholder engagement.

- **Timeline and Milestones:** IHHN has established a detailed timeline that outlines quarterly and annual milestones for each strategic goal. This timeline will serve as a roadmap, helping teams prioritize actions and enabling leadership to monitor progress effectively.

- **Communication Plan:** IHHN has developed an internal communication plan to keep all stakeholders informed of progress, challenges, and achievements. Regular updates through emails, meetings, and newsletters will ensure transparency and maintain enthusiasm across the organization.

2. Monitoring and Evaluation (M&E) Framework

- **Key Performance Indicators (KPIs) and Objectives and Key Results (OKRs):** IHHN has outlined detailed KPI's and OKRs to monitor specific outcomes and progress. These measurable results will allow for targeted evaluations, enabling adaptive responses when targets are not met.

3. Data Collection and Reporting Mechanisms

- **Centralized Data Management Systems:** IHHN will implement a centralized data management system to capture and store performance data. This system will support real-time data access for all project teams and enable accurate reporting of progress to the SRC.

- **Quarterly Progress Reports:** Each project team will submit quarterly reports to the SRC. These reports will include updates on KPIs and OKRs, challenges encountered, and recommendations for course corrections if needed.

- **Annual Review and Adjustments:** At the end of each year, SRC will conduct a comprehensive review of the strategic plan's progress, including an assessment of all KPIs, OKRs, and financial performance. This annual review will allow leadership to make any necessary adjustments to strategies, timelines, or resource allocation to stay on track with the overall vision.

4. Risk Management

- **Risk Assessment:** SRC will identify potential risks (e.g., budget constraints, staffing shortages, regulatory changes) and develop risk mitigation strategies. Each project team should include a risk analysis component in their quarterly reports, allowing the SRC to proactively address challenges.

5. Feedback and Continuous Improvement

- **Stakeholder Feedback:** SRC will actively solicit feedback from researchers, staff, and external partners through surveys, interviews, and focus groups. Incorporate this feedback to improve processes, enhance resource allocation, and refine project objectives.

- **Continuous Improvement Cycles:** SRC will adopt a Plan-Do-Check-Act (PDCA) cycle to promote continuous improvement across all strategic initiatives. This approach will allow teams to systematically evaluate outcomes, make improvements, and refine processes.

- **Innovation Workshops:** IHHN and SRC will conduct periodic innovation workshops where research staff can propose improvements, share successes, and explore new ideas. These sessions encourage a culture of innovation and help identify additional opportunities to enhance the strategic plan's impact.

6. Sustainability and Long-Term Impact

- **Resource Sustainability Planning:** As part of the annual review, SRC will evaluate whether resources are being used efficiently and identify ways to sustain funding, infrastructure, and human capital beyond the plan's three-year term.

- **Building Institutional Knowledge:** SRC will document all processes, lessons learned, and best practices to create a knowledge base that supports ongoing improvement and allows future teams to build on the strategic plan's achievements.

- **Transition Planning:** IHHN and SRC will begin transition planning in the final year to ensure continuity and sustain the gains achieved. Develop a roadmap that enables IHHN to carry forward the strategic initiatives as ongoing priorities within the organization.

APPENDICES

RESEARCH RELATED DATA AT IHHN (2019 – 2024)

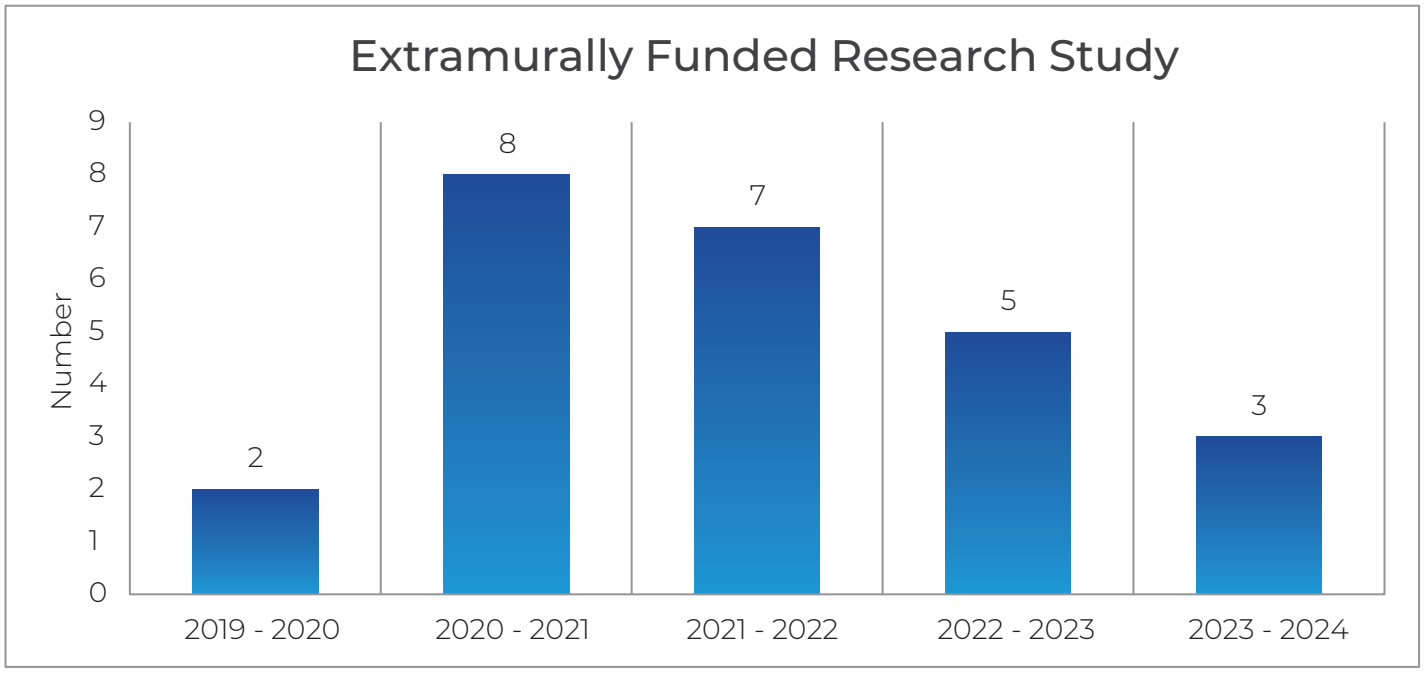
A: NUMBER OF EXTRAMURALLY FUNDED CLINICAL TRIALS (2019 – 2024)

Over all 25 clinical trials were conducted from (2019 – 2024)

Sr#	Clinical Trials	Duration
1	Evaluating newly approved drugs for multi drugs resistance TB	2019
2	endTB-Q Clinical Trial is a Phase III, randomized, controlled, open-label, non-inferiority, multi-country trial evaluating the efficacy and safety of two new, all-oral, shortened regimens for multidrug-resistant tuberculosis (MDR-TB) with fluoroquinolone resistance.	2020
3	Multi-center, Randomized, Double Blind and Placebo Controlled Clinical Trial on the Effectiveness and Safety of Jinhua Qinggan Granules (JHQG) for the Treatment of COVID19 Patients	2020
4	Randomized, Double-Blinded, Parallel Placebo Controlled, Phase I Clinical Trial to Evaluate the Safety and Immunogenicity of Inactivated SARS-CoV-2 Vaccine in Healthy Population Aged 18 years Old and Above.	2020
5	A multicenter, randomized, double-blind, placebo-controlled phase II clinical trial to evaluate the efficacy and safety of CBP-307 in subjects with moderate to severe ulcerative colitis (UC)	2021
6	Effectiveness of Noninvasive High Frequency Oscillatory Ventilation (NHFOV) versus Invasive conventional ventilation for preterm neonates with respiratory distress syndrome with nCPAP failure, Randomized Controlled trial from NICU's of the multi- country and multi- center	2021
7	A phase III Randomized, Double -blind, placebo-controlled clinical trial in 18 years of age and above to determine safety and efficacy of ZF2001, a recombinant Novel Coronavirus vaccine (CHO CELL) for prevention of covid-19	2021
8	A Prospective, Open label, Interventional Study, to Evaluate the efficacy and Safety of Favipiravir given Orally for a period of fourteen days to adult patients with Covid-19 Infection in a Tertiary Care Hospital in Karachi	2020
9	A global multicenter, randomized, double -blind, placebo - controlled, adaptive designed phase clinical trial to evaluate the efficacy, safety and immunogenicity of Recombinant Novel Coronavirus Vaccine (Adenovirus Type 5 Vector)	2021
10	COVID-19 Ag Rapid Saliva Validation Study	2021
11	QI-GONG for Long Covid	2021
12	The Pragmatic Observation of Labor, Exercise Tolerance, And Respiratory Impairment after Treatment of TB	2022
13	An international randomized trial of additional treatments for COVID-19 in hospitalized patients who are all receiving the local standard of care	2021
14	A Global, Multi-center, Randomized, Double-Blind, Parallel-Controlled Clinical Study to Evaluate the Immunogenicity and Safety of Different Production Scales and Batches of Recombinant SARS-CoV-2 Fusion Protein Vaccine (V-01) in Adults Aged 18-59 Years	2022
15	A Multi-center; Randomized, Double-blind, Placebo-controlled Phase IIIb Clinical Trial to Evaluate the Efficacy, Immunogenicity and Safety of Covid-19 Vaccine (Vero Cell), Inactivated Booster Dose in Adults Aged 18 Years and above	2021
16	A Multicenter, Double-blind, Randomized, Placebo-Controlled, Phase II/III Study to Evaluate the Efficacy, Safety and Pharmacokinetics of JT001 (VV116) for the Early Treatment of Coronavirus Disease 2019 (COVID-19) in Participants with Mild to Moderate COVID-19.	2022
17	A multicenter retrospective study of characterization of treatment intensified (add on to metformin) real world adult population with type 2 diabetes mellitus in India, Pakistan, and Thailand.	2022

18	A study to investigate the feasibility of introducing home-based cardiac rehabilitation as a healthcare intervention in Karachi, Pakistan	2022
19	Zinc acceptability study in children with acute diarrhea A prospective, open label, (multi-center) interventional study	2022
20	A Randomized, Double-blinded, Placebo-controlled Phase II/III Clinical Trial to Evaluate the Efficacy, Safety and Immunogenicity of a Recombinant SARS-CoV-2 Vaccine (CHO Cell) LYB001 as Booster Vaccination in adults 18 Years of Age or older completed two-dose or three-dose inactivated COVID-19 vaccine	2022
21	National Standard of Care Protocol for Treatment of Low	2022
22	ACTIV-2d/A5407 A Phase 3, multicenter, randomized, double-blind, 24-week study of the clinical and antiviral effect of S-217622 compared with placebo in non-hospitalized participants with COVID-19 Study Acronym: SCORPIO-HR A Multicenter Trial of the AIDS Clinical Trials Group (ACTG)	2023
23	Enhancing Healthcare Resilience: Addressing Mortality Patterns in response to air quality, heatwaves and flood in Pakistan	2024
24	A multicenter, open-label, randomized, phase III clinical trial to evaluate efficacy and safety of PF-114 versus imatinib at 600 or 800 mg daily in adult patients with Philadelphia chromosome positive (Ph+) chronic myeloid leukemia (CML) in the chronic phase (CP) resistant to imatinib at daily doses of 400 or 600 mg" (Protocol No: PF-114-02) sponsored by JSC PHARMASYNYEZ-NORD.	2024
25	Comparison of Silodosin versus Tamsulosin on Passage of Acutely Obstructing Ureteral Calculi (history of last 4 weeks) in Medical Expulsive Therapy	2024

GRAPHICAL REPRESENTATION OF THE LISTED EXTRAMURALLY FUNDED CLINICAL TRIALS



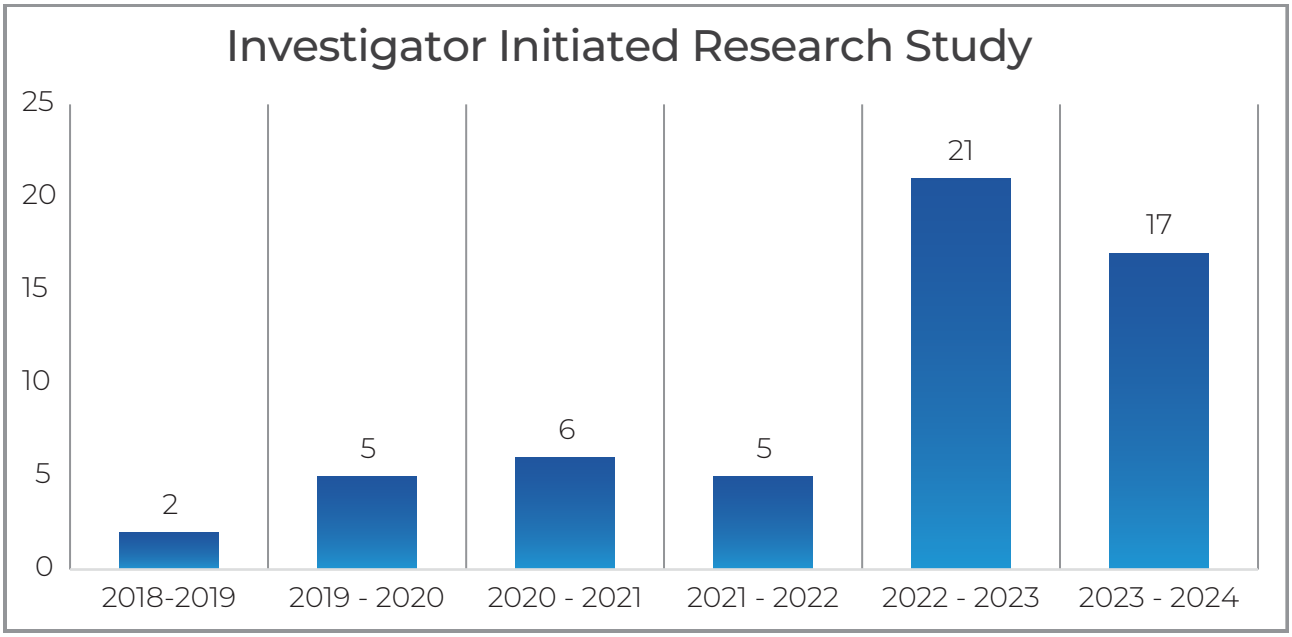
B: NUMBER OF INVESTIGATOR INITIATED CLINICAL TRIALS (2019 -2024)

Sr #	Title	Year
1	A protocol for multiple phase 3 multi-center, randomized, registry embedded, single blinded clinical trials comparing conservative oxygen therapy to liberal oxygen therapy in mechanically ventilated adults in the intense care unit (NBC-641 Amendment).	2024
2	To determine whether accelerated surgery for hip fracture in patients with acute myocardial injury is superior to standard care in reducing death at 90 days after randomization.	2024
3	Characterization Of Diverse Pediatric Cancer In LMIC Using Low-Cost Nanopore Sequencing	2023
4	Serum sampling of dog-bite victims in Karachi, Pakistan, to investigate the pre- and post- RABV PEP treatment immune response	2023
5	Studying predictors to Intraprofessional/Interprofessional Collaboration	2022
6	Rapid Diagnosis of Myocardial Ischemia by an Artificial Intelligence Based Transthoracic Echocardiographic Analysis of Regional-wall-motion-abnormality.	2022
7	Optimizing place of treatment and antibiotic regimens for young infants presenting with signs of possible serious bacterial infection	2022
8	Cancer type vs MPRC classes in 2070 hospitalized cancer patients at Indus Hospital–Korangi Campus (May 2021 – Apr 2022)	2022
9	A study to investigate the feasibility of introducing home-based cardiac rehabilitation as a healthcare intervention in Karachi, Pakistan	2021
10	Semaglutide to reduce Myocardial injury in Patients with COVID-19 (SEMPATICO)	2021
11	Randomized, Double-Blind, Placebo-Controlled, Non-inferiority Clinical Trial on the Efficacy and Safety of Houtou Jianweiling Tablet in the Treatment of Chronic Non-Atrophic Gastritis	2021
12	Project My Heart Your Heart (MHYH): Prospective Evaluation of the Safety and Efficacy of Cardiac Pacemaker Reuse in Low to Middle Income Countries	2020
13	Randomized, Embedded, Multifactorial Adaptive Platform trial for Community -Acquired Pneumonia, known as "REMAP-CAP'- Pakistan	2020
14	The study aims to identify the main drivers of violence against healthcare providers in emergency and to design and test behavioral interventions to reduce violence by hospital staff, patients, and attendants in the Emergency Department (ED). The sites were selected based on the high patient volume in the ED and willingness by the administration to collaborate.	2019
15	Effect of ReSoMal and probiotics on diarrhea in children with severe malnutrition: A randomized controlled trial	2019
16	Transversus Abdominis Plane (TAP) Block Vs Local Anesthetic Wound Infiltration in patients undergoing caesarean section	2019
17	A comparison of two techniques (local anesthetic deposited above vs. below the nerve) for ultrasound guided Femoral nerve block	2019
18	Prophylactic Antibiotics in Hip Fracture Surgery, A Randomized Prospective Study	2019
19	Peritubal Infiltration of 0.125% Bupivacaine for postoperative pain relief after percutaneous nephrolithotomy: A double-blind randomized study"	2019
20	Outcome and complications after percutaneous needle versus blade Achilles tenotomy in clubfoot treated with the Ponseti method	2020
21	Effect of intraperitoneal local anesthetic Bupivacaine versus placebo on postoperative pain after laparoscopic cholecystectomy: a randomized double blinded study	2020
22	Trial of High-Dose Vitamin D in the Treatment of Complicated Severe Acute Malnutrition	2020
23	Aspiration versus incision and drainage of superficial skin abscesses in pediatric patients	2021
24	Demystifying Tubeless PCNL: A comparative study to determine post-operative pain and analgesia requirement between Tubeless PCNL and Standard PCNL technique	2021

25	Wound closure after total knee arthroplasty,comparison between polypropylene and polyglactin 910 suture.	2021
26	National Standard of Care Protocol for Treatment of Classical Hodgkin Lymphoma	2022
27	Effect of dietary myo-inositol supplementation on pregnant overweight women to prevent Gestational Diabetes Mellitus	2022
28	Comparison between the pain control in patient undergoing flexible Cystoscopy in 2% Lidocaine infiltration intra-urethral with and without Diclofenac Suppository per- rectally.	2022
29	Comparison Of Effect of Human Milk Fortification with Preterm Formula Powder Vs Human Milk Fortification with Human Milk Fortifier On The Growth Of Very Low Birth Weight Newborns	2022
30	National Retinoblastoma Protocol	2022
31	Impact of Metformin and Insulin on mean post meal glucose levels in Women with Gestational Diabetes	2023
32	Mixed ANA patterns: Association with ANA-specific autoantibodies and Clinical Diagnosis.	2023
33	Outcomes Of A Carboplatin & Ifosfamide Based Protocol For Osteosarcoma Patients In A Daycare Setting In Pakistan	2023
34	Bacterial coinfections in dengue virus disease	2023
35	Comparison of short-term neurological outcome in patients of Hypoxic Ischemic Encephalopathy treated with Erythropoietin versus intravenous magnesium sulphate.	2023
36	The need of post-operative rescue analgesia in patient receiving erector spinae block versus nephrostomy tract infiltration after percutaneous nephrolithotomy	2023
37	Comparison Of Complications Using Diathermy and Scalpel for Skin Incisions In Open Inguinal Hernia Repair	2023
38	Effect of Membrane Sweeping at Term Pregnancy to Induce Labor: Randomized Controlled Trial	2023
39	Effectiveness of oral versus sublingual loading dose of nifedipine in threatened preterm labor at RTEH Muzaffargarh	2023
40	Comparative evaluation of sublay versus onlay mesh repair for ventral abdominal wall hernia- a prospective randomized control trial	2023
41	Access To Psycho-Oncology Services For Childhood Cancer Patients In Pakistan	2023
42	Efficacy of Racecadotril in acute watery diarrhea in children	2023
43	Comparison of efficacy of sublingual versus vaginal misoprostol in management of first trimester miscarriage	2023
44	Comparison of re-intubation rate in non-invasive high frequency oscillatory ventilation versus non-invasive positive pressure ventilation in preterm infants after extubation	2023
45	Effect of 24 hours hospital discharge Vs 48 hours discharge after a planned caesarean delivery on post-partum outcomes- a randomized single blinded controlled clinical trial in Recep Tayep Erdogan Hospital	2023
46	Comparison of frequency of surgical site infections with and without gallbladder retrieval bag in laparoscopic cholecystectomy.	2023
47	Comparison of short-term outcomes between Nasal Continuous Positive Airway Pressure and Nasal Intermittent Positive Pressure Ventilation in preterm neonates with respiratory distress syndrome	2023
48	Comparison of Transabdominal preperitoneal mesh repair versus totally extraperitoneal mesh repair for inguinal hernia repair	2023
49	Effects of supplemental oral zinc with intravenous antibiotics in treatment of severe pneumonia	2024
50	Mirabegron versus Tamsulosin in Medical Expulsion Therapy in Distal Ureteric Calculus	2024
51	Comparison of outcome in Salbutamol and Ipratropium therapy using metered dose inhaler versus nebulizer in children with severe acute exacerbation of asthma	2024

52	Comparison of intravenous paracetamol infusion versus intramuscular tramadol as an intrapartum labor analgesic.	2024
53	Effectiveness of Peri-Operative Combined Use Of 2 Doses of Dexamethasone with Tranexamic Acid In Lower Limb Joint Replacements, A Randomized Controlled Trial	2024
54	Abdominal Midline Wound Closure: Small Tissue Bites Vs Large Tissue Bites	2024
55	A Comparison of Postoperative Pain with And Without Instillation of Bupivicaine During Laparoscopic Cholecystectomy	2024
56	Comparative Analysis of Mother's Own Milk (MOM), Donor Human Milk (DM) and mix of Both: Impact on Growth.	2024

GRAPHICAL REPRESENTATION OF CLINICAL TRIALS INITIATED BY THE INTEREST AND EFFORTS OF OUR IHHN STAFF



C: NUMBER OF PHYSICIAN INVESTIGATORS (2019 – 2024)

The seventy-five Physician Investigators of IHHN belong to various specialties.

Sr #	Name of Faculty	Department
1	Abdul Hafeez Qureshi	Urology
2	Abdul Shakoor	Diabetes
3	Adeel Hussain	Anesthesiology
4	Ahmed Noor	Cardiology
5	Aiman Aamir	Surgery-General
6	Ali Naqi	Surgery-General
7	Anam Laraib	Obstetrics and Gynecology
8	Anam Rehman	Peds-Medicine
9	Aqsa Noreen	Pediatrics
10	Bushra Akraml	Obstetrics and Gynecology
11	Faizan Muhammad	Surgery-General
12	Fareeduddin	Pediatrics
13	Faridah Amir Ali	Indus College of Family Medicine and Public Health, Indus University of Health Sciences
14	Farkhanda	Obstetrics and Gynecology
15	Fivzia Herekar	Internal Medicine
16	Gulshan Himani	Family Medicine
17	Hana Arbab	Critical Care Medicine (NICU)
18	Hasan Ali Shah	Anesthesiology
19	Ibrahim Selod	Orthopedics
20	Imran Iftikhar	Cardiology
21	Jabbar Ghufran Syed	Orthopedics and Traumatology
22	Jabbar Ghufran Syed	Orthopedics
23	Javeria Aijaz	Molecular Biology
24	Javeria Saleem	Pediatrics
25	Manzoor Hussain	Gastroenterology
26	Maria Hasan	Peds-Surgery
27	Maryum Gul	Obstetrics and Gynecology
28	Meh Jabeen	Neonatology
29	Mehwish Mehmood	Family Medicine
30	Moatter Asmat	Obstetrics and Gynecology
31	Mubashira Ilyas	Obstetrics and Gynecology
32	Muhammad Akhter	Neonatology
33	Muhammad Amin Chinoy	Orthopedics
34	Muhammad Mohsin Farooq	Pediatrics
35	Muhammad Mubeen Iqbal	Urology

Sr #	Name of Faculty	Department
36	Muhammad Rafie Raza	Pediatric Oncology
37	Naseem Salahuddin	Infectious Diseases
38	Nek Mohammad	Orthopedics
39	Nida Shamsi	Family Medicine
40	Noman Yousaf	Surgery-General
41	Noor us Saba	Anesthesiology
42	Quratulain Shaikh	Infectious Diseases
43	Rida Fatima	Surgery-General
44	Ruhma Ashraf	Family Medicine
45	Saba Jamal	Blood Bank
46	Saba Shahid	Pediatric Services
47	Saba Shahid	Pediatrics
48	Sabiha Anis	Immunology
49	Sadia Bilal	Urology
50	Saima Ali	Adult Emergency Medicine
51	Saima Parveen	Surgery-General
52	Saima Saeed	Pulmonology
53	Sama Mukhtar	Emergency Department
54	Samina Mumtaz	Obstetrics and Gynecology
55	Samreen Sarfaraz	Infectious Diseases
56	Sana Ehsanullah	Surgery-General
57	Shahid Majid	Gastroenterology
58	Shameem Behram	Infectious Diseases
59	Shiza Latif	Peds-Medicine
60	Sidra Kanwal	Obstetrics and Gynecology
61	Sidra Saleem	Neonatology
62	Sohail Akhter	Pulmonology
63	Syed Ahmer Hamid	Peds-Oncology
64	Syed Ali Anwar Jilani	Orthopedics
65	Syed Ghazanfar Saleem	Emergency Services
66	Syed Hassan Ahmed	Neonatology
67	Syed Kamran Ahmed	Surgery and Allied Services, Orthopedics and Traumatology
68	Tarique Aziz	Cardiology
69	Tauqeer Khan	Orthopedics
70	Vikram Kumar	Pediatrics

Sr #	Name of Faculty	Department
71	Viran Raj Kammal	Urology
72	Wirender Kumar	Urology
73	Zaib-u-Nisa	Orthopedics
74	Zehra Kazmi	Pediatric Urology
75	Zunaira Aamir	Hematologist /Oncology

D: TOTAL NUMBER OF APPROVED IRB PROTOCOLS (2019 – 2024)

Approved IRB Studies from Jul 2018 to Jun 2024

Year	Faculty/ Consultant/ Director	Resident/ Fellow	Manager/ Coordinator	Medical Officer/ Pharmacist	Staff/ Student	Total
2018 - 2019	44	10	2		3	59
2019 - 2020	85	49	12		5	151
2020 - 2021	77	50	8		4	139
2021 - 2022	79	59	5	1	9	153
2022 - 2023	96	107	22	3	13	241
2023 - 2024	86	68	12	5	9	180
Total	**467**	**343**	**61**	**9**	**43**	**923**
Not Approved Studies	62	52	9	5	11	139

Overall studies Submission from 2010 to Jul-2024 = 1188 **For last 6 Years** **1062**

Summary of Non-approved Studies

*The studies are currently undergoing a review process.

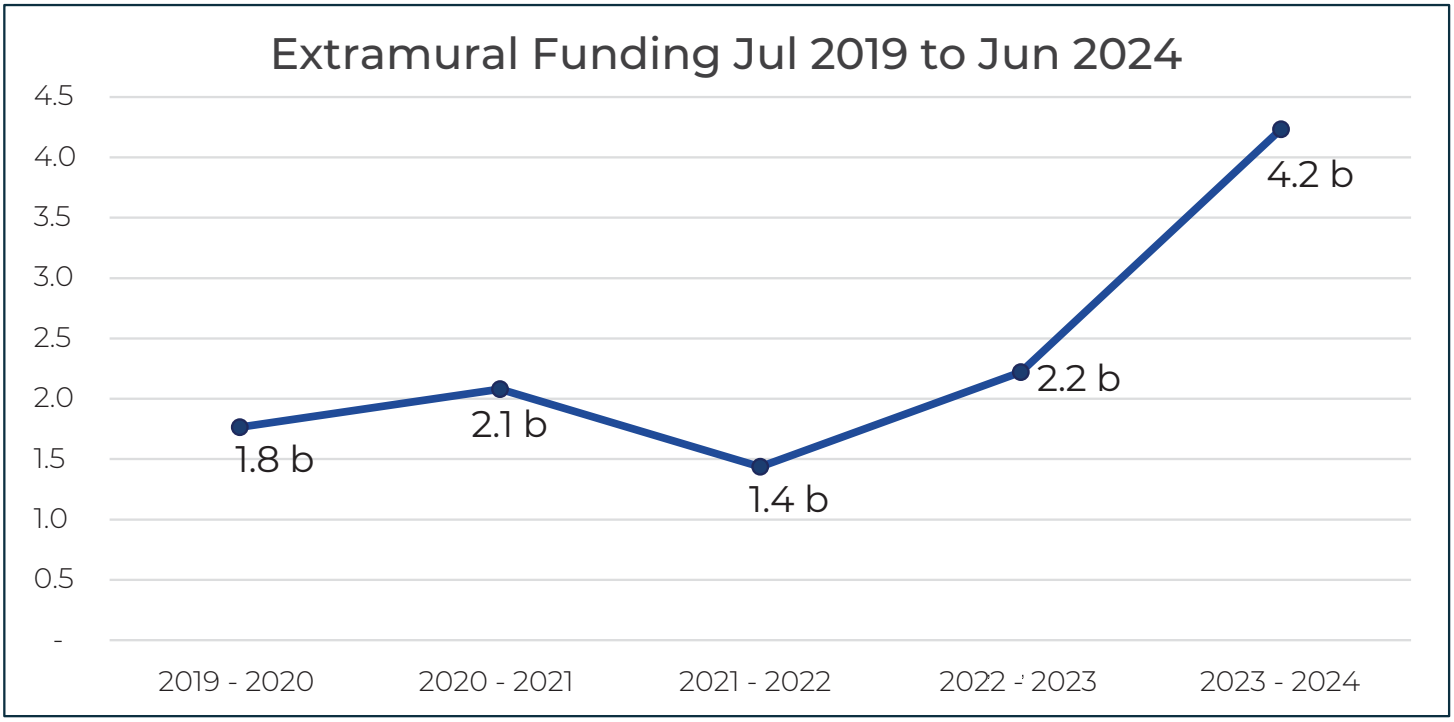
*The study was either canceled or temporarily suspended by the sponsor or Principal Investigator (PI).

*There has been a lack of response from the PI regarding communications.

E: TOTAL AMOUNT OF EXTRAMURAL FUNDING (2019 – 2024)

GRANT-FUNDED RESEARCH AND DEVELOPMENT PROJECTS (2019 – 2024)

Grant-funded research and development projects represent projects undertaken by the hospital either within or outside its premises and funded by specific donors. The details of grants/ funds received for these projects during the year for projects are as illustrated in the graphs below:



Graphical representation of the extramural fundings: From July 2019 to June 2024, the fiscal year at IHHN, the total amount of extramural funding is approximately PKR 11 billion. This is a cumulative count of research and service grants programs.

A prominent feature is the dip in funds due to covid which ironically also increased the funding amounts when IHHN along with the rest of the world conducted research on Covid 19.

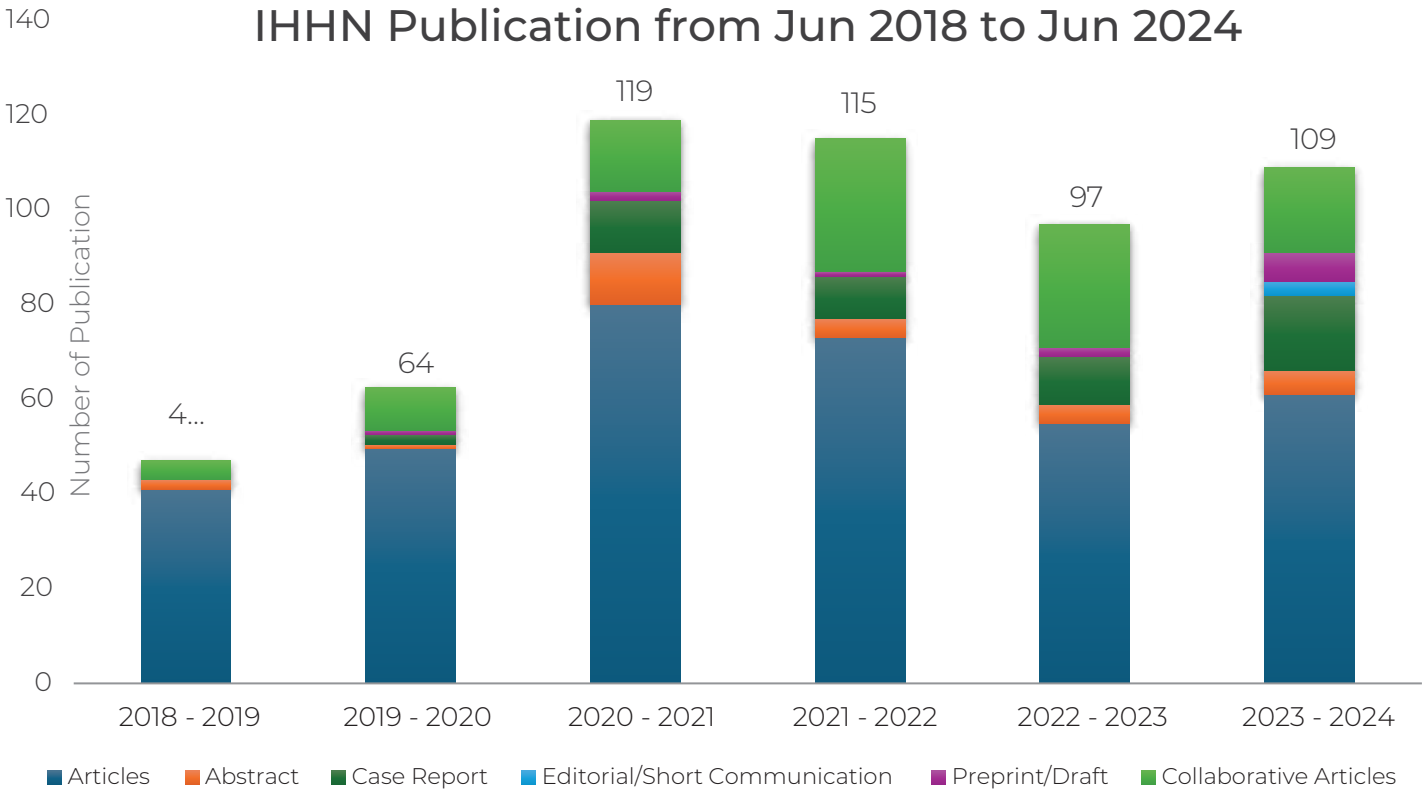
F: LIST OF SOURCES OF EXTRAMURAL FUNDING (2019 – 2024)

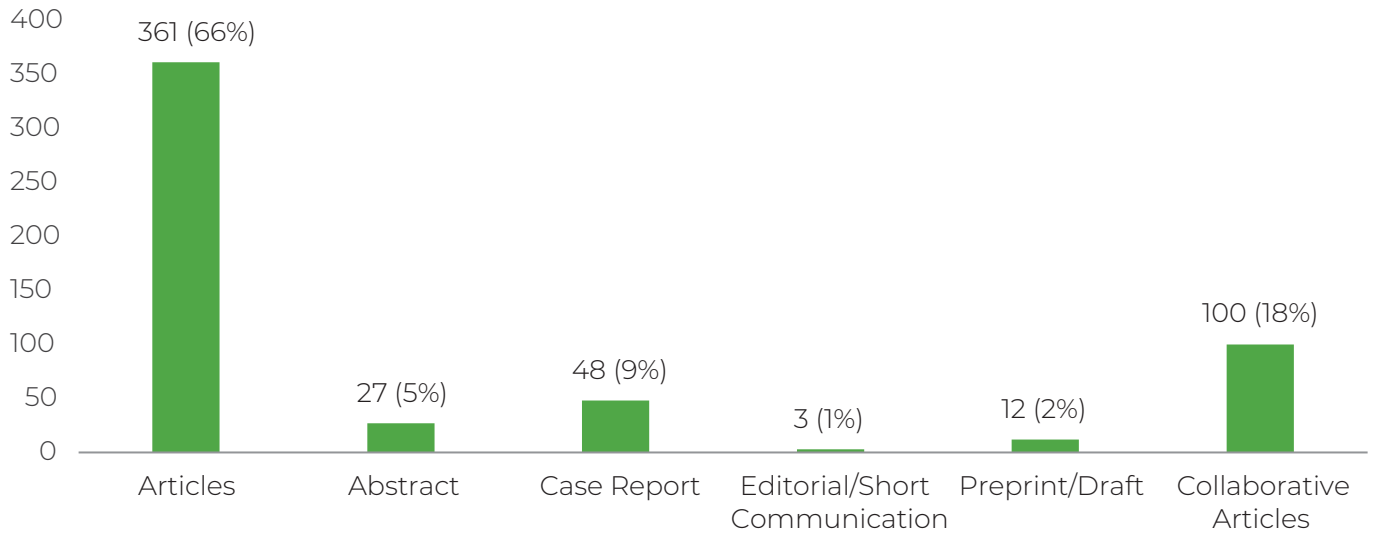
Sr #	Sponsor/Donor Agency/ Partner/CRO
1	Aga Khan University (Loc.)
2	AJM Pharma (Loc)
3	Amnesty International
4	CanSino Biologics Inc. Beijing Institute of Biotechnology (Int.)
5	Cedars-Sinai
6	DRD Pharma (Loc)
7	Dynatis Pakistan Pvt Ltd (Lahore)
8	Fordham University (Int.)
9	Getz Pharma
10	Hamilton Health Sciences Corporation (“HHSC”), through its Population Health Research Institute (“PHRI”)
11	Hammad Medical Corporation (int.)
12	Harvard Medical School
13	Hunan Xinhui Pharmacy Co. Ltd (int.)
14	Indus Pharma
15	Integrated Learning Means LLC, Dancing Mountain Taijiquan and Taoist Arts
16	International Center for Chemical and Biological Sciences (ICCBS), University of Karachi
17	International committee of the Red Cross
18	IQVIA
19	Jiangsu well Biotech Co. Ltd
20	Joint-Stock Company Pharmasyntez Nord
21	Khyber Medical University (KMU)
22	Livzon Mabpharm Inc.
23	Martin Dow
24	Médecins Sans Frontières, France
25	Medical Research Institute of New Zealand
26	Ministry of Health, Pakistan
27	Monash University Malaysia
28	National Institute of Allergy and Infectious Diseases (NIH), Division of AIDS (DAIDS), CRO: IQVIA
29	Novo Nordisk
30	ORCI TRIALS (CRO-local)
31	Research Institute of the McGill University Health Centre
32	Shanghai JunTop Biosciences Co. Ltd
33	Shionogi (Int.)
34	SinoPharm
35	Sinovac Biotech
36	Smooth Drug Development (CRO-Int)
37	St. Jude Children's Research Hospital, Inc. (“St. Jude”)
38	Sukoon Care Limited

Sr #	Sponsor/Donor Agency/ Partner/CRO
39	Suzhou Connect Biopharmaceuticals, Ltd.
40	THE INITIATIVE
41	Tigermed
42	University Health Network (UHN)
43	University of Michigan
44	University of North Carolina
45	Viroscience department, Erasmus MC
46	Virufy, The Covid Detection Foundation, California
47	West Suffolk NHS Foundation Trust
48	WHO, Country Office, Pakistan
49	Ziauddin University

G: TOTAL NUMBER OF PUBLICATIONS (JULY 2018 -JUNE 2024)

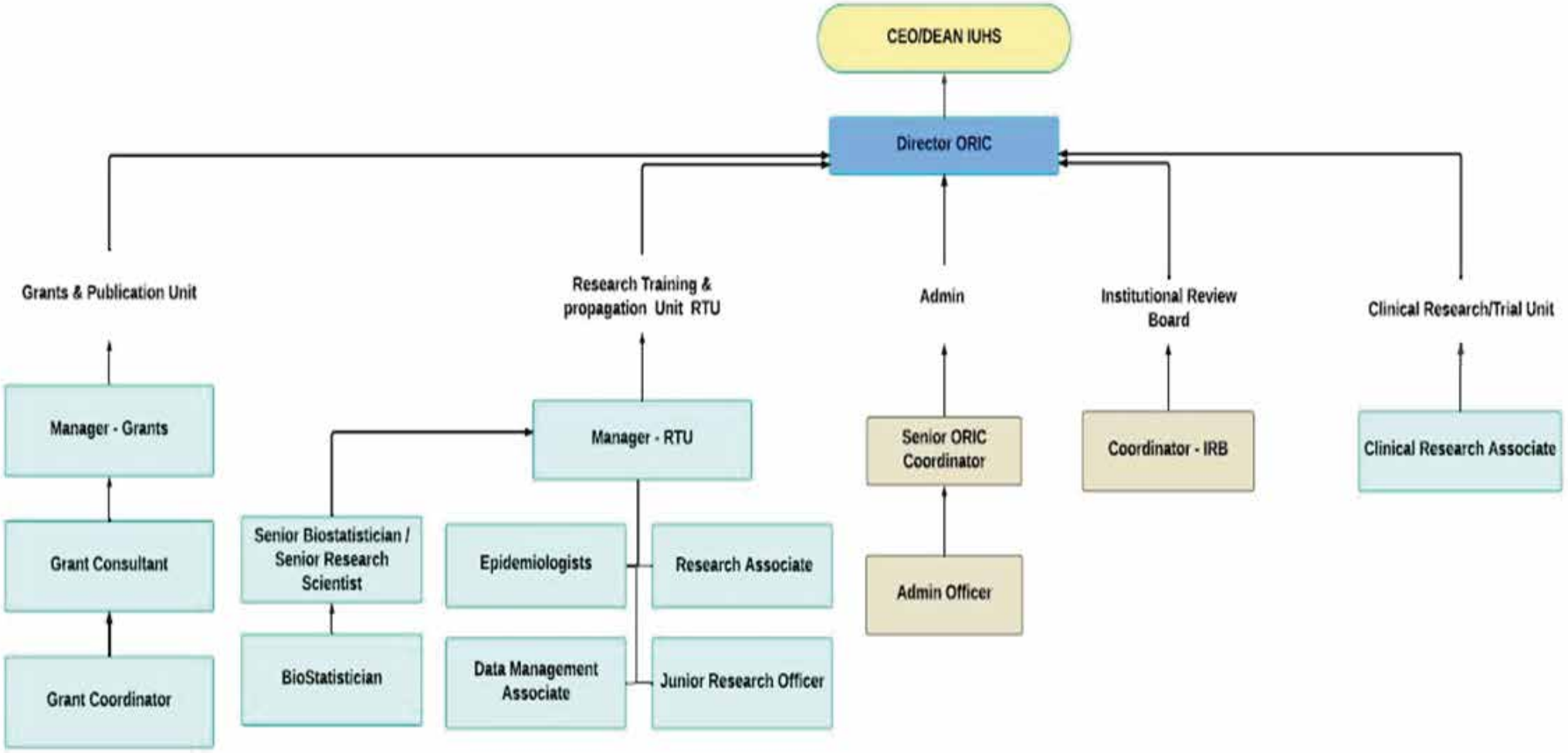
- The total number of publications is 551 for the reported period.





ORGANIZATIONAL STRUCTURE

Office of Research, Innovation and Commercialization (ORIC)



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