

2024 DOST-GIA Call for Proposals Priority Areas



Philippine Council for Health Research and Development

DOST Harmonized National R&D Agenda (HNRDA) Research Priorities for Health STI



Drug Discovery & Development
(Tuklas Lunas)



Diagnostics



Functional Foods



Biomedical Engineering for Health



Nutrition and Food Safety



Digital and Frontier Technologies for Health



Re-emerging and Emerging Diseases



Disaster Risk Reduction and Climate Change Adaptation in Health



OMIC Technologies for Health



Mental Health

National Unified Health Research Agenda



DOST Pillars and 11 Priority Areas

Human Wellbeing Promoted	Wealth Creation Fostered	Wealth Protection Reinforced	Sustainability Institutionalized
Food Security	Job Creation and Entrepreneurship / Regional Development	Climate and Disaster Resilience	Facilities Upgrading
Health Security			Digital Transformation
Water Security and Environmental Protection			Smart and Sustainable Cities and Communities
Energy Security			
Transportation System			
Human Resource Development			

Human Well-Being Promoted

Functional Foods

Health Security

- **Root crops**
 - *Characterization, safety assessment, efficacy studies, and product development of the following root crops:*
 - Yacon
 - Yam
- **Local berries**
 - *Characterization, safety assessment, efficacy studies, and product development of the following local berries:*
 - Sapinit
 - Duhat
- **High value commodities**
 - *Characterization, safety assessment, efficacy studies, and product development of the following commodities:*
 - Mango
 - Citrus
 - Coffee
- **Probiotics**
 - *Characterization, safety assessment, efficacy studies, and product development of probiotics*

Human Well-Being Promoted

Nutrition

Health Security

- **Maternal and Child Nutrition**
 - *Stunting, wasting, obesity, and diabetes in children*
 - *Overnutrition, Gestational Diabetes, and Preeclampsia in pregnant and lactating women*
- **Nutrition for Rare and Infectious Diseases**
 - *Nutritional intervention for prevention and management of infectious diseases*
 - *Nutritional intervention for management of rare diseases*
- **Nutrition assessment and intervention in selected populations**
 - *Nutrition assessment and intervention in:*
 - *Indigenous communities*
 - *Disaster and conflict-affected communities*
 - *Reproductive age women*
 - *Adolescents*
- **Integrative Functional Nutrition**
 - *Nutrition for management of psychological disorders*
 - *Emerging and existing diets*

Human Well-Being Promoted

Food Safety

Health Security

- **Dietary exposure assessment of selected chemical and physical hazards in foods**
 - *Research on the following chemical and physical hazards:*
 - Heavy Metals
 - Aflatoxin
 - Nitrates
 - Antibiotic residues
 - Food allergens
 - Microplastics
- **Exposure assessment of selected microbiological hazards/pathogens in foods**
 - *Research on the following microbiological hazards/pathogens:*
 - *Listeria*
 - *Escherichia coli*
 - *Salmonella*
 - *Staphylococcus aureus*
 - *Entamoeba histolytica*
- **Existing and novel technologies and approaches for prevention, traceability, and outbreak response for food-borne disease**
 - *Research on existing technologies and development of novel technologies for the prevention, traceability, and outbreak response for food-borne disease*

Human Well-Being Promoted

Re-emerging and Emerging Diseases

Health Security

- **Non-communicable Diseases**
 - *Heart Diseases*
 - *Targeted prevention and disease management strategies for cardiometabolic diseases in rural areas*
 - *Comparative studies on community-based programs promoting healthy eating patterns and addressing lifestyle factors like smoking cessation*
 - *Cerebrovascular Diseases*
 - *Investigate barriers to timely post-stroke care in rural settings*
 - *Neoplasms*
 - *Cancer Screening and Early Detection (Breast, Lung, Liver, Colorectal, and Prostate Cancer)*
 - *Viral-associated cancers*
 - *Diabetes Mellitus*
 - *Epidemiological studies (Demographic and socio-economic changes impacting disease prevalence)*
 - *Hypertensive Diseases*
 - *Develop screening and monitoring tools addressing socioeconomic disparities*
 - *Investigate awareness and adherence factors related to personal BP monitoring and management.*

Human Well-Being Promoted

Re-emerging and Emerging Diseases

Health Security

• Communicable Diseases

- *Emerging & Re-emerging pathogens*
 - *Studies on modifiable risk factors, environmental exposure, and antibiotic-resistant respiratory pathogens prevention*
- *Virology and Vaccine Development R&D*
 - *Epidemiologic studies for basic research of different viral diseases*
 - *Viral-associated cancers*
 - *Viral diseases in relation to maternal and child health*
 - *Viral diseases in relation to sexual and reproductive health*
- *Respiratory Infections*
 - *Tuberculosis*
 - *Assessment of programs and policies to the prevalence of the disease*
 - *Factors associated with non-adherence during TB treatment.*
 - *Outcomes and implementation challenges of TB treatment*
- *Acute Respiratory Infections*
 - *Studies on modifiable risk factors, environmental*
- *Acute Watery Diarrhea (Cholera, Cryptosporidium and other relevant pathogens)*
- *Neglected Tropical Diseases and other diseases of public health importance*

Human Well-Being Promoted

Re-emerging and Emerging Diseases

Health Security

• Antimicrobial Resistance (AMR)

- *Community/farm knowledge, perceptions and practices/behavior (prescription practices, marketing)*
- *Explore alternative therapeutics against antimicrobial-resistant pathogens*
- *Innovative AMR detection technologies*
- *Significance of coexistent conditions and consequence of presence of antibiotic resistant respiratory pathogens*

Human Well-Being Promoted

Brain & Mental Health

Health Security

- **Risk Factors of Mental Health Disorders and Psychosocial Problems focusing on PTSD, Psychosis, vulnerable/special populations, and psychosocial problems brought about by extreme life experiences:**
 - *Research that focus on risk factors and other variables, including the role of spirituality in mental health disorders specifically those with Post Traumatic Stress Disorders (PTSD), Psychosis, and those in special sectors/vulnerable populations (e.g. children survivors of abuse, armed conflict, conflict with the law, LGBTQIA+ group, people with chronic diseases, and women in special circumstances of violence, gender inequality, and single parenthood).*
 - *Research focusing on Psychosocial problems brought about by extreme life experiences like disaster, conflict, and violence (e.g. extreme environmental conditions).*

Studies with a nationwide scope **will be prioritized.*

Human Well-Being Promoted

Brain & Mental Health

Health Security

- **Mental Health Literacy including capacity building for health care providers**
 - *Mental health literacy and competencies of health care workers, Local Government units (LGUs), and individuals with mental health conditions.*
 - *Mental health literacy and health-seeking behavior of Filipino indigenous communities – including local spiritual beliefs about mental disorders or health problems contributing to increased stigma.*
 - *Research that can help capacitate healthcare workers to handle the concerns of individuals with mental health conditions.*
- **Mental health research information system**
 - **Information Communication Technology for mental health (Registry of Mental Health Research):** *Studies that will create a registry for all mental health research that can be utilized by various stakeholders and interested researchers in the Philippines.*
 - **Scoping of mental health research available in the country:** *Provision of metadata of significant and available Mental Health Research in the country.*

Human Well-Being Promoted

Brain & Mental Health

Health Security

- **Developing Brain (Neurodevelopmental) and special focus on:**
 - Effects of neurotoxicants on the developing brain
 - Effects of internet, gaming addiction, and social media on neurodevelopmental outcomes
 - The role of stressful events in utero and/or childhood in the development of neurological outcomes (Cerebral Palsy, and Hypoxic Ischemic Encephalopathy) and factors that promote resilience in individuals who experienced early life adversity
- *Research that focuses on the developing brain, including events/substances that may lead to neurodevelopmental conditions such as cerebral palsy and hypoxic-ischemic encephalopathy. This area focuses on outcomes, risk factors, and therapeutic methods for the specified conditions.*
- *Research on social determinants for people with neurodevelopmental conditions is included as well.*

Human Well-Being Promoted

Brain & Mental Health

Health Security

- **Neurological and Neuropsychiatric Conditions focusing on Dementia, Alzheimer's, Movement disorder, Epilepsy, and Psychological effects among people with common neurological conditions like stroke**
 - *Baseline studies on risk factors, health services, health literacy, and mental health outcomes for individuals with neurological conditions in aging populations – with the inclusion of new approaches in prevention, treatment, and recovery.*
- **Social Determinants of People with Neurological Conditions**
 - Effects of neurotoxicants on the developing brain
 - Effects of internet, gaming addiction, and social media on neurodevelopmental outcomes
 - The role of stressful events in utero and/or childhood in the development of neurological outcomes (Cerebral Palsy, and Hypoxic Ischemic Encephalopathy) and factors that promote resilience in individuals who experienced early life adversity

Human Well-Being Promoted

Biomedical Engineering
for Health

Health Security

- **Devices for health emergency preparedness and response**
 - *Development of biomedical devices used for emergency*
 - *Biomedical devices that are critical for timely and continued access of the public during health emergency situations*
 - *3D printed emergency tools*
 - *Biomedical devices that can be readily used during disasters (especially during power and water disruptions)*
 - *Patient monitoring and diagnostic equipment*
 - *Medication administration*
 - *Radiation Protection*
 - *Smart Textiles for heating/cooling*
 - *Medical storage solutions*
 - *Biomedical devices that can easily be used during pandemics, such as but not limited to:*
 - *Respiratory devices*
 - *Disinfecting devices*
 - *Infection Prevention equipment*

Human Well-Being Promoted

Biomedical Engineering
for Health

Health Security

- **Tissue Engineering**
 - *Medical Tissue Engineering*
 - *Can be researches related but not limited to:*
 - *Artificial Skin*
 - *Bone Tissue Engineering*
 - *Organ Repair*
 - *Biomimetic materials and sensors*
 - *Biosensors*
 - *Design and methods for the development of biosensors*
 - *Cell Culture Models for testing of biosensors*
 - *Artificial Extracellular matrix (ECM)*
 - *Organ-on-a-chip*
 - *Nanomaterials for diagnostics and therapeutics*

Human Well-Being
Promoted

Biomedical Engineering
for Health

Health Security

- **Medical Biophotonics**

- *Therapeutic Biophotonics*
 - *Development of photonic technologies and devices (ionizing and non-ionizing energies) that will aid treatment of:*
 - *Infectious diseases*
 - *Non-communicable diseases*
 - *Cancer*
- *Imaging:*
 - *Medical spectroscopy and imaging technologies that will aid in examining the body or in diagnosis and treatment of diseases such as (but not limited to):*
 - *MRI*
 - *Ultrasound*
 - *Xray*
 - *Computed Tomography*
 - *PET*

Human Well-Being
Promoted

Biomedical Engineering
for Health

Health Security

- **Devices in support of Universal Health Care**

- *Distributed Healthcare and Devices*
 - *Devices for better Primary Health Care provision*
 - *Elderly/Geriatric Care*
 - *Maternal and Child Care*
 - *Dental Care*
 - *Wearable monitoring devices:*
 - *Glucose/HBA-1C meters*
 - *BP monitor*
 - *Smart clothing*
 - *Portable medical devices that can be deployed to GIDAs*
- *Medical Training Tools*
 - *Training platforms and devices that are accessible and can be used in the hospital and faculties:*
 - *Plastinated anatomical models*
 - *3D Cadaver, Anatomage*
 - *Simulation Modalities*
 - *Phantom models/tests for imaging*

Human Well-Being Promoted

Biomedical Engineering
for Health

Health Security

- **Habilitative and assistive care devices**
 - *Habilitative devices - can help attain functions of daily living during occupational therapy, physical and speech therapy for children with disabilities:*
 - Occupational therapy
 - Speech and Hearing therapy
 - *Assistive Devices - Biomedical devices that can maintain or improve an individual's functioning and independence to facilitate participation and to enhance overall well-being, specifically:*
 - Mobility aids for PWDs
 - Assistive devices for blind, deaf, mute, and children with special needs
 - *Sports Medicine - prevention and treatment of sports-related injuries*
 - Sport protective equipment
 - Methods and technologies for management of sports-related injuries

Human Well-Being Promoted

Biomedical Engineering
for Health

Health Security

- **Technology-assisted surgical innovations for patient safety**
 - *Head and Neck*
 - Technology-assisted tools for disease and disorder treatment of head and neck concerning thyroid problems, sinus disorders, removal of non-cancerous and cancerous tumors.
 - *Orthopedics*
 - Development of instruments that are designed for surgical procedures concerning musculoskeletal trauma, sports injuries, infections, etc.
 - *Neurosurgery*
 - Devices, tools and instruments that are designed in helping assist rehabilitation, diagnosis, prevention, and treatment of the central nervous system.
 - *Local Implant Development*
 - New materials, design, and process for implant manufacturing

Human Well-Being Promoted

Diagnostics

Health Security

- **Development of screening, diagnosis or monitoring tools for chronic diseases or non-communicable diseases, specifically for cardiovascular diseases, diabetes mellitus, and cancer:**
 - *Translation of basic research findings into tools that can be used for screening, diagnosis, treatment or monitoring of diseases, specifically:*
 - *Pharmacogenomics*
 - *Genetic Risk Assessment*
 - *Other previously PCHRD-funded projects on non-communicable diseases*
 - *Development of low cost, accessible or minimally invasive screening, diagnosis, treatment or monitoring tools*
- **Development of accessible or minimally invasive screening, diagnostic or monitoring tools for pediatric infectious diseases, specifically for pneumonia, gastroenteritis and viral infections**
 - *Development of minimally invasive screening, diagnostic or monitoring tools for pediatric use, such as those that use alternative sampling methods like urine, stool, saliva, swabs or dried blood spots*
 - *Development of rapid point of care (POC) or near POC tests for pediatric infectious diseases*

Human Well-Being Promoted

Diagnostics

Health Security

- **Development of screening, diagnostic or monitoring tools for viral infections or diseases caused by viral agents**
 - *Development of minimally invasive screening, diagnostic or monitoring tools such as those that use alternative sampling methods like urine, stool, saliva, swabs or dried blood spots.*
 - *Development of novel technologies*
- **Optimization, preclinical or clinical validation of locally developed screening, diagnostic or monitoring tests**
 - *Validation of DOST-/ PCHRD-funded/ locally developed prototypes in the laboratory setting or relevant environment*
 - *Test performance (accuracy, repeatability, reproducibility, sensitivity, specificity)*
 - *Other product development requirements such as:*
 - *Further optimization of developed prototypes to fit end user needs*
 - *Stability of reagents and materials in different storage conditions (temperature, humidity, length of storage)*

Human Well-Being Promoted

Diagnostics

Health Security

- **Local development or alternative methods of developing raw materials for assay development**
 - *Expression systems for small scale production of antibodies or antigens that can be widely used for locally developed assays*
 - *Proposals for local development of other consumables or reagents may be considered*

Human Well-Being Promoted

Digital and Frontier Technologies for Health

Health Security

- **Health Data Management**
 - *Research on the systematic collection, storage, organization, and utilization of health-related data, including electronic health records (EHRs) and clinical information, with a focus on interoperability and data security.*
- **Patient-Centered Care through Data Analytics**
 - *Use of advanced data analysis techniques to tailor healthcare services, treatment plans, and interventions to individual patient needs and preferences, providing personalized and patient-focused care*
- **Artificial Intelligence for Healthcare Applications**
 - *Leveraging advanced machine learning and deep learning techniques to analyze medical data, improve diagnostics, treatment planning, and enhance healthcare processes.*
 - *Studies that will utilize emerging AI methods not explicitly listed above, allowing flexibility for innovative AI applications in healthcare.*

Human Well-Being Promoted

Digital and Frontier Technologies for Health

Health Security

- **Disease Monitoring and Surveillance using AI models**
 - *Disease monitoring and surveillance involving the application of artificial intelligence and data analysis techniques to track, analyze, and predict the spread and prevalence of diseases in a population.*
- **Extended Reality in Healthcare**
 - *Research that delves into the innovative integration of virtual, augmented, and mixed reality technologies. This is to revolutionize patient care, medical training, and therapeutic interventions, ushering in a new era of immersive and personalized healthcare experiences.*

Human Well-Being Promoted

Omics Technologies for Health

Health Security

- **Clinical and forensic research applications of omic technologies**
 - *Communicable and noncommunicable disease research*
 - *Fundamental research: discovery of novel biomarkers (either truly novel or discovered to have new associations among the Filipino population) as biological signatures of the pathophysiology associated with the specific disease/ condition or to drug response or occurrence of adverse events*
 - *Non-interventional nutrition studies*
- **Fundamental applications of omic technologies**
 - *Pre-clinical research on novel therapies (e.g., biologics, cell-based, antibody-based)*
 - *Proof-of-concept research on novel therapies (small molecules) using Filipino OMICs data*
 - *Development of disease models*
 - *Disease models employing multi-OMIC data, e.g., animal disease models, cellular models of disease*

Thank you.