

HARMONIZED NATIONAL R&D AGENDA

HEALTH 2017 - 2022



AmBisyon Natin 2040

Malasakit

Pagbabago

Kaunlaran

Harmonized National R&D Agenda

National Integrated
Basic Research
Agenda (NIBRA)

Health

Agriculture, Aquatic and
Natural Resources
(AANR)

Industry Energy
and Emerging
Technology

Disaster Risk
Reduction and
Climate Change
Adaptation (DRR
CCA)

Republic Act 10532: PNHRS Act of 2013

On May 7, 2013, His Excellency President Benigno “Noynoy” S. Aquino signed Republic Act 10532 or “An Act Institutionalizing the Philippine National Health Research System” of 2013.



The Philippine National Health Research System (PNHRS) is the national integrated framework for health research in the country

The PCHRD is recognized and mandated as the national coordinating body for health research in the country

Philippine National Health Research System

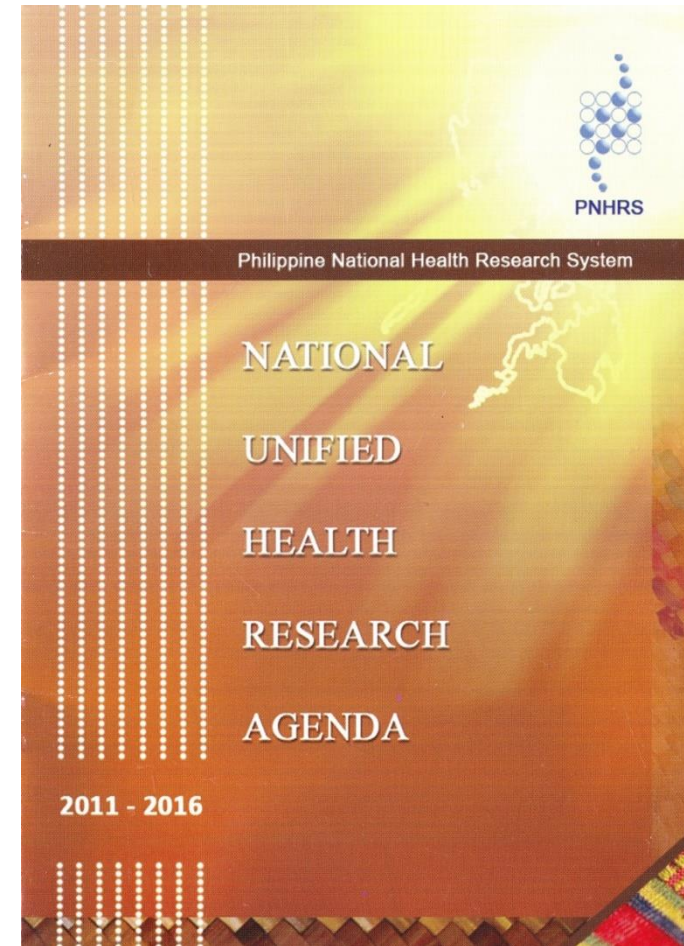


National Unified Health Research Agenda

NUHRA, 2011-2016

NUHRA, 2006-2010

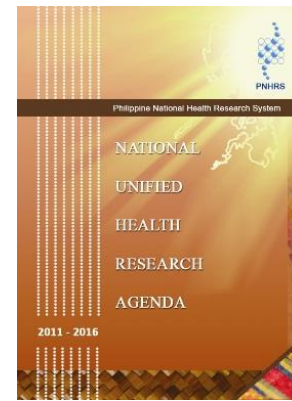
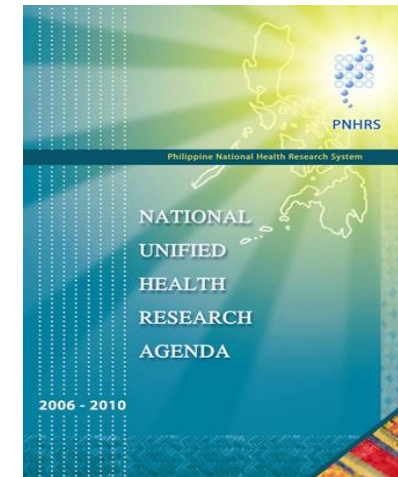
National Health R&D
Agenda, 2000-2005



- **NUHRA**

- National roadmap for health research in the country
- Provides focus and direction for health research and development efforts
- Serve as guide for policy makers, funding and donor agencies and researchers
- Provides evidence-based solutions to pressing health problems
- Serve as basis to maximize resource utilization and minimize duplication of research efforts

- Health S & T research agenda will be integrated in the
NUHRA



Research Priorities for Health S & T

- a consolidation of health research priorities of the DOST agencies
- each agency conducted research priority setting activities
 - guided the DOST's S and T thrusts, emerging and re-emerging health concerns and other national and global development concerns
 - consultations done with experts and stakeholders from the public and private sectors through meetings, workshops, FGDs



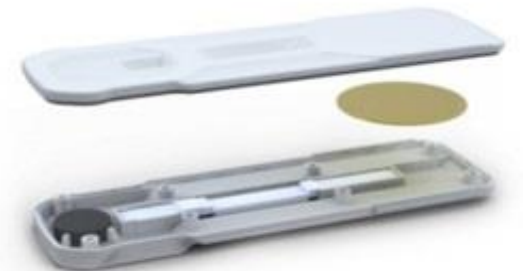
RESEARCH PRIORITIES for HEALTH S&T

- Diagnostics
- Drug discovery and development
- Functional foods
- Hospital equipment and biomedical devices
- Information and communication technology for health
- Dengue
- Nutrition and food quality and safety
- Disaster risk reduction
- Climate Change Adaptation
- Genomics/Molecular technology (Platform technology across research priorities)



Diagnostics

- for diagnosis of priority infectious and non-communicable diseases
- for early detection of disease, disease severity and prediction of mortality
- utilize off-patent or lapsed and/or novel technologies

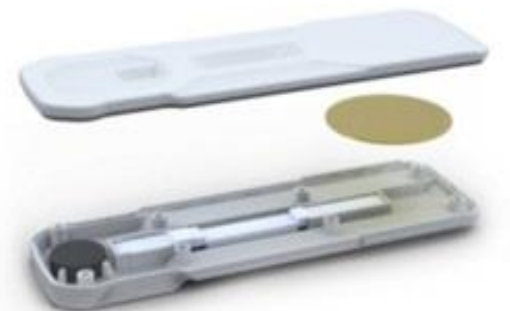


Diagnosics

Priority diseases:

Communicable diseases

- Neglected Tropical diseases
- Emerging infectious diseases
- Organisms associated with Multi Drug Resistance
- HIV AIDS
- Gastro urinary tract (GUT), Gastrointestinal tract (GIT) and Hepatitis
- Respiratory diseases
- Tuberculosis, all forms

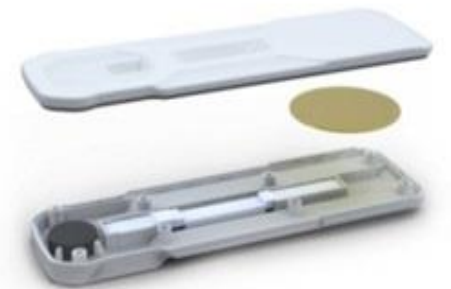


Diagnosics

Priority diseases:

Non-communicable diseases

- Malignant neoplasms, all sites
- Neurodegenerative and mental health disorders
- Metabolic Diseases, diabetes & other endocrine-related disorders
- Autoimmune/immunologic diseases or deficiencies
- Cerebrovascular disease
- Diseases of the cardiovascular system

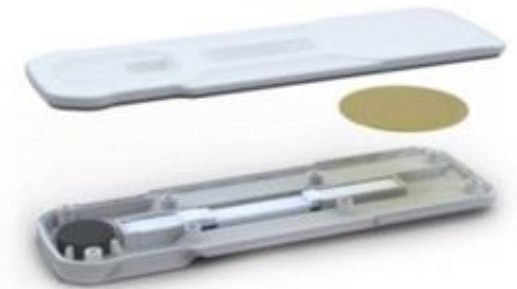


-----Health-----

Diagnostics

Specific topics:

- Point of care
 - diagnostic test done at the time and place of patient care
- Screening / confirmatory /prognostic
 - screening to detect early disease or risk factors for disease
 - confirming the presence or absence of disease
 - prognosticating and to predicting the likely outcome of disease, susceptibility and chances of recovery



-----Health-----

Diagnostics

Specific topics:

- Technologies

Latex agglutination

Lateral flow assay/Dipstick

Isothermal technology

Biosensors/Chemical sensors

Nucleic Acid Testing

Immunochemistry



-----Health-----

Diagnostics

Specific topics:

- Technologies

Lab-on-a-chip (Microfluidics, paper technology,
Nanotechnology, Aptamers or a combination of)

Immunoassay

Radio-labelled assays

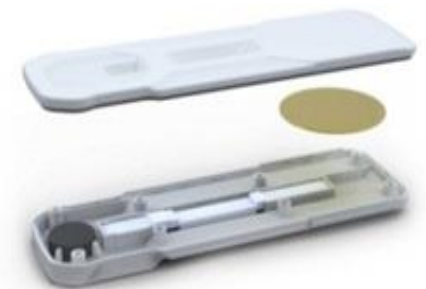


-----Health-----

Diagnostics

2018

Proof of concept for screening, confirmatory and prognosis for 13 priority diseases (tropical; malignant neoplasms; emerging infectious diseases; neurodegenerative and mental health disorders; diseases associated with multi-drug resistance; metabolic diseases, diabetes and other endocrine-related diseases; auto-immune/immunologic diseases and deficiencies; cerebrovascular; diseases of the cardiovascular system; GUT, GIT and hepatitis; respiratory; and, tuberculosis)

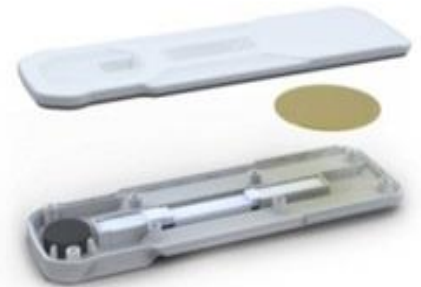


-----Health-----

Diagnosics

2019-2022

Target identification and validation, prototype development, laboratory performance testing and field testing of diagnostic kits for 13 priority diseases.



Molecular Technologies for Health

Utilize molecular technology platforms in developing local technologies for the development of personalized medicines, diagnostics, therapeutics as support to health and clinical practice guidelines and policies



Molecular Technologies for Health

- Omic technologies for health and wellness
- Bioinformatics and systems biology
- Novel technologies for therapeutics
- Biobanking, data mining and population studies for human health, ethnicity and forensic applications



Drug Discovery and Development

Development of standardized herbal drugs and discovery of new drugs from local sources for development up to the pre-clinical stage. Drugs will be developed for:

- Infectious diseases
 - Bacterial infections (*M. tuberculosis*, *Enterococcus faecium*, *S. aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*)



DRUG DISCOVERY
AND DEVELOPMENT PROGRAM



Drug Discovery and Development

- Viral diseases (e.g. dengue influenza)
- Fungal infections
- Non-communicable diseases
 - Lifestyle-related diseases (e.g. diabetes, CVDs, etc.)
 - Cancer (colon, breast, lung)
 - Respiratory diseases
 - Neurodegenerative diseases



Drug Discovery and Development

2018

- Cultural management/propagation of priority organisms
- Development of standardized herbal drugs
 - Pre-clinical evaluation of standardized herbal drugs for platelet enhancement related to dengue, inflammation, diabetes, gout, hypertension
 - Identification and screening for next set of priority plants for formulation for identified priority diseases



DRUG DISCOVERY
AND DEVELOPMENT PROGRAM



Drug Discovery and Development

2019 – 2022

- Pre-clinical drug development
 - Lead optimization of candidates from marine and terrestrial organisms for identified priority diseases
- Development and/or validation of standard processes and protocols for various stages of drug discovery and development



DRUG DISCOVERY
AND DEVELOPMENT PROGRAM



Functional Foods

- Food or food components that provide health benefits beyond basic nutrient function
- Determination of health benefits and safety assessment of food or food components in reducing risk for disease occurrence, specifically lifestyle related diseases such as cardiovascular disease, diabetes, and cancer



Functional Foods

Priority Foods

1. Local Fruits (guyabano, tiesa, mangosteen)
2. Local Vegetables (malunggay, okra, saluyot)
3. Rootcrops, tubers and starchy food (yacon, sago, sweet potato varieties, purple yam)
4. Rice (pigmented)



Functional Foods

Priority Foods

5. Local berries (duhat, lipote, aratiles, bignay)
6. Herbs and spices (tanglad, pandan, ginger e.g. turmeric)
7. Nuts (pili)
8. Seaweeds (lato, red seaweeds)
9. Edible mushrooms



Functional Foods

Specific topics

- Characterization of food and food components
- Safety assessment
- Establishment of health benefits
- Product development



Functional Foods

Specific topics

2018

Safety assessment of Mangosteen, Malunggay, Sweet potato varieties, and Ginger

Characterization of Guyabano (leaves, fruit, etc.)
Tiesa, Yacon, Sago, Pili, Lato, Red seaweed, and Edible mushroom



Functional Foods

Specific topics

2019 - 2022

Establishment of health benefits and product development of Mangosteen, Malunggay, Sweet potato varieties, and Ginger

Safety assessment, establishment of health benefits and product development of Guyabano (leaves, fruit, etc.) Tiesa, Yacon, Sago, Pili, Lato, Red seaweed, and Edible mushroom

Characterization, safety assessment, establishment of health benefits, and product development of Okra, Saluyot, Purple Yam, pigmented rice, Duhat, Lipote, Aratiles, Bignay, Tanglad, and Pandan



Hospital Equipment and Biomedical Devices

- Design and development of affordable, safe, and reliable hospital equipment and biomedical devices



-----Health-----

Hospital Equipment and Biomedical Devices

Specific topics

2018

Design and development of hospital equipment and biomedical devices for the following:

Respiratory failure support

Artificial body part replacement (prosthesis)

Rehabilitation medicine

Minimally0invasive surgical procedures

Eye health



Hospital Equipment and Biomedical Devices

2019 - 2022

Design and development of hospital equipment and biomedical devices for the following:

Hemodialysis (consumables)

Orthopedic surgery

Post-operative care

Spinal disorders

Wound care

Primary health care

PWD assistive devices

Hospital waste management

Personal protective equipment



Information and Communication Technology (ICT) for Health

- user-friendly ICT solutions to accelerate the gathering and processing of health and related information for policymaking and delivery of quality health care services



-----Health-----

ICT for Health

Specific topics

2018

Public health surveillance

Health intelligence system

ICT-enabled medical devices and services

Software and applications

2019 – 2022

Monitoring proximity to predict possible epidemics

Verbal autopsy system

Applications development for online nutrition services

Automatic BMI assessment



Dengue

- Reduction of transmission through vector control
- Involves targeting the mosquito vector/s in the habitats of its larval and adult stages and where human vector contact may occur
- Develop an early warning system by developing alert levels integrating entomological, environmental and socio-demographic data for the prediction of dengue outbreak.



Dengue

- Vector biology
- Vector surveillance and integrated vector management (IVM)
- Dengue case management
- Dengue outbreak management



Dengue

Specific topics

2018

- Molecular characterization of mosquito vectors
- Dengue outbreak prediction
- Insecticide resistance survey
- Guidelines for the use of ovitraps
- Development of system for yearly monitoring of prevailing dengue serotypes



Dengue

Specific topics

2019-2022

- Epidemiological and molecular survey of mosquito borne viruses
- Genome editing of *Aedes aegypti*
- Gene silencing mosquito spray
- Intensive profiling of dengue trends using rapid diagnostics



Nutrition and food quality and safety

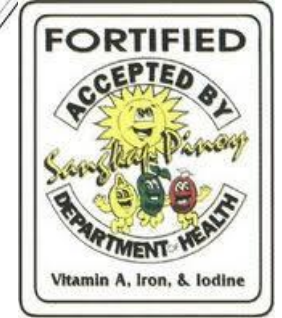
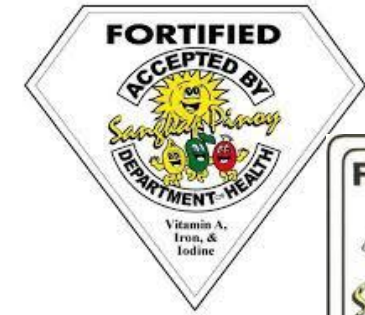
- Food quality and safety refers to the assurance that food will not cause harm to the consumer when prepared or eaten according to its intended use.
- Major nutrition problems in the country
 - Micronutrient deficiencies
 - Macronutrient deficiencies
 - Overnutrition
 - Nutrition related diseases



Nutrition and food safety

Specific topics 2018

- Food fortification
 - Fortified multi-nutrient growth mix products
 - Rice extrudate
- Development/revision of nutrition tools and standards
 - Nutritional guidelines
 - Food exchange list
 - Body composition assessment



PINGGANG PINOY™
Healthy food plate for Filipino adults



-----Health-----

Nutrition and food safety

Specific topics

2018

- Nutritional assessment and monitoring
 - In-depth and correlation studies (dietary risk factors to non-communicable diseases)
 - Nutrition surveys
- Designing nutrition intervention programs
 - Nutrition delivery system for complementary feeding promotion



Nutrition and food safety

Specific topics

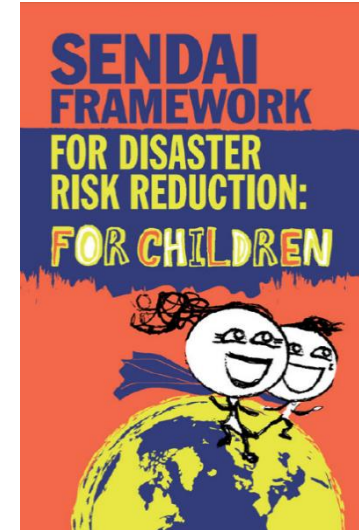
2018

- Food quality and safety
 - enhancement of food composition database for dietary exposure assessment
 - exposure assessment of selected nutrients, food contaminants, and food additives in commonly consumed foods



Disaster Risk Reduction

- Based on the Sendai Framework
- Innovations which will reduce risks to health

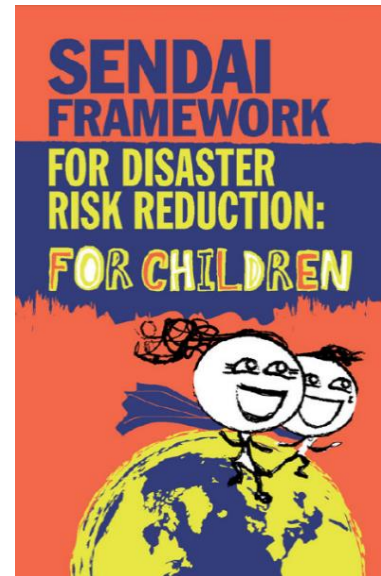


Disaster Risk Reduction

Specific topics

2018

- Innovations for emergency medical care services, water, sanitation, hygiene and nutrition
 - technology development for search and rescue, triage and emergency health
 - ready to use therapeutic food (RUTF)
 - food for emergencies
 - environmental health (water quality; waste disposal)
- Psychosocial adaptation capacity of communities

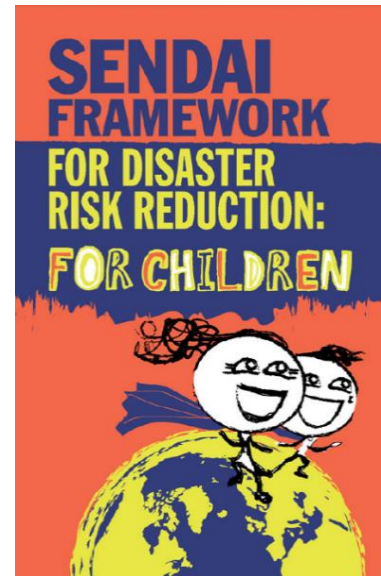


Disaster Risk Reduction

Specific topics

2019 -2022

- Intervention models to reduce prevalence of infectious diseases
- Post disaster solutions to access health care services e.g. maternal, newborn and child health, sexual and reproductive health, food security, nutrition, housing, education



Health and Climate Change Adaptation

- Covers cross-cutting researches on climate change adaptation, which have direct implications on public health



Health and Climate Change Adaptation

Specific topics

2017 - 2022

- Researches relating to human health with hydrologic/meteorological information
- Climate change sensitive diseases
- Resilience studies at institutional, community and individual levels
- Implementation service regarding existing tools and interventions on health and climate change
- Green health facilities





Department of Science and Technology
PHILIPPINE COUNCIL FOR HEALTH RESEARCH AND DEVELOPMENT
Gen. Santos Avenue, Bicutan, Taguig City
<http://www.pchrd.dost.gov.ph>

JAIME C. MONTOYA, MD, MSc, PhD, CESO III
Executive Director
jcmontoya@pchrd.dost.gov.ph

