

POPULATION STUDIES

Demography

- Demography is the study of the size, territorial distribution, and composition of population, changes therein. (Duncan & Hauser 1972).
- Literally translated from the Greek, "demography" means "description of the people".
- **Population Size** - Refers to the number of people in a given place at a given time.
- **Population Distribution** - Is the specific geographic location.
- **Population Composition** - Refers to the characteristics of population as to age, sex, occupation, or educational level.

Population

- A population is defined as a group of individuals of the same species living and interbreeding within a given area.
- **Population Projections** - Are a common demographic tool. They provide a basis for other statistical projections, helping governments in their decision-making.
- **Components of Population Growth:** Births, Deaths, and Migration

Sources of Demographic Data

Census, Sample Survey, Registration System

1. **Census** - Conducted by a national government and attempts to enumerate every person in a country.
 - a. De jure - residence
 - b. De facto - time
2. **Sample Survey** - Is data gathered from a small number of people proportionate to the general population.
3. **Registration System** - Deals with recordings of vital events (e.g. PSA - birth certificate)

Natural Increase

- It is defined as the difference between live births and deaths in a specified period of time.

$$\text{Natural Increase} = \text{Number of Births} - \text{Number of Deaths} \\ (\text{specified years})$$

Rate of Natural Increase (RNI)

- Defined as the difference between live births and deaths in a specified period of time, expressed as a rate.

$$\text{Rate of Natural Increase} = \text{Crude Births Rate} - \text{Crude Death Rate} \\ (\text{specified years})$$

Example:

$$\text{Rate of Natural Increase} = 20/1000 - 5/1000 = 15/1000$$

Absolute Increase Per year (RNI)

- Measures the number of people that are added to the population per year.

$$\text{Absolute Increase per Year} = \frac{Pt - Po}{t}$$

Pt - population size at a latter time
Po - population size in an earlier time
t - number of years between time o and time time

Relative Increase

- The actual differences between two census counts expressed in PERCENT relative to the population size made during an earlier census. It measures the average yearly percentage change over the same time frame.

$$\text{Relative Increase} = \frac{Pt - Po}{Po}$$

Pt - population size at a latter time
Po - population size in an earlier time

Example:

Po — Year 2002 Population: 10, 000

Pt — Year 2005 Population: 12, 300

$$\text{Relative Increase} = \frac{12,300 - 10,000}{10,000} = 0.23 \text{ or } 23\%$$

Sex Composition

- The sex ratio is the ratio of males to females in a population.

$$\text{Sex Ratio} = \frac{\text{number of males}}{\text{number of females}} \times 100$$

Example:

$$\text{Sex Ratio} = \frac{215}{104} \times 100 = 206.7 \text{ or } 207 \text{ (Male): } 100 \text{ (Female)}$$

Age Distribution

- In population studies, the proportionate numbers of persons in successive age categories in a given population (also called Age Distribution).
- **Population with persistently high fertility** >> large proportion of children and a small proportion of aged persons.

Median Age

- It is the age that divides a population into two numerically equally sized groups—HALF THE PEOPLE ARE YOUNGER THAN THIS AGE & HALF ARE OLDER.
- It serves as a single index that summarizes the age distribution of a population.

Dependency Ratio

- The age-population ratio of those typically not in the labor force (ages 0-14 and 65 and above) versus those typically in the labor force (ages 15-64).
- It is used to measure the pressure on the productive population.

$$\text{Dependency Ratio} = \frac{\text{total population of the 0-14 and 65 and above age group}}{\text{total population of 15 - 64 age group}} \times 100$$

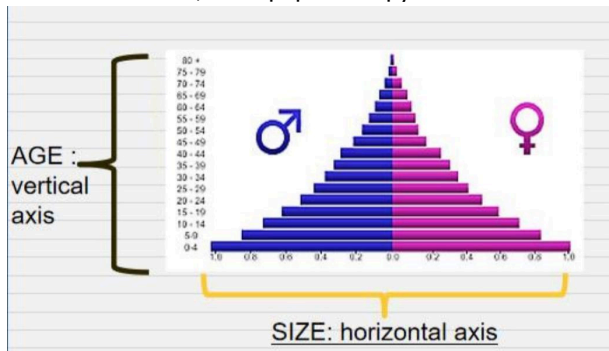
Example:

$$\text{Dependency Ratio} = \frac{250 + 100}{500} \times 100 \\ = \frac{350}{500} \times 100$$

= 70% or 70:100

Age and Sex Composition

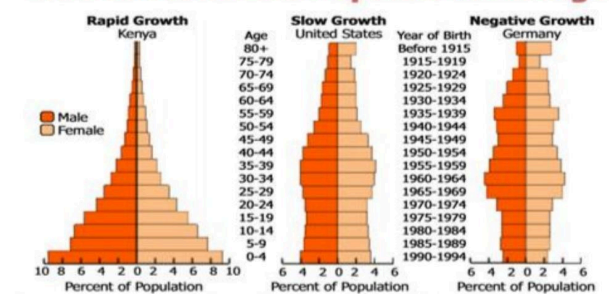
- Also known as age & sex structure—if depicted at same time, use a population pyramid.



Population Pyramid

- Age is on the vertical axis (Y), and Size (population) is on the horizontal axis (X).

Three Patterns of Population Change



Source: United Nations. The Sex and Age Determinants of the World Population

- Includes rapid growth, slow growth, and negative growth patterns.

Population Distribution

- Means the pattern of where people live. It denotes the spatial pattern due to dispersal of population, formation of agglomeration, and linear spread.
- **Urban-Rural Distribution:** Illustrates the proportion of people living in urban compared to the rural areas.

Crowding Index

- An alternative measure of household crowding. It is defined as the number of usual residents in a dwelling divided by the number of rooms in the dwelling.

$$\text{Crowding Index} = \frac{\text{number of persons in a household}}{\text{number of rooms used for sleeping}}$$

Population Density

- Calculated as population divided by total land area (people per square kilometer of land area).

$$\text{Population Density} = \frac{\text{number of people}}{\text{land area in terms of square meter or kilometer}}$$

Example:

- France has a population of 60,561,200 and an area

of 551,695 square kilometers, so its population density is about 109.8 persons per square kilometer.

- New York City is 10,292 persons per square kilometer.
- Canada is only 3.8 persons per square kilometer because it is such a big country.

THE PHILIPPINE HEALTHCARE DELIVERY SYSTEM

World Health Organization

- A specialized agency of the United Nations (UN) that provides global leadership on health matters.
- **Headquarters:** Geneva, Switzerland.
- **Structure:** Comprises 150 country offices and 6 world regional offices: Africa, Americas, Eastern Mediterranean, Europe, Southeast Asia, and the Western Pacific (the Philippines belongs to the Western Pacific Region).

5 Core Functions of WHO:

1. Provide leadership on matters critical to health and engage partnerships when joint action is needed.
2. Shape the research agenda and stimulate the generation, translation, and dissemination of valuable knowledge.
3. Set norms and standards, and promote/monitor their implementation.
4. Articulate ethical and evidence-based policy options.
5. Provide technical support, catalyze change, and build sustainable institutional capacity.

Sustainable Development Goal (SDG) or Agenda 2030

- Consists of 17 goals and 169 targets from 2016 to 2030, aiming to continue the gains achieved through the Millennium Development Goals (MDGs) from 2000 to 2015.
- **Key Focus:** Recognizes the "social determinants of health". The Department of Health (DOH) adopts and aligns programs to help achieve SDG 3 (Good Health and Well-being).

Health-Related SDGs Include:

- Goal 1: No Poverty
- Goal 2: Zero Hunger (Zero Malnutrition)
- Goal 3: Good Health and Well-being
- Goal 5: Gender Equality (addressing violence against women/sexual and reproductive health & rights)
- Goal 6: Clean Water and Sanitation
- Goal 8: Decent Work and Economic Growth (safe & secure working environment)
- Goal 11: Sustainable Cities and Communities (housing, basic services, air, waste management)
- Goal 13: Climate Action (climate-related goals)

Overview of Health Systems & the Philippine HCDS

Health Systems:

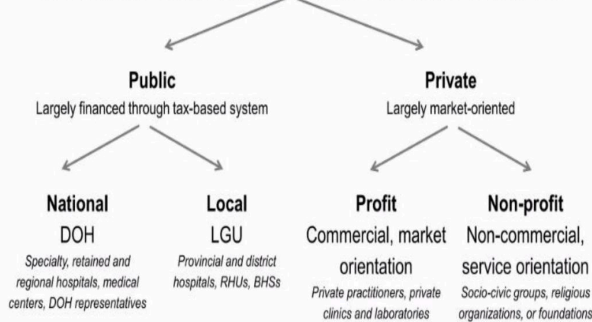
- Defined in terms of goals and arrangements/organization; refers to all activities whose primary purpose is to promote, restore, and/or maintain health.
- **Core Purpose:** Denotes the people, institutions, and resources arranged together in accordance with established policies to improve population health while responding to legitimate expectations and protecting against the cost of ill-health.

Philippine Health Care Delivery System (HCDS):

- Composed of health facilities, health care organizations, personnel, and services distributed across public and private sectors.
- Functions through the combined efforts of the DOH, Local Government Units (LGUs), and the private sector across different levels of care (primary, secondary, tertiary).
- It operates as a complex set of organizations interacting to provide an array of health services split into Public (largely tax-financed) and Private (market-oriented) sectors.

Philippine Health Care Delivery System

It is a complex set of organizations interacting to provide an array of health services.



Financing of Health Services

- **3 Major Groups:**
 - a. Government (local & national)
 - b. Private sources
 - c. Social health insurance
- **PhilHealth (RA 7875):** The National Health Insurance Act created the Philippine Health Insurance Corporation as a tax-exempt government corporation attached to the DOH for policy coordination and guidance, aiming for universal health coverage for all Filipinos.
- **Payment Burden:** Out-of-pocket payments remain the leading payment scheme, accounting for 40% to 50% of total health expenditures.

Private Sector

- Comprises for-profit and non-profit agencies providing all levels of services.
- Key Statistics:
 - 30% of Filipinos utilize private health facilities.
 - 60% of national health expenditures go to the private sector.
 - 70% of health professionals are employed by the private sector.
- Encompasses private clinics, laboratories, drugstores, non-commercial socio-civic groups, religious organizations, and foundations.

RA 7160: Implementing Rules and Regulation (IRR) of the Local Government Code of 1991

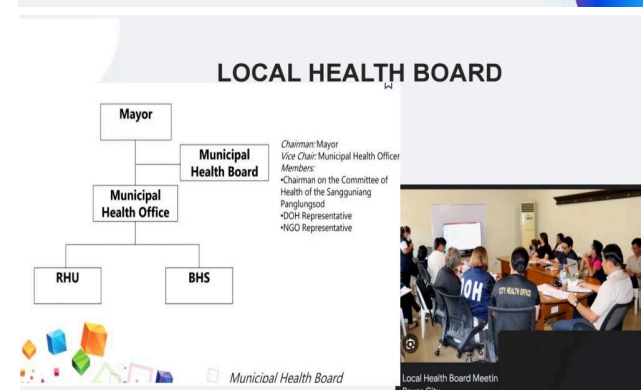
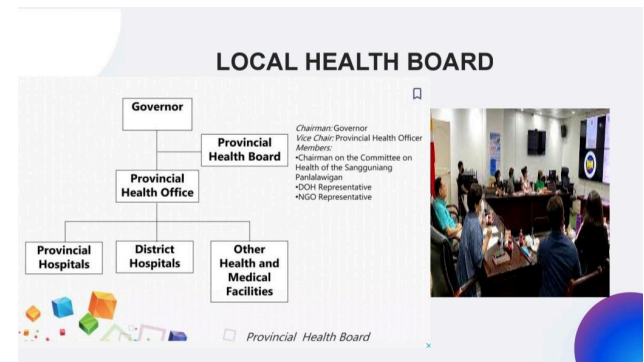
- Republic Act No. 7160, otherwise known as the Local Government Code of 1991, was enacted into law to transfer control and responsibility of delivering basic services to the hands of the local government units (LGUs).
- Its primary objective is to improve service delivery at the grassroots level as well as resource allocation efficiency, and to broaden the decision-making space by encouraging stakeholder participation,

especially at the local level.

Public Sector (Decentralized Health Care System):

- **National Level (DOH):** Oversees specialty, retained, and regional hospitals, medical centers, and DOH representatives.
- **Local Level (LGUs):** Manages provincial and district hospitals, Rural Health Units (RHUs), and Barangay Health Stations (BHSs) following the devolution of primary and secondary health services under RA 7160 (Local Government Code of 1991).
 - **Municipal/City Government:** In charge of Primary Health Care (RHUs/Health Centers and BHSs as satellite outposts in the periphery) and plans/implements basic health services.
 - **Provincial Government:** Administers provincial or district hospitals.
 - **Local Health Boards:** Created under RA 7160 (Provincial Health Board chaired by the Governor; Municipal/City Health Board chaired by the Mayor) to propose annual budgetary allocations for health facilities/services and act as advisory committees to the Sangguniang.

Local Health Board



- **RA 7160** provided for the CREATION of the Provincial Health Board and City/Municipal Health Board.
- **Functions of local health boards** are:
 - Propose to the Sangguniang the annual budgetary allocation for the operation and maintenance of health facilities and services.
 - Serve as an advisory committee to the Sangguniang on health matters.
 - Create committees that shall advise local health agencies on various matters about health-related services.

Department of Health (DOH)

- **Role:** The principal health agency and an executive department of the Philippine government.
- **Mandate:** Lead the health sector towards assuring quality health care for all Filipinos.
- **Vision:** Make Filipinos among the healthiest in Southeast Asia by 2022 and in Asia by 2040.
- **Mission:** "Lead the country in the development of a productive, resilient, equitable & people-centered health system".
- **Core Values:** Integrity, excellence, compassion, respect for human dignity, commitment, professionalism, teamwork, and stewardship.

3 Major Roles and Functions (E.O. 102):

1. **Leadership in Health:** Formulating policies, monitoring/evaluating programs, advocating healthy lifestyles, serving as technical authority in disease control, and leading health care financing/ implementing the National Health Insurance Law.
2. **Enabler & Capacity-Builder:** Providing logistical support to LGUs and the private sector, serving as lead agency in health research, and protecting training standards.
3. **Administrator of Specific Services:** Administering selected health facilities, managing large-scale programs (e.g., TB program), responding to emerging health needs, and providing leadership during health emergencies.

Regional Offices:

Centers for Health Development (CHD) provide guidance and technical assistance to LGUs.

Notable DOH Hospitals includes:

- **Regional hospitals** (e.g., Cagayan Valley Medical Center, Batanes General Hospital)
- **Metro Manila hospitals** (e.g., East Avenue Medical Center, San Lazaro Hospital, Rizal Medical Center)
- **Specialty hospitals** (Lung Center of the Philippines, National Kidney and Transplant Institute, Philippine Children's Medical Center, Philippine Heart Center)

Health Sector Reforms (HSRA & F1 Plus)

- Purpose: Designed to bring equity in health service delivery, strengthen local health delivery, and improve population health outcomes.
- Evolution of Reforms:
 - FOURmula ONE for Health (F1) (2005–2010)
 - Kalusugang Pangkalahatan (KP) / Aquino Health Agenda (2010–2015)
 - Philippine Health Agenda / Duterte Health Agenda (2016–)
 - Latest: FOURmula ONE Plus (F1 Plus) with the tagline "Boosting Universal Health Care".

4 Pillars of F1 Plus/HSRA Framework:

1. **Financing:** Secure sustainable investments for efficient and equitable health resource use.
2. **Service Delivery:** Ensure accessibility of essential quality health services at appropriate levels of care.
3. **Regulation:** Ensure high quality and affordable health products, devices, facilities, and services.
4. **Governance:** Strengthen leadership, management capacities, coordination, and participatory health systems.

Underpinned by: Performance Accountability (using

management systems to drive execution).

New Classification of Hospitals & Health Facilities

- **General Hospitals:**
 - Level 1
 - Level 2
 - Level 3 (Teaching / Training)
- Specialty Hospitals
- **Apex Hospital:** Defined as an end-referral hospital offering specialized services and contracted as a stand-alone facility.
- Other Health Facilities:
 - A. Primary Care Facility
 - B. Custodial Care Facility
 - C. Diagnostic/Therapeutic Facility
 - D. Specialized Out-Patient Facility

THE PHILIPPINE NATIONAL HEALTH SITUATION

Census

- A macro-count done at fixed intervals of a country's population count.
- Current Statistic: The 2024 POPCEN by the PSA recorded the population at 112.7 million.

Determinants of Health

The underlying causes and conditions that dictate why people die early or live longer.

Core Variables & Components:

- **Socioeconomic Factors:** Income levels, education, nutrition quality, and access to clean water.
- **Healthcare Delivery:** The quality, availability, and affordability of primary health centers, hospitals, and emergency services.
- **Environmental & Political Stability:** Air pollution indexes, traffic safety, local crime levels, and regional peace.

Life Expectancy at Birth

- Directly reflects the success or failure of the "Determinants of Health," indicating whether a society's living conditions, healthcare system, and safety nets are keeping people alive or failing them.

National Statistics:

- Average life expectancy for Filipinos is 72.04 years.
- Women live longer: Average life expectancy of 81 to 82 years.
- Men average: 77 to 78 years.
- Note: Death rate among males is higher than females, a phenomenon referred to as the "feminization" of old age.

Regional Inequalities:

- Urbanized areas with dense health networks (e.g., Calabarzon & Central Luzon) have the highest life expectancies (72.3 to 72.8 years), supported by economic growth, higher tertiary education rates, and abundant medical centers.
- Geographically Isolated & Disadvantaged Areas (GIDA) (e.g., parts of BARMM) have lower life expectancies averaging 66.9 years, driven by long travel times to hospitals, limited specialized equipment, and poverty.

Civil Registry & Spatial Distribution

R.A. 3753 (Law on Registry of Civil Status):

- Every birth, marriage, and death must be registered at the Local Civil Registry Office (LCRO) within 30 days of the event.
- **Spatial Distribution:** every birth, 39% of the population lives in mega-regions (CALABARZON, NCR, and Central Luzon), showing unequal spatial distribution.
- **Urbanization Issues:** Unmanaged internal migration in highly urbanized areas causes rapid urbanization and brings social and environmental issues (NEDA, 2022); population crowding became especially pronounced during the pandemic, leading to high disease spread.

Leading Causes of Mortality and Morbidity

By Mortality (Death Rate) - Non-communicable diseases (NCDs) or lifestyle diseases are the leading killers of Filipinos:

1. Ischemic Heart Disease (Cardiovascular/Heart attacks)
2. Neoplasms (All forms of cancer; Lungs 1st, Liver 2nd in males)
3. Pneumonia (leading infectious/communicable cause of death)
4. Cerebrovascular Diseases (Stroke) due to atherosclerosis, hypertension
5. Hypertensive disease
6. Diabetes Mellitus
7. Other heart diseases
8. Tuberculosis (Respiratory)
9. Chronic Lower Respiratory Infection
10. Diseases of Genito-Urinary system

By Morbidity (Sickness Rate) - Respiratory conditions dominate health center consultations:

1. Acute Respiratory Infections (ARI)
2. Lower Respiratory Infection & Pneumonia
3. Bronchitis
4. Hypertension
5. Diarrheal Disease
6. Influenza
7. UTI
8. TB (Respiratory)
9. Injury
10. Diseases of the heart

Hypertension-Diabetes Health Club Registry

Integrated anti-hypertensive drugs in the standard outpatient package include:

- Losartan (Angiotensin II Receptor Blocker/ARB)
- Amlodipine (Calcium Channel Blocker)
- Metoprolol / Atenolol (Beta-Blockers)
- Captopril / Enalapril (ACE Inhibitors)

Medical Care, Lifestyle, and Tobacco Statistics

Medical Care vs. Lifestyle

- Medical care plays only a minor role in preventing premature deaths compared to lifestyle choices.

Risk Reduction: Adopting healthy behaviors (exercise, healthy diet, avoiding tobacco, maintaining normal weight) results in a 66% lower risk of death compared to those who do not.

Smoking Impact: Smoking is the leading cause of preventable death and directly causes cancers of the esophagus, bladder, stomach, oral cavity, pharynx, larynx,

cervix, and lung.

Philippines Tobacco Statistics:

- **General Population** (Age 15+): Total tobacco users are 15.1 million adults (19.5% of the total population).
- **Youth Population** (Ages 13 to 15): Total youth users make up 12.5% of all youth.
- **2nd hand Smoke Exposure:** 12.9% of adults working indoors are exposed at work (Age 15+); 41.7% inside enclosed public spaces and 29.3% at home for ages 13 to 15.

Infant Mortality Rate (IMR)

The number of babies who die before their 1st birthday out of every 1,000 live births in a given year.

Statistics & Targets:

- National average is 10.36 deaths per 1,000 live births.
- Varies by region, averaging 10 to 15 deaths per 1,000 live births depending on locality.
- Target: 15 per 1,000 livebirths.

Significance: IMR is one of the most sensitive indicators of the health status of a country or community.

Top Three Causes of Infant Mortality:

1. Respiratory distress of newborn
2. Bacterial sepsis of newborn
3. Pneumonia

Maternal Mortality Rate (MMR)

Maternal mortality is a major indicator of a woman's health status. It is defined by the WHO as the death of a woman while pregnant or within 42 days of termination of pregnancy from any cause related to, or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

Statistics & Targets:

- MMR stands at 64.68 deaths per 100,000 live births, with a target of 70 per 100,000 live births.
- Subnational data ranges from 29 up to 152 deaths across vulnerable regions.

3-Decade Trend:

- Was 209 in 1993, reached a historical low of 162 in 2006, and spiked back up to 221 in 2011.
- This trend prompted the DOH to launch A.O. 2008-0029 (MNCHN strategy) to enforce institutional, facility-based deliveries over traditional home births.

Root Causes of High Mortality:

- **Young Age at Marriage & First Pregnancy:** Leads to high incidence of pre-eclampsia, eclampsia, and obstructed labor.
- **Subnational Disparities:** Wealthy urban areas show an MMR of 29 compared to GIDA at 152, driven by severe resource scarcity and a lack of skilled birthing attendants.

The "3 Delays":

1. **DELAY 1:** Delay in deciding to seek medical care.
2. **DELAY 2:** Delay in identifying and reaching a birth facility.
3. **DELAY 3:** Delay in receiving appropriate and adequate care at a health facility.

Total Fertility rate (TFR) Shift & Aging Population

- Reached a historic low of 1.7 children per woman, compared to the replacement level of 2.1.

Seniors & Aging:

- Seniors make up 8.5% of the population and are projected to hit 14% by 2035.
- Aging Population:** Defined as when more than 7% of members are 65 years of age or older.
- Aged Population:** Defined as when more than 14% of members are 65 years of age or older.
- Impacts:** Increase in medical costs and long-term care services.

Malnutrition & National Nutrition Survey

Double Burden of Malnutrition in Children Under Five:

- 28.8% are suffering from stunting.
- 5.8% suffer from wasting.
- Increasing prevalence of overweight at 2.9%.

Nutrition (National Nutrition Survey):

- Malnutrition is high among those belonging to the poorest quintiles.
- Poverty rate reported at 18.1% (representing 20 million Filipinos).
- The poverty threshold is roughly PHP 12,030.00 (USD 244) per month for a family of five (PSA, 2011a).

Geographic Characteristics & Disaster Risk

- Ranks highest in the disaster risk index at 46.81 (World Risk Report 2022).
- Attributed Causes:**
 - Located along the active Pacific Ring of Fire and the center of a typhoon-prone region (experiencing typhoons, earthquakes, volcanic eruptions, and droughts).
 - Climate change increases the frequency and severity of natural events, with rising sea levels worsening coastal flooding from riverine flooding.
- Risk Evaluation:** A fundamental concept stating that the probability of catastrophe is contingent not only on the intensity of natural hazards impacting society, but also on society's vulnerability to these adverse effects.
- Geographic Layout Challenges:**
 - Healthcare supply chains and distributions.
 - Interregional communication networks.
 - Infrastructure development.

NATIONAL IMMUNIZATION PROGRAM

Expanded Program on Immunization

- The Expanded Program on Immunization was established in 1976 under the legal basis of Presidential Decree 996 (PD 996).
- To ensure that infants, children, and mothers have access to routinely recommended infant and childhood vaccines.
- Six vaccine-preventable diseases were initially included:
 - TB, poliomyelitis, diphtheria, tetanus, pertussis, and measles.

Supporting Legislations

- Republic Act 7846 (RA 7846):** Provided for

compulsory immunization against Hepatitis B for infants and children below 8 years old, and hepatitis B immunization within 24 hours after birth for babies of women with hepatitis B.

- Republic Act 10152 (RA 10152):** Known as the Mandatory Infants and Children Health Immunization Act of 2011, which mandates basic immunization covering vaccine-preventable diseases.

Goals of the Program

The following are the specific goals:

- Immunize all infants and children against common vaccine-preventable diseases.
- Sustain the polio-free status of the Philippines.
- Eliminate measles infection.
- Eliminate maternal and neonatal tetanus.
- Control diphtheria, pertussis, hepatitis B, and German measles.
- Prevent extrapulmonary TB among children.

Covered EPI Diseases:

- Tuberculosis (TB)
- Diphtheria
- Poliomyelitis (polio)
- Measles
- Pertussis
- Tetanus
- Hepatitis B
- Yellow fever >> Pneumonia / Influenza.

VACCINE	CONTENTS	FORM
BCG	live, attenuated bacteria	freeze-dried, reconstituted with a special diluent
Hepa B	RNA-recombinant, using Hepatitis B surface antigen (HBs Ag)	cloudy, liquid, in an auto-disable injection syringe if available
DPT-HepB-Hib (Pentavalent)	Diphtheria toxoid, inactivated pertussis bacteria, tetanus toxoid, recombinant DNA surface antigen, and synthetic conjugate of Haemophilus influenzae B bacilli	liquid, in an auto-disable injection syringe
Oral Polio	live, attenuated bacteria (trivalent)	clear, pinkish liquid
Anti-measles (AMV1)	live, attenuated bacteria	freeze-dried, reconstituted with a special diluent
Measles-mumps-rubell (AMV2)	live, attenuated bacteria	freeze-dried, reconstituted with a special diluent
Rotavirus	live, attenuated bacteria	clear, colorless liquid, in a container with an oral applicator
Tetanus Toxoid	weakened toxin	sometimes slightly turbid in appearance; clear, colorless liquid; sometimes slightly turbid

ATIGEN	AGE	DOSE	ROUTE	SITE
BCG	At birth	0.5 ml	Intradermal	Right deltoid region (arm)
Hepa B	At birth	0.5 ml	Intramuscular	Anterolateral thigh muscle

DPT-HepB-Hib (Pentavalent)	6-10-14 weeks	0.5 ml	Intramuscular	Anterolateral thigh muscle
Oral Polio	9-11 months	2 drops	Oral	Mouth
Anti-measles (AMV1)	12-15 months	0.5 ml	Subcutaneous	Outer part of the upper arm
Measles-mumps-rubella II (AMV2)	12-15 months	0.5 ml	Subcutaneous	Outer part of the upper arm
Rotavirus	6 & 10 weeks	1.5 ml	Oral	Mouth

CHILD IMMUNIZATION RECORD

CHILD'S NAME: _____ MOTHER'S NAME: _____
 DATE OF BIRTH: _____ FATHER'S NAME: _____
 PLACE OF BIRTH: _____ BIRTH HEIGHT: _____
 ADDRESS: _____ SEX: ☐ M ☐ F

PAAG KUMPLETO, PROTETADO

BAKUNA	DOSES	PETA NG BAKUNA	REMARKS
BCG	1 (Birth)	1	
HEPATITIS B	3 (Birth, 1-2 months, 6-8 months)	1 2 3	
PENTAVALENT VACCINE (DPT-HepB-HiB)	3 (2, 4, 6 months)	1 2 3	
ORAL POLIO VACCINE (OPV)	3 (2, 4, 6 months)	1 2 3	
INACTIVATED POLIO VACCINE (IPV)	1 (12-15 months)	1	
PNEUMOCOCCAL CONJUGATE VACCINE (PCV)	3 (2, 4, 6 months)	1 2 3	
MEASLES, MUMPS, RUBELLA (MMR)	2 (9 months, 1 year)	1 2	

HEALTH CENTER: _____
 BARANGAY: _____
 FAMILY NO.: _____

DOH Kalusugang Tuluy-Tuluy para sa Pamilyang Pinoy

Schedule ng Pagbibigay ng Bakuna para sa mga Batang Isang Taon Pababa

BAKUNA	SAKIT NA MAIWASAN	PAAG-PAAGSAL	1½ MONTHS	2½ MONTHS	3½ MONTHS	9 MONTHS	1 YEAR
BCG	Tuberculosis	✓					
HEPATITIS B	Hepatitis B	✓					
PENTAVALENT VACCINE (DPT-HepB-HiB)	Diphtheria, Tetanus, Hepatitis B, Pertussis, Poliovirus, Haemophilus		✓	✓	✓		
ORAL POLIO VACCINE (OPV)	Polio		✓	✓	✓		
INACTIVATED POLIO VACCINE (IPV)	Polio					✓	
PNEUMOCOCCAL CONJUGATE VACCINE (PCV)	Pneumonia, Meningitis		✓	✓	✓		
MEASLES, MUMPS, RUBELLA (MMR)	Tigdas, Baka, German Measles						✓

MGA PAALALA

Nagbibigay ang pagbibigay ng bakuna sa kapangasiapan.

Sundin ang schedule ng bakuna at siguraduhing malaking ang mga ito hanggang sa magkano ang karaming umang karaming.

Ang mga bakunang hindi nakalilita ay maaaring matukha sa pribadong ospital o doktor.

DOH Kalusugang Tuluy-Tuluy para sa Pamilyang Pinoy

Immunization Monitoring Chart

Year: _____
 Province: _____
 Municipality/City: _____
 RHLS Health Center/BHS: _____
 Total Population: _____
 Eligible Population: _____

PAAG KUMPLETO, PROTETADO

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Penta 1												
Penta 2												
MCV 1												
MCV 2												

DOH Kalusugang Tuluy-Tuluy para sa Pamilyang Pinoy

Schedule & Manner of Adminstrating Infant Immunizations

General Guidelines:

- Use only a sterile syringe and needle per client.
- There is no need to restart a vaccination series

regardless of the time elapsed between doses.

- All EPI antigens are safe and effective when administered simultaneously at different sites during the same session.
- Not recommended: Do not mix different vaccines in one syringe or use fluid vaccines to reconstitute freeze-dried vaccines.
- If multiple injections are given on the same limb, keep sites 2.5 to 5 cm apart.

Co-Administration & Specific Routes:

- Recommended sequence:
 - Administer OPV first, followed by the rotavirus vaccine, then other appropriate vaccines.
- OPV Administration:
 - Deliver drops straight from the dropper onto the child's tongue; DO NOT let the dropper touch the tongue.
- Birth Dose:
 - Only monovalent hepatitis B vaccines must be used for the birth dose.
 - Pentavalent vaccines must not be used at birth because DPT and Hib should not be given then.

Anti-Measles Vaccine (AMV) & Rotavirus:

- AMV1 should be given ASAP, and AMV2 one month after AMV1.
- All children entering day care centers must be screened for measles immunization.
- First dose of Rotavirus vaccine:** Administered only to infants aged 6 weeks to 15 weeks.
- Second dose of Rotavirus vaccine:** Administered only to infants aged 10 weeks up to a maximum of 32 weeks.
 - Direct the applicator slowly down one side of the mouth toward the back, stimulating the rooting/sucking reflex (or lightly stroking the throat downward for infants aged 5 months or older) to prevent spitting.

Target Setting

- Goal:** 100% immunization of infants and children against vaccine-preventable diseases.
- RHU Level Responsibilities:** The public health nurse prepares vaccine requirements and oversees vaccine allocation.
- Formulas for Estimation:
 - Estimated number of infants = Total population x 2.7%
 - Estimated number of 12 to 59 month old children = Total population x 10.8%
 - Estimated number of pregnant women = Total population x 3.5%

Cold Chain Management & Requirements

- Vaccines confer immunity only when they are potent.
- A system to ensure vaccine potency from manufacture to administration, overseen by a Cold Chain Officer.

Equipment & Supplies: Freezers, refrigerators, transport boxes, vaccine bags/carriers, cold chain monitors, thermometers, and cold packs.

Temperature Regulations:

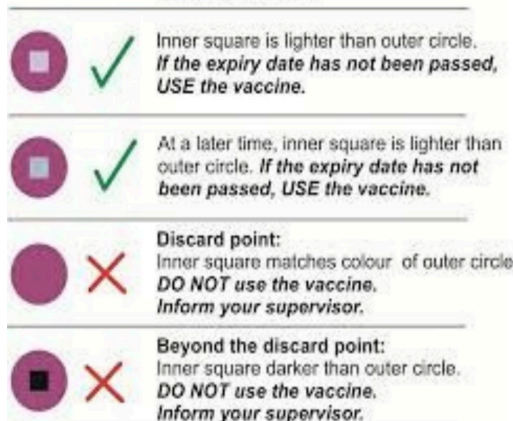
- OPV:** Stored in the freezer at -15 to 25 °C (placed in

- contact with cold packs inside the vaccine bag).
- **All other vaccines** (*measles, MMR, rotavirus*): Stored in a refrigerator at +2 to +8 °C on shelves (never on door shelves).
- **Freezing-Sensitive Vaccines** (*Hepatitis B, Pentavalent, Rotavirus, TT*): Damaged by freezing; do not store in the freezer. Wrap them in paper and avoid direct contact with ice packs. Keep diluents cold in lower or door shelves.

Other Potency Considerations:

- **FEFO Policy:** Follow the First Expiry-First Out rule.
- **Storage Limits:** Maximum of 1 month at health centers/RHUs with refrigerators, and a maximum of 5 days when using transport boxes.
- **Vaccine Vial Monitor (VVM):** A round disc of heat-sensitive material placed on a vaccine vial to register cumulative heat exposure.
 - Lower the temperature >> slower the color change
 - Higher temperature >> faster the temperature

How to read a VVM



- Abide by the Open-Vial Policy
- Discard reconstituted freeze-dried vaccines within 6 hours or at the end of the immunization session.
- Reconstitute freeze-dried vaccines (BCG, AMV, MMR) only with the diluents supplied with them.
- **Multi-dose vials** may be opened for 1-2 clients if the health worker feels that a client cannot come back for the scheduled immunization sessions.
- **Multi dose liquid vaccines** (OPV, Pentavalent, Hep B, TT) may be used for up to 4 weeks across subsequent sessions if sterile procedures are maintained and conditions are met:
 - The expiry date has not passed
 - The vaccine has not been contaminated
 - The vials have been stored under appropriate cold chain conditions
 - The vaccine vial septum has not been submerged in water
 - The VVM on the vial, if attached, has not reached the discard point
- Protect BCG from sunlight and Rotavirus vaccine from light.

Side Effects of Vaccination and their Management

VACCINE	SIDE EFFECTS	MANAGEMENT
BCG	Koch's phenomenon: an acute	No management is

	inflammatory reaction within 2-4 days after the vaccination; usually indicates previous exposure to tuberculosis	needed
	Deep abscess at vaccination site; almost invariably due to subcutaneous or deeper injection	Refer to the physician for incision and drainage
	Indolent ulceration: an ulcer which persists after 12 weeks from vaccination date	Treat with INH powder
	Glandular enlargement: enlargement of lymph glands draining the injection site	If suppuration occurs, treat as deep abscess
DPT-HepB-Hib (Pentavalent)	Fever that usually lasts for only 1 day. Fever beyond 24 hours is not due to the vaccine but other causes	Advise parents to give antipyretic
	Local soreness at the injection site	Reassure patients that soreness will disappear after 3-4 days
	Abscess after a week or more usually indicates that the injection was not deep enough or the needle was not sterile	Incision and drainage may be necessary
	Convulsions: although very rare, may occur in children older than 3 months; caused by pertussis vaccine	Proper management of convulsions; pertussis vaccine should not be given anymore
Oral Polio	none	
Anti-measles (AMV1)	Fever 5-7 days after vaccination in some children, there is a mild rash	Reassure parents and instruct them to give antipyretic and oresol to the child
Measles-mumps-rubell (AMV2)	Local soreness, fever, irritability, and malaise in some children	Reassure parents and instruct them to give antipyretic and oresol to the child
Rotavirus	Some children develop mild vomiting and diarrhea, fever, and irritability	Reassure parents and instruct them to give antipyretic and oresol to the child
Tetanus Toxoid	local soreness at the injection site	apply cold compress at the site; no other treatment is needed

Contraindications to Immunizations

- In general, there are no contraindications to immunizing a sick child if the child is well enough to go home.

Absolute Contraindications for Pentavalent / DPT:

- Do not give Pentavalent vaccine or DPT to children over 5 years of age.
- Do not give Pentavalent vaccine or DPT to a child with recurrent convulsions or another active neurological disease of the central nervous system.
- Do not give Pentavalent vaccine 2/3 or DPT 2/3 to a child who has had convulsions or shock within 3 days of the most recent dose.
- **Rotavirus Vaccine:** Do not give if the child has a history of hypersensitivity to a previous dose, intussusceptions, intestinal malformation, or acute gastroenteritis.
- Do not give BCG to a child who shows signs and symptoms of AIDS, other immune deficiency conditions, or who are immunosuppressed.

Procedures in Giving Specific Vaccines

A. BCG Vaccine (Intradermal)

Reconstitution: Keep diluent cold using a vaccine carrier. Using a 5ml syringe fitted with a long needle, aspirate 2ml of saline solution and inject it into the freeze-dried BCG ampoule. Mix thoroughly by drawing the mixture back and expelling it slowly several times, then place it on the foam slit in the vaccine carrier.

Administration Steps:

1. Clean the skin with a water-moistened cotton ball and let it dry.
2. Hold the child's arm with your left hand underneath, stretching the skin with your thumb and fingers.
3. Hold the syringe in your right hand with the bevel and scale pointing upward.
4. Keep the syringe and needle almost flat along the child's arm.
5. Insert only the tip of the needle (just the bevel) flat into the upper layer of the skin.
6. Place your left thumb over the needle end to hold position and press the plunger with your right thumb.
7. A correct injection results in a flat wheal with an orange-peel-like pitted surface.
8. Withdraw the needle gently.

B. Oral Polio Vaccine (OPV)

1. Read manufacturer instructions to determine the correct number of drops using the provided dropper.
2. Have the mother hold the child lying firmly on their back.
3. If needed, open the child's mouth by gently squeezing their cheeks between your fingers to point lips upward.
4. Put drops straight from the dropper onto the child's tongue, ensuring the dropper does not touch the tongue.
5. Ensure the child swallows; if they spit it out, give another dose.

C. Hepatitis B and DPT (Intramuscular)

1. Ask the mother to hold the child across her knees with the thigh facing upward, holding the child's legs.
2. Clean the skin with a water-moistened cotton ball and let it dry.
3. Grasp the muscles slightly at the outer part of the child's mid-thigh (best injection site) using your thumb and index finger.
4. Quickly push the needle deep into the muscle space between your fingers.
5. Slightly pull the plunger back to ensure the needle is not in a vein.
6. Inject the vaccine, withdraw the needle, and press the spot quickly with a piece of cotton.

D. Measles Vaccine (Subcutaneous)

Reconstitution: Aspirate 5ml of special diluent with a 10ml syringe and long needle, empty it into the vaccine vial, mix thoroughly without shaking, wrap the vial in foil to protect it from sunlight, and place it in the carrier foam slit.

Administration Steps:

1. Ask the mother to hold the child firmly.
2. Clean and dry the skin with a water-moistened cotton ball.
3. Pinch up the skin on the outer side of the upper arm with one hand.
4. Push the needle into the pinched-up skin without touching the needle.
5. Pull the plunger back slightly to check that it is not in a vein.
6. Press the plunger gently to inject.

E. Tetanus Toxoid (TT) for Women

1. Shake the vial before every injection.
2. Clean and dry the skin with a water-moistened cotton ball.
3. Grasp the muscles slightly on the outer side of the left upper arm (best injection site for women) using your thumb and index finger.
4. Pull the plunger back slightly to ensure it is not in a vein.
5. Push the needle quickly deep into the muscle.
6. Inject, withdraw the needle, and press quickly with cotton.

Recording and Reporting

- Recording and reporting are accomplished using the Field Health Service Information System (FHSIS).
- **Fully Immunized Children (FIC):** Infants given BCG, three doses of OPV, three doses of DPT/Hepatitis B (or Pentavalent), and one dose of anti-measles vaccine before reaching one year of age.
- **Completely Immunized Child:** Children who completed their immunization schedule between 12 to 23 months of age.
- **Child Protected at Birth (CPAB):** A child whose mother received:
 - Two doses of TT during the current pregnancy (with the second dose given at least a month prior to delivery), or
 - At least three doses of TT anytime prior to the pregnancy.

The Role of a Nurse in Community Immunization Services

- Actively master the list of infants eligible for vaccination in the community.
- Immunize infants following the correct schedule, route, dosage, and proper cold chain storage.
- Dispose of used syringes and needles properly using a collector box and septic vault to prevent hazards.
- Inform, educate, and communicate with parents to raise awareness and motivate them to bring children for vaccination.
- Provide health teachings on the importance and benefits of immunization, follow-up doses, and avoiding defaulters.
- Conduct community health visits to assess other health needs and deliver a comprehensive package of services.
- Identify cases of EPI target diseases using standard case definitions.
- Record the children given with vaccination in the Target Client list and GECD/GMC card or any standard recording form utilized.
- Submit a report and record of children vaccinated,

cases and deaths on EPI diseases, vaccines received and utilized and any other EPI related reports.

- Identify and actively search cases and deaths of EPI target diseases following standard case definition.