Epidemiologic Tools for Better Healthcare Delivery in the Philippines

MIRIAM N. AGNO M.D., M.S., D.T.M.&H.
Lecture Outline

I. Introduction

II. Using Epidemiologic thinking & tools
   1. Working in the academe
   2. Working in the pharmaceutical industry
   3. Working with government

III. Conclusion
PHILIPPINES
JAPAN
Japan & the Philippines are similar ... 

- **JAPAN**
  - Archipelago (4 major island groups)
  - Area: 377,915 sq km
  - Calamities – typhoons, earthquakes

- **PHILIPPINES**
  - Archipelago (3 major island groups)
  - Area: 300,000 sq km
  - Calamities – typhoons, earthquakes
Japan & the Philippines are different ...

• JAPAN
  – Climate: temperate
  – Economy:
    • 3rd largest in world
  – Median Age: 45.4
  – Pop Growth Rate: 0.08%
  – Birth rate: 8.39/1000
  – Life expectancy: 83.91

• PHILIPPINES
  – Climate: tropical
  – Economy:
    • 43rd largest in the world
  – Median age: 23.1
  – Pop growth rate: 1.87%
  – Birth rate: 24.98/1,000
  – Life expectancy: 71.94
Figure 2.1
Population Pyramid

72 years: Birth rate declined in 1938-39 due to the Sino-Japanese Incident.

65 and 66 years: Birth rate declined around the end of World War II.

62 to 64 years: Born in the first "baby boom" period (1947-49).

45 years: Born in 1966, "the year of Hinouma" (turns around every 60 years). Superstition says girls born in this year bring bad luck.

37 to 40 years: Born in the second "baby boom" period (1971-74).

Source: Statistics Bureau, MIC.

SOURCE:
Ministry of Internal Affairs & Communications
Statistics Bureau
Figure 2.3
Changes in the Population Pyramid

1950
- 0-14: 35.4
- 15-64: 59.6
- 65 and over: 4.9%

2011
- 0-14: 13.1
- 15-64: 63.7
- 65 and over: 23.3%

2050 (Projection)
- 0-14: 9.7
- 15-64: 51.5
- 65 and over: 38.8%

Source: Statistics Bureau, MIC; Ministry of Health, Labour and Welfare.
Population Pyramid, Philippines

SOURCE:
United Nations,
Department Of Economic & Social Affairs
Population Division
## Top 10 Mortality Causes

<table>
<thead>
<tr>
<th>JAPAN</th>
<th>PHILIPPINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Stroke</td>
<td>1. Coronary Heart Disease</td>
</tr>
<tr>
<td>2. Influenza &amp; Pneumonia</td>
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<td>3. Coronary Heart Disease</td>
<td>3. Stroke</td>
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<tr>
<td>4. Lung Cancers</td>
<td>4. Tuberculosis</td>
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<tr>
<td>5. Stomach Cancer</td>
<td>5. Hypertension</td>
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<tr>
<td>7. Liver Cancer</td>
<td>7. Violence</td>
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<tr>
<td>8. Suicide</td>
<td>8. Lung Disease</td>
</tr>
<tr>
<td>10. Pancreas Cancer</td>
<td>10. Asthma</td>
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</tbody>
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My Journey

• Education
  – Doctor of Medicine
  – Diploma in Tropical Medicine & Hygiene
  – M.S. Epidemiology (Public Health)

• Work experience
  – Medical Officer, DECS
  – Research Associate/ Teaching Fellow
    College of Public Health, University of the Philippines
  – Varying positions/ Pharmaceutical Industry
    • Medical Information/ Safety/ Clinical Research / Quality Standards
  – Part-time Faculty
    • College of Public Health, University of the Philippines Manila
    • Ateneo de Manila University

• Consultancies
  • Department of Health
  • World Bank
Epidemiology

The *study* of the *distribution* and *determinants* of *health-related states or events* in human *populations*, and the *application* of this study to the prevention and control of health-related problems.
Why is epidemiology useful?

- Identifies and measures the importance of health problems, describe the high-risk groups, and elucidate the causes of these problems
- Understand the natural history of disease
- Essential for disease surveillance and control
- Contributes to planning, monitoring, and evaluation of health services
- Serves as a key instrument in the formulation of health policies which may incorporate social, behavioral, and economic dimensions in addition to the provision of health services
Epidemiologic Thinking

1. Examinate existing facts & hypothesis
2. Formulate new or more specific hypothesis
3. Obtain additional facts to test acceptability of hypothesis
4. Evaluate new evidence and draw conclusions

Case Study/Case Series
Ecologic
Descriptive Person, Place, Time
Cross-sectional
Case-Control
Experimental
Cohort
Scientific Method

1. Ask a Question
2. Make Observations and Conduct Background Research
3. Propose a Hypothesis
4. Design an Experiment to Test the Hypothesis
5. Test the Hypothesis
6. Accept or Reject the Hypothesis
Tools of Epidemiology

- Scientific methods of study/research
- Techniques for collecting & organizing information
- Information about the biological basis of health & illness
- Information about human behavior that affects health
- ‘People skills’ needed to gain cooperation and gather solid information
Working in the Academe

- Teaching Epidemiology
  - Understanding epidemiology
  - Contextualizing the program for the different types of learners
    - Programs
    - Aptitudes
  - Mentoring students
Community Intervention Trial on the Completion & Timeliness of Infant Immunization Using Electronic Immunization Tracking System with Mobile Reminders

**Background:**
- Importance of vaccinations in preventing the occurrence and spread of preventable diseases
- Expanded program of Immunization (WHO, UNICEF): Basic service that should be given to children
- Despite the availability of vaccines (BCG, DPT, OPV, Hepa-B and Measles) immunization completion rate is 70% for children by one year of age
- In the experiment areas, reported completion rates are 65% and 67%.

**Objectives:**
- To determine the effect of an Electronic Immunization Tracking system with Mobile Reminders (EITS-MR) on the completion and timeliness of infant immunizations in Barangay X
Community Intervention Trial on the Completion & Timeliness of Infant Immunization Using Electronic Immunization Tracking System with Mobile Reminders

**Methodology:**

- Research Design: quasi-experimental, community intervention trial
- Intervention: Electronic Immunization Tracking System with Mobile Reminders
- Population: Two barangays, in City X, 65% and 67% immunization completion rates
- Sample size: 221 vaccine episodes/barangay
- Sampling: Mothers were randomly selected from list of expectant mothers
Prospective Cohort Study: Participation & Compliance to the Mass Drug Administration in Barangay X for Schistosomiasis

• **Background:**
  – Schistosomiasis:
    • neglected tropical disease affecting 779 M worldwide; in the Philippines – 28 provinces, 12 M are affected
    • To decrease the incidence & prevalence of Schistosomiasis, massive drug administration of Praziquantrel is done
    • Despite high recorded participation rates, the chosen barangay remains to have the highest prevalence rates among the endemic areas
    • Suggesting the need to differentiate participation with compliance
Prospective Cohort Study: Participation & Compliance to the Mass Drug Administration in Barangay X for Schistosomiasis

• Objective:
To determine the association between the six constructs of the health belief model and participation and compliance to schistosomiasis Massive Drug Administration in Barangay X

Exposure: factors from health belief model
(perceived susceptibility, perceived severity, perceived effectiveness, perceived cost, cues to action, self-efficacy)

Outcome: participation & compliance to schisto MDA
Prospective Cohort Study: Participation & Compliance to the Mass Drug Administration in Barangay X for Schistosomiasis

- **Methodology**
  Research design: prospective cohort study
  Sample population: Barangay, high prevalence
  Sampling method: Systematic random sampling

- **Data Collection Instruments**
  Survey
  - Before MDA - to collect data on exposure
  - After MDA – to collect data on participation & compliance

  Focused group discussions
Working in the Pharmaceutical Industry

- Medical Information
- Safety
- Clinical research
- Quality Standards
Medical Information

• Availability of information
• Access to information
• Quality of information
  – Completeness
  – Timeliness
  – Precision
  – Relevance
  – Adequacy
• Understanding the information
  – Evidence based medicine
Medical Information

• **Internal stakeholders**
  (Medical, Marketing & Sales)
  – Inform them of availability of information
    • Advocacy & orientation sessions
  – Understanding how to select & use information for promotion of drugs
    • Evidence –based medicine

• **External stakeholders**
  (Medical Institutions, MDs)
  – Provide access to medical information
Facilities Available

- Conference / Audio-Visual room
- Online journals
- Computer / internet stations
- MDC Consult Core Service
- Mini-Library (Books/CDs)
- Study / Reading Area
- Closed-Circuit Television
- Coffee Corner
- Video Capture / Editing

Users:
- Physicians
- Employees
- Students
- Patients
- Affiliates / Alumni
Medical Information Centers

Map showing the Medical Information Centers across the Philippines.
Providing a means of advocacy, communication, medical information among the members of the society
Safety

- Adverse Event Reporting
- Morbidity & Mortality Surveillance
- Risk Management
Clinical Research

- Management & delivery of clinical trial needs
  - Post marketing surveillance studies
  - Randomized controlled studies
  - Observational studies
- Training of investigators, clinical trial staff
- GCP, SOPs
Quality Standards

- Champions quality in the medical department & the whole company
- Knowledge of global and local standards
- Institutionalization of SOPs to ensure compliance to standards
- Gap Analysis
- Process Improvement
- Audit preparedness
Working with the Government

• Department of Health

National Objectives for Health

– The National Objectives for Health is the country’s strategic health plan.

– The content of this plan is, usually:
  • goals, policy objectives, and norms or guiding principles,
  • description of the expected scenario, and
  • an indicative budget allocation.

– The NOH is developed and published every six years by the Department of Health (DOH) and is distributed to key stakeholders of the health sector.

– There have been two previous editions of the NOH in 1999 and in 2005.
Working with the Government

- Department of Health, National Objectives for Health
  - The Midline Survey was developed to complete the information needed for National Objectives for Health 2011-2016.
  - Since the last NOH Baseline Survey in 2000, the DOH has developed internal information systems to measure many of the NOH’s objectives. Nonetheless, several indicators still have no available data.
  - The NOH midline survey thereby seeks to address this information gap thru collecting primary data from households and health facilities nationwide.
National Objectives for Health

• **Midline Survey**

  – **Objectives**
    • To identify the indicators from the NOH that needed primary data collection and
    • To develop and conduct the necessary researches (primary data collection) to show the updates on selected indicators.

  – **Parts**
    • Household Survey
    • Facilities Survey
National Objectives for Health

• **Household Survey**
  – Multi-stage cluster random sampling with a total of 2,787 households and 13,456 household members included in the survey.
  – Information related to the following indicators were collected in the survey:
    • selected household and respondent demographic characteristics,
    • smoking and alcohol prevalence,
    • pap smear,
    • community health hazards,
    • traditional medicine,
    • sanitary toilets and
    • selected health promoting behaviors.
National Objectives for Health

• **Facilities Survey**
  – Purposive type of sampling.
  – Key informants from the health institutions nearest the selected barangays (from the Midline Survey) were interviewed.
  – Information related to the following indicators were collected:
    • Integrated Management of Childhood Illness protocol,
    • Health Friendly Hospital Services,
    • Health Care Waste Management IRR,
    • Milk Code and health services.
Health for All

Better Healthcare Delivery

ACADEME

GOVERNMENT

PHARMACEUTICAL INDUSTRY
Conclusion

• Epidemiologic thinking and epidemiologic tools are good anchors in developing, establishing and evaluating health programs.

• The use of appropriate epidemiology enables health workers to effectively plan, develop, implement and evaluate their programs.
THANK YOU!!!