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th PNHRS WEEK Sustaining Research Partnerships for Better Health"



Health research and innovation play vital role in a country's health, economic and socio-political development – COHRED

B asically, everyone needs to be healthy in order to be productive," said Council for Health Research and Development's (COHRED) Director Dr. Carel Ijsselmuiden in his keynote message during the 6th Philippine National Health Research System (PNHRS) Week held at the Sofitel Philippine Plaza, Pasay City on 9 August 2012. **continue on p6**

FDA partners with PHREB-Accredited ERBs in clinical trials review

finical trials are conducted to evaluate the effectiveness and safety of new medications or medical devices. This is the bridge we need to take before introducing them for public use. Clinical trials should be carefully designed to ensure that no human is harmed or abused during the study period," explained Dr. Suzette H. Lazo, Former Director of the FDA during the 6th Philippine National Health Research System Week celebration.

To ensure better protection of Filipino patients who participate in clinical research studies and safeguard the quality of generated research results, the Food and Drugs Administration (FDA) released its Circular 2012-007 which governs the conduct of clinical trials in the Philippines for compliance of the sponsor companies, Clinical Research Organizations (CROs), and Ethics Review Boards/Committees (ERBs/ERCs).

With the issuance of the circular, the role of ERBs is recognized and further strengthened as approval of clinical research studies will depend on their recommendations to the FDA. All clinical trial applications are subjected for

Tawa-tawa contains active ingredients that may help dengue hemorrhagic fever (DHF) patients – study

awa-tawa (*Euphorbia hirta*), also known as "gatas-gatas," is a hairy herb grown in open grasslands, roadsides and pathways. This indigenous plant is considered as one of the most popular folkloric treatment for dengue in the Philippines.

Intent on finding out the truth behind tawa-tawa's curative properties, students of the University of Sto Tomas (UST) – Faculty of Pharmacy conducted a study entitled "Investigation of the anti-thrombocytopenic property of euphorbia hirta linn (Tawa-Tawa) decoction in rat models. The study aimed to verify the effects of tawa-tawa decoction to a dengue hemorrhagic fever (DHF) patient showing a symptom of thrombocytopenia (low platelet count due to excessive bleeding).

In the study, the students used chloramphenicol, ethanol and heparin to induce thrombocytopenia on rat models, mimicking dengue hemorrhagic fever. They administered tawa-tawa decoction to the sample groups and collected blood samples to check for platelet count, bleeding time (duration of bleeding), and blood clotting times in several stages of the experiment.

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PNoy confers Presidential Lingkod Bayan Award to Dr. Montoya

very year, the Civil Service Commission (CSC) confers the Presidential Lingkod

Bayan Award to individuals or group of individuals whose extraordinary contributions in public service has made nationwide impact.

"Sila ang mga Pilipinong tumatawid mula sa pagiging lingkodbayan, tungo sa pagiging isang lingkod-bayani. (They are the Filipinos who transcend their role of humble public servants into



Study reveals antioxidant properties of Philippine Yam

R esearch continues to unravel more medicinal properties of purple yam (Dioscorea alata) locally known as ube, one of the country's most important root crops.

Scientific studies have shown that yam can lower sugar levels, improve metabolism and provide antioxidant defenses. Interests of scientists, food manufacturers, and consumers on antioxidant composition of yam heightened when the Philippine Journal of Science reported that it is a possible functional food ingredient.

To further investigate the antioxidant capacity and phenol content of yam, a study was conducted by researchers from the University Yam can lower sugar levels, improve metabolism and provide antioxidant defenses

of the Philippines – Diliman (UPD). The research, titled "Philippine Yam (Dioscorea spp) Tubers Phenolic Content and Antioxidant Capacity" by Djanna F. Cornago, Rowena Grace O. Rumbaoa and Inacrist M. Geronimo revealed that local ube contain significant phenolic content and antioxidant similar to alpha-tocopherol or vitamin E. In the study, five Philippine varieties of purple yam or ube – Daking Kimabajo, Rapang-rapang, Sampero, and Shiket, and two varieties of lesser yam were analyzed.

Tawa-tawa ... from p1

Results showed that platelet count increased to 47% depending on the drug used to induce thrombocytopenia. Bleeding time was reduced up to 62% while blood clotting time decreased to 58% compared to the control groups.

Based on the results, students concluded that administering tawa-tawa decoction to animal models help improve their healing mechanism. Tawa-tawa was able to promote cell production, and prevents platelet destruction. Likewise, the improvement in the cell bleeding time and clotting time provided evidence that the indigenous plant can preserve and promote the hemostatic function of platelets.

The students also discovered phenolic

compounds in tawa-tawa, active ingredients suspected to be responsible in the increased platelet counts of tested animals. In an interview, Mr. Ryan Justin Raynes, one of the student researchers said that through a phenolic determination assay, they were able to identify 'minute' phenolic compound in tawa-tawa samples. "Although there were small amount of phenolic compound in tawatawa, this was sufficient to exert effect promoting quality and quantity of platelets," Mr. Raynes said.

Because of the study's significant findings, it won the first prize in the PCHRD – Gruppo Medica Award held during the 6th Philippine National Health Research System (PNHRS) Week held at Sofitel Manila last 10 August 2012. PCHRD – Gruppo Medica Award is given to undergraduate students engaged in herbal medicine research that have potential for practical or commercial applications. a (Edmon B. Agron) Examining the phenolic content, the study reported that production and accumulation of phenolic compounds depends on the type of yam. "Dark-colored yam variety had higher phenolic content than lighter-colored type. Highland Tugui had higher phenolic content that Lowland Tugui." The antioxidant capacity of most plant food sources is usually associated with their phenolic contents. "Phenolic is secondary plant metabolites associated with color, nutritional and antioxidant properties of food."

The antioxidant activity - radical scavenging, electron donation and metal chelation was compared to a commercially available antioxidant, alpha-tocopherol or vitamin E. "The results showed higher radical scavenging activity of the samples than that of the commercial antioxidant. It suggests that yam samples are more potent scavengers of free radicals. Further, the yam sample extracts also exhibited better chelating capacity. This means yam has the potential to stabilize the oxidized form of metal ions that generate free radicals," said the researchers.

With the high antioxidant activity of locally produced ube and tugui varieties, the researchers concluded that these not fullyutilized tubers may serve as source of natural antioxidants and as a possible food supplement. The researchers said, "The substantial amount of phenolic compounds, as well as the significant antiradical activity, makes utilization of yam as a source of food antioxidant and nutraceutical commercially feasible." The (Ana Ciaren P. Hipolito)

Water fern ... from p10

Nitrate, Sulfate, Phosphate, Plankton and fecal coliforms.

Results of the study showed that *Salvinia molesta* is a highly efficient aquatic plant for the removal of total suspended solids (30.77%), dissolved oxygen (74.70%) and fecal coliform (48.95%). However, *Salvinia molesta* had no effect on pH, Chromium, Nitrates, Sulfates, Phosphates and Plankton.

"We recommend that a small-scale model of constructed wetland be conducted with Salvinia molesta as our tertiary step treatment. We also want to recommend that a biological or chemical analysis be done on the plant itself to compare the absorption of pollutants between in-vitro and in-situ settings," concluded Mr. Acenas. C (Rachel Ann Doreen D. Nadal)

Taro (Gabi) in milk drink promotes healthy digestion

ne of the causes of health deterioration is the inability to digest all the food we eat. As people get older, they tend to become more and more constipated. The intestinal and bowel walls become weak due to lack of dietary fiber. This condition can poison the body and greatly contribute to the growth of degenerative diseases such as cancer and diabetes.

"There is a great need to maintain the proper balance of one's intestinal flora with the presence of large amount of useful bacteria. Through intake of probiotic drinks, the spread of this useful bacteria is possible," explained Ms. Meryl Velarde Capapas of the Visayas State University during the 2nd Student Research Competition at the 6th Philippine National Health Research System (PNHRS) Week last August 9, 2012 at the Sofitel Philippine Plaza, Pasay City.

Ms. Capapas won 2nd place in the competition on her research entitled, *"Effect of taro (Colocasia Esculenta (L) Schott) on the*



growth of Lactobacillus acidophilus in acidophilus milk." The study was focused on the production of acidophilus (acid-loving milk-bacterium) milk and the effect of taro puree on the physico-chemical characteristics, sensory qualities, and the growth of starter culture on the product.

In the study, researchers tested the growth revival of Lactobacillus acidophilus, a beneficial bacteria that decomposes sugars and produce large amounts of lactic acid. Taro puree was prepared and added with the processed acidophilus milk. The 12-hour and 20-hour incubation time in 50% taro puree were compared to determine the optimum condition for the growth of Lactobacillus acidophilus.

Results of the study showed that the addition of taro puree in acidophilus milk promotes the

"No one can really underestimate the multiple benefits offered by taro"

growth and activity of the Lactobacillus acidophilus. The study revealed that it is more economical to produce 50% taro puree with 12 hours of incubation than producing 50% taro puree with 20 hours incubation.

"No one can really underestimate the multiple benefits offered by taro, since in the study it has promoted the growth of beneficial microorganism Lactobacillus acidophilus to the level that qualified it as a probiotic food. There is an improvement in the nutritional value of the product given the taro has high nutritional value and also the milk," concluded Ms. Capapas. I (Rachel Ann Doreen D. Nadal)

Scientists validate effectiveness of Makabuhay's stem extract as anti-lice treatment

hile lice do not carry diseases, pediculosis or head lice infestation, is a contagious disease, affecting mostly children between three and ten years old. In a study conducted by the Department of Education (DepEd) with the University of the Philippines (UP), head lice infestation ranked as the second most common health problem of public school children after tooth decay. It dramatically affects the school performance of children because of the discomfort and social stigma it causes.

Studies confirmed that head lice infestation is expensive and challenging to treat due to lice's ability to develop resistance to chemical agents contained in medications. These chemicals, like permethrin and pyrethrin, were found to cause scalp and skin irritations and infections. "head lice infestation, is a contagious disease, affecting mostly children between three and ten years old"

Determined to provide the poor with safe, effective and affordable medication for treating head lice, Dr. Bienvenido S. Balotro of the University of the Philippines Manila led the study titled, *In Vitro Pediculicidal Efficacy* and Acute Dermal Irritation Tests of Hair Cream from the Methanolic Extract of the Stem of Tinospora crispa (L.) Hook.f.et Thoms. It aimed to determine if the fresh stem juice of makabuhay in hair cream form has the ability to treat lice infestation without causing skin irritation.

To test pediculicidal efficacy, the study used nine different methanolic concentrations of *makabuhay* extract in cream form to rabbits with adult lice and nymphs. Treated lice were closely monitored under microscope to check for death criteria - stringent death or absolutely no movement and unstringent death or minimal movement but considered killed. Acute dermal irritation, on the other hand, was assessed by observing the rabbits for signs of skin redness, swelling, scab, and lesions for 14 days after cream application.

Upon analysis, the researcher found that makabuhay has an effective and non-irritating property for the treatment of hair lice infestation. "The results of the tests showed that the most efficacious concentration of the extract was identified to be the 60 percent concentration of the methanolic extract-cream base mixture. Further, the extract passed the acute dermal irritation test which means the product was not a skin irritant to both abraded and unbraded or intact skin," said Dr. Balotro.

Acknowledging the potential of *makabuhay* as medication for head lice infestation, Dr. Balotro stressed, "Though this study could be an essential part of a larger study to develop an effective, safe and stable pediculicidal hair cream from makabuhay, further studies should be conducted to assess the safety and effectiveness of the compounds before full utilization." \mathfrak{Q} (Ana Ciaren P. Hipolito) Medical writing and publishing ////

Do's and don'ts in writing the results section of a scientific manuscript

The common mistake of authors in writing the results of a scientific manuscript is the misplacement of information. Sometimes, authors include details in the results that should be discussed in materials and methods or discussion portion," said Dr. Jose Florencio Lapeña, Jr., Editor-in-Chief of the Philippine Journal of Otolaryngology Head and Neck Surgery and President of the Philippine Association of Medical Journal Editors (PAMJE) during the 2nd National Writing and Peer Review Workshop in Davao City last July 26-27, 2012.

The first task of authors before writing, according to Dr. Lapeña, is to review and analyze the data and identify which findings merit inclusion in the results section. "To decide which results to incorporate, choose only those data and information relevant to the questions presented in the introduction whether or not they support the hypothesis. Do not state 'all' results gathered or observed," Dr. Lapeña explained.

Selecting the most coherent structure in presenting the results is another pre-writing task. Dr. Lapeña said, *"Before starting to write the results section, the flow of discussion should be considered. To determine the best structure, authors may ask if the results must be arranged in the same order of items in the Materials and*

Methods section or should it be presented in the order of the most important finding to the least."

Presenting data in tables and figures is also encouraged. According to Dr. Lapeña, some data is best presented in the form of tables, figures, or graphs. Thus, authors must choose the type of illustration that best supports the findings of the study. Dr. Lapeña reminded, "Authors must carefully plan their use of tables, graphs and figures. This is crucial in empowering readers to grasp the same conclusion of the study. Do not include raw data when summarizing findings."

Finally, authors must remember that the purpose of the results section is to present the main data collected and the observations made during the research. The results section must guide the reader through the questions investigated in the study and sets the stage for the discussion part of the manuscript. Dr. Lapeña reiterated, *"As authors, keep in mind that in the results section you show and don't tell. Ensure that all necessary data required by readers and reviewers to evaluate the outcome of the paper is presented. Let the results section prepare your readers for the next part, the discussion section."* ⁽¹⁾ (Ana Ciaren P. Hipolito)

PCHRD holds the 2nd National Medical Writing and Peer Review Workshop in Davao City

ollowing the success of the 1st National Medical Writing and Peer Review Workshop held in Cebu City last 19-20 January, 2012, the Philippine Council for Health Research and Development of the Department of Science and Technology (PCHRD-DOST), in collaboration with the Philippine Association of Medical Journal Editors (PAMJE) and Asia Pacific Association of Medical Journal Editors (APAME), conducted the 2nd National Medical Writing and Peer Review Workshop on July 26-27, 2012 at the Marco Polo Hotel, Davao City.

The two-day intensive workshop combined lectures with practical exercises that equipped health researchers and editors in medical writing and peer review process. Participants were taught the structure of a scientific paper, the individual components of the paper, how to prepare a manuscript, the role of editors and peer reviewers and what they look for in a manuscript.

Aside from the lectures, participants had the opportunity to join small group exercises on the various components of a scientific paper under the guidance of workshop facilitators. More than 50 health researchers and editors nationwide joined and participated in the continue on p11

Editors favor manuscript with complete and concise Materials & Method section

Explaining the materials and methods used in research is the most important aspect of a scientific manuscript. Flaws in this portion will lead to instant rejection of the paper," said Dr. Wilfred Peh, Executive Vice President of the Asia Pacific Association of Medical Journal Editors (APAME) during the 2nd National Writing and Peer Review Workshop in Davao City last July 26- 27, 2012.

A good Materials and Methods section clearly explains how the study was conducted to enable the readers to evaluate research performed and permit replication of the study. To achieve this, authors are urged to marry completeness and brevity in writing. According to Dr. Peh, *"Completeness means sufficient*" description on research process to enable repetition and verification of the results while brevity is not going into description on every technical detail."

To avoid confusion and ambiguity in explaining the research performed, following the threestep process is encouraged. *"In this process, the research plan is described first followed by the materials or subjects description then explanation on the methods used,"* said Dr. Peh.

In ensuring appropriateness of data and suitability of statistical analysis used, it is strongly recommended that the author seeks statistical consultation before and during the manuscript preparation. Dr. Peh advised, "Seek the aid of a biostatistician during the study planning stage and during manuscript preparation to guarantee accuracy of statistical tests used."

According to Dr. Peh, it is ideal to write the Materials and Methods section before the start of the study. Writing this section first helps researchers establish understanding of the work process which will draw a smooth discussion on other parts of the manuscript.

As a final reminder, Dr. Peh said, "It is always a must to read and follow the Instruction to Authors. Journals have different requirements. It is best to review the journal's Instruction to Authors or Author Guidelines before beginning to write the Materials and Methods." C (Ana Ciaren P. Hipolito)



Title, abstract and keywords are keys for publication success –Dr. Wilfred Peh, APAME

The title and abstract are crucial in the process of peer review. They are mostly the basis of journal editors and reviewers for further evaluation of the full paper. These are keys for publication success," stressed Dr. Wilfred CG Peh, Executive Vice President of the Asia Pacific Association of Medical Journal Editors (APAME) during the 2nd National Writing and Peer Review Workshop in Davao City last July 26- 27, 2012.

Title of the manuscript creates immediate impact on the value of the research work and the number of readership. "A good title attracts reader's attention and induces reader's interest in the paper. It should convey accurately what the whole paper is about in a few words as possible," explained Dr. Peh.

A powerful title, according to Dr. Peh, must

have emphasis, impact and keywords. While the title should be brief, it should emphasize the most important aspect or value of the research. An impactful title, on the other hand, reveals to readers why they should be interested with the work. The right keywords will be helpful to readers when locating the article. "As a basic rule, the use of redundant words, jargons and acronyms in writing titles should be avoided," said Dr. Peh.

Similar with the title, the abstract also influences journal editor, reviewer, and readers' impression about the research. Being the mini-version of the paper, the abstract summarizes the most significant phrases of the study while giving partial information on its background, methodology and results. By reading the abstract, the readers should be able to easily identify the fundamental

Medical writing and publishing

contents of the paper and accurately determine its relevance. "The abstract needs to reveal the importance of the entire paper. It should contain enough comprehensive factual information that can stand alone," pointed out Dr. Peh.

A typical abstract length ranges only from 150 to 300 words. With the limited number of words allowed in the abstract, the authors are advised to critically evaluate the components of the manuscript and choose to include only those with adequate importance. *"If abstract is excessively long, readers may give up reading before learning the value of the paper. It is likely to discourage a potential reader to read further," warned Dr. Peh.*

Likewise, keywords must be selected carefully to be effective. Keywords must be specific and represent the contents of the manuscript. *"Nothing works better than well-chosen keywords to make sure the paper will get to the readers,"* emphasized Dr. Peh.

As a general rule, Dr. Peh strongly advised to always check the instruction to authors of the target journal because specifications in writing vary per journal.

"When writing a manuscript, the researchers must always dedicate special attention to the Title, Abstract and Keywords as these three represent the whole paper. The probability of a paper to be published is greatly influenced by the initial impression it will create," stressed Dr. Peh. & (Ana Ciaren P. Hipolito)

The three paragraph rule: How to write an introduction

B y reading the introduction of a manuscript the reader must realize that the paper is really important which will motivate him to read on," stressed Dr. Jose Florencio Lapeña, Jr., Editor-in-Chief of the Philippine Journal of Otolaryngology Head and Neck Surgery and President of the Philippine Association of Medical Journal Editors (PAMJE) during the 2nd National Writing and Peer Review Workshop in Davao City last July 26- 27, 2012.

A well-written introduction, according to Dr. Lapeña, sets out clearly the objectives of the study and why it is significant. He said, "The introduction of the manuscript must reflect the importance of the problem, the uncertainty or gap in literature the study seeks to address and the hypothesis or the potential solution to answer the gap in a short, sharp and swift manner." To help researchers in organizing their introduction, Dr. Lapeña presented the three paragraph rule. In the first paragraph, the significance and impact of concept, problem or disease is stated. Some uncertainty or controversy in the literature is introduced. *"In introducing a concept you may begin the sentence with 'Emerging evidence suggests that...' 'It has been hypothesized that...,'* Dr. Lapeña advised.

The second paragraph, on the other hand, further reviews the literature to support the gap and uncertainty. It might mention whether studies done in the past answered the key question or have conflicting results or limitations. Using published journal articles, preferably recent ones, is recommended. *"To introduce limitation and uncertainty, remember to link the problem with the proposed solution, connect unanswered* question to your proposed answer and relate prior studies to current proposal," stressed Dr. Lapeña.

The third paragraph, meanwhile, should specify the objective of the study by stating the research questions or hypotheses. Research questions help the readers to grasp the content of the paper and guide the authors to organize their thoughts. A statement on the general experimental design or method should also be included. Dr. Lapeña suggested, *"When stating the purpose of the study, you may start your sentence with, in this current study... or we examine..."*

In closing, Dr. Lapeña reiterated, "Remember that your purpose in writing the introduction is to tell your reader that the paper is really important, they must read on. To do this, you must show that the topic is important because it is a new perspective, an additional knowledge and the findings will be useful and applicable in our context, that, this is an innovative research." a (Ana Ciaren P. Hipolito)

PNHRS WEEK



(DOH), Dr. Carel Ijsselmuiden of Council on Health Research for Development (COHRED), Dr. Belizario Jr. of the University of Manju Rani, of the Western (WPRO-WHO)

DOST Secretary Mario G. Montej

Sustaining Research Partnerships



Director of COHRED was the

Health research and innovations ... from p1

Dr. Ijsselmuiden explained that health affects all aspects of life including economic and socio-political development. "You must be healthy to be working, you must be healthy to earn money, and you must have money to do socio-political development. Here, the concept of health research is not only to maintain health but for its economic and socio-political values," said Dr. Ijsselmuiden.

Health research is critical in improving health and health outcomes to achieve developmental goals. Dr. Ijsselmuiden cited the experience of India where they spent around 200 million dollars in 2007 on pharmaceutical research and production. This endeavour was not just meant to make India healthier but to also make India the leader in global pharmaceutical domain.

"Health research and innovation are keys for health. If you deal with health problems like dengue, malaria, malnutrition, among others, the effect is even more important because it can deal with social determinants of health. It

"You must be healthy to be working, you must be healthy to earn money, and you must have money to do sociopolitical development"

can change the socio-economic environment and gives direct economic value," stressed Dr. lisselmuiden.

Likewise, through health research and innovation, new and emerging industries arise and open huge livelihood opportunities. One good example is the experience of Tanzania in Africa on impregnated bed nets. These bed nets are health research products, used to control malaria both in Asia and Africa. Because of its health benefits, the demand for impregnated bed nets increased. "This local industry is now producing 50% of the world's impregnated bed nets and providing jobs to more than 7,000 people around the world. Here, you can see the example of direct health benefits and economic benefits coming together," added Dr. Ijsselmuiden.

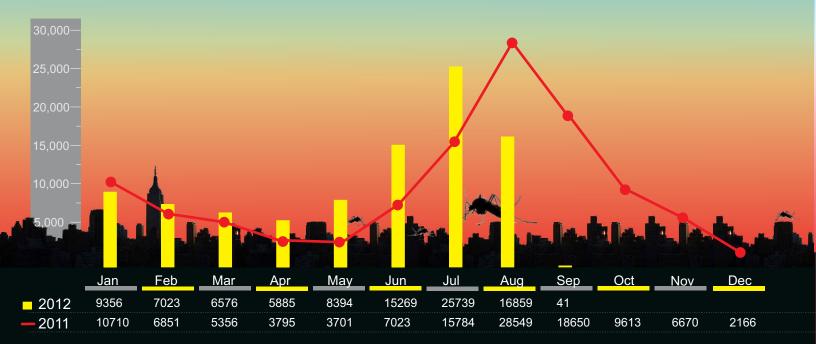
Another example is the industry on human genome project which has an investment of around \$3.8 billion. This project already generated an income of approximately \$800 billion and created an approximately 310,000 iobs worldwide.

SOF

"These, and many other health research success stories proved that, indeed, health research and innovation play a vital role in a country's health, economic and socio-political development," said Dr. Ijsselmuiden. However, in order to be part of these opportunities in health research, Dr. Ijsselmuiden stressed that the Philippines should be technically ready and have a system in place to take part on these sophisticated projects. He commends the Philippines for having an established health research system - the PNHRS. "This would be a good kick-off for the country to start working to be ready for those big global opportunities. I encourage you to invest in your people, invest on capacity building because one of the key things that will go in the future is to become competitive with other countries. If you want to be attractive outside, you need to show that you are better than your neighbour next door," said Dr. Ijsselmuiden. 🔯 (Edmon B. Agron)

Dengue Bulletin

Dengue Trend Dengue cases by Month, 2012 vs 2011



Quick Facts

			Regions	w/ highest dengue cases		
Dengue cases (compared)	84,244	95,142	w/ highest dengue cases NCR Pogions III	Quezon City Manila City		
Deaths (same period)	486	549	Regions III Regions IVA	Kalookan City		

Dengue cases per Region

Metro Manila

Region	2012	2011	% Change	Municipality	2012	2011	% Change
I	5807	11219	-48.24%	Kalookan	2178	2127	2.40%
	2328	5705	-59.19%	Las Piñas	553	423	30.73%
111	14791	17718	-16.52%	Makati	399	360	10.83%
IVA	14417	12028	19.86%	Malabon	664	803	-17.31%
IVB	1031	1197	-13.87%	Mandaluyong	273	348	-21.55%
V	2063	1023	101.66%	Manila	3015	2107	43.09%
VI	7156	2389	199.54%	Marikina	432	418	3.35%
VII	7109	3461	105.40%	Muntinlupa	320	500	-36.00%
VIII	271	691	-60.78%	Navotas	202	506	-60.08%
IX	3084	978	215.34%	Parañaque	1234	760	62.37%
Х	3910	1443	170.96%	Pasay	587	440	33.41%
XI	6452	2585	149.59%	Pasig	1184	946	25.16%
XII	2737	2122	28.98%	Pateros	96	111	-13.51%
ARMM	474	218	117.43%	Quezon City	6332	5965	6.15%
CAR	2859	2834	0.88%	San Juan	316	215	46.98%
CARAGA	1051	838	25.42%	Taguig	728	621	17.23%
NCR	19602	17795	10.15%	Valenzuela	1089	1145	-4.89%
	95,142	84,244	12.94%		19,602	17,795	10.15%

*Based on DOH's National Epidemiology Center dengue surveillance report from January 1 to September 1 2012

Health Technology

Electronic medical record system, CHITS, can retrieve patient record in five seconds – expert

In a recent study from Quezon City, the paper record retrieval time was decreased from 2.41 minutes to less than 5 seconds," revealed Dr. Marie Irene Sy, National Project Manager for Community Health Information Tracking System (CHITS) of the National Telehealth Center (NTHC) in her presentation during the University of the Philippines – National Institutes of Health (UP-NIH) research forum last 14 June 2012.

"The development of CHITS has resulted in increased efficiency of health workers, allowing them to spend more time for patient care, improved data quality; streamlined records management; and data-guided decision-making, both operationally and strategically," Dr. Sy added.

In the past, health center staff members sort through a roomful of envelopes containing patient records, which takes an average of four to five minutes depending on the availability of the record. When the record is not found, a new record will be made for which the patient will have to pay an extra cost. With CHITS, searching for a patient's record upon admission takes just a few seconds to retrieve. Records in the form of lab requests, results, and reports (daily service reports, census for number of vaccinations, supplies, etc.) can be generated automatically.

CHITS, an electronic medical record (EMR) specifically designed for the community health centers in the Philippines, was developed through a collaborative and participative process involving health workers and the Information and Communication Technology (ICT) community, using the primary health care approach and guided by the open source philosophy.

To date, CHITS is installed in 111 government health facilities. The Department of Interior and Local Government (DILG) and UNICEF has also supported and endorsed the adoption of CHITS in three geographically isolated and disadvantaged communities. These are Sto. Domingo in Albay, Gamay in Northern Samar, and Gian in Sarangani. ⁽²⁾ (Rachel Ann Doreen D. Nadal)

Lung Flute, an effective bronchial hygiene therapy phlegm of patients and

or the past years, different lung airway clearance techniques have been developed to alleviate bronchiectasis. Among the techniques was the use of Lung Flute, a hand-held disposable device used to help loosen and obtain sputum or phlegm sample in patients.

With more and more people at risk of developing bronchiectasis, researchers from the Pulmonary Section of the Lung Center of the Philippines conducted a study entitled, "Comparison of the Flutter Device (Lung Flute) to Active Cycle Breathing Technique (ACBT) in Hospitalized Patients with Bronchiectasis: A Pilot Study." The study aimed to determine the effectiveness of Lung Flute device against ACBT in patients with bronchiectasis.

Researchers compared the efficacy of Lung Flute to the standard ACBT among hospitalized patients diagnosed with bronchiectasis. The amount of released phlegm of patients and their level of relief after phlegm discharge were tested. Thirty one patients received ACBT and the other 31 patients used Lung Flute.

Results of the comparison showed that the amount of phlegm released and level of relief using the Lung Flute device is effective as ACBT in improving airway flow of bronchiectasis patients. The use of Lung Flute was able to generate large amount of phlegm for three consecutive days compared to ACBT. The researchers claimed, "Lung Flute was found to have high level of patient acceptability as many of the patients commented on the ease of its use."

In conclusion, researchers recommended Lung Flute as a suitable alternative to standard ACBT during in-hospital care for patients with bronchiectasis. Researchers confirmed, "Overall, there was no difference in improvement between two treatment groups. Such techniques are equally efficacious in removal of secretions from patients with bronchiectasis." 🛱 (Rachel Ann Doreen D. Nadal)

Identifying the true poor ... from p12

ensuring indigents financial access to health services through the LGUs."

Scientists check nutrient intake of teenagers with simpler assessment tool

In the study, entitled, Dietary Diversity Score (DDS) as an Indicator of Nutritional Adequacy of Diets among 16-19-Year-Old, researchers got a glimpse on the diversity of food types and nutrients in the daily food consumption of teenagers.

Although many people think it is best to steer clear of certain kinds of food in order to avoid some types of diseases, researchers from the University of the Philippines – Manila (UPM) warned that doing so will restrict them from getting other beneficial nutrients that are also found in those foods. A diversified diet provides more nutrition to an individual. For instance, avoiding pork and beef to limit fat intake will curb consumption of protein and other important nutrients in the process.

The researchers explained, "Epidemiologic studies that established diet and disease causation have also focused on single nutrient and disease risk, despite the wide array of nutrients present in food. Nondiversified diet can have negative consequences on individual's health, well-being, and development, as this kind of diet is not likely to meet micronutrient requirements."

While assessing the dietary intake of an individual is important, many experts, however, expressed difficulty in gathering and analyzing data with the currently used assessment tools. The researchers lament, *"Assessment of dietary intake at the individual level can be time consuming, tedious, and requires a high amount of technical skill both in data collection and analysis."*

To provide a substitute to the current assessment tools, the UPM researchers tested the effectiveness of the DDS. College students, aged 16 to 19 year-old, from different universities in Manila, were asked about the food they ate in the last 24 hours. Average scores were taken based on the DDS, the nutrition adequacy ratio (NAR) and mean adequacy ratio (MAR). Results of DDS were compared to the results of MAR and NAR to confirm its accuracy.

Results of the study showed that majority of the teenagers' diet are not varied. The respondents have very limited intake of vitamin-A vegetable and tubers, organ meat and legumes in their

Ultrasound is an effective tool for cancer screening in h-mole patients, scientists say

Researchers confirmed the effectiveness of ultrasound in screening cancer growth in patients with hydatidiform mole (*h*mole or molar pregnancy).

Once an egg cell with no nucleus is fertilized by a sperm and implants itself to the uterus, it forms grape-like clusters of cysts called h-mole. H-mole, or *kyawa* in Tagalog, can rapidly deteriorate into a form of cancer known as gestational trophoblastic neoplasia (GTN). This is the reason why a surgical curettage to remove the cysts is conducted as soon as possible after the diagnosis.

To further ensure that the condition does not progress to GTN, sudden increase in the amount of human chorionic gonadotophin (hCG) in the blood, a hormone produced by the h-mole, is monitored. However, many experts believe that transvaginal ultrasound is also useful in GTN screening. Today, transvaginal ultrasound is only utilized prior to the removal of the h-mole cysts.

In the study, entitled, *Post Curettage Ultrasound Monitoring to Determine Early Gestational Trophoblastic Neoplasia after Hydatidiform Mole*, scientists from the University of the Philippines – Philippine General Hospital (UP-PGH), used ultrasound was used to check for GTN after the removal of h-mole. In a period of three months, 13 patients who had surgical curettage at the UP-PGH were included in the study. Both transvaginal ultrasound and the standard monitoring of blood hCG level were done. The transvaginal ultrasound detected vascular mass in the uterus of two patients at the same time when increased in the level of hCG was reported. The researchers revealed,

Allergy injections decrease risks of new allergen reactions on older patients, study says

Rown to most people as hay fever, allergic rhinitis, although not a lifethreatening condition can significantly impair quality of life. The classic symptoms of sneezing, nasal itching, watery nasal discharge, itchy red eyes, and sore throat affects an individual's sleep, school performance, social life and work productivity, according to studies.

The World Health Organization (WHO) classified allergic disease as the fourth most important chronic disease in the world. More than 400 million people worldwide are affected by allergic rhinitis, and in Asia-Pacific, the incidence of nasal allergies is estimated to be as high as 48 percent.

Researchers from the University of the Philippines – Philippine General Hospital (UP-PGH) conducted a study titled, Prevention of new sensitizations in adults and adolescents with respiratory allergies undergoing allergen immunotherapy as measured by repeat skin prick test, aimed to determine if allergen immunotherapy or allergy shots can decrease the risk of new allergen reactions among old and adolescent patients. Allergen immunotherapy involves series of injections or shots given to increase your tolerance to allergens, substances that provoke allergy symptoms, with gradually increasing doses over a period of time. In a one year period, 27 patients aged 14 to 55 years old with respiratory allergies- allergic rhinitis and bronchial asthma, were observed. 14 patients treated with medicines alone and 13 patients who underwent allergen immunotherapy were included in the study. The researchers discussed, *"Patients recruited in the study were being treated for respiratory allergies for at least a year and must had a previous skin prick test done at UP-PGH that was positive for at least one aeroallergen."*

Results of the study showed that immunotherapy significantly decreases risk of new allergen sensitivities in older patients with respiratory allergies. Comparing the results to previous studies, the researchers observed, "Preventive effect was seen in older individuals aged 36 and above, compared to previous study which reported effects on young adults aged 23." Further analysis also showed that beneficial effects of immunotherapy on preventing new sensitivities were seen as early as one year of treatment. The researchers said, "Protective effect against new sensitivities to allergen is present even in the early course of immunotherapy. Incidence rate of new sensitivity in those undergoing immunotherapy was significantly less than those who take medication."

Overall, the researchers were successful in finding out that immunotherapy does alter sensitivity to known allergens. The researchers

Health Technology

"The serum hCG levels were significantly higher among those with vascular uterine mass."

Results of the study revealed that transvaginal ultrasound is really an effective tool in monitoring the development of GTN in the uterus. The researchers said, *"Transvaginal ultrasound is essential, not only in the diagnosis* of h-mole, but also in the follow up of postevacuation of the molar pregnancy and in predicting the degeneration of h-mole to GTN."

However, researchers warned that transvaginal ultrasound should be used together with the blood testing of hCG. They also recommended that a future study with bigger respondents be done to confirm the result of their research. They said, "The use of transvaginal ultrasound is yet unlikely to replace the measurement of serum hCG titers as first outline routine procedure in the follow up of trophoblastic disease. Further studies on larger populations and in a more ideal setting are recommended." 🛱 (Richmond Q. Acosta)

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diet as seen in the very low average DDS on these food groups. On the other hand, consumption of starchy staples, meat/fish/poultry and milk and milk products have the highest DDS. Less than 25% of the respondents have adequate intake of fruits. The researchers blamed the phenomenon on lack of diversity in the types of food that fast food chains offer that the teenagers patronize. They explained, *"This is probably due to the typical consumption of fast food items like hamburger, pizza, etc., among adolescents."*

DDS showed similar results as those in NAR and MAR, making it a good substitute for other nutritional assessment tools. They said, "DDS can be a good alternative for traditional dietary assessment tools in community settings or situations where quick assessments – not requiring highly skilled workers / trained dieticians to complete – are often required in the situation. Furthermore, DDS will also hasten the identification and households in greatest need." 🖬 (Richmond Q. Acosta)

said, "This study reinforces previous findings that immunotherapy can prevent new sensitivities to allergen, this time seen in older age group. New sensitizations can be taken as a risk for worsening of allergic rhinitis, as those afflicted by respiratory allergies may develop more symptoms." 🎗 (Ana Ciaren P. Hipolito)

Health Technology /////

Study confirms safety and effectiveness of injectable immunoglobulin for chronic urticaria treatment

S tudies show that about one in every six people will suffer from urticaria at one time in their life. Although not lifethreatening, urticaria, commonly known as hives, are red, very itchy, swollen patches on the skin. Acute urticaria which lasts for less than six weeks is often a result of an allergic reaction. Chronic urticaria, on the other hand, has no identifiable trigger which makes treatment a challenge to experts.

Looking for a safe and effective treatment for urticaria, researchers from the University of the Philippines – Philippine General Hospital (UP–PGH) conducted a preliminary cohort study titled, Intramuscular immunoglobulin in the treatment of chronic autoimmune urticaria. It aimed to test the intramuscular immunoglobulin (IMIg), an antibody responsible for allergic disorders to be injected into the muscle, as possible alternative when conventional therapy is ineffective.

Eleven patients aged 18 years and older with chronic urticaria and whose symptoms did not respond to standard therapy were included in the study. Three shots of IMIg were administered to patients at a 30 day interval. For 90 days, severity of itch, number of swollen patches, extent of interference with work and sleep patterns and reported adverse reactions such as pain at the injection site, nausea and chills were recorded.

Results of the study revealed that monthly administration of IMIg among patients significantly reduced intensity of itch, decreased number of swollen patches and improved work and sleep patterns. The researchers reported, *"No severe adverse effect was observed. Four patients complained a transitory pain at the injection site only after the first injection. There were no reports of nausea, backache, headache, chills and flushing."*

The researchers behind the study, Dr. Jenifer R. Otadoy-Agustin, Dr. Madeleine W. Sumpaico, Dr. Lara Theresa Alentajan-Aleta and Dr. Gwyneth Bautista-Velez concluded that intramuscular immunoglobulin may be a safe and effective alternative treatment for chronic urticaria sufferers who do not respond to standard therapy. However, to identify appropriate time and dosage in administering IMIg, researchers advised, *"Further experimental research and clinical trials are needed to determine the optimal timing and dosing of intramuscular immunoglobulin."* a (Ana Ciaren P. Hipolito)

FDA partners... from p1

ethical and technical evaluation. *"To* guarantee that ERBs comply with the international and national standards in performing their function, only ERBs registered, audited and accredited by the Philippine Health Research Ethics Board (PHREB) are authorized to conduct the review and make recommendations," stressed Dr. Lazo.

As of September 2012, PHREB has accredited two ERCs namely, the Philippine Heart Center ERC and the University of the Philippines Manila – Research Ethics Board. Other PHREBrecommended ERCs are as follows: De La Salle University-Health Sciences Institute, St. Luke's Medical Center for Clinical Trials, Research Institute for Tropical Medicine (RITM), and University of Sto. Tomas (UST).

The recommendation of ERCs is based on PHREB's prior knowledge of how the ERCs

conduct ethics review, and the board's familiarity with their procedures.

The coverage of the circular includes Phases I, II, III, and IV clinical trials of investigational medicinal products described as any substance or combination of substances reported for its beneficial properties and may be administered to humans to treat and prevent diseases or used to make medical diagnosis.

To protect the public from biased reporting and publication, the Circular requires all clinical trials to be posted in the Philippine Health Research Registry (PHRR). *"It is now* mandatory to include all clinical trials in the Philippine Health Research Registry which is already live, within 30 days after approving the clinical trial application. The purpose of this is, of course, to improve the level of transparency, to control publication bias and to have an equal opportunity for those who would like to participate in the study," said Dr. Lazo. [©] (Ana Ciaren P. Hipolito)



Water fern (Salvinia molesta) shows potentials in removing water pollutants

Poor sanitation greatly contributes to water pollution in the Philippines leading to higher cost of water and secondly, affecting our rivers and lakes in terms of the reduction and production of aquatic life. This calls for a feasible, inexpensive and sustainable solution," stressed Mr. Francis Dale G. Acenas of the Dr. Jose P. Rizal School of Medicine, Xavier University-Ateneo de Cagayan during the 2nd Student Research Competition at the 6th Philippine National Health Research System (PNHRS) Week last August 9, 2012 at the Sofitel Philippine Plaza, Pasay City.

Mr. Acenas, together with Ms. Liezel T. Morales, Ms. Alessandra Kamille P. Mallari, Mr. Cris S. Dedumo, Ms. Nafie O. Macarimbang, Ms. Sheila Mae P. Trozo, Ms. Katherine Ruth S. Beltran, Mr. Nasser A. Jawadil, Ms. Ethel Yen C. Sison, and Mr. Ryan Rey L. Zarate won the first prize in the competition for their research entitled, An experimental study on the efficacy of aquatic fern (*Salvinia molesta*) in the treatment of blackwater effluent from a constructed wetland, Cagayan de Oro City. The study aimed to determine the efficiency of *Salvinia molesta* (water fern) to remove water pollutants in black water sewage from a constructed wetland.

"Pathogen concentrations remain too high for unrestricted irrigation in constructed wetlands. There is a need for a tertiary treatment to eliminate the pathogens," explained Mr. Acenas.

In a fifteen-day exposure to *Salvinia molesta*, the researchers determined the amount of changes and the removal of water pollutants in terms of activity of hydrogen ion, dissolved oxygen, total suspended solids, Chromium,

Study confirms effectiveness of Cebu City's intestinal worm control program

Results of the assessment titled, Impact of a Local Government Unit Supported School-based Initiative for Control of Intestinal Helminth Infections, published in the Acta Medica Philippina's April-June issue revealed that Cebu City's school-based soiltransmitted helminth (STH) control program is an effective strategy to combat STH infections.

Following World Health Organization's recommendation to choose schools as entry point for STH control program, the school-based, school teacher-assisted mass drug administration (MDA) campaign in Cebu City involved the administration of chewable medicines to public school students in 10 districts. Tablets were administered by school teachers under the supervision of a school nurse trained by the project team. MDA coverage rates were reported according to grade level, school and district.

To evaluate the effect of the program, researchers from the University of the Philippines Manila checked the improvement in the prevalence of STH infections, nutritional status and school performance of 250 grade three and four students from two selected school districts. The study consisted of baseline and follow-up parasitologic surveys.

Study findings showed a 23 percent reduction in the overall cumulative STH prevalence and 40 percent reduction in the occurrence of heavy intensity infections. Between the two districts surveyed, District B had greater reduction in both incidences of infection than District A. The study noted, "District B had greater reductions in overall cumulative prevalence of 35.5 percent and prevalence of heavy intensity of 57.3 percent while, District A, 11.8 percent reduction in cumulative prevalence and 24 percent decrease in the prevalence of heavy intensity infections." However, the study reported no significant improvement on the rate of students who are below the normal weight-for-age and height-forage. School performance of students, on the other hand, improved with mean percentage score of students in the National Achievement Test (NAT) increased by 9 percent.

Based on the results of the study, researchers acknowledged the complementary roles played by the LGU of Cebu City, the Department of Education (DepEd) and the community in the successful implementation of the school-based intestinal worm control program. The researchers advised, "The LGU of Cebu City with the cooperation of the community may consider efforts to improve environmental sanitation conditions, while the DepEd may spearhead efforts to improve delivery of MDA to students as well as incorporate health education in the school curriculum."

The success of the results also merits continuation of the program. The researchers concluded, "Cebu City's school-based helminth control strategies should be sustained and improved. Likewise, improvements in water supply and sanitation, promotion of good hygiene and health education are equally important in minimizing risks of infection and reinfection." a (Ana Ciaren P. Hipolito)

Pnoy confers ... from p1

public heroes)," said President Benigno S. Aquino III, as he conferred the Presidential Lingkod Bayan Award to eight outstanding public officials last September 19, 2012 in Malacañan Palace. One of the awardees is Dr. Jaime C. Montoya, Executive Director of the Philippine Council for Health Research and Development of the Department of Science and Technology (PCHRD – DOST).

Dr. Montoya was chosen for his contributions in science and health in the country. Dr. Montoya is the lead convener of the Philippine National Health Research System (PNHRS), an integrated national framework for health research in the country. Dr. Montoya's efforts are also instrumental in the creation of the ASEAN Network for Drugs, Diagnostics and Vaccines Innovation (ASEAN-NDI), network that oversees the discovery and development of health technologies that will not only address health problems, but also boost the health industry in the region. Aside from his post as the Executive Director of PCHRD-DOST, Dr. Montoya is also a member of the World Health Organization (WHO) Western Pacific Region Clinical Advisory Committee for Emerging Infections and the first Filipino President of the Science Council of Asia.

In his speech, the President expressed his gratitude to the awardees for striving for excellence in their fields of work. He asked them to continue striving for the best so as they can become role models to all public officials and employees.

He said, "Patuloy nawa kayong maging pamantayan ng paglilingkod sa tuwid na daan. Sa tuwid na daan, sama-sama nating baguhin ang pananaw ng lipunan sa mga lingkodbayan. (May you continue to be the standard of honest public service. In our aspiration for tuwid na daan, let us change the society's perception on public servants.)" 🛱 (Richmond Q. Acosta)



PCHRD holds ... from p4

workshop. Participants came from the 17 regional health research consortia of the country.

Following were the resource persons for the workshop:

- Dr. Wilfred Peh, Former Editor, Singapore Medical Journal (SMJ); Clinical Professor, National University of Singapore; President, Singapore Association of Medical Journal Editors (SAMJE);
- Professor Jose Florencio Lapeña, Jr., Editor-in-Chief, Philippine Journal of Otolaryngology Head and Neck Surgery; President, Philippine Association of Medical Journal Editors (PAMJE)
- Dr. Xenia Catherine Jaramillo Fabay, Pediatric Infectious Disease Specialist, Baguio General Hospital and Medical Center; Associate Editor, Pediatric Infectious Diseases Society of the Philippines Journal ²⁰ (Ana Ciaren P. Hipolito)

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Identifying the 'true poor,' key to PhilHealth Sponsored Program's success, say experts

R esearchers from the University of the Philippines Manila (UPM) cited the failure of local government units (LGUs) to properly identify the *"true poor"* as the biggest threat to the success of the Philippine Health Insurance Corporation (PhilHealth) Sponsored Program.

In the study entitled, Validation of the Selection of PhilHealth Sponsored Members using Participatory Action Research, UPM researchers, Dr. Vincent Bryan DG. Salvador, Ramon P. Paterno, Elizabeth C. Regalado-Paterno, et al, warned, *"The government's multi-billion peso National Health Insurance Program of PhilHealth will fail in its mission of achieving Universal Coverage if it fails to properly identify and enroll the true poor in its Sponsored Program."*

The PhilHealth Sponsored Program ensures that poor Filipinos get equal opportunity to access health services. Targeting the poorest 25% in the country, the Program relies heavily on the accurate identification of indigent families by the LGUs. Therefore, failure on the part of the LGUs to correctly classify the beneficiaries will defeat the very mission of the initiative.

Researchers compared the LGU list of PhilHealth Sponsored Program beneficiaries in a Batangas municipality with the list of families identified in the recent Participatory Action Research (PAR) survey done in the municipality.

Upon comparison, researchers discovered that 464 or 70% of the listed names in the Sponsored Program were not found when the PAR survey was conducted, suggesting the possibility of 'ghost' enrolees. Also, the LGU registered 140 families as beneficiaries that the PAR survey classified as middle income families, but excluded 413 or 87.5% qualified poor families identified by PAR. Barangay "volunteers," on the other hand, comprising of barangay health workers, service point officers, day care workers, barangay police, barangay secretaries and other elected barangay officials were registered in the Program, with some without undergoing the required assessments for PhilHealth Sponsored Program. The researchers said, "The so-called 'volunteers' were enrolled in the program, with no quota restriction. There were reports of political intercessions so that constituents may be allowed to be enrolled in the program without undergoing the classification process."

The researchers also found out that the PhilHealth's Family Data Survey Form used in identifying the poor relied heavily on family income. Although parameters such as the number of times the family eats and the appearance of the house were reportedly used during the survey, these were not included in the survey form. The researchers cautioned on the danger of relying solely on the family's monthly income. They explained, *"Pure income measures are good at measuring short-term* (transient) changes in welfare. But it has drawbacks: it requires frequent updating and it is unreliable without verification of incomes and employment - a process that is technically difficult in developing countries due to limited administrative manpower and resources and large undocumented informal labor sector."

To improve the way PhilHealth classifies its beneficiaries, the researchers recommended the following:

- Exclude barangay "volunteers" who do not qualify to the Program.
- Find the listed beneficiaries that were not found during the PAR survey.
- Investigate on how poor families utilize the PhilHealth benefits.
- Conduct a new survey to find qualified families for the Sponsored Program living in traditionally affluent communities.
- Utilize the methods used during the PAR survey to in identifying poor families.

Through the recommendations cited, the researchers are hopeful that LGUs can deal with issues in the Program more effectively. They said, *"Its weaknesses must be addressed while providing the mechanism for effectively*

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DOH advocates community empowerment and mobilization to achieve better health outcomes

To this day, there are still doctorless underserved communities. We are revamping our health facility system and the Department is continuing its deployment programs which intend to reach further communities which need doctors, nurses, midwives, medical technologies, nutritionists and other health professionals," shared Department of Health (DOH) Secretary Enrique T. Ona in his message delivered by Undersecretary Nemesio T. Gako during the 85th Foundation Anniversary of the University of the Philippines-College of Public Health (UP-CPH) last June 18, 2012.

In 2011, Sec. Ona reported that the DOH has been successful in improving the lives of the poorest families identified by the Department of Social Welfare and Development (DSWD). "5.3 million poorest families have already been enrolled in the Philippine Health Insurance Corporation (PhilHealth) using the national government's fund. We are hoping to enroll more than at least 8 million families this year," said Sec. Ona.

Stressing that clinical care and public health essentially go together, Sec. Ona said that DOH programs will not just concentrate on making hospital care available but would likewise strengthen public health interventions.

"We are currently pursuing two interventions which focus on community empowerment and mobilization to achieve better health outcomes. The first is the deployment of community health teams and the second is the *support for the reproductive health bill,"* said Sec. Ona.

To provide promotive and preventive health services to Filipino families, Sec. Ona revealed that the DOH already formed community health teams (CHTs) composed of midwives and barangay health workers. CHTs will be in charge of immunization services, dispensing of TB medications, vitamin supplementation, family planning supplies, and health awareness campaigns for maternal and child health.

Currently, 22,500 nurses and midwives, as well as 100,000 CHTs have been deployed to the underserved communities in the country.

"We will help families uplift their lives through the health system, direct the families to the necessary health facilities and health professionals for the most appropriate intervention health care," assured Sec. Ona. (Rachel Ann Doreen D. Nadal)