

**First Batch of Zamboanga NSF Staff Undergoes ENBS Training**

The first batch of nurses, midwives, and medical technologists from local government units (LGUs), rural health units (RHUs), and private hospitals in the Zamboanga Peninsula participated in the Expanded Newborn Screening (ENBS) Training at Grand Astoria Hotel, Zamboanga City, on January 30-31, 2018.

Thirty-nine staff from these newborn screening facilities (NSFs) attended the training organized by the Department of Health-Regional Office (DOH-RO) 9. Some of the participants were first-time



**CHO-Malaybalay Kicks Off NBS Activities for 2018**

The City Health Office (CHO) of Malaybalay, Bukidnon, kicked off its newborn screening program advocacy for the year with a couple of activities in January.

A total of 24 babies, along with their parents and relatives, participated in the Reunion of Saved Babies on January 28, 2018. Pediatrician Dr. Brenda Tricia T. Catalon graced the event and discussed the six basic disorders, especially Glucose-6-Phosphate Dehydrogenase (G6PD) Deficiency. During the open forum, parents asked about the diet and medications.



**DOH-RO 10 Holds Consultative Meeting**

DOH-RO 10 held its annual consultative meeting for NBS Coordinators of provincial and city/municipal health offices and DOH Retained Hospitals at Pearlport Inn, Cagayan de Oro City, on February 19-20, 2018. The two-day activity was attended by 20 participants and representatives from NSC-M led by its Unit Head, Dr. Conchita Abarquez.

The activity aimed to address problems encountered in 2017 to improve the performance of the region in terms of sample validity, transit time, and positive



trainees in ENBS, while the rest were already implementing the program but had not received formal training.

Dr. Conchita Abarquez discussed ENBS and updates on the program, Perly Bermudez talked about unsatisfactory samples, and Amerah Matuan explained NSF protocols. On the second day, participants marched to Zamboanga City Medical Center for sample collection demonstration, onsite training, and heel prick training facilitated by Jannet Yao and Eleanor Arcillas. *IRTomas*

**DOH-RO 12 Trains Staff on ENBS**

To educate health personnel in ENBS and emphasize the significance of the quality collection of samples, DOH-RO 12 organized a training for 26 health personnel from both private and government facilities at Greenleaf Hotel, General Santos City, on February 27-28, 2018.

Dr. Conchita Abarquez, NSC-M Unit Head, discussed the panel of disorders on the first day, while Perly Bermudez, NSC-M Project Development Officer, talked about unsatisfactory samples and the administrative mechanics of NSC-M. Other resource speakers were Agnes Pantan and Rohaina Mua, Program Manager and NBS Nurse Coordinator of DOH-RO 12, respectively. The second day of training was for the heel prick practicum at Dr. Jorge P. Royeca Hospital in General Santos City. *PBermudez*

**IN FOCUS NBS in Camiguin Island**



Marydel F. Credo (seated, third from left) and the team from RHU-Mambajao join the participants in a photo opportunity during one of the culmination activities of Pabasa and Purok Household Caregivers classes.

Camiguin Island is located in the northern part of Mindanao under Region 10 and is a well-known tourist destination. It is divided into five municipalities: Catarman, Guinsiliban, Mahinog, Sagay, and Mambajao, the provincial capital. In both land area and population, Camiguin Province is believed to be the second smallest nationwide next to Batanes. Aside from its flourishing tourism industry, the economic activity in the province is mainly fishing and farming.

**DOH-RO 12 Trains Staff on ENBS**

The newborn screening program started in the island in 2001 at Camiguin General Hospital in Mambajao. It is the sole provider of the newborn screening service in the entire province for almost eight years until Catarman District Hospital joined the program in 2008. To boost the program coverage, the Provincial Health Office in Pandan, Mambajao, enrolled as a partner agency to help the program kick off in other municipalities. Marydel F. Credo, a midwife, was then appointed as the NBS Program Coordinator.

True to its purpose, four more facilities were encouraged to enroll as newborn screening facility in 2010—Municipal Health Office Catarman, Rural Health Unit Guinsiliban, Rural Health Unit Sagay, and Marydel Birthing Home, a private facility. Municipal Health Office—Mahinog and Municipal Health Office—Mambajao then followed in 2011.

One remarkable point in Camiguin's program implementation, despite the

distance from facilities to courier's dispatching central, is the close-to-zero late transmittal of samples. Timing of the transmittal and running of samples is critical for early diagnosis and treatment of babies found positive in one of the disorders included in the NBS panel. Since 2013, the province has an average transit time of 3.14 days. The province remains to have the lowest transmittal time in Region 10 for four years. This was made possible through constant reminder on prompt sending of samples and adherence to the "No Batching" policy.

The local government, in partnership with the non-governmental organization Family to Family Foundation, also helps indigent clients get through confirmatory testing. The partnership shoulders confirmatory testing fees and sometimes the fare to the nearest confirmatory testing center. *RAguilar*



Left to right: Ronald C. Aguilar, NSC-M PDO; Cyril Rojo, NSC-M Follow-up Nurse; Dr. Conchita G. Abarquez, NSC-M Unit Head; Sheila Mae Guilaran, NSC-M Program Manager; Perly Bermudez, NSC-M PDO; Amerah Matuan, NSC-M PDO; and Dr. Glynn B. Andoy, outgoing DOH-CARAGA Program Manager pay a quick visit at the Provincial Capitol of Camiguin Province during the zonal meeting of Mindanao Cluster.

additional filter cards to newborn screening facilities intended solely for indigent clients both for basic and Expanded NBS. Further, DOH-RO 10 give free filter cards as reward for early submission of census reports, exceptional newborn screening performance or even requests by facilities that ensure availability of filter cards at all time. This has resulted in a no inactive NSF facility for several years. These proactive measures that made for successful NBS implementation led to the recognition of four out of the eight Camiguin NSFs in the recently held Newborn Screening Awards in Mindanao on November 27, 2017. They are Camiguin General Hospital (Exemplary Award), Municipal Health Office of Catarman (Achiever's Award 2015), and Marydel Birthing Home and Municipal Health Office of Mahinog (Achiever's Award 2016).

Aside from advocacy activities, the Provincial Health Office provides

**RHU-San Luis Concocts Creative Ways to Promote ENBS**



Organizers from RHU-San Luis join on stage the winners of Gandang Buntis, a pageant that promotes good maternal nutrition and proper infant and young child care practices.

RHU-San Luis, Aurora, faces one of the most challenging past in the implementation of newborn screening—poor accessibility due to geographical locations of the barangays they serve.

The RHU services 18 barangays, including 5 geographically isolated and disadvantaged areas. They have coastal barangays, which can only be reached by boat. And yet, RHU-San Luis has been actively providing ENBS since 2015 to all infants born in the municipality, whether facility-based or home-delivered.

RHU-San Luis was listed among

informed about them and are advised regarding the next action to take. Financial assistance and transportation are given to the parents of the babies who need confirmatory tests.

RHU-San Luis also conducts "Buntis Party" twice a year where all pregnant mothers are invited to participate. Part of the topics discussed in this event is the importance of ENBS. "Gandang Buntis in San Luis" is one of the activities during the Buntis Party, where pregnant mothers represent their respective barangays in a pageant-style contest. Participants have to meet certain criteria such as a complete prenatal checkup to be included in the pageant. Contestants may win free ENBS tests, financial assistance, free laboratory checkup, free ultrasound, and free PhilHealth enrolment.

Mothers' classes are also being conducted by the RHU and one of the topics discussed is Expanded NBS since more patients avail themselves of this service once they were made fully aware of its benefits. Home visits are also being done to promote ENBS. *JJRReyes*

**IN FOCUS RHU-Minalin Goes the Extra Mile**

You can start right where you stand and apply the habit of going the extra mile by rendering more service and better service than you are now being paid for. — Napoleon Hill

Giving the extra effort in order to provide Filipino newborns the normal and healthy life that they deserve is the example set by the RHU and Lying-In Clinic in Minalin, Pampanga.

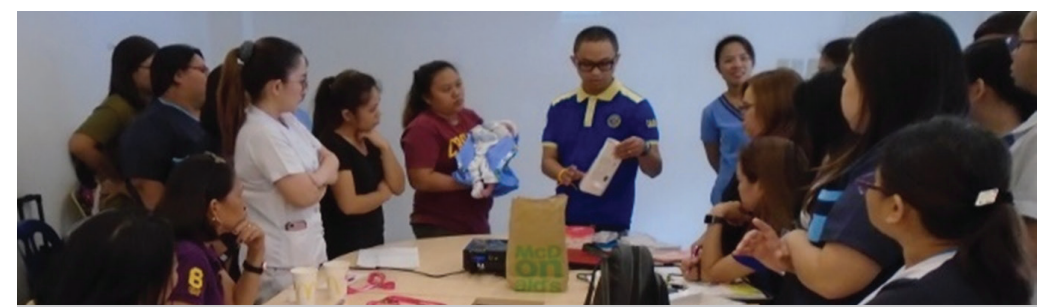
Minalin is a fourth class municipality in the province of Pampanga with a land area of about 48.27 square kilometers. Under its territorial jurisdiction are 15 barangays.



A mother and her children ride an ambulance provided by RHU-Minalin to the nearest Newborn Hearing Screening Test Center.

Continued on page 6 . . .

**NBS Partnerships Prompt Training Programs in Laguna, Rizal**



Jose Antonio Yap (center), Regional NBS Coordinator, explains how to properly collect newborn screening samples to the training participants.

As part of the partnership among the Provincial Health Office of Laguna, the Municipal Health Office of Cainta, Rizal, NSC-SL, and DOH-RO CALABARZON for Newborn Screening Training Programs, an NBS training and Service Implementation Review was conducted at Villa Evanzueda Resort in San Pablo City, Laguna, on February 1-2, 2018.

Twenty-one participants from private and public NSFs attended the activity, which aimed at assessing

**NSC-SL Holds G6PD Forum CALABARZON-Wide**

G6PD Deficiency is the most prevalent (1 in every 58) among the congenital disorders detected through newborn screening in the Philippines. This X-linked enzyme deficiency can be easily triggered when the patient is exposed to oxidative substances, which can result in hemolytic anemia or, worse, mental retardation.

To increase awareness of parents whose babies are confirmed with the disorder, NSC-SL conducted a series of lectures in the provinces of CALABARZON. A G6PD forum was held in Rizal Province on August 16, 2017, and was attended by 35 families. The second leg was held on September 15 in Cavite, with 67 families. Lastly, Laguna and Batangas held one for 22 families on November 18.

The orientation included the highlights of Republic Act 9288, or the Newborn Screening Act of 2004, disorders included in the panel, NSC administrative mechanics, and collection of satisfactory samples. *IEMalabanan*

**CALABARZON Holds Reunion of Saved Babies**

With the theme "Saving lives, giving quality lives," the annual Reunion of Saved Babies organized by NSC-SL in collaboration with DOH-RO 4A, was held in Cavite, Laguna, Batangas, Rizal, and Quezon on November 4, 11, 18, 25 and December 2, 2017, respectively.

The program included several presentations and games participated in by both babies and parents. Tokens and raffle prizes were given as well.



Representatives from the NSC-SL and NBS Coordinators of DOH-CALABARZON pose for a photo with the attendees of one of the G6PD fora conducted in different provinces.

In all the lectures, the participants were introduced to the nature of the disorder, which is a lifetime ailment, and how to deal with it. Dr. Alma Panganiban-Andal, NSC-SL Unit Head, discussed the genetic basis of inheritance of the disorder, its manifestation, and some recommendations regarding food and

drug intake of patients with G6PD deficiency. The open forum gave the participants an opportunity to clarify some points and ask further questions regarding the disorder. *FDimaculangan*

## DOH-CARO Orients Frontline Health Care Providers on ENBS

To provide frontline health service providers relevant knowledge on ENBS and the management of common heritable disorders in the region, DOH-Cordillera Administrative Region (CARO) conducted an orientation for 31 participants composed of municipal health officers, nurses, medical technologists, and midwives at Crown Legacy Hotel, Baguio City, on 22-23 February 2018.



Dr. Virginia Narciso (standing) discusses updates on newborn screening in the region.

Dr. Virginia Narciso, DOH-CARO NBS Medical Coordinator, discussed the NBS situation in the region, the guidelines in the implementation of ENBS, and the basic and expanded NBS disorders. Dr. Wilson Cua, pediatric

endocrinologist, explained the basic facts and management of Congenital Hypothyroidism, Congenital Adrenal Hyperplasia, Hemoglobinopathies,

and G6PD Deficiency. Dr. Bernadette Mendoza, NSC-CL Unit Head, discussed Organic Acid Disorders and Fatty Acid Disorders, which are present in the region.

The orientation focused on the importance of early identification of disorders and early management of conditions, especially because positively screened patients from far-flung areas require immediate management, considering that CAR has mostly mountainous terrain and medical specialists are not immediately accessible. *NDelaCruz*

### In Focus: RHU-Minalin . . . from page 4

Hearing screening was institutionalized in the country in 2009 through Republic Act 9709, also known as the Universal Hearing Screening and Intervention Act, to prevent and diagnose early congenital hearing loss among newborns. As mandated by the law, all newborns in the Philippines, with the consent of the parent(s) or guardian, should be subjected to universal hearing screening.

The NBS staff of the facility coordinates with the municipal office in arranging the transportation of patients. The ambulance used also ferries the patients to confirmatory centers whenever there are positively screened babies that need confirmatory tests.

RHU-Minalin began providing newborn screening services to its area of jurisdiction in 2009; at present, it offers Expanded NBS. *ERMNiturada*

## IN THE KNOW GALACTOSEMIA

### What is Galactosemia?

Galactosemia is a rare genetic metabolic disorder that is inherited in an autosomal recessive manner. It is an inborn error of carbohydrate metabolism characterized by elevated levels of galactose and its metabolites due to enzyme deficiencies involved in its metabolism. Galactose is the sugar found mainly in milk and dairy products. It is also produced by the body. Milk contains a sugar called lactose, and during digestion, lactose is broken down into the sugars glucose and galactose. Glucose can immediately be used as a source of energy by the body, but galactose needs to be further broken down before it can be utilized. The birth incidence of classic galactosemia is about 1 per 47,000 in the Caucasian population. The Philippine NBS data as of December 2013 gives a prevalence\* of 1:33,645.

### Pathophysiology

The galactose metabolic pathway with multiple enzymatic steps is shown. The enzymes allow the subsequent conversion of galactose to galactose-1-phosphate by GALT (1); galactose-1-phosphate and uridine diphosphate glucose (UDP glucose) to glucose-1-phosphate and UDP-galactose by GALT (2) and the interconversion of UDP-glucose and UDP-galactose by GALE (3). Children with galactosemia have very little or entirely lack an enzyme that helps the body break down galactose. There are three different enzyme problems that can lead to galactosemia. In the first type

or classic galactosemia, the enzyme that is reduced or missing is called galactose-1-phosphate uridyl transferase (GALT). The GALT enzyme enables the body to break down galactose into glucose. The second type of galactosemia is due to a deficiency in uridine diphosphate galactose 4-epimerase (GALE). Its severe type clinically resembles classic galactosemia. The third type, is due to a deficiency in galactokinase (GALK), and presents primarily as cataracts in untreated patients.

### Clinical Features

Patients can present with feeding problems, failure to thrive, hepatocellular damage, bleeding, and sepsis in untreated infants. In approximately 10% of individuals, cataracts are present. Failure to thrive is the most common initial clinical symptom of classic galactosemia. Vomiting or diarrhea usually begins within a few days of milk ingestion. Jaundice of intrinsic liver disease may be accentuated by the severe hemolysis occurring in some patients. Cataracts have been observed within a few days of birth. There appears to be a high frequency of neonatal death due to E. coli sepsis in patients with classic galactosemia.

The association of jaundice and hemorrhagic diathesis in the first two weeks of life is a clinical presentation in which galactosemia must be considered. Coagulopathy may also be present in galactosemia with little evidence of liver disease. Galactosemia also causes learning and language problems in

children, bone mineral density problems and ovarian failure in girls.

### Treatment and Monitoring

Dietary elimination of milk and milk products containing lactose is the treatment for all types of galactosemia. There is no chemical or drug substitute for the missing enzyme at this time. An infant diagnosed with galactosemia will have to be on a soy-based formula. Dietary management under the close supervision of a metabolic dietician and a metabolic doctor is a must. Regular monitoring of blood galactose levels and regular evaluation by the genetic metabolic team is important for optimal treatment.

### Prognosis

Despite an early galactose-free diet, long-term complications have been noted in older children and adults with classic galactosemia because of endogenous galactose production. These include speech problems, poor intellectual function, neurologic deficits (predominantly extrapyramidal findings with ataxia), and ovarian failure in females. Thus, the need for regular monitoring and evaluation is important.

Source: *Fact Sheets for Doctors, May 2016, accessed at www.newbornscreening.ph on February 26, 2018.*

\*Prevalence of 1:81,373 as of December 2017

## EDITORIAL STAFF

Executive Editor: Ma. Elouisa L. Reyes  
 Managing Editor: Vina G. Mendoza  
 Associate Editor: Emerson Kim J. Lineses  
 Layout Artist: Emerson Kim J. Lineses  
 Contributors: Ronald Aguilar, Perly Bermudez, Nikki Dela Cruz, Frex Dimaculangan, Joseph Steven B. Fenol, Eva Rizzie Niturada, Ibert Ellis L. Malabanan, Joyce Jadreal Reyes, Iris Romo Tomas, Richard Alipasa, Marjorie Dandan, Jesusa Jalad, Juvelyn Reyes, Ma. Agnes Algarme

Circulation:

Adviser: Riza Concordia N. Suarez

Comments and questions may be sent to:

Newborn Screening Reference Center  
 National Institutes of Health  
 University of the Philippines Manila  
 Unit 304 New Gold Bond Building  
 1579 F. T. Benitez, Malate, Manila

Or email us at: info@newbornscreening.ph  
 Website: www.newbornscreening.ph  
 Follow us on Twitter: @newbornscreenph

## Salud Bikolnon 2017 Recognizes Best NSFs in Bicol Region



Left to right: Dr. Ernie V. Vera, Dr. Arnulfo Carandang, Dr. Rita Mae C. Ang-Bon, Twinkle Jean P. Lorilla, Abner Henry A. Tud, Dr. Edgar F. Garcia, Jr., Lyn D. De La Cruz, Dr. Renato B. Bolo, Jr., Salvacion Ballesteros, Nilda Hagos, Dr. Myrna J. Listanco, Joseph Steven B. Fenol, Dave Isidore E. Plopinio, and DOH Regional Director Napoleon Arevalo

Left to right: Dr. Ernie V. Vera, Dr. Arnulfo Carandang, Dr. Rita Mae C. Ang-Bon, Twinkle Jean P. Lorilla, Abner Henry A. Tud, Legazpi City Vice Mayor Robert Oscar H. Cristobal, Fulbert Alec R. Gillego, Ma. Janelita Bulawan, Cyrene Sale, Agnes Dela Paz, Shiela Estipona, Ma. Cristina P. De Leon, Estrella Revoltar, Amelina Ordiz, Fatima Intia, Maricel Banzuela, Dr. Gladys D. Escote, Joseph Steven B. Fenol, Dave Isidore E. Plopinio, and Dr. Napoleon Arevalo

More than 300 LGU leaders, health officers, program implementers, and partner agencies witnessed the recognition of best performing health facilities in Bicol Region during the Salud Bikolnon 2017 held at the Tent, Avenue Plaza Hotel, Naga City, on December 4, 2017.

Salud Bikolnon is an annual awards ceremony organized by DOH-RO 5 to recognize the significant contributions of partners in the successful implementation of various health programs of the government. For newborn screening, two categories were recognized: RHU/CHO category and LGU Hospital category. The criteria for these awards included facility

coverage, legislative efforts through ordinance or resolution, support provided to patient, and quality sample collection.

Under the RHU/CHO category, the City Health Office of Legazpi City, Albay; Rural Health Unit of Sta. Magdalena, Sorsogon; and City Health Office of Ligao, Albay, were recognized. Besides a Plaque of Appreciation, the three facilities received Php 100,000, Php 75,000, and Php 50,000, respectively. For the LGU Hospital category, the efforts and initiative of Dr. Fernando Duran Sr. Memorial Hospital, Sorsogon City, proved to be unwavering as they maintained the status of best implementer in this category for 2017. The hospital received Php 100,000

and a Plaque of Appreciation.

Present also were Dr. Napoleon Arevalo, DOH OIC Regional Director; Dr. Ernie V. Vera, Assistant Regional Director; Dr. Rita Mae C. Ang-Bon, Family Health Cluster Head; Dave Isidore E. Plopinio, NBS Program Manager; Twinkle Jean P. Lorilla and Joseph Steven B. Fenol, NBS Coordinators; and Abner Henry A. Tud, Newborn Hearing Screening Coordinator.

In 2018, the program coordinators plan to raise the scale higher by adding more criteria in the citation for Best Implementers in Newborn Screening including Hearing Screening. *JSBFenol*

## Your Feedback Is Important to Us!

Thank you for reading our newsletters! We would love to hear your feedback. Please let us know how we can improve our bi-monthly newsletters by answering our feedback form at [www.newbornscreening.ph](http://www.newbornscreening.ph). If you would like to write an article, please contact us at [info@newbornscreening.ph](mailto:info@newbornscreening.ph). We will do our best to keep you informed about current and relevant newborn screening issues.



Newborn Screening Reference Center  
 National Institutes of Health  
 University of the Philippines Manila  
 Unit 304 New Gold Bond Building  
 1579 F. T. Benitez, Malate, Manila

VOLUME 22  
 ISSUE  
**01**  
 JANUARY-  
 FEBRUARY 2018



# newborn screening

Bimonthly Publication of the Newborn Screening Reference Center  
 National Institutes of Health, University of the Philippines Manila

## What's Inside

2 First Batch of Zamboanga NSF Staff Undergoes ENBS Training • CHO-Malaybalay Kicks Off NBS Activities for 2018 • DOH-RO 10 Holds Consultative Meeting • DOH-RO 12 Trains Staff on ENBS

3 In Focus: NBS in Camiguin Island

4 RHU-San Luis Concocts Creative Ways to Promote ENBS • In Focus: RHU-Minalin Goes the Extra Mile

5 NBS Partnerships Prompt Training Programs in Laguna, Rizal • CALABARZON Holds Reunion of Saved Babies • NSC-SL Holds G6PD Forum CALABARZON-Wide

6 DOH-CARO Orients Frontline Health Care Providers on ENBS

7 In The Know: Galactosemia



Charity Jomanto (rightmost), NSRC QA Officer, addresses queries of laboratory personnel on newborn screening laboratory internal controls.

## NSRC-CIASP Workshop Reinforces Good Laboratory Practice

To ensure continuous good laboratory practice among the technical staff of Newborn Screening Centers (NSCs), the Newborn Screening Reference Center (NSRC), in partnership with the Center for Internal Advisory Services Philippines Incorporated (CIASP), conducted the Quality Control (QC) and Quality Assurance (QA) Workshop at the National Institutes of Health, University of the Philippines Manila, on January 24-25, 2018.

The workshop was participated in by unit heads, laboratory managers, and team captains from NSCs and project development officers from NSRC.

Dr. Florencio Dizon, NSRC QA Consultant, delivered a lecture on the basics of quality control and the features of a quality assurance program. He also gave tips in preparing for an audit and ISO accreditation.

Meanwhile, Dr. Sombong, also NSRC QA Consultant, defined the control rules that are commonly employed in multirule QC procedure. She guided the participants in predicting the type of analytical error expected on the basis of control rule violations.

For his part, Pol Mirafuentes, President of CIASP, discussed the key concepts of internal control, including governance and risk management. On the second day, he provided feedback and recommendations to the presentations made by the participants during the group activities. He also continued his lecture, which covered internal auditing, understanding NBS risk profile and risk model, understanding key processes and priority areas, and preparing an audit plan and individual audit engagement.

Number of Babies Screened as of February 2018 : **10,901,956**