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Cor Illumina
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The pillar symbolizes the resiliency of the Heritage Building of the Corazon Locsin Montelibano Memorial Hospital built in 1925 and withstood the effects of World War II.
The open book reminds us that knowledge illuminates all.
The heart represents the passion of health care workers serving the people of Negros Island and Western Visayas.

ABOUT CIMJ

The Cor Illumina Medical Journal is a peer-reviewed annual scientific publication by the Corazon Locsin Montelibano Memorial Regional Hospital. CIMJ follows the International Committee of Medical Journal Editors (ICMJE) Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journal (https://www.icmje.org/news-and-editorials/updated_recommendations_jan2024.html) and the reporting guidelines of the Enhancing the Quality and Transparency of Health Research (EQUATOR) reporting guidelines as appropriate to the research study type. This is an Open Access article, distributed under the terms of the Creative Commons Attribution license (*https://creativecommons.org/licenses/by/4.0/*) which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited. *Editorial freedom is granted to the editors of this publication.*

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The Cor Illumina Medical Journal as Instrument for Advancement of Health Systems in Western Visayas

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Cor Illumina - Beginnings and Directions

The Cor Illumina Medical Journal (CIMJ) was born during the most austere of times in the worst pandemic of our lifetime. Despite the challenges of its inception with the inaugural publications, CIMJ remained anchored in its commitment as it explores its multifaceted role as an instrument for the advancement of health systems in the Western Visayas region. CIMJ's aspiration is to improve the healthcare system of the region through *dissemination of scientific evidence*, *fostering collaboration*, *building capacities*, and ultimately *improving patient outcomes*.

Addressing Local Health Challenges

Western Visayas, like any other region in the Philippines, faces specific health challenges that require context-specific solutions. CIMJ, as a scientific publication, acts as a medium for access on research focused on local health issues, providing a platform for discussions on unique regional epidemiology and rapidly changing healthcare landscape. This localized approach is instrumental in tailoring specific healthcare interventions and is invaluable for policymakers and healthcare administrators in crafting targeted strategies that resonate with the region's needs.

Scientific Evidence Dissemination and Fostering Collaboration

Corazon Locsin Montelibano Memorial Regional Hospital (CLMMRH) is a Department of Health (DOH) training and teaching apex center for health care in Western Visayas. It is mandated to align itself with Republic Act No. 11959, also known as "The Regional Specialty Centers Act," and DOH's 8-Point Action Agenda. It is but fitting that the strategic directions of its visionary Medical Center Chief, Dr. Julius Drilon, is to position CIMJ as not only its official scientific publication but also to collaborate with the DOH - Center for Health Development (CHD) Region VI for health systems research. CIMJ serves as a vital platform for the dissemination of relevant medical research.

The journal's role extends beyond being a repository of information; by publishing these open-access articles, it actively fosters collaboration and facilitates the sharing of valuable insights among healthcare professionals. CIMJ provides a space for interdisciplinary dialogue, encouraging physicians, researchers, and policymakers to work together towards common goals. This collaborative approach enhances the region's healthcare ecosystem, fostering innovation and the development of comprehensive solutions to address the unique challenges faced by Western Visayas.

Capacity Building and Improving Patient Outcomes

Through the publication of academic content, CIMJ ensures well-informed, discerning professionals who are capable of delivering high-quality care. Access to the latest research findings through CIMJ allows healthcare professionals to stay updated on the developments in their respective disciplines, promoting evidence-based practices to make informed decisions for improved patient outcomes and ensuring that the region benefits from global advancements in healthcare. Through research articles, experts can shed light on prevalent diseases, emerging health threats, and effective interventions tailored to the local context.

Medical journals, like CIMJ, contribute significantly to the region's healthcare progress serving as a platform for highlighting successful healthcare initiatives within the area. By showcasing local achievements, these publications provide models for effective healthcare practices and upholding quality standards. As CIMJ continues to illuminate the path of scientific advancement, its impact will likely resonate far beyond the pages of the journal, leaving an enduring legacy in the evolution of universal healthcare in Western Visayas. As the region continues to evolve, the role of medical journals remains paramount in shaping a resilient and responsive healthcare system.

In This Special Issue

This special edition is dedicated to patient-centered and people-centered researches. Featured in this issue are two case reports of clinical cases highlighting not only the uniqueness of the presentation of the cases but also recommending that the best approach to ensure better outcomes is still early recognition and referral to a specialty center for neurologic and cardiac conditions. Contained in this issue are news and perspectives from no less than the DOH Western Visayas CHD Regional Director at the time of research, Dr. Marlyn Convocar, and the contributing authors looking into the challenges in and the role of health policy and systems research in attaining Universal Health Care in the region. Also published herein are original researches and policy briefs focusing on public health interventions and health systems including licensing and regulations compliance of health facilities in Western Visayas, the nursing deployment community-based substance abuse prevention and rehabilitation, immunization, maternal and child health and nutrition and social issues as nursing care for people living with HIV.

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The Role of Health Policy and Systems Research in Attaining Universal Health Care in Western Visayas

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Regional Efforts to Embark on Research

In 2017, the DOH Center for Health and Development (CHD) in Region 6 identified 39 hotspots for maternal, newborn, child health and nutrition programs. These are based on failure to meet set targets e.g. immunization rates, nutrition rates and maternal mortality rates. Hidden behind these health outcomes are challenges in the availability of the health workforce and capacity of health facilities to provide adequate services. These are more input factors that take more planning, strategy, resources, and work to fill.

The approval of Republic Act 11223 or the Universal Health Care Act of 2019 has brought excitement to our cadre of health providers and people as targets of more efficient, appropriate, and quality services and financial risk protection are set. Yet we know that these aspirations also require more from our health sector as we need to ensure better policies, planning, decision-making and monitoring activities.

The Philippines also passed Republic Act 10532 or the Philippine National Health Research System (PNHRS) Act of 2013. This law provides for better health research and development initiatives as a way to protect and promote the right to health of the people, instill health consciousness among them and improve quality of life of every Filipino. In response, the Department of Health established the health system and research management program that guides the implementation and management of research studies in DOH, incorporating research in the Philippine Health Agenda.

In 2017, the Philippines approved the National Unified Health Research Agenda (NUHRA) 2017-2022 that guided priorities for government investment. The six thematic areas of NUHRA are: Responsive Health Systems; Research to Enhance and Extend Healthy Lives; Holistic Approaches to Health and Wellness; Health Resiliency; Global Competitiveness and Innovation in Health; and Research in Equity and Health. Added to these thematic areas is the participation of more than 300 institutions all over the country in the selection of priorities allowing research processes, networks, and resources to be more available to researchers, managers, and advocates.

Developments in Public Health Research

These evaluation processes and research prioritization coincided with national developments in health research. Republic Act 10532 or the Philippine National Health Research System (PNHRS) Act of 2013 was passed as the main policy of the state to protect and promote the right to health of the people, instill health consciousness among them and improve quality of life of every Filipino through health research and development initiatives. (Congress of the Philippines, 2013) The PNHRS facilitated the strengthening of Regional Health Research and Development Councils (RHRDCs) mandated to promote research, strengthen local networks and expertise, and identify priorities based on local needs.

DOH CHD VI leads the Western Visayas Health Research Development Council in partnership with the Department of Science and Technology.

The DOH Department Order 2014-0171 established the Health Sector Research Management (HSRM) a program that guides the implementation and management of research studies in DOH. This identifies research as an essential process in the Philippine Health Agenda ensuring that research agenda responds to present and future requirements of the country's health system. Research should be aligned w/ societal goals in science and technology, education, economy, environment, agriculture, and other priority areas. (DOH, 2015)

In 2017, the third National Unified Health Research Agenda (NUHRA) 2017-2022 was developed through regional and national consultations ensuring that the agenda responds to current needs. The third NUHRA has six thematic areas: 1) Responsive Health Systems; 2) Research to Enhance and Extend Healthy Lives; 3) Holistic Approaches to Health and Wellness; 4) Health Resiliency; 5) Global Competitiveness and Innovation in Health; and 6) Research in Equity and Health. (PCHRD, 2017) During this process, the Regional Unified Health Research Agenda (RUHRA) was also approved.

How Region 6 Pioneered Regional Level Health Research

Since 2016, health coordinators and researchers have started to discuss priority topics for research in Region 6. In 2017, during the Consultation Meeting for the development of the National Unified Health Research Agenda (NUHRA), Region 6 experts and health coordinators identified 34 topics. These included topics specific health programs, regulation and licensing of health facilities, human resource development, health promotion and enhancement of health programs management. Further discussions have refined the research questions in several topical areas of current relevance. Two studies are part of our assessment of maternal and newborn child services. The *"Rapid Assessment of the Implementation of the Maternal and Newborn Child Health and Nutrition Program in Western Visayas"* aims to better understand how health workforce, referral systems and governance include effective services. The study on the *"Effectiveness of Basic Emergency Obstetrics and Neonatal Care (BEmONC) Training in Western Visayas"* focuses on the value of these trainings and areas of opportunity to maximize the training. The National Immunization Program (NIP) has recently received a lot of attention because of outbreaks in dengue and measles, as well as the issue on dengue vaccine. While immunization is a complex program and has many aspects including health promotion, communication, and community mobilization, we

decided to focus on one challenging aspect: *"Assessment of the National Immunization Program Implementation and Vaccine Supply Chain in Western Visayas"*.

One of the prevailing challenges in the healthcare sector is the regular renewal of certification of licenses of health facilities. Updated license to operate significantly influences the services of public and private hospitals as it influences the number of patients they can receive, the extent of services, hiring of staff and PhilHealth payments. We wanted to understand the challenges and best solutions to ensure compliance to licensing. Hence the study *"Analysis of the Compliance of Level 1 Hospitals and Infirmaries in Western Visayas to the Licensing Standards of the Department of Health."*

The health workforce is the lifeblood of the health system. With the intention to enhance augmentation and capacity of the workforce, we implemented the *"Evaluation of Nurse Deployment Program in Health Service Delivery in Western Visayas"*.

The Philippine Government's War Against Drugs in 2016 has initiated DOH to develop a program to ensure community-level interventions for individuals under rehabilitation. CHD6 developed and implemented a training program in accordance with national directions. We conducted an *"Evaluation of the Community Based Rehabilitation Training Program in Western Visayas"* the results of which are described in this publication.

It took two years to plan, implement and disseminate these studies, ensuring that results are used for enhancement of policies and improvement of public health programs. Our experience in research management can be summarized in four phases. *Planning and prioritization phase* included finalization of topics, mapping of expertise and allocation of resources. *Partnerships and initiation phase* included development of research questions and objectives, preparation of terms of reference and engaging with research partners for implementation. *Implementation phase* included technical approval of the protocol, ethics review, operationalization of the studies, analysis, drafting of reports and technical reviews. The final phase included *dissemination and communication* using policy briefs, posters, and presentations in research forums. The whole process has met challenges in terms of expertise, procurement restrictions, participation of stakeholders, adjustment of schedules vis-a-vis normative activities in the annual cycle and other pertinent problems. Nevertheless, each step is also a learning experience of hurdling the blocks one by one and focusing on the goals.

This publication is a landmark for our Region's capacity to plan, implement, disseminate, and enrich evidence to enhance decision-making and design of programs. This public health analysis and evaluation are added value to studies mainly focused on clinical care. We look forward to more studies in the country that could contribute to the body of public health knowledge and better operations of public health programs.

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Challenges in Attaining Universal Health Care in Western Visayas through Public Health, Systems and Policy Research

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The recent two years, 2019 and 2020, have been remarkable in Philippine Health history. As soon as the Universal Health Coverage Law has been approved and its Implementing Rules and Regulations are being finalized, the country and the world experienced the COVID-19 pandemic that basically offset recent gains. (Congress of the Philippines, 2019) The Philippines saw almost 449,400 COVID-19 positive cases with 8,733 deaths as of 14 December 2020. (DOH, 2020) But a greater hit with longer impact would be the dent in the country's health system as lives of health providers were sacrificed and the resulting foreign pull for nurses and health professionals in the next few years. Region VI itself counted 21,812 cases on the same day testing the capacity of the health system, while at the same time providing opportunities to enhance health services. Furthermore, this assault on healthcare hit the already existing systems suffering from fragmentation, maldistribution of health workforce and failure to meet targets. The pandemic has shown setbacks to healthcare and development.

How Regions and Institutions Can Implement Research

This project has allowed our Region and Office to understand the need for technical assistance through research, and what it takes to achieve it. Forethought and planning is one of the most crucial steps. It is important for the Regional CHD Research Office to have a good understanding of timelines, financing mechanisms and payment options, including public-to-public or public-to-private partnerships that may be needed. This will require some guidance from experienced teams, considering that planning also requires time, resources and expertise or technical assistance.

An important process in the research cycle is research agenda setting and mapping of expertise and partnerships. This process can also provide inputs on the costs, duration and project management capacity required. During the planning and research agenda development processes, it is important for stakeholders and managers to understand that many of policy and programmatic questions require technical assistance and "new" research methodologies. These include health policy and systems research (HPSR), studies on operations and project management, qualitative methodologies, impact assessment, implementation research and economic studies including cost-analysis and cost-effectiveness studies. It should be clear to officials and stakeholders that the product that will be use eventually are policy briefs and program recommendations. In addition, posters, public communication packages and program tools may be additional outputs for health policy and systems research (HPSR).

Undertaking research and technical assistance in Regional Offices shall require experience and understanding of policies in finance management and procurement, especially because certain research methodologies may require expertise that are not yet available in the Regions. Finally, mechanisms to monitor and evaluate the studies are essential to ensure that results are delivered on time (project management) and studies are disseminated among appropriate stakeholders.

Preparing the Health System towards UHC

The studies have identified general areas that need strengthening to ensure successful transition towards UHC. Foremost recommendations on governance that includes the role of DOH CHD in policy guidance, planning, technical assistance, monitoring, and supportive supervision to enhance implementation health services and the availability of health infrastructure. CHDs have an important role to forecast needs and assist in how national policies are interpreted. The studies on program implementation, supply chain, HR planning and management, compliance to licensing and ensuring services for maternal, child and neonatal health have highlighted the importance of governance.

The studies also emphasized better management of the health workforce in terms of needs-based planning, skill-mix, training relevant skills and work breakdown structure. At the same time, it is important that the needs of health workforce are met, and a healthy environment is provided. These results are highlighted in the studies on immunization, nurse deployment program, community-based rehabilitation training and MNCHN.

Planning for and ensuring resources to enhance health infrastructure, equipment and supplies through better procurement and logistics management are essential. This problem will appear again and again as regions and localities move towards UHC. A subset of this area is planning for and procurement of/ partnerships to enhance health information systems in hospitals and health facilities. Technical expertise and staff with knowledge and experience on these areas will be a huge win for UHC planning and implementation. This could be a huge gap because people with such knowledge, skills, experience, and confidence are rare.

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Table 1. General Recommendations of DOH Studies included in this special issue

STUDY	GOVERNANCE, POLICY, STRATEGY	HUMAN RESOURCE MANAGEMENT	PROCUREMENT AND SUPPLY CHAIN	HEALTH INFRASTRUCTURE AND INFORMATION	DEMAND SIDE
National Immunization Program Review		Yes			
Vaccine Supply Chain	Yes		Yes		
Demand Immunization					Yes
Nurse Deployment Program Performance	Yes	Yes			
Compliance for Licensing	Yes		Yes	YES	
Substance Abuse Program innovation	Yes	Yes			Yes
MNCHN Program Implementation Review	Yes	Yes	Yes		Yes
Services and Facilities for MNCHN	Yes		Yes	Yes	

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Analysis of the Compliance of Level 1 Hospitals and Infirmaries in Western Visayas to the Licensing Standards of the Department of Health

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ABSTRACT

Background
Health facility regulatory functions in the Philippines are primarily enforced by the DOH-HFSRB. At the regional level, the DOH-CHD Western Visayas is tasked to provide technical support and manage the licensing of level 1 hospitals and infirmaries. However, despite dissemination of licensing standards and technical support of Department of Health Center for Health Development Western Visayas (DOH CHD WV), assessments of hospitals and infirmaries in the years since the promulgation of the AO show that several facilities still fail in certain areas and are unable to be compliant. This study aims to assess the areas and factors affecting non-compliance of Level 1 Hospitals and Infirmaries in the Western Visayas Region to the licensing standards of DOH.

Methodology
This study utilized a cross-sectional assessment of Level 1 health facilities and infirmaries utilizing quantitative and qualitative data collection methodologies. DOH CHD WV licensing records for 2015 to 2017 were reviewed by the project team and encoded in a data abstraction file. The team conducted descriptive statistical analysis to determine common areas of compliance and non-compliance. Qualitative data collection methods through key informant interviews were conducted to determine facilitating and hindering factors affecting compliance of health facilities to licensing standards.

Results
A total of sixty-six (66) health facility records were reviewed with 37 (47%) facilities classified as Level 1 and 29 (44%) facilities classified as infirmary. The results of this study show several areas of non-compliance among level 1 health facilities and infirmaries in Western Visayas. Common areas of non-compliance include clinical services, equipment, and supplies. Moreover, the compliance of health facilities to standards are influenced by governance factors, policy and standards factors, and resource management factors. To ensure compliance of health facilities, it is important to conduct capacity building programs for managers on licensing, resource management, and procurement. Furthermore, a focal person in health facilities responsible for compliance to licensing standards has been identified as an important factor.

Recommendations
It is recommended that further studies be conducted at the national level to validate the findings of this study in other regions. Among health facilities, the researchers recommend that the results of this study be presented to hospital administrators to analyze how to improve the capacity of health facilities to comply with licensing requirements.

Keywords
Licensing, Health Facility Licensing, Western Visayas

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INTRODUCTION

Regulation is the use of legal instruments by government to control activities or to make individuals or institutions follow a set of standards that are valued (Den Hertog, 2010; Baldwin et al., 2012). Regulation of health facilities considers their service capacities and compliance with standards for manpower, equipment, construction, and physical facilities.

In the Department of Health (DOH), the regulatory arm for hospitals is the Health Facilities and Services Regulatory Bureau (HFSRB), whose mandate is mainly defined by Republic Act (RA) No. 4226 and Administrative Order (AO) No. 2012-0012. Regulatory functions in the Philippines are primarily enforced by the government, mainly represented by HFSRB, with the support of co-regulators PhilHealth and the Health Facilities Development Bureau (HFDB). Regulatory tools use an input-driven, linear approach of command and control that focuses primarily on licensing strategies with accreditation and financing initiatives as support to facilitate quality improvement and policing type compliance motivation (Braithwaite et al., 2005).

A health facilities regulation mechanism must be contextual by being designed to answer the needs of community it serves. Regulatory systems must always recognize the needs and capacities of three key support systems: institutional, political, and cultural (Roberts et al., 2008). By identifying the context in which the AO and its regulations are being implemented in Region VI, a more effective strategy of licensing can be adapted.

Hospitals in the Philippines are regulated according to their service capacities and compliance with standards for manpower, equipment, construction, and physical facilities. The mandate to assess and classify health facilities is elaborated in AO 2012-0012 and AO 2012-0012-B, whose objectives are to protect and promote health by ensuring a minimum quality of service rendered by hospitals. The licensing of hospitals and infirmaries is one of the regulatory mechanisms currently employed by the DOH CHD Western Visayas in fulfilling this mandate. Aside from conducting the assessment to monitor compliance and conduct licensing, is also mandated to provide technical guidance to health facilities.

However, despite dissemination of licensing standards and technical support of the CHD, assessments of hospitals and infirmaries in the years since the promulgation of the AO show that several facilities still fail in certain areas and are unable to be compliant. In this regard, this study aims to assess the areas and factors affecting non-compliance of Level 1 (L1) Hospitals and Infirmaries in the Western Visayas Region to the licensing standards of DOH. The determined areas and factors will be used as input to come up with recommended strategies to address non-compliance. The findings of this study are important for Center for Health Development VI to come up with a more effective and efficient approach in enabling the compliance of L1 hospitals and infirmaries in Region VI to regulatory and licensing standards. The project will provide recommendations to the DOH RO VI on how it can support compliance of L1 facilities and infirmaries to the licensing standards as set by DOH AO 2012-0012 and subsequent policies.

METHODOLOGY

This study utilized a cross-sectional assessment of L1 health facilities and infirmaries utilizing quantitative and qualitative data collection methodologies. Initially, a data collection tool was developed by the team based on the 2015 licensing tool of DOH, indicating proxy indicators for the major areas of licensing. Proxy indicators were selected based on consultation with the CHD Western, as well as on the findings of common areas for non-compliance for 2017. These were reviewed and confirmed by health service delivery and management experts. The indicators are categorized according to 5 areas, namely, Leadership and Management; Human Resources Management; Equipment/Instruments; Supplies; Patient Care, which are all based on categories delineated in the assessment forms already being used. CHD Western Visayas licensing records for 2015 to 2017, the primary source of data for the review of licensing status, was reviewed by the project team and encoded in a data abstraction file. The data abstraction form utilized appropriate Excel tools for Data Validation and Conditional formatting to eliminate encoding errors. This constituted one level of data validation. Selected observations in the data abstraction forms were cross-checked with a review of the original document. This constituted a second level of data validation. Data was analyzed using SPSS v. 20. Univariate analysis was used to describe frequencies, measures of central tendencies, and proportions. The most frequent areas of non-compliance were noted, and areas of non-compliance organized according to the sections of the Assessment tool.

Qualitative data collection methods through key informant interviews were conducted to determine facilitating and hindering factors affecting compliance of health facilities to licensing standards. Target population for qualitative data collection includes hospital administrators and licensing officers. A semi-structured interview guide was developed by the researchers. Interviews were transcribed and analyzed thematically.

RESULTS

Based on the review of documents, a total of sixty-six (66) health facility records were reviewed with 37 (47%) facilities classified as Level 1 and 29 (44%) facilities classified as infirmary. The province of Negros Occidental has the greatest number of health facility assessed for licensing with 21 (31.8%), which is followed by Iloilo province with 16 (24.2%), Aklan with 11 (16.7%), and Antique with 10 (15.2%). The province of Capiz had six (9.1%) facilities who applied for licensing, while Guimaras had only two (3%).

Table 1. Respondents by Province

PROVINCE	FREQUENCIES	PERCENTAGE (%)
Aklan	11	16.7
Antique	10	15.2
Capiz	6	9.1
Guimaras	2	3.0
Iloilo	16	24.2
Negros Occidental	21	31.8
Total	66	100.0

Of the 66 heath facilities, 29 (44%) are infirmary, while 37 (56%) are level 1 health facilities. Based on the records, 55 are applying for renewal status, while only one health facility applied for a new application.

Table 2. Profile of Facilities

VARIABLE	FREQUENCY
Type of Facility	
Infirmary	29 (44%)
L1 hospital	37 (56%)
Application Status	
Initial for Infirmary	0
Initial for L1	1 (1%)
Renewal for Infirmary	29 (44%)
Renewal for L1	36 (55%)

In terms of the clinical services, areas of compliance that were included in this study are licensing requirements on emergency room, delivery room, operating room/complex, post anesthesia care unit/recovery room, isolation room, and sterilizing area. Overall, health facilities are generally compliant in most of the areas of clinical services. The most common area of non-compliance was noted on the areas under operating complex requirements which includes Major OR, Sterile Area, and Scrub up Area. Among the 66 facilities included in this study, 30 facilities (46%) were identified as non-compliant in the three areas under operating room complex. On the other hand,

The second area of compliance analyzed in this study is focused on equipment and instruments. As part of the general requirements for this area, compliance for fire extinguishers recorded five (8%) non-compliant health facilities. Equipment and instrument are further divided into specific areas where certain equipment requirements are expected to be located: 1) Emergency room; 2) Labor room; 3) Delivery room; 4) Nursing unit/ward and 5) Central Sterilizing and Supply Room. Under emergency room, almost all requirements recorded a non-compliant health facility. However, the most common equipment in the emergency room that is not complied with is the defibrillator. This is followed by a delivery set for primigravid, delivery set for multigravida, and an emergency cart. Under labor room requirements, 15 (23%) health facilities were non-compliant with oxygen unit requirement, while five health facilities did not have a fetal doppler. Delivery room requirements, which has the greatest number of equipment requirements, also identified non-compliant health facilities. Two areas under the delivery room had 10 or more non-compliant health facilities. These areas are Oxygen unit with 11 (17%) non-compliant health facilities, and rechargeable emergency light, with 10 (17%) non-compliant health facilities.

Under the Nursing unit/Ward requirements, all areas of compliance indicated non-compliance of at least one health facility. The most common areas of non-compliance are the presence of ENT Diagnostic and Thermometer (oral and rectal). On the other hand, other areas with some health facilities which are non-compliant are bag-valve-mask unit with 9 non-compliant health facilities, emergency cart or equivalent with 10 non-compliant health facilities, neurologic hammer with 17, and oxygen unit with 10 non-compliant health facilities. Lastly, three health facilities were identified as non-compliant for the autoclave/steam sterilizer requirement under Central Sterilizing and Supply room requirement.

In terms of supplies, medications were identified as common areas of non-compliance for health facilities. Specifically, Haloperidol, Morphine sulfate, and Phenobarbital are the medications with the most number of non-compliant health facilities. Non-compliant facilities were also identified for Basic ER supplies, which includes airway/intubation kit, cardiac EKG Leads, and Pulmonary function test equipment. Under ancillary services, 29 health facilities were recorded as not-compliant in secondary clinic/laboratory, imaging, and pharmacy requirements. Lastly, 20 health facilities are not compliant with defibrillator requirement, while 12 are not compliant on cardiac monitors at the post anesthesia care unit.

Licensing Process

CHD Western Visayas licensing officers are responsible for monitoring, surveillance, inspection, and technical assistance provision for health facility licensing in Western Visayas region. Licensing tools are developed by the DOH central office and are disseminated and enforced by regional licensing officers. License to operate is effective for one year, from January 1 until December 31 of the effective year. In applying for a license to operate, health facilities submit requirements few months before the intended year of effectivity. A standard application form contains information regarding the applying health facilities and contains attached supporting documents. Health facilities applying for license to operate are assessed based on the requirements set by the policy and based on the submitted requirements attached in the application form.

Compliance to licensing standards is necessary to ensure quality and accessibility of health services. In case a health facility will not comply to the requirements, a license to operate will not be issued and the level of the health facility will be downgraded to an infirmary. This will have an impact on the capacity of a health facility to request for Philhealth claims.

Monitoring for compliance to licensing standards are also being conducted by licensing officers. Visits are usually conducted unannounced but may sometimes provide advanced notice by a few hours to one day. Monitoring visits usually last an entire day, which covers assessing each requirement specified in the assessment tool. At the end of a monitoring visit, an exit conference is conducted with key administrative officials of health facilities, wherein licensing officers discuss the findings and deficiencies identified. After this, the health facility is given 30 days to coordinate and act upon non-compliant areas. Health facilities which are not compliance with licensing standards are subjected for further surveillance. However, in case a non-compliant facility shows failure to comply within the allowable period, a Cease-and-Desist Order is issued by the licensing office.

Qualitative Results on Factors Affecting Compliance to Licensing Standards

Factors were identified that affects the capability of a health facility to ensure compliance to licensing standards. The factors include the following:

1. Governance
2. Policy and standards
3. Resource management

Governance Factors

Under governance factors, the respondents emphasized the need for focal persons or coordinators which ensures that all licensing requirements are complied with and prepared for validation in case licensing officers conduct monitoring visits. In terms of LGU hospitals, licensing officers also coordinate with the local chief executives since they are the primary decision makers.

Another factor discussed by the respondents is the prioritization of licensing preparedness by the health facility officials. Furthermore, some cities which prioritize health concerns also affect the capacity of health facilities to comply with licensing requirements.

One of the major barriers for government health facilities is the procurement process, which is guided by government regulations and policies. In case a licensing officer identifies deficient equipment or supplies in a health facility, the health facility must follow the procurement process before they can comply with the deficiency. Procurement processes may take six months or more depending on the participation of potential suppliers and availability of equipment. Local government hospitals may also find it difficult to expedite the process since Bids and Awards Committees (BACs) are sometimes under the local government. The respondents also mentioned other methods they did to expedite the procurement process. One option that was done was the procurement of supplies and equipment from other government agencies.

Policy Factors

Policy and standards cover factors referring to licensing requirements, process, and policies which are set by the DOH central office.

Under policy and standards, participants noted the frequent changes in licensing requirements. Changes in licensing requirements are usually the common areas of non-compliance for health facilities. There were also concerns with changes licensing requirements that require training regarding who are the authorized trainers.

On the other hand, the respondents also acknowledged the harmonization of licensing requirements of PhilHealth and DOH. Another area under policy and standards that was discussed is the duration of the license to operate. A respondent requested the possibility of extending the duration of the license to operate, comparing it with the duration of license to operate for other types of facilities.

In terms of requirements, the respondents stated that some equipment and supplies are not or rarely used which resulted to expired medications and equipment which are not utilized. In some cases, equipment which are required are also not utilized because of the lack of human resources who are capable or trained in using such devices.

One participant, however, acknowledged that changes have already been made to reduce the required quantity of medicines. There are also difficulties in ensuring that there is sufficient health workers in the health facility.

Resource Management

An important factor to ensure compliance to licensing standards is appropriate management of health facility resources. Respondents stressed the need for anticipating and planning for procurement to ensure that the health facility always has all necessary equipment. Participants also mentioned about utilizing other sources to acquire equipment to be able to comply with licensing requirements. One facility stated that they were able to receive grants from KOICA and the DOH. On the other hand, a participant stated that DOH HFEP has also helped them in acquiring the required equipment. However, the participant also emphasized the need to align the HFEP support with licensing requirements and hospital needs. There were some instances wherein the health facility received an equipment that was not requested. Moreover, another instance was noted regarding the requested equipment took a long time, and by the time the equipment was delivered, the health facility has already received a similar equipment from the local government, which resulted to duplication.

The participants also highlighted resource sharing strategies with other hospitals to be able to comply with licensing requirements.

Table 3. Summary of Findings

QUANTITATIVE	QUALITATIVE
Areas of Non-Compliance	
☐ Clinical Services ○ Operating Room/Complex ☐ Equipment ○ Labor Room ○ Emergency Unit ○ Ward ☐ Supplies ○ Emergency Cart Contents ○ Operating Room ○ Ancillary Services (clinical laboratory, imaging/radiology, and pharmacy)	☐ Governance Factors ☐ Policy and Standards Factors ☐ Resource Management Factors

DISCUSSION

Licensing requirements serve as an important regulation tool to ensure that health facilities are capable of providing essential services to the people. For this reason, health facilities in the Philippines are regulated by DOH policies according to their service capacities and compliance with standards for manpower, equipment, construction, and physical facilities.

The results of this study indicate that at least 38 health facilities were not compliant with licensing standards of the Department of Health for level 1 health facilities. Non-compliant health facilities were also identified in the major areas of compliance categorized under this study. The greatest number of non-compliant health facilities were found on ENT Diagnostic set or equivalent with 38 (58%) non-compliant health facilities, followed by Thermometer – Oral/Rectal with 30 (47%). Moreover, 30 (46%) health facilities were recorded as non-compliant in three areas of the operating room complex (Major OR, Sterile Area, and Scrub up Area), while 29 (44%) health facilities were non-compliant in all areas of ancillary services (Secondary clinical laboratory, Imaging/Radiology, and Pharmacy).

Among areas that were identified for non-compliance, it can be noted that some are lacking equipment and/or supplies that can easily be purchased through the procurement process. However, a significant barrier is present in health facilities which require infrastructure and systems support to comply with licensing standards, such as the establishment of an operating room complex and ancillary services. These types of areas would require infrastructure support for their area, equipment and supplies, additional manpower, and integration in hospital operations, which would require significant time.

A limitation of this study is the inability of the researchers to look into the previous licensing status of the health facility records included in this study. As a result, the researchers would not be able to compare the degree of compliance of non-compliant health facilities among different licensing periods.

Analyzing the results of the qualitative investigation, the three main factors identified in this study includes: Governance, Policy and standards, and Resource management. Based on the results of this study, governance and resource management play a crucial role for health facilities in complying to licensing standards, while policy and standards factors covers institutional or enforcement factors influencing their capacity to comply.

Overall, an important consideration in licensing process should be to explore the areas of non-compliance and determine the capacity of health facilities to respond and comply with licensing standards. Cases where areas of non-compliance can be easily addressed through procurement of supplies and equipment can bring minimal concern. However, in cases where compliance would require significance investment for health facilities, such as the creation of a unit or a complex.

CONCLUSION AND RECOMMENDATIONS

The results of this study show several areas of non-compliance among level 1 health facilities and infirmaries in Western Visayas. Common areas of non-compliance include clinical services, equipment, and supplies. Moreover, the compliance of health facilities to standards are influenced by governance factors, policy and standards factors, and resource management factors. Based on the results of this study, the researchers recommend the following to enhance compliance to licensing standards: (1) DOH CHDs to build and help maintain the capacity of managers on licensing, resource management, and procurement, (2) Assignment of a focal person in health facilities responsible for compliance to licensing standards, ensuring capacity in planning, projection of needs, lobbying for resources and procurement (3) Conduct of further studies be conducted at the national level to validate the findings of this study in other regions, and (3) Regular evaluation by Regional and National Officials on developments in hospital services and the implications on licensing, regulation and standard practice of health facilities.

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Evaluation of Nurse Deployment Program in Health Service Delivery

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ABSTRACT

Background
The DOH CHD Western Visayas recorded a low or lagged performance on the implementation of Immunization, Safe Motherhood, Nutrition, Adolescent Health, Family Planning Program and National STI, HIV and AIDS Prevention Program (DOH, 2016). At present, nurses are deployed in local government units through the nurse deployment program to support the implementation of different health programs. In view of this, this study aims to assess the status of NDP implementation and its relationship on the delivery of health services.

Methodology
The researcher employed cross-sectional mixed method study design through document review and focus group discussions. The assessment covered Human Resource for Health (HRH) component evaluation and Availability, Acceptability, Accessibility and Quality (AAAQ) dimensions of health services. There are a total of 94 performance records reviewed and 13 participating supervisors. The study retrieved and reviewed 94 performance records. Post-validation the study only considered 93 performance records to be included in the study. Excluded performance record was archived since data and information on the record in substantially incomplete.

Results
The main findings of the study indicated that the performance of nurses' professionals deployed in Western Visayas is varying and the deployment directly affects workload, skill mix and percentage of accomplishment on selected public health programs. This study recommends that CHD in Western Visayas should strengthen partnership with the local government unit, hence regularizing deployed nurse professionals. Furthermore, this study suggests that NDP program should have thorough study on compensation and incentives, competency assessment and capacity building and standardized performance management system for NDP nurses.

Keywords
Human Resources for Health, Nurse Deployment Program

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INTRODUCTION

Health workforce is an integral part of the health systems. It is defined as "all people engaged in actions whose primary intent is to enhance health" (WHO, 2008). The ability to achieve country's aspiration towards better health outcomes heavily depends on good mixed of health personnel equipped with the knowledge, skills, and motivation to deliver public and clinical healthcare service (WHO, 2018). Thus, it is essential to establish association as the health workforce and improved health outcomes has strong evidence of correlation (2006).

The World Health Organization defined health workforce as the broad spectrum of individuals engaged in promoting, protecting, or improving health – in both the public and the often-sizable private sectors, as well as those engaged in non-personal public-health interventions, disease prevention, health promotion services, research, management, and support services. In the same manner, the WHO (2018) defined Universal Health Coverage (UHC) as a means where people and communities can use the promotive, preventive, curative, rehabilitative and palliative health services they need, of enough quality to be effective. Hence to attain the objectives of the UHC the need for adequate number of skilled and well distributed health workforce is one of the fundamental considerations.

In recent international declarations and commitments, health workforce is strongly linked to attain the global aspiration for universal health coverage to achieve better health outcomes. Identifying the health workforce as integral to UHC, can be found on the WHO's commitment towards universal health coverage as stated in the Kampala Declaration and Agenda for Global Action, Global Code of Practice on International Recruitment of Health Personnel, Recife Political Declaration on Human Resources for Health, and Global Strategy on Human Resources for Health: Workforce 2030 This reiterated a more recent WHO recommendation in 2010 to increasing access to health workers in remote and rural areas improves retention.

Nursing encompasses autonomous and collaborative care of individuals of all ages, families, groups, and communities, sick or well and in all settings. It includes the promotion of health, the prevention of illness, and the care of ill, disabled and dying people (WHO, 2018). This widely acknowledge contribution posited triple impact not only to the health systems. According to All Party Parliamentary Group on Global Health (2016) increasing the number of nurses and developing nursing profession will: 1) contribute to greater gender equality in the health workforce, (2) contribute towards achieving better health outcomes, and (3) result to stronger economies.

In October 2017, the DOH Regional Office 6 released a Department Order implementing the Human Resource for Health (HRH) deployment program for doctors, nurses, dentists, medical technologists, midwives, nutritionists-dieticians, pharmacists, universal health care implementers and other health professionals. This regional policy is aligned with the strategies under the DOH Administrative Order 2016-0038 or the Philippine Health Agenda 2016-2022, the overall goals of Universal Health Care, (UHC) and health related Sustainable Development Goals (SDG).

Since its implementation in the region, an evaluation on its association with specifically to the improvement of health services delivery on deployed areas at the community setting needs to be seen to enhance decision making and recommend policies regarding implementation of the program (DOH RO6 DO, 2017). The results attempt to generate baseline knowledge to maximize the nurse deployment program of the DOH specifically to develop strategic objectives in deploying nurses in the community/public health setting in the region given cost to support the program.

This research study will use proxy indicators under various DOH the nurses deployed are directly involved. The study will investigate health service delivery specific and sensitive indicators of various programs implemented in Rural Health Units.

The Statement of the Problem

This study will provide the baseline data and address the following research questions: With the given trend in the hiring of nurses, what is the effectiveness of NDP to public health services implementation as measured by specific program outputs? What is the extent of implementation of the NDP program in the region? Is it worthwhile to continue and further expand the deployment of nurses?

Objective of the Study

The study aims to assess the association of deploying nurses in communities and MNCHN indicators of Western Visayas as stipulated in the NDP. Specifically, it aims to answer the following research objectives:

1. Determine overall status of implementation of NDP in terms of number of nurses hired, location and other programmatic outputs that are routine of program monitoring.
2. Describe the roles and performance of the nurses under NDP at the community health level in Western Visayas.
3. Analyze the relationship of performance of the professional nurses deployed under the Nurse Deployment Program (NDP) vis-a-vis health service indicators of programs implemented in Rural Health Units.

LITERATURE REVIEW

Linking Health Workforce and Universal Health Care

In a study done by Jimba et.al (2010) they characterized the state of health workforce in low-income countries in terms of definition, density, distribution, and performance. Results showed that health workers remain the weakest link of health systems. Accordingly, most countries did not meet the standard health worker per 1000 population ratio. In a study done comparing four countries (Brazil, Ghana, Mexico, and Thailand) by Campbell et.al (2013) they strongly suggest that achieving UHC involves distributing resources including health workforce. In addition to the discourse on how health workforce influences the achievement of UHC, Cometto and Witter (2013) suggested to include skill mix aside from the usual adequate number, distribution, quality, and performance as indicators.

Maeda (2015) pointed out another perspective linking human resources, universal health coverage and market. Health sector employment is expected to grow as income rises and population ages. As income rises, health sector wages will also grow as a share of total health expenditure. Therefore, the projection is that by 2030

low-income countries may not be able to generate enough economic demand to employ the number of health workers to meet the basic healthcare needs. These findings suggested investments directed to community-oriented and multi-disciplinary primary health care teams, supported by appropriate technology. In the Philippines, the Health Resources for Health Program addresses this through providing employment and work experience in rural areas/public setting and increase employability of HRH with enhanced clinical and preventive health management competencies.

In the Philippines, Department of Health together with Department of Labor and Employment implemented a program to deploy professional nurses in different areas to deliver health services to the Filipino people. From 2009 to present, DOH have aimed to improve delivery of health care services to the population especially in preventive health care and create a pool of registered nurses. These specific programs are summarized in *Table 1*.

In 2014, the program was reconstituted to Nurse Deployment Project (NDP). The primary goal is to improve local health systems that will support the country's attainment of the Universal Health Care (UHC). The program hired registered nurses under contract of service with the priority deployment in the 20 poorest provinces to provide nursing function in rural health units (DOH, 2013). With the different objectives, hundreds and thousands of nurse professionals in the Philippines were deployed to perform duties towards attainment of UHC.

Notably, the project aims to achieve the following:

1. Augment the nursing workforce in the Rural Health Units/Birthing Homes and Barangay Health Stations thus provide access to health services for the marginalized population.
2. Provide employment and work experience for nurses in rural areas and underserved communities; and
3. Address the proliferation of the so-called "volunteer nurses for a fee" (i.e., working in hospitals without being paid, albeit they themselves pay the hospital to obtain a certificate of work experience.

With this understanding, the paper attempts to establish the value of human resource for health deployment program of the Department of Health towards achieving UHC focusing on the context of the Western Visayas' health care delivery system.

This study shall use the Availability, Accessibility, Acceptability and Quality (AAAQ) dimensions of health services. The WHO Bulletin 2004 shifts the focus beyond the current monitoring of access to and contact with a health worker – i.e. skilled attendance at birth, or density of health professionals per 1000 population – and turns the AAAQ dimensions of the workforce into the key determining factors of the quality of care as represented in Fig. 1 as the "effective coverage gap". *Table 2* shows the parameters in the AAAQ framework that will be explored in the study.

Table 1. Various Programs for Deployment of Professional Nurses

PROGRAM AND YEAR	SECTOR/DEPARTMENT	DESCRIPTION OF THE PROGRAM
Nurses Assigned in Rural Service Project (NARS) (2009)	Department of Health Professional Regulations Commission – Board of Nursing Department of Labor and Employment Department of Interior and Local Government	Training cum Deployment Program to help the unemployed nurses, helping them obtain a certificate work experience as well as promote health of the people by collaborating with the government.
Registered Nurse for Health Enhancement and Local Services (RNHEALS) Project	Department of Health Professional Regulations Commission – Board of Nursing	This is a training cum deployment project conceptualized to make essential health goods and social services available to all Filipinos.
Nurse Deployment Project (NDP) (2014)	Department of Health Professional Regulations Commission – Board of Nursing	Deployment of registered nurses for the improvement of local health systems and support to the attainment of Universal Health Care or *Kalusugang Pangkalahatan*

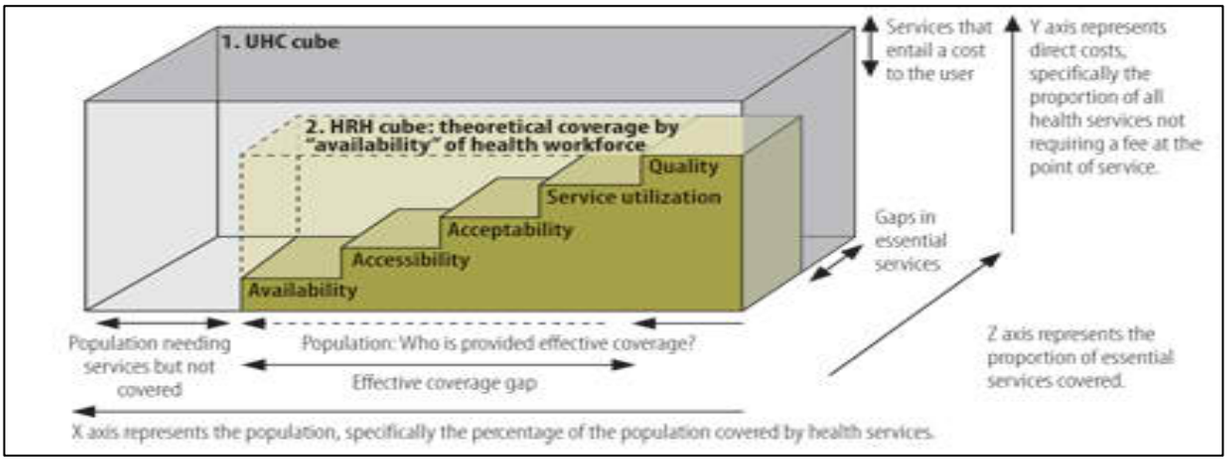

Figure 1. Dimensions of universal health coverage (UHC) pertaining to human resources for health (HRH): effective coverage
Adapted from The world health report (2010),UN Economic and Social Council (2000)22 and Tanahashi (1978).

Table 2. AAAQ Framework

AREA	FACTORS
Availability	• Strategic intelligence on the health workforce • Policy, regulatory and fiscal environments • Education, training, and professional support • Financing supply Bilateral, multilateral, and regional partnerships
Accessibility	• Geographical, temporal, and financial barriers to access • Stewardship, management, and equitable deployment • Referral across health services • Equitable access for vulnerable groups Retaining health workers
Acceptability	• Increasing population demand for services • Workforce skill-mix, competencies, socio-cultural needs • Responsiveness to population-specific needs • Oversight and accountability
Quality	• Patients' interests • Standards, accreditation, regulation • Linking professional, community and consumer organizations • Managing patient risk • Workforce management, performance, and monitoring systems

METHODOLOGY

Research Design

The study utilized the concurrent embedded design with correlational model with a qualitative (qual) embedded within a quantitative (QUAN) study. The focus of the study was quantitative study and the qualitative study providing a supplemental role. Figure 2 provides the model for the design as well as flow of the study.

Setting of the Study

The study was conducted in Western Visayas, Region VI. The region is composed of six provinces, Aklan, Antique, Capiz, Guimaras, Iloilo and Negros Occidental and two urbanized cities, Bacolod, and Iloilo Cities. The sites are identified areas based on DO RO VI-NO 2017-07: Local Government Units considered as fourth and fifth class municipalities, poorest provinces, accelerated and sustainable Anti-Poverty (ASAP) municipalities, geographically isolated disadvantaged area (GIDA), areas with DOH pharmaceutical program, areas with Philippine Plan of action for Nutrition, identified hotspots of different health programs.

Study Population, Sampling and Sample Size
Data Analysis

Quantitative

A total of 1341 nurses in 2017 were employed in the region as part of NDP. Based on sample size for one proportion with a 20% incomplete charts, a total of 90 randomized individual records will be included per province with listing of employed nurses by DOH RO6 Human Resource Department as the sampling frame (Opencalc V.3). *Table 3* shows the sample size per province.

For the quantitative study, identification of nurses for inclusion was based on the master list of employed nurses through randomized sampling.

Data gathering on performance of the nurses and reports was strictly based on review of records. Descriptive statistics was used for data analysis for the population and univariate analysis as well as multivariate analysis was used for association with 95% level of significance. Randomization was done for specific municipalities or districts of the Iloilo and Bacolod.

Qualitative

A purposive sampling was done for focus group discussion, thematic analysis based on the KII/FGD guide will be done.

For the qualitative study, to ensure homogeneity of the data to be elicited, KII was done at two levels (1) program manager and (2) Municipal Health Officers. Focus group discussion ensured homogeneity of selected participants with two levels (1) nurses deployed and (2) field implementation officers with municipal health officers.

Instrumentation

A data extraction form was utilized. This is an organized data/information retrieving process from the secondary data sources for further data processing. The data extraction table will be developed in consultation with the DOH Western Visayas Office program managers of the priority health programs. The instrument has two main features, (1) nurse deployment profile and (2) health service indicators of the program. Selected indicators from the following programs will be used: National Safe Motherhood Program, Family Planning, Newborn Screening Program, National immunization Program and Nutrition Program. The other dimensions of service delivery were explored in the qualitative part of the study, i.e. Availability, Accessibility, Acceptability and Quality (AAAQ).

Data Gathering Procedure

The data collection, validation and analysis commenced after securing the approval from the Technical and Ethics Board of Corazon Locsin Montelibano Regional Hospital Research Committee and endorsement of DOH Western Visayas Regional Office.

KII and Focus group discussion was done including those with informed consent for the qualitative part of the study. The FGD and KII sessions was done in a dedicated room for the sessions during office hours.

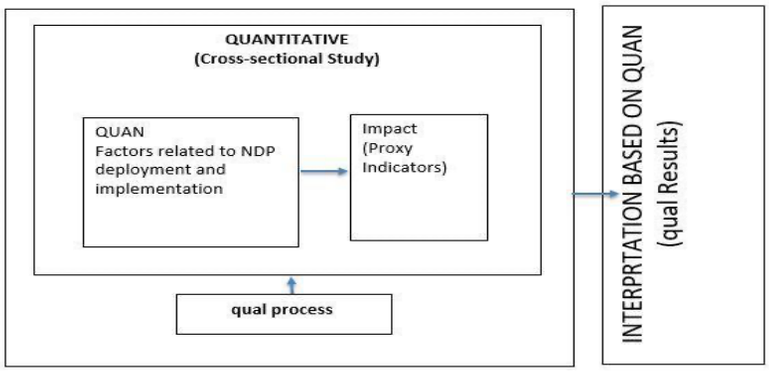

Figure 2. Study Design Model

Table 3. Study population

STUDY PHASE	INCLUSION	EXCLUSION
QUANTITATIVE		
(Records Review)	Complete nurse performance records signed and verified by supervisor Routine records and reports within the years of implementation of NDP (2015-2017)	Incomplete nurse performance records signed and verified by supervisor Routine records and reports within the years of before the implementation of NDP
QUALITATIVE		
Key informant interview	Program manager employed for at least 2 years Municipal or City Health Officer employed for at least 2 years as a supervisor of a nurse practitioner under the NDP program	Program manager employed for less than 2 years Municipal or City Health Officer employed for at less than 2 years as a supervisor of a nurse practitioner under the NDP program
Focus group discussion	Nurses employed within the NDP program for at least 1 year	Nurses employed within the NDP program for less than 1 year

Ethical Considerations

Principles of confidentiality was observed. Data collected was used for the sole purposes of this research study. The researcher declares no conflict of interest from the funding institution. Ethics approval was secured with CLMMRH Research Ethics Committee.

RESULTS

Table 4 showed that in 2017 there is a total of 1,023 nurse professionals deployed under NDP program. The highest area of deployment in 2017 is in Iloilo with 363 (or 35.48%). In 2018 there is a total of 664 nurse professionals deployed. The deployment this year is lower than in 2017. Hence, there is a 21.25% decrease in deployment of nurse professionals from the previous year.

Table 4. Number of hired NDP nurses in 2017 and 2018 (359)

PROVINCE	2017	2018
Aklan	126	92
Antique	133	87
Negros Occidental	258	146
Capiz	108	92
Iloilo	363	221
Guimaras	35	26
Total	1,023	664

Table 5 showed that among the respondents of the study most of the deployed nurse professionals were female with 82% percentage composition compared to their male counterpart with 18%.

Table 5. Sex Composition

SEX	*f*	%
Male	16	18%
Female	78	82%
Total	94	100%

Table 6 showed that most of the respondents of the study were deployed in Capiz (39.78%), Iloilo (22.58%), Antique (18.28%) and Aklan (14.89%), respectively.

Table 6. Deployment per province

PROVINCES	*f*	%
Aklan	14	14.89%
Capiz	37	39.78%
Tapaz	1	1.08%
Panit-an	1	1.08%
Sigma	1	1.08%
Iloilo	21	22.58%
Roxas	1	1.08%

Table 7 showed that most of the respondents were deployed in fourth and fifth class (74.47%) municipalities to augment the existing workforce and aid in the delivery of health services to the communities.

Table 8 showed the composition of the evaluators who evaluated NDP deployed nurse in their respective areas of assignment. Most of the evaluators were the development management officers of the city or municipality of assignment, with 84.04% percentage composition. This was followed by municipal health officer (11.70%) and public health nurse (2.13%).

Table 7. Income class of municipalities

TYPES OF MUNICIPALITIES	*f*	%
1st class	5	5.32%
2nd class	5	5.32%
3rd class	14	14.89%
4th and 5th class	70	74.47%
Total	94	100%

Table 8. Evaluators' Profile

EVALUATOR	*f*	%
MHO	11	11.70%
PHN	2	2.13%
DMO	79	84.04%
NDP	1	1.08%
Not applicable	1	1.08%
Total	94	100%

Table 9 showed that most of that there is a difference of 1–2 score points between self-rated assessment and supervisors across all performance and other behavioral categories.

Table 10 showed that there are 14 programs identified where NDP nurses should contribute to the delivery of health services. Of the identified health programs only 7 programs have records of accomplishments. These programs were safe motherhood, national immunization, nutrition, adolescent health, family planning and rabies prevention and control program. All target accomplishments of the seven programs have 100% accomplishment.

Table 11 showed the overall status of human resource deployment program, the NDP in Western Visayas. The table below showed that CHD of Western Visayas has strong support in NDP program in terms of leadership, partnership, policy, finance, education, and HRH management system.

Table 9. Profile of NDP's Performance and Other Behavioral Categories

CATEGORIES	SELF-RATINGS					SUPERVISOR'S RATING				
	NEVER	SELDOM	FREQUENTLY	MOST OF THE TIME	ALWAYS	NEVER	SELDOM	FREQUENTLY	MOST OF THE TIME	ALWAYS
Innovations	3	54	2	22	12	3	54	2	22	12
Job knowledge	1	56	12	0	24	4	54	0	17	18
Planning and organization	4	53	1	17	18	6	50	2	17	18
Analytical skills	3	54	2	24	10	4	53	2	24	10
Honesty	3	54	0	6	30	2	55	0	6	30
Stress tolerance	3	54	0	11	25	5	52	0	11	25
Communication	2	55	1	12	23	2	55	1	12	23

Table 10. Accomplishment of NDP's according based on selected DOH Programs

DOH PROGRAMS/ACTIVITIES	ACCOMPLISHMENT
Safe Motherhood Program	100%
National Immunization Program	100%
Nutrition Program	100%
Adolescent Health Program	100%
Family Planning Program	100%
National TB Control Program	0%
National STI, HIV and AIDS Prevention Program	0%
Rabies Prevention and Control Program	100%
Schistosomiasis Control and Elimination Program	0%
National Filariasis Elimination Program	100%
Integrated Helminth Control Program	0%
Infectious Disease, Notifiable Disease Advocacy	0%
Lifestyle Related Disease	0%
National Tobacco Control Program	No data

Table 11. HRH Status

COMPONENTS	STATUS
Leadership	The Center for Health and Development in Western Visayas engaged nurse professional under the Nurse Deployment Program of the Department of Health.
Partnership	The local government unit especially the rural health units welcome the augmentation of health workforce in their locality.
Policy	There is a national guideline on the deployment of the nursing professionals.
Finance	The Center for Health and Development in Western Visayas has budgetary allocation for nurse deployment program.
Education	Nurse professionals have the same competence requirement.
HRH Management System	The deployed nurses augmented the existing workforce hence decreasing workload, hence improving the delivery of health services.

Table 12 showed the challenges and gaps faced by the NDP program. Table below revealed that leadership, partnership, and HRH management system are still weak.

Table 12. HRH Challenges and Gaps

COMPONENTS	GAPS AND CHALLENGES
Leadership	The nurse deployment program was a temporary solution to augment the existing workforce.
Partnership	There is a weak partnership among local health staffs and NDP nurses as their deployment is temporary.
Policy	The nurse deployment if not continued by the Center for Health and Development Western Visayas may affect delivery of health services and will impact health indicators.
Finance	Nurse professionals under NDP received better compensation compared to locally employed regular workforce.
Education	The public health experience of NDP nurses needs to be continued to effectively deliver health services since the deployment lasts only 6 months.
HRH Management System	The NDP nurses were usually rotated in other areas if re-hired.

Table 13. AAAQ Framework

AREA OF FOCUS	FACTORS
Availability	Center for Health Development of Western Visayas deployed nurse professionals under Nurse Deployment Program. The nurse professionals augmented the existing locally employed regular health workforce for six-month period.
Accessibility	The nurse professionals were claimed to be helpful to deliver health services to the local communities especially in geographically isolated and disadvantaged area.
Acceptability	The local government units welcomed the augmentation of nurse professionals to be deployed in their locality. This deployment addresses skill mix, distribute the workload and has impact on accomplishment of health facilities.
Quality	Performance management system standardized tool was used. Supportive supervision approach was noted to be observed.

Table 13 showed qualitative analysis using AAAQ framework. The table below revealed that the strong support of CHD of Western Visayas on nurse deployment in various area may have effects on delivery of quality and safe health services to the local communities. Furthermore, the deployment program also has direct impact on existing workforce such as skill-mix, workload, and performance of duty. Hence, this program is welcomed by the local government units. However, the continuity of work and quality of discharged duties and responsibilities concerns most locally hired regular staffs as the deployment of a nurse professional is limited to six-month period and nurse professionals should undergo another hiring process.

DISCUSSION

Deployment program is the Department of Health's human resource for health flagship program to address provision of high-quality services for all Filipinos. This strategy aims to harness the power of strategic HRH development. In this regard, nurse professionals were deployed under the Nurse Deployment Program (NDP), previously named as Nurses Assigned in Rural Service (NARS) project and Registered Nurse for Health Enhancement and Local Services (RN HEALS). For this reason, the study was conducted to evaluate NDP implementation and its relationship on the improvement of health services delivery on deployed areas. The results of this study indicated that human resource for health component evaluation and AAAQ framework are two approaches to evaluate nurse deployment program and its relationship on the delivery of services. Table 23 showed the summary of results, wherein it reveals that all six assessment areas are relatively low. Despite the low performance ratings, the accomplishment of NDPs on seven public health programs were impressively high. Lastly, based on component assessment deployment program may have relationship on workload, skill mix and delivery of health services to the local communities.

CONCLUSION AND RECOMMENDATION

There are total of 94 respondents included in the records review and one was excluded since the record have incomplete data on performance assessment. There are 13 participants who participated on focus group discussions. There are positive observations on the implementation of NDP in Western Visayas such as:

1. Nurse professionals were punctual and with good attendance record (77.42%), compliant to office rules and regulations (73.12%), good record in terms of human relations (69.89%), resourceful and has initiative (38.71%) during deployment. All target accomplishments of the seven programs have 100% accomplishment.
2. CHD of Western Visayas has strong support in NDP program in terms of leadership, partnership, policy, finance, education, and HRH management system.
3. NDP is observed to be essential in the delivery of health services as it augments local workforce, distributes workload and improved skill mix in their respective area of assignments.

On the other end, challenges and gaps lies on the following:

1. Nurse professionals were not punctual and without good attendance record (22.58%), not compliant to office rules and regulations (26.88%), problems on discharging good human relations (30.11%), not resourceful and has or little initiative (61.29%) during deployment.
2. Six of fourteen public health programs have 0% accomplishment. One of seventeen public health program has no data on accomplishment.
3. There is a need to further develop competencies of NDP nurses through continuity of work in various public health programs.

Hence, to ensure improved implementation of the NDP and maximize its effect on public health programs the following are recommended to be undertaken *(Table 14)*.

Table 14. HRH Recommendations for Region 6 Nurse Deployment Program

COMPONENTS	STATUS
Leadership	There should be an in-place program to support deployment of health workforce especially nurses.
Partnership	The local government units are encouraged to create a regular position to absorb NDP nurses deployed in their respective locality
Policy	The local government units are encouraged to develop a comprehensive policy and planning on health workforce workload, performance supervision and incentives.
Finance	Salaries and incentives of health workforce should be in accordance with the expected roles and responsibilities.
Education	There should be training needs assessment and capacity building programs for newly and re-hired nurses of NDP.
HRH Management System	Performance management system should be objective, and results based.

Based on the focus group discussion results, respondents highly recommended to regularize the augmented health workforce to address skill mix, workload, and delivery of quality and safe health services. In addition, there are also strong recommendation to improve on education component through capacity building and to enhance performance management system to monitor contributions of nurse deployment on various health indicators.

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Evaluation of Community-Based Rehabilitation Training Program in Western Visayas

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ABSTRACT

Background
In 2015, the Substance Abuse Prevention Program of the Center for Development – Western Visayas, rolled out a training of trainers' program for community-based rehabilitation for persons who use drugs. The aim of the program is to enhance human capacity development in the local government unit on drug screening, assessment, and rehabilitation at the community. With the nearing completion of post-training monitoring, there is a need to assess the effectiveness of the rolled-out program to support planning further efforts in alignment to the now mandated community-based rehabilitation programs and services by the Department of Interior and Local Government. In this regard, this study aimed to evaluate the geographic reach, fidelity to the current CBRP training, and effectiveness of the training for the Provision of the Community-based Rehabilitation Services for Persons Who Use Drugs.

Methodology
This study employed a mixed method research design. Desk reviews were done to supplement and address objectives. A self-administered questionnaire was utilized for quantitative part of the study. Focus group discussions and Key Informant Interviews were done for the qualitative part. Analysis was done with descriptive statistics and thematic analysis.

Results
There were 125 trainings conducted in the region from 2016 to 2018 in coordination with the Western Visayas Treatment Rehabilitation Center, mostly as resource/facilitators. Six trainings were conducted at the regional level for both Western Visayas and Negros Island Region (NIR). Twenty-eight (23%) Training of Trainers (TOT) were conducted in the provincial level while 91 TOT (73%) at the level of municipalities. Using Mann-Whitney U Tests, the number of trainings received by province is not statistically associated with the reported outcomes. There is a trend for statistical significance in the number of PWUDs enrolled to appropriate CBR services among municipalities belonging to different income classes.

The community-based efforts on treatment and rehabilitation of persons who use drugs in the Western Visayas region immediately started as soon as the national government focused on anti-drug campaigns. The region, despite the absence of national guidelines and algorithms on the latter half of 2016, was able to come up with their own trainings and efforts for their drug surrenders.

It is recommended that there will be continuity of trainings and capacity building, but more in targeted areas of need, such as aftercare and drug dependence examinations since screening and referrals are skills demonstrated to be acquired by trained personnel. In addition, components of CBRP training need to be integrated in the existing curriculum.

Keywords
Substance abuse, community-based rehabilitation program (CBRP)

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INTRODUCTION

The 2015 Nationwide Survey on the Nature and the Extent on the Nature and Extent of Drug Abuse in the Philippines by the Dangerous Drug Board (DDB) estimated that the current prevalence rate, or current users is 2.3% or 1.8 M out of the 102.9 M Filipinos, while the lifetime prevalence is 6.1% or 4.8 M. As for regional distribution, it is estimated that the Visayas region has the highest prevalence of drug users. With the Comprehensive Dangerous Drug Act of 2002, the Department of Health provides the legal basis to regulate, oversee and monitor the integration, coordination and supervision of all drug rehabilitation, intervention, aftercare and follow-up programs, projects, and activities as well as the establishment, operation, maintenance, and management of drug treatment rehabilitation centers in the country. The DDB Board Regulation No.4 Series of 2003 tasked the DOH to train and help expand the pool of competent rehabilitation center staff and accredit physicians to conduct screening and evaluation of drug dependents as well as implement programs related to treatment of substance abuse clients. In Western Visayas, however, the Department of Health Center for Health and Development 6 as part of its initiatives, have created a Substance Abuse Prevention program is under the Non-Communicable Diseases Cluster, which is tasked on development and conduct of activities specifically related to address the substance abuse issues in the region, independent to existing Western Visayas Substance Abuse Treatment Rehabilitation Center (WVSATRC) activities.

In 2015, the Substance Abuse Prevention program have rolled out the "Training of Trainers for the Provision of the Community Based Rehabilitation Services for Persons Who Use Drugs" developed to enhance human capacity development in the local government unit level on drug screening, assessment, and rehabilitation at the community level. The program was conducted with the assistance of the WVSATRC as resource persons and was developed prior to the implementation of DDB policy on Voluntary Surrender of Drug Users and Monitoring Mechanism of Barangay Anti-Drug Abuse Campaigns (BADACs) (Board Resolution no. 4 of 2016).

With the nearing completion of post-training monitoring, there is a need to do a formative evaluation. This will enable program managers to assess effectiveness of the rolled-out program as well as aid for planning further efforts in alignment to the now mandated community-based rehabilitation programs and services by the Department of Interior and Local Government, as mandated in Memorandum Circular 2017-127, and implemented during the roll out of the DOH RO6 initiative.

This study aims to determine the training effectiveness of the community-based rehabilitation training program for the provision of community-based rehabilitation services in the region which is the "Provision of the Community Based Rehabilitation Services for Persons who use Drugs"

Furthermore, this encompasses determination geographic reach of the community-based rehabilitation training program rolled out in 2015-2016 and describe the community-based rehabilitation training program and explore factors that are associated with the target indicators for service provision of community-based rehabilitation. This study is a training evaluation of the training program model implemented targeted for primary health care workers for initial screening and management of patients with substance abuse disorders using. The main purpose is to describe and monitor how well the instructional goals and objectives are being met to foster development and improvement within the ongoing activities of the initiative. As delivery of substance abuse treatment is multi-sectoral and outcomes are multifactorial, the study will be limited to training service indicators as its main measure of effectiveness.

As part of the post training evaluation, the DOH RO6 Substance Abuse prevention and Treatment program developed a matrix for program implementation monitoring which are focused on monitoring of the following per local government unit (1) conduct of prevention activities (2) conduct of drug abuse screening and assessments and (3) provision of drug abuse treatment in the primary care level. *Table 1* shows in detail the specific indicators measured and means of verification:

Table 1. Indicators for Substance Abuse Prevention and Treatment Program at the Municipal Level

SERVICE INDICATOR	ACTIVITIES
Prevention Activities	Conducts advocacy activities
Drug Abuse Screening and assessment	Performs Screening and Assessment of Drug Users and Surrenderers
	Performs database/master listing of clients served
Drug Abuse Treatment	Performs Counseling for Drug Abuse/Use
	Performs Management/Screening of Comorbidities
	Performs Referral and Follow Up services

METHODOLOGY

The study employed a mixed method research design using key informant interview and focus group discussion for the qualitative part and cross-sectional design for the quantitative part. This is to assess the multiple levels of evaluation as described by Kirkpatrick with particular focus on the following levels: (1) participants (2) municipal/LGU level facility, and (3) program and regional level. Study flow and modes of data collection are further described in Figure 7 and Table

The study was conducted in the Western Visayas Region. Using the Kirkpatrick training evaluation framework, review of records from 2016-2018 was done in the CHD-VI and Western Visayas Substance Abuse Treatment Center .Key Informant Interviews and Focus Group Discussions, was done for the qualitative arm. Participants who were able to attend more than 75% of the training was included and for KII, participants are the resource persons, and who had both participated and conducted the roll out. All records were included for the quantitative side and convenience sampling as done for the qualitative side.

Descriptive statistics for demographics and trends of utilization will be used using SPSS. Univariate and Multivariate analysis will be used to determine associations, with Level of significance at 95% confidence interval, and p-value of <0.05. This was encoded in a Microsoft excel file. Content analysis will be utilized to determine the fidelity of the local CBR training programs to the national training program.

The study was approved by Corazon Locsin Montelibano Memorial Regional Hospital Research Ethics Committee.

RESULTS

This training evaluation aimed to describe if the initiative program which was started in 2016 and if the program matched the 2017 national guidelines on Community Based Rehabilitation Program (CBRP) which was released in 2017.

Community Based Rehabilitation Training Coverage

Desk review showed 125 trainings conducted in the region from 2016 to 2018 in coordination with the Western Visayas Treatment Rehabilitation Center, mostly as resource/facilitators. Six trainings were conducted at the regional level both for Western Visayas and the then Negros Island Region (NIR). Twenty-eight (23%) where training of trainers (TOT) in the provincial level and ninety-one (73%) where trainings at the level of municipalities. *Table* 2 shows the trainings conducted with involvement of respective provinces.

Figure 1. Coverage of Trainings

Table 2. Trainings by Province from 2016 to 2018

PROVINCE	FREQUENCY	PERCENT
Aklan	10	8.0
Antique	4	3.2
Capiz	3	2.4
Guimaras	3	2.4
Iloilo	84	67.2
Negros Occidental	21	16.8
Total	125	100.0

First regional trainings started in 2016, covering Aklan, Capiz and Guimaras. This was followed by the rollout of the trainings started in 2017 with 16 (%) provincial level trainings and (62) trainings at the municipality level. In 2018, 4 trainings were conducted at the provincial level and 26 at the municipality.

The Training Program

The regional level training of trainers (TOT) covers 5 days of training, while provincial and municipal level workshops are conducted in 3 days. The *Figure 1.* summarizes these trainings.

Based on the survey, the trainings received in the provincial level focused on topics under Community Based Rehabilitation, outpatient rehabilitation and aftercare. Whereas assessment and screening were highlighted among trainings for participants in the roll out for municipalities. *Figure 2* shows the distribution for the training topics in the period covered, while *Figure 3* shows the percentage of the training hours per topic based on the respondents' survey.

Exploring through qualitative methods, focus group discussion of 14 participants on the content and possible improvements for the didactics part of the program are as follows.

Training Modules and Content Topics

The first training of trainers (TOT) was based on the local manual with 19 modules and was attended by different regional government agencies. Innovation on the part of the training module was the inclusion of alcohol and smoking related tools such as the Alcohol Smoking and Substance Involvement Screening Test (ASSIST) tool was utilized as a first line tool to identify which substances are being used by an individual and the frequency of the use. Further, the tool can also identify if the individual experiences withdrawal symptoms. The recommended type of intervention (no intervention, brief intervention, intensive treatment) that will be given to the drug surrenderer can also be identified using the tool. What has been memorable for the participants of the training program are the role playing of scenarios and how to apply their skills in the conduct of the sessions with the surrenderers. This was helpful for them because it is how it was done at the community-level with actual patient encounters for return demonstrations.

Implementation Indicators

Main outcomes based on the monitoring and evaluation of the program was that (1) local government units through health care providers were able to generate reports (2) initiation of monitoring and evaluation mechanism through The Interagency Committee on Anti-

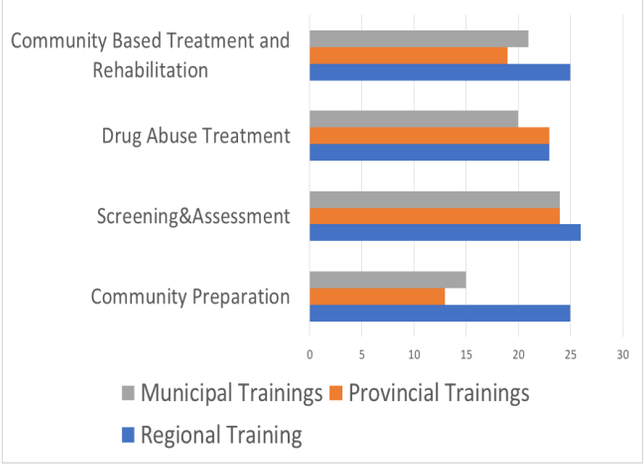

Figure 2. Coverage of Trainings by Topic and Coverage

Table 3. Reports generated for the indicators (n=75)

INDICATORS	AKLAN (18)	ANTIQUE (15)	CAPIZ (16)	GUIMARAS (5)	ILOILO (15)	NEGROS OCCIDENTAL (6)
Conducting Advocacy Activities No. of Attendees	0	2543	0	353	1099	2627
Total No. of PWUDS* Screened (Low Risk+Moderate Risk+Severe Risk) Using Assist	1519	867	3766	557	1338	781
Total No. of PWUDS Assessed (Low Risk + Mild SUD + Moderate SUD + Severe SUD)	468	176	1444	391	535	583
No. of PWUDS Enrolled To Appropriate Community-Based Rehabilitation Services (Low+ Mild)	1565	685	1851	501	600	331
No. of PWUDS Enrolled To Appropriate Facility Based Rehabilitation Services(Moderate)Using Matrix Iop	94	5	0	45	104	0
No. of PWUD Tested	1624	543	75	219	676	631
No. of Severe Sud Referred to TRC	1	0	2	0	2	0
No. of PWUD Enrolled to After Care (Source: MSWDO)	1070	448	35	55	312	11

**PWUD – Persons Who Use Drugs*

Illegal Drugs (ICAD) reporting, which was gathered monthly to track number of surrenders, community education advocacies conducted, among others. In Kirkpatrick evaluation, the study directly evaluated the program based on the Level III and Level IV of

Kirkpatrick, as evidenced in the generation of reports as well as capacity to do proper screening assessment and

referrals. The Interagency Committee on Anti-Illegal Drugs (ICAD) was created under the mandate of Executive Order 15 signed in March 2017. The ICAD is headed by the Philippine Drug Enforcement Agency (PDEA) and involves other government agencies including the Dangerous Drugs Board, Department of Interior and Local Government, Department of Health, Department of Social Welfare and Development, Philippine National Police, among others. The main functions of this Committee are to conduct anti-drug operations and arrests, implement the barangay drug clearing programs, and includes the treatment of persons who use drugs in rehabilitation whether it is residential, or community based. In 2018, monitoring for the ICAD were done among municipalities that have been part of the training rollouts. Analysis of available ICAD report was done and analyzed to determine association with the areas wherein trainings were conducted.

A total of 75 ICAD Reports were analyzed, and results generated are shown in *Table 3*. Kruskal-Wallis's analysis was used to compare the differences among income class, 2 groups dividing 1st to 3rd class municipalities and 4th and 5th class municipalities, and means of the ICAD outcomes, difference across income class groups were only significant for (1) the drug cleared status (p value= .000) and no. of PWUDs enrolled in aftercare (p value= 0.44)

DISCUSSION

In 2016, the Philippine government intensified their priority in substance use treatment and rehabilitation. Recognizing the need for Whole-of-Government and Whole of Society efforts, national government agencies started to release guidelines or re-emphasized their anti-drug policies. Local government units enhanced their Anti-Drug Abuse Councils (ADACs) from city or municipalities, down to the level of barangays. In Western Visayas, this collaboration is reflected on the Inter-Agency Committee on Anti-Illegal Drugs, composed of the regional Department of Interior and Local Government, Philippine Drug Enforcement Agency, Philippine National Police, Department of Social Welfare and Development and Department of Health.

The United Nations Office of Drug and Crime's Guidance for Community Based Treatment and Care Services for People Affected by Drug Use and Dependence in the Philippines serves as a framework for community-based interventions, beginning from screening, assessment, case management, and even counseling. These guidelines were also emphasized in the Department of Health Administrative Order 2017-0018, Community Based Treatment and Support Services for Persons who use Drugs in the Primary Health Care Settings. The policy highlighted the role of primary health care units in LGUs in prevention and promotion; treatment and rehabilitation; aftercare and reintegration; and monitoring and evaluation of PWUDs. It also aligns with the Dangerous Drugs Board Regulation 2016-04 on the Client Flow for Wellness and Recovery from Substance Related Issues, thus making sure that PWUDs are assessed and classified to be placed in the most appropriate interventions, depending on their severity.

The rolled-out trainings in the Western Visayas region as initiative in the region, reflect these guidelines, with topics ranging from the biological perspective of addiction and dependence, relevant Philippine laws, and board regulations. Highly relevant to the service providers or training participants are the WHO ASSIST Screening tools, Substance Use Disorder Assessment and the Matrix Intensive Outpatient Treatment for People with Stimulant Use Disorders for counseling and relapse management.

Training courses and workshops have been showed to improve knowledge and confidence in skills in dealing with mental health conditions, especially when multiple training sessions have been received and skills are applied on a day-to-day basis (Madan et.al., 2013). Structured supervision protocol can greatly affect the application of what has been trained, especially for a team of non-specialized health care workers for task shifting (Shahmalak, Blakemore, Waheed & Waheed, 2019).

The ICAD reports show that there are differences in municipality income class in meeting the drug cleared status and aftercare. This may reflect that there are LGUs that have been more equipped in mobilizing groups and resources in creating a system for referrals post screening.

CONCLUSION

The community-based efforts on treatment and rehabilitation of persons who use drugs of the Western Visayas region immediately started as soon as the national government focused on anti-drug campaigns.

The region, despite the absence of national guidelines and algorithms on the latter half of 2016, was able to come up with their own trainings and efforts for their drug surrenderers. Mobilization for subsequent trainings that are already based with the official national level guidelines were met with ease, as the region has already collaborated and organized cities and municipality level community-based rehabilitation service providers, especially in terms of the health sector. However, there are still local chief executives and those who hold local government positions that may need more political will in prioritizing these efforts. The recent Western Visayas Region Philippine Drug Enforcement Agency data show that there is estimated 2300 out of 4051 barangays that have been declared as drug-free by its Interagency Committee on Anti-illegal Drugs. This can be a reflection that community-based rehabilitation efforts are already in place and functional.

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Assessment of the National Immunization Program Implementation and Vaccine Supply Chain in Western Visayas

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ABSTRACT

Background
The Department of Health Center for Health Development Western Visayas (DOH CHD WV) had a low percentage of completely immunized children based on Department of Health (DOH) Data in 2015. According to more recent data, despite continuous implementation of the program, the region recorded a low immunization program implementation rate (DOH, 2016). With this premise, this study aims to assess and provide recommendations to scale-up the implementation of the NIP and improve its vaccine supply chain at the regional level.

Methodology
The study was conducted in Western Visayas specifically in Aklan, Antique, Capiz, Guimaras, Iloilo and Negros Occidental and two urbanized cities, Bacolod, and Iloilo City. The researchers utilized mixed methodology with concurrent triangulation design through desktop review, focus group discussions, key informant interviews, and facility-based surveys. Participants include 30 NIP implementers who are regional program manager/s, EPI coordinators and cold chain managers and 99 health facilities (city/municipal health offices and rural health units).This assessment encompasses the seven components of the immunization building block adopted from the WHO and UNICEF framework for comprehensive multi-year planning.

Results
There were 99 health facilities who participated in the survey and 30 participants who participated in the key informant interviews and focus group discussions. There are good practices observed done in the region on the implementation of the National Immunization Plan. To cite some examples, there is an in-place immunization program with funding and logistical resources, the local government unit has supportive counterpart and vaccination was thought to be generally acceptable in the region. Despite these advantages, the immunization building blocks faced implementation challenges. The main challenges of effective and efficient implementation identified includes varying knowledge and capacity on logistics and cold chain management and inefficient workforce skill mix (too much workload and varying competencies). Moreover, vaccine hesitancy was observed among communities who lacked knowledge on vaccine. Despite these advantages, the immunization building blocks faced implementation challenges. It was highlighted that the main challenges of effective and efficient implementation include varying target population coverage; varying knowledge and capacity on logistics and cold chain management; recording, reporting and analysis of available data was inefficient; inefficient workforce skill mix, too many workload and varying competencies; and vaccine hesitancy observed among communities who lacked knowledge on vaccine.

Keywords
Immunization and vaccine supply chain

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INTRODUCTION

Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to avert between 2 and 3 million deaths each year. It is one of the most cost-effective health investments, with proven strategies that make it accessible to even the most hard-to-reach and vulnerable populations (WHO, 2017).

Since 1976, when the first vaccine was introduced in the Philippines, several issuances have been released to guide the implementation of the Immunization Program. The goal of the program is to reduce morbidity and mortality rates due to vaccine-preventable diseases (VPDs). The National Immunization Program Strategy for 2016-2022 has articulated three broad objectives to achieve this goal: (1) To increase coverage of existing vaccines for targeted population groups across the life-stage; (2) To provide additional protection to identified vulnerable groups from other VPDs through evidenced-based new vaccines and technology; and (3) To achieve the country's commitment to priority global immunization goals (measles elimination, MNT elimination, sustain polio-free status, accelerated Hep B control) (DOH, 2016). To achieve these goals, there are three main strategies that DOH adopted: (1) Conduct of routine immunization for infants, children, and women through reaching every barangay (REB) strategy; (2) Supplemental immunization activity (SIA), and (3) Strengthening vaccine-preventable disease surveillance.

With this understanding, the paper attempts to illuminate the status of the regional implementation of the National Immunization Program (NIP) in Region VI, Western Visayas. The need for this study is supported by current data that Western Visayas among 17 regions in the Philippines has the lowest percentage of completely immunized children (DOH, 2015). In addition, there is a large gap on cold chain capacity from the national down to the local level (DOH, 2011). Considering this general view, it is essential to establish evidence for programmatic intervention and future policy developments.

In 2016, the World Health Organization estimated that there were 19.5 million infants worldwide that were not reached with routine immunization services. There is also a need for a good monitoring data to tailor vaccination strategies and operational plans to address immunization implementation gaps. At the regional level, FHSIS 2015 data of the Department of Health revealed that Region VI had low percentage of completely immunized children. In FHSIS 2016, data showed that the region had a low program implementation rate. This study aimed to assess and provide recommendations to scale-up the implementation of the NIP and improve its vaccine supply chain at the regional level. The assessment encompasses the seven components of the immunization building block adopted from the WHO and UNICEF framework for comprehensive multi-year planning specifically on leadership and governance, health workforce;, finance, medical products, and technology; service delivery, information, and community.

There are vast of studies regarding immunization and its supply chain management. This study is unique as it will provide the regional perspective of NIP implementation in the Philippines in a health systems perspective. The results attempt to generate knew knowledge to address key challenges in implementing a national program. Specifically, it will support evidence-based programmatic interventions and future policy development to scale-up performance in implementing the NIP towards achieving better immunization coverage. Immunization policies, information systems, effective service delivery network and more importantly demand generation are critical areas to be considered in improving the performance in implementing the NIP. However, this study attempts to view the subject at hand in as systems perspective. This supports the idea of health systems strengthening where people are at the center of care. This reflected the findings of Sodha and Dietz (2015) that areas of agreement lie on: incomplete vaccination is associated with poor socioeconomic status, lower education, non-use of maternal-child health services, living in conflict-affected areas, missed immunization opportunities and cancelled vaccination sessions. While areas of controversy lie on: Vaccination platforms must expand to include older ages including the second year of life. Immunization programmes, including eradication and elimination initiatives such as those for polio and measles, must integrate within the broader health system.

The study adopted the WHO and UNICEF (2013) Immunization Building Block to give structure to the study. This building block incorporates the WHO health systems building block with a community or demand-generation at the center. By using this framework, the research will be exhausting the whole environment of NIP implementation at the regional level. This will help the program managers and public health workers to objectively identify the bottleneck of lagged performance in implementation.

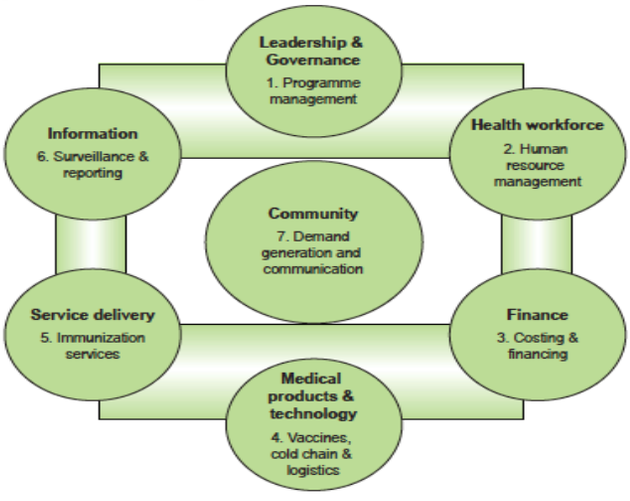

Figure 1. Immunization Building

The adoption of this framework encompasses the efforts to influence the determinants of health as well as more direct health-improving activities. This acknowledges that the immunization program challenges need to be tackled in systems approach. This lens magnifies that significant increase in funding for immunization program does not necessarily result to scaling-up the program towards better immunization indicators (WHO, 2007).

Below are the descriptions of the Immunization Building Block (WHO, 2007; WHO and UNICEF, 2013):

a. Leadership and Governance involves ensuring strategic policy frameworks exist and are combined with effective oversight, coalition-building, regulation, attention to system-design and accountability.
b. Health workforce is one that works in ways that are responsive, fair, and efficient to achieve the best health outcomes possible given available resources and circumstances.
c. Finance is the funding that is adequate for health, in ways that ensure people can use whenever needed while protecting them from financial impoverishment or catastrophe.
d. Medical products and technology are accessible, quality, and safe vaccines and other medical products needed to provide vaccination.
e. Health service delivery are effective, efficient, safe, and quality personal and non-personal health interventions needed with a minimum waste of resources.
f. Information is a system that ensures the production, analysis, dissemination, and use of reliable and timely information on immunization determinants, performance, and health status.
g. Community is at the center of the health-system. This conceptualized that immunization system includes demand generation and communication activities.

The output box comprised of the results of the quantitative and qualitative data analysis that is concurrently triangulated using Convergence Model. The main results will be the implementation status of NIP, coverage status of immunization services, gap and key challenges on NIP implementation, and the supply chain management gaps.

The outcome box is comprised of discussions and recommendations based on the results of quantitative and qualitative data on how to attain better regional implementation of the NIP and improved immunization indicators.

METHODOLOGY

The study employed a mixed method with concurrent triangulation design through focus group discussions, key informant interviews, and facility-based surveys. The study included Expanded Program on Immunization (EPI) Regional Program Manager/s, EPI coordinators and Cold Chain Managers in Western Visayas. These study population are involved in planning, implementing, monitoring, and evaluating the performance in implementing NIP and its supply chain at the regional and local levels in Western Visayas. The managers and coordinators engaged in the study are government employees or staffs who serve the regional, local, or municipal health office and other government health facilities in Western Visayas. The study excludes focal point person on immunization or vaccination related activities from private health facilities.

The study was done in Western Visayas or Region VI. The region is composed of six provinces, Aklan, Antique, Capiz, Guimaras, Iloilo and Negros Occidental and two urbanized cities, Bacolod, and Iloilo City. In addition, the region is composed of 14 component cities and 117 municipalities divided into political jurisdiction.

The conceptual framework used in this study is framed using a log model, the traditional input, process, output, and outcome framework. The input box comprised of the variables related to NIP implementation performance and immunization coverage region wide. The process box comprised of data gathering procedures and analysis. Initially the researcher will review available secondary data on immunization program implementation in the last five years. Then a simultaneous primary data gathering will commence, key informant interviews/focus group discussions and facility-based survey using ODK formatted questionnaire, a phone-based survey tool. Analysis of qualitative data will utilize Nvivo and for quantitative data the researcher will utilize SPSS.

Sampling and Sample Size

The facility-based survey and structured interviews will be conducted among randomly selected government health offices and facilities. The offices and facilities are based on the Department of Health Region VI list of health offices and facilities as of 2017. Random sampling will be determined with the confidence interval of 95% and 0.05 margin of error.

The data collection commenced after the approval of the Technical and Ethics Board of Corazon Locsin Montelibano Regional Hospital Research Committee and endorsement of the Department of Health Region VI. Quantitative data will be manually encoded using ODK formatted survey tool and transmitted electronically. Qualitative data will be recorded and transcribed based on recordings during the interview sessions and uploaded in one central data repository using Google drive.

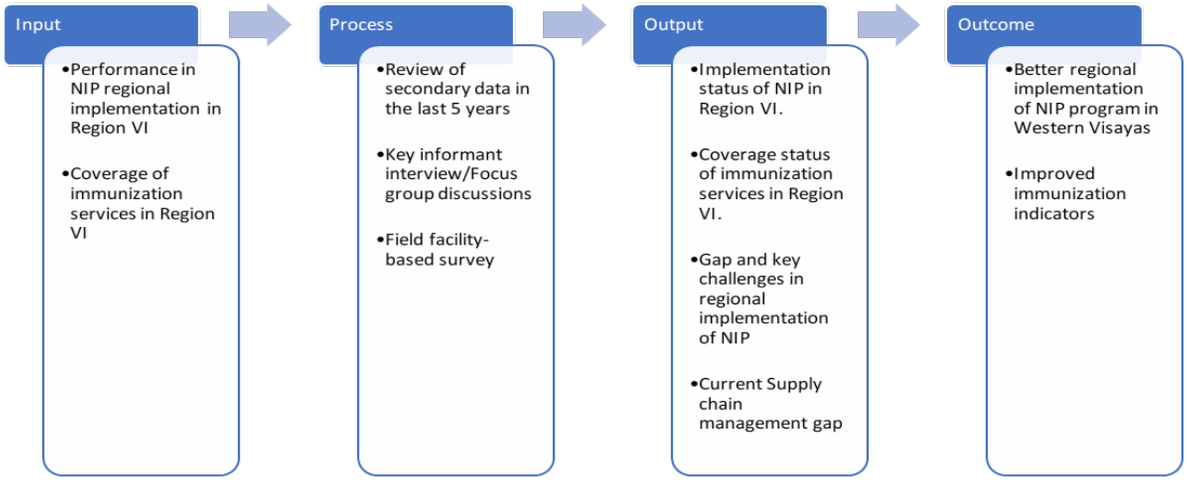

Figure 2. Conceptual Framework

Table 5. Availability of Immunization Services

AVAILABILITY OF IMMUNIZATION SERVICES	*f*	%
Yes	99	99%
No	0	0%
Total	99	100%

Table 6. Types of Immunization Services

IMMUNIZATION SERVICES AVAILABLE IN THE FACILITY	*f*	%
EPI services	99	100%
School-based immunization	98	98%
Senior citizen immunization	98	98%
Supplemental immunization	79	79%
Others	0	0%

Table 7. Completely Immunized Children (CIC) Status Coverage

STATUS	*f*	%
Above 95% target coverage	1	1%
On target 95% coverage	0	0%
Below 95% target coverage	97	97%
I don't know	1	1%
Total	99	100%

** 31 of 99 (or 31%) of the respondents gave no data.*

Table 8. Fully Immunized Children (FIC) Status Coverage

STATUS	*f*	%
Above 80% target coverage	1	1%
On target 80% coverage	3	3%
Below 80% target coverage	75	75%
I don't know	20	20%
Total	99	100%

** 72 of 99 (or 72%) of the respondents gave no data.*

Table 9. CPB Status Coverage

STATUS	*f*	%
Above 95% target coverage	19	19%
On target 95% coverage	5	5%
Below 95% target coverage	69	69%
I don't know	6	6%
Total	99	100%

** 64 of 99 (or 64%) of the respondents gave no data.*

Table 10. Immunization for Senior Citizen Status Coverage*

STATUS	*f*	%
Above 95% target coverage	4	4%
On target 95% coverage	0	0%
Below 95% target coverage	76	76%
I don't know	19	19%
Total	99	100%

** 85 of 99 (or 85%) of the respondents gave no data.*

The researcher observed the following ethical considerations: informed consent will be secured prior to conduct of the quantitative and qualitative study. All data will be deidentified for the responders of the survey and participants of the qualitative study. All final datasets and survey forms will be stored securely physically and with password protected electronic format for electronic files. Affiliations in any forms, sources of funding, as well as any possible conflicts of interests will be declared. There will be no monetary or non-monetary compensation given to the participants of the study.

Statistical and qualitative data analysis will utilize SPSS and Nvivo respectively. Descriptive univariate and multivariate statistical analysis will be used to describe in frequency, percentage, mean, standard deviation, ranking the status and coverage of the immunization program as well as its vaccine supply chain management. The level of significance of all inferential statistical results will be set at 0.05.

RESULTS

Quantitative Results

Extracted data from Field Health Services Information Systems of the Department of Health revealed that the national and regional immunization data showed a downward trend over the period of five years, from 2013 to 2017. In fact, at the national level the target for FIC is 95% but the national average of fully immunize children is between the range of 67.47% to 74.55%. At the regional level it is below the national average, where the range is between 66.63% to 73.39%.

The CIC target at the national level is 80%. The national average of CIC in the period of 2013 to 2017 is between 8.11% and 10.35%. At the regional level it is lower than the national average, where the range is 2.82% and 7.48%.

The CPB target at the national level is 95%. The national average of CPB in the period of 2013 to 2017 is between 72.49% and over 100%. At the regional level it is lower than the national average, where the range is 82.42% and 85.23%.Despite the comprehensive review of records and reports at the local and regional level in Western Visayas there is no reliable source of datasets on the status on immunization for senior citizens.

The profile of the study population is comprised of respondents from municipal/city/district health office (20%) and rural health unit (79%). Majority of them are nurses (80%), there are also medical doctors (80%) and midwives (6%). Their respective designation in the office were EPI coordinators (63%), others such as municipal or city health and sanitation officers (30%) and cold chain managers (5%).

All 99 respondents claimed that their respective health facilities provided immunization services. Hence, all (or 99 of 99) health facilities provided EPI services. Other immunization services provided by the facilities where school-based (98 of 99), senior citizen (98 of 99) and supplemental (79 of 99) immunization services.

Looking at the status of the immunization coverage most of the facilities have not met the target national coverage for immunization services. Also, the researchers observed that there is a limitation on the access of recorded. This limitation was identified during document review of records and reports. In fact, it was noted that the respondents have difficulty computing the target coverage population.

On the percentage of completely immunized Children (CIC) with 95% national target, 97of 99 health facilities claimed that their performance was below the 95% national target. On the percentage of fully immunized children 75 of 99 health facilities claimed that their performance was below the 80% national target. In addition, there were 20 respondents whose response is "they do not know and cannot recall the % of FIC." On the percentage of the child protected at birth 69 of 99 health facilities claimed that their performance is below the 95% national target. Despite the significant lack of available data (or 85 of 99 gave no data or information) to validate claims on the coverage on senior citizen immunization, the respondents claimed that their performance is below the 95% national target coverage.

Based on the responses of the respondents on the self-administered survey, the governance aspect for immunization services is relatively positive. Where, most

of the health facilities have the copies, oriented and knowledge on various immunization services. It is also important to note that 43 of 99 respondents claimed that there is a local policy counterpart which supports the implementation of immunization services. On the other hand, there are some health facilities who claimed that they do not have copies of basic immunization manual (13 of 99) and reaching every barangay handbook (11 of 99). Also, they claimed that they were not oriented (7 of 99) or re-oriented (11 of 99) on the new policies related to immunization services.

The financing profile of based on the responses in the self-administered survey is varying. On the positive note, many of the respondents claimed that they have budget to have a functional and deliver immunization services to the communities. In fact, on the average there is an annual allocation of Php 1,166.893 for supplies (from 46 of 99), Php 57,600 for cold chain in emergencies (from 15 of 99), Php 43,954 for transportation of the vaccines to RHUs (from 24 of 99) and Php 58,600 for the delivery of immunization services to the communities (from 19 of 99). It is important to note that the practice on budgetary allocation is not per program rather part of the maternal, neonatal and child health and nutrition or family health. Thus, the computed average budgetary allocation annually is based on the averaged costs to deliver immunization services monthly in the past year.

Qualitative Results

The focus group discussions were done last October 23, 24, 25 and November 14 at Apricot Hall, Madison Hotel, Iloilo City, Philippines. This was participated by 30 health professionals, who are nurses, midwives and medical doctors assigned in the municipal health offices and rural health units in Western Visayas. These health professionals are involved in the actual implementation of the National Immunization Program (NIP). They are the service providers who have direct contact with the communities. Most of the participants are nurses who are designated as NIP coordinators.

Table 11 showed that NIP in Western Visayas is a functional public health program. The main challenge of the implementation reflected in this table is reaching the geographically isolated and disadvantaged areas.

Table 12 showed the observations of the informants when implementing the NIP in Western Visayas. Among the health system building blocks, leadership and governance, medical products and technology, health workforce and service delivery are the most concerning areas. In addition, community (or demand generation) vaccine hesitancy was observed due to publicity of serious events related to vaccination.

Table 11. Status of NIP Implementation in Western Visayas

BUILDING BLOCKS	STATUS OF NIP
Leadership and Governance	There is an in-place immunization program in Western Visayas.
Financing	Vaccines are procured at the national level, Department of Health Central Office. Then, it will be distributed to different Centers for Health and Development at the regional level. Another function of the Centers of Health and Development is to procure supplies to be distributed to the provincial, city, municipal health offices. The rural health units accessed the vaccines and its supplies from the municipal or city health offices. The main counterpart of the local government in NIP implementation are on other supplies (i.e. cotton balls, alcohol etc.) and transportation.
Medical Products and Technology	Most of the vaccines are available and are accessible to the community. Some vaccines on the pipeline of the Department of Health is still not available even at the regional office (e.g. Japanese Encephalitis Vaccine). There is an in-place cold chain management protocol in the region.
Information	The NIP engaged health professionals used several forms to monitor, report, evaluate. These forms are the forms as prescribe by the Department of Health. The monitoring, reporting and evaluation is done in a traditional way (pen and paper).
Health workforce	There is existing health workforce assigned to implement NIP. The workforce is also part of other primary health care programs. NIP training or capacity building were given to all health professionals engaged in the implementation. For senior health professionals who deal with the program only seminar on updated guidelines were given.
Service Delivery	Service delivery may vary due to geographic location. Some island barangays or GIDA communities may have a greater chance to access delayed health services. Reason for delays are (a) weather, (b) availability of vaccines and supplies, and (c) workload of staffs. There is a regular immunization schedule every Wednesday. The immunization session per barangay last for 6 hours per day. In special cases, catch up vaccination is done.
Community	Vaccination is generally thought acceptable to the community practices and beliefs.

Table 12. Challenges and Gaps of NIP Implementation in Western Visayas

BUILDING BLOCKS	CHALLENGES AND GAPS
Leadership and Governance	The Department of Health and it Center for Health Development in Western Visayas has strong leadership in implementing NIP. The lack of value or importance on the side of the local government unit may be observed from little funding allocation.
Financing	The vaccines are procured by the Department of Health and the counterpart of the LGU should be on other supplies. However, other supplies were also procured by the Center of Health and Development in Western Visayas to be distributed to the RHUs.
Medical Products and Technology	On vaccines, even there is proper vaccine and supply projections there are still cases that vaccines distributed to RHUs are nearly expired. On refrigerators or freezers, the Department of Health and other donors donated/allocated these to maintain cold chain. Even though it is important part to maintain good implementation of NIP, there are cases that an RHU received this equipment more than they needed, there are also cited cases that procured/donated refrigerators/freezers are not compatible with high voltage (220V) outlets also, there are also cases that procured/donated refrigerator are not maintained well at the RHU. Power outage is also a concern as not all RHU has solar powered refrigerator/freezers or generators. This consideration may cause vaccine shelf life and quality. There is an observable not properly documented actual vaccine wastage as participant cannot discuss vaccine wastage..
Information	Traditional way of monitoring, reporting and evaluating may slow down timely, accurate and important data/information that is needed to be addressed.
Health workforce	There are assigned NIP coordinators in each city/municipal health offices and rural health unit. However, no clear answers were generated if there is a designated cold chain manager. All participants of the focus group discussions cited that workload is an important factor for quality services delivered by health professionals engaged in the implementation of NIP.
Service Delivery	Service delivery is highly dependent on availability of staff assigned for immunization, availability of vaccines and supplies. Other considerations cited are (a) geographic location and (b) weather.
Community	Media has big role on the perception of acceptability the community. It was cited that even if Western Visayas is not included in places where Dengvaxia vaccine was piloted parents hesitate to have their children immunized.

Table 13. NIP Implementation Recommendations

BUILDING BLOCKS	STATUS OF NIP
Leadership and Governance	There is need to rekindle strong partnerships with local government units, school official and the Center of Health and Development in Western Visayas.
Financing	There is strong recommendation during the discussions that other supplies needed most especially transportation of vaccines to get a better budgetary allocation. Inclusion of maintenance of equipment (i.e. refrigerators/freezers and generators) is also cited.
Medical Products and Technology	It was recognized that accessing good quality vaccines is essential. Hence, a good logistics management is needed this is aside from cold chain management. Procurement of appropriate equipment (i.e. refrigerators/freezers, generator) is also important.
Information	There are no recommendations to upgrade traditional form of monitoring, reporting and evaluating NIP. However, there is recommendation to streamline to documentary forms to be filled-up by the assigned health professionals.
Health workforce	There is a strong and frequently cited consideration among health workforce, that is to consider staff workload to attain better quality health services.
Service Delivery	Transportation of staffs and vaccines, improved cold chain management and staff workload considerations are essential consideration when planning.
Community	There is a strong recommendation in all four focus group discussions to maximize the use of media or social media to educate parents on the pros and cons of vaccination. Hence, important consideration is risk communication following Dengvaxia issue as vaccine hesitancy among parents is observable. Immunization sessions is an important tool to listen to the causes of hesitancy and explain to the community the importance of immunization. The primary health care practitioners, private medical doctors (i.e. Philippine Pediatric Society) and the religious groups advocates immunization program.

TABLE 14. Summary of Findings

IMMUNIZATION BUILDING BLOCKS	QUANTITATIVE	QUALITATIVE
Leadership and Governance	There are 43 of 99 LGU has local policy on immunization.	The Department of Health and its Center for Health Development in Western Visayas has strong leadership in implementing NIP.
Financing	There is an average annual allocation of Php 1,166.893 for supplies (from 46 of 99), Php 57,600 for cold chain in emergencies (from 15 of 99), Php 43,954 for transportation of the vaccines to RHUs (from 24 of 99) and Php 58,600 for the delivery of immunization services to the communities (from 19 of 99).	The vaccines are procured by the Department of Health and the counterpart of the LGU should be on other supplies. However, other supplies were also procured by the Center of Health and Development in Western Visayas to be distributed to the RHUs. And the lack of value or importance on the side of the local government unit may be observed from little funding allocation.
Medical Products and Technology	The respondents claimed that at the provincial level forecasting and wastage rate computation was done. The main source of vaccines and supplies to be delivered to the rural health units were from the provincial health offices. Furthermore, all required vaccine activities to maintain cold chain was observed. All facilities have various types of vaccine storage facility or equipment. On the other end, the use of logistics tool responded claimed that they were using EVM tool which was not rolled out according to the immunization focal person of CHD Western Visayas. There are 54 of 99 health facilities experienced stock out. The facilities recorded that they have experienced more than 4 weeks stock out of measles (24 of 99), TT (22 of 99) and OPV (16 of 99). On the other hand, BCG (91 of 99), Td (90 of 99) and PCV13 (88 of 99) are vaccines which is always more likely to be always available. Vaccines on the pipeline are still not available such as Japanese Encephalitis, Dengue, Typhoid and Meningococcal vaccines.	There is an observable not properly documented actual vaccine wastage as participant cannot discuss vaccine wastage. Power outage is also a concern as not all RHU has solar powered refrigerator/freezers or generators. This consideration may cause vaccine shelf life and quality.
Information	There are more than 10 paper-based recording, reporting and analysis tools used by the health facilities.	The respondents deemed it necessary to streamline to documentary forms to be filled-up by the assigned health professionals.
Health Workforce	The workforce who are expected to discharge immunization services were trained more than 5 years ago (for NIP it is 36 of 99 and for CCM it is 33 of 99). Furthermore, these professionals claimed that most of them are handling more than 5 public health programs (for NIP it is 59 of 99 and for CCM it is 59 of 99).	There are assigned NIP coordinators in each city/municipal health offices and rural health unit. However, no clear answers were generated if there is a designated cold chain manager.
Service Delivery	Immunization services are claimed to be readily available whenever needed (99 of 99). In terms of schedule, most facilities claimed that immunization services are only available only every Wednesday of the month (66 of 99). And most facilities did not perform most surveillance activities.	Service delivery is highly dependent on availability of staff assigned for immunization, availability of vaccines and supplies. Other considerations cited are (a) geographic location and (b) weather.
Community	The top three concerns of the community are “Publicity of serious events, illness or deaths that are assumed to be related to vaccination” at 89 of 99; “Rumors of children getting sick that are based on misinformation or false assumption” at 81 of 99; and “Religious belief” at 76 of 99.	Media has big role on the perception of acceptability the community.

Table 13 showed the NIP implementation recommendations according to the informants of the focus group discussions. Based on their recommendation all health systems building block needed to be strengthened. There are strategic recommendations to have strong LGU partnerships, procurement of appropriate equipment, streamlining of documentary forms and planning on the workload of the workforce engaged in the delivery of immunization services.

DISCUSSIONS

Immunization is an important public health program proven to control and eliminate life-threatening infectious diseases. It averted approximately 3 million

death each year. A systematic study proved that vaccination in low- and middle-income countries is an efficient investment and has economic benefits. For this reason, the Department of Health is committed to

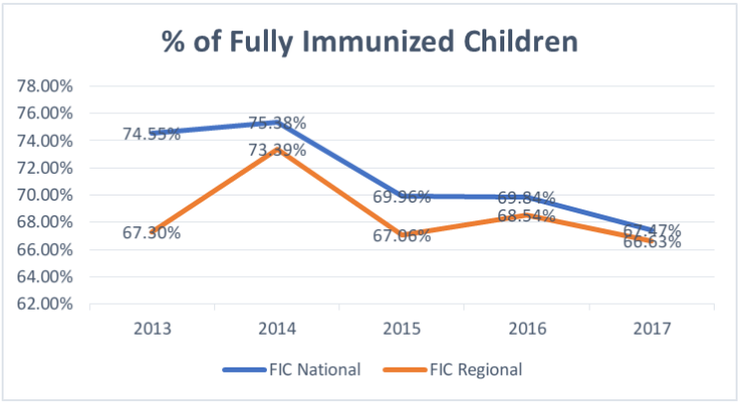

Figure 3. Percentage of Fully Immunized Children

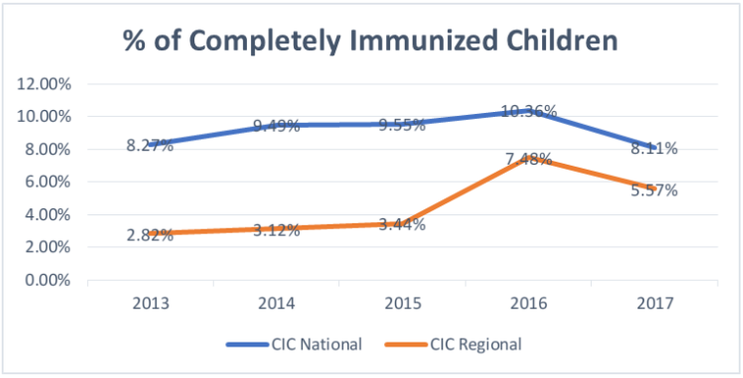

Figure 4. Percentage of Completely Immunized Children

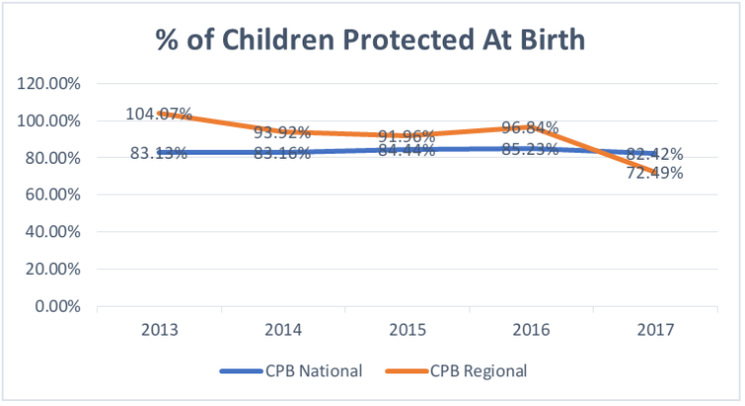

Figure 5. Percentage of Children Protected at Birth

provide quality and safe vaccines and immunization services. This goal is embodied on National Immunization Program Strategy for 2016-2022 which articulated three broad objectives to achieve this goal: (1) To increase coverage of existing vaccines for targeted population groups across the life-stage; (2) To provide additional protection to identified vulnerable groups from other VPDs through evidenced-based new vaccines and technology; and (3) To achieve the country's commitment to priority global immunization goals.

The result of this study indicated that health systems approach is essential to strategically identify challenges of NIP implementation. The results of quantitative and qualitative data using immunization building blocks, Leadership and Governance, Financing, Medical Products and Technology, Information, Health Workforce, Service Delivery and Community. Based on the results of this study, all building blocks played crucial roles for improved implementation of NIP.

Over-all, there are important considerations to improve implementation of the NIP in Western Visayas. Immunization building blocks reflects areas of improvement. However, improved implementation requires the following:

a. Strengthen local government partnerships for enhanced local implementation
b. Setting the target population coverage based on the accurate data.
c. Skills and training to improve knowledge and capacity on logistics and cold chain management
d. Streamlining of immunization information system (recording, reporting and analysis of available data)
e. Auditing of workforce skill mix, workload, and competencies
f. Increase demand from the community by addressing vaccine hesitancy issues.

CONCLUSION AND RECOMMENDATION

Extracted data from Field Health Services Information Systems of the Department of Health revealed that the national and regional immunization data showed a downward trend over the period of five years, from 2013 to 2017 and is below the national level trends for CIC and FIC.

Among the health systems building block, leadership and governance, medical products and technology, health workforce and service delivery are the most concerning areas. In addition, community (or demand generation) vaccine hesitancy was observed due to publicity of serious events related to vaccination.

Overall, there are important considerations to improve implementation of the NIP in Western Visayas. Based on the results of this study, the following are recommended:

a. Strengthen local government partnerships for enhanced local implementation and partnership
b. Skills and training to improve knowledge and capacity on logistics and cold chain management
c. Streamlining of immunization information system (recording, reporting and analysis of available data)
d. Auditing of workforce skill mix, workload, and competencies
e. Conduct regular bottleneck analysis and supportive supervision.
f. Conduct regular community engagement sessions and improve health education and promotion services on National Immunization Program

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Rapid Assessment of the Implementation of the Maternal Newborn Child Health and Nutrition Program in Western Visayas

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ABSTRACT

Background

In 2008, the Department of Health (DOH) issued a policy on an integrated Maternal, Newborn, Child Health, and Nutrition (MNCHN) Strategy to systematically address health risks that lead to maternal and neonatal deaths. This policy was issued as a response to the deceleration of the decline in maternal and neonatal mortality despite continuous government efforts. The developed strategy served as a guide to the development and implementation of different programs of DOH Regional Offices (ROs) and Local Government Units (LGUs) to reduce maternal and neonatal deaths. Despite significant efforts through the MNCHN program to reduce the maternal mortality in the country, the Philippines failed to achieve the Millennium Development Goals in 2015. Furthermore, complications during labor, delivery, puerperium, hypertension, and hemorrhage remains to be the main causes of maternal deaths in the country. In view of this, this study was conducted with the primary objective of assessing the regional implementation of the MNCHN program in the Western Visayas region.

Methodology

This study utilized a cross-sectional analysis of the implementation of the MNCHN program in Western Visayas using mixed methodology. In this study, program components of the MNHCN program were assessed based on service indicators and status of implementation, while also assessing facilitating and hindering factors of program implementation. The respondents for this study are provincial health officers, municipal health officers/city health officers, public health nurses, and midwives. Qualitative data was analyzed through thematic analysis, while quantitative data was analyzed quantitatively through statistical methods.

Results

A total of 103 respondents were invited in this study. Key barriers under administrative and health system support include Multiple HRH Roles and Responsibilities, Procurement, and Local Administration. On the other hand, facilitators are additional financial support, good outcomes from capacity building, and local policies. Under service delivery, secondary referral facilities, patient refusal or distrust, and underutilized facilities were the key themes under barriers. Meanwhile, availability of services and referral processes were identified as service delivery factors.

Keywords

Maternal health, MNCHN, Health systems

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INTRODUCTION

According to the WHO (2013), almost ninety-nine percent of maternal deaths occur in developing countries. Maternal mortality is higher among women living in areas of the world without adequate access to health services.

In 2008, the Department of Health (DOH) issued a policy on an integrated Maternal, Newborn, Child Health, and Nutrition (MNCHN) Strategy to systematically address risks that lead to maternal and neonatal deaths. This policy was issued as a response to the slow decline in maternal and neonatal mortality despite continuous government efforts. The proportion of births delivered in a health facility has increased significantly since 1998, but at present, it is still far from reaching 100%. It was also reported 61% that of pregnancies were delivered in a health facility. It was also indicated that 95% of women in the Philippines receive antenatal care from skilled health provider (NDHS, 2013). At present, Western Visayas Region still has a high maternal mortality with a rate of 71.63 per 100,000 in 2016, despite increased budget allocation in the Maternal and Child Health Program.

Western Visayas Region still has a high maternal mortality with a rate of 71.63 per 100,000 in 2016, despite increased budget allocation in the Maternal and Child Health Program. Notable MMR at the city level, Bacolod has a rate of 240 in 100,000; while at the provincial level, Negros Occidental has an MMR of 75.74 in 100,000. Region VI indicated a higher mortality rate, infant mortality rate, and maternal mortality rate, as compared to the national average in 2016. Among the provinces, Negros Occidental recorded the lowest death rate and infant death rate at 3.9% and 5.91%, while Antique has the highest death rate at 6.8% and maternal mortality rate at 71.60%. The province of Aklan had the highest infant mortality rate at 15%. Reasons for the high rate of maternal mortality in the region include the delays in referrals, inadequate transportation, or emergency vehicle in geographically isolated and disadvantaged areas (GIDAs), deficiencies in blood supply and low numbers of antenatal coverage. There is lack of skilled birth attendants, especially in far-flung areas and the inadequacy in skills providing BEmONC services at the RHU level. A robust assessment of the MNCHN program implementation at the region has not yet been conducted.

The study aims to provide a rapid assessment of the Maternal, Newborn and Child Health Program and outcomes in the Western Visayas region. A focus on the following factors/ indicators was done services, health human resources, referral systems, administrative support, policies, and facilitating and hindering factors.

MNCHN Program

In 2008, the Philippine government was concerned that it may not meet its commitments in fulfilling MDGs 4 and 5. Hence, the Department of Health issued the policy Administrative Order 2008-0029, Implementing Health Reforms for Rapid Reduction of Maternal and Neonatal Mortality, a strategy that aims to reduce both maternal and neonatal deaths through utilizing integrated Maternal, Neonatal Child Health and Nutrition (MNCHN) services nationwide. It aims that every pregnancy is warranted and supported and managed well across its course, while deliveries are facility-based and are managed by skilled birth attendants, and lastly, the mother and the newborn child will receive postpartum and adequate newborn care.

On the other hand, the MNCHN Service Delivery Network (SDN) aims that providers are organized and well-coordinated to address the needs and ensure the continuum of care. The SDN can be composed of both public and private healthcare facilities and includes communication and transport system. The first tier of the SDN are the community-level providers are composed of facilities that include outpatient clinics in the Rural Health Units and Barangay Health Stations, as well as private clinics. Community level providers involves volunteer health workers, physicians, nurses, and midwife. Services at this level can include family planning, prenatal services, postnatal and postpartum ca re. The Basic and Comprehensive Emergency Obstetrics and Newborn Care (EmONC) facilities are the second and third tier of the SDN. Basic Emergency Obstetrics and Newborn Care (BEmONC) are capable private, or public facilities such as upgraded rural health units or their satellite barangay health stations, lying-in clinics, or birthing homes, with trained personnel that can provide six emergency obstetric services. Moreover, a BEmONC facility can also perform basic minimum neonatal interventions such as provision of warmth, neonatal resuscitation, and referrals. BEmONC facilities can also be providers of contraceptives such as Intrauterine Device (IUD) and Voluntary Surgical Contraception (VSC) services. Ideally, BEmONC facilities should be reached within thirty minutes to an hour from the residence or referral facility with the municipality, city, district, or inter-local health zones. Moreover, to become a designated BEmONC facility is based on the services that the institution is capable to provide. A BEmONC certification from the Department of Health is needed for PhilHealth accreditation to provide Maternal Care and Newborn Care Packages. Belonging to the third-level tier of the service delivery network is Comprehensive Emergency Obstetric and Newborn Care (CEmONC) which are end referral facilities. By default, CEmONC facilities are provincial hospitals, DOH hospitals, or private hospitals.

Health Service Assessment

Service Availability and Readiness Assessments are done to identify the supplies, availability of human health resources, and ensuring that facilities meet the standards of quality. These are done to improve how service can be available, easily reached, can be affordable, and acceptable. Service readiness is the first step to improving service quality, as it entails meeting the needed capacity to render the health services being offered. Capacities include adequate staffing, supplies, medications, physical structure, and equipment (World Health Organization, 2013) In the Philippines, hemorrhages, placental implantation abnormalities, twin pregnancies, and fetal malformations have been known major causes of mortality in mothers and newborns (Dalmacion, et.al, 2018).

The Facility Readiness and Service Availability Tool for Maternal, Newborn, Child Health, and Nutrition Services (MNCHN) Services, was first utilized at the DOH Region XI through the Accelerating Convergence Efforts through Health Systems Strengthening for Maternal and Newborn Health Project. Along with tools in assessing the interlocal health zone functionality and monitoring frameworks for health dashboards, local governments and regional offices can identify the existing capacities and gaps in across municipalities and cities. Apart from monitoring purposes, the Facility Readiness and Service Available Tool can aid in budget or investment planning and appropriation and human resource allocation (DOH Region XI, WHO Philippines, KOICA, USAID, JHPIEGO,

2018). Facility readiness is also crucial to PhilHealth BEmONC and CEmONC accreditation for RHUs and hospitals.

Several facility readiness assessment studies for Emergency Obstetric Services in LMICs reported similar challenges. In Bangladesh, gaps in transportation, limitations in the number of skilled birth attendants on call, provision of corticosteroids (Wichaidit, Alam, Halder, Unicomb, Hamer and Ram, 2016). In a study on private and public health facilities in Zambia, marked gaps were seen in facilities that provide services 24 hours- 7 days a week, administering parenteral uterotonic for postpartum hemorrhage, and manual removal of placental retained products (Tembo, Chongwe, Vwalika, Sitali, 2017). In a systematic review of 17 studies set in sub-Saharan Africa and South Asia, the most common signal functions performed are provision of uterotonic drugs and parental antibiotics, neonatal resuscitation, assisted vaginal delivery, and manual removal of placenta. Referral for timely interventions was reported as poor (Kanyangarara, Chou, Creanga, Walker, 2018).

METHODOLOGY

This study utilized a mixed method research design with qualitative arm using mixed methods design: cross-sectional survey for the quantitative and qualitative arm using focus group discussions. This study was conducted in the Western Visayas region and included municipal, city health officers and MNCHN coordinators holding the position for at least 3 months, representing each city or municipality. Mixed methodology was applied in the study. For the quantitative part, 43 indicators-variables were reviewed and analyzed. These indicators included general maternal and newborn care, antenatal care, delivery, postpartum and referral services. Qualitative data were collected and analyzed through guided interviews focusing on human resource capability, administrative support, health services, referral systems, and facilitating and hindering factors.

Participants involved in the study were determined from a list of provinces, cities, and municipalities in the region. At the first level of sampling, areas were clustered according to provinces. In each of the provinces, provincial health officers were invited to participate in the study. Moreover, at the second level of sampling, a list of municipalities and cities per province was used for random selection of areas to be included in the study. A self-administered survey tool was used based on WHO and USAID (2018)'s A Toolbox to Promote Maternal and Newborn Health: Developing the Program Monitoring Frameworks and the Regional Health Dashboards.

Ethics approval was secured from Corazon Locsin Montelibano Memorial Regional Hospital Ethics Review Board/Committee. The study was limited to the description of services available as part of the implementation of the program, and there no correlation with specific external factors to the outcomes.

RESULTS

MNCHN Health Outcomes in Western Visayas

Based on the data from the Western Visayas Regional Development Plan 2017-2022, access to health in the region has improved, but there are still gaps that remain to be resolved.

For Maternal and Child Health, it has been observed that safe childbirth remains a significant concern despite advocating for deliveries in healthcare facilities. In 2015, facility-based deliveries (FBD) in the region reached 87.3%; however, the maternal mortality in the region was at 72.9 per 100,000 live births, unable to meet the planned target of 56 per 100,000 or lower. In the same year, deaths for children under-five years were 23.5 per 1,000 live births, while infant mortality was below 10 per 1000 live births. Below is a graph showing the maternal mortality ratio of the region, the provinces, and the highly urbanized cities for 2015 based on the NEDA Western Visayas Regional Development Plan 2017-2022.

Based on the same report, there are several reasons for the high rate of maternal mortality in the region. These are delays in referrals, inadequate transportation, or emergency vehicle in geographically isolated and disadvantaged areas (GIDAs), deficiencies in blood supply and low numbers of antenatal coverage. Also cited are the lack of skilled birth attendants, especially in far-flung areas and the inadequacy in skills providing BEmONC services at the RHU level.

As for other maternal and child health indicators, it has been reported that the number of fully immunized children was only at 65% in 2015, citing the unavailability or stock-outs of BCG and Pentahib vaccines. Lastly, contraceptive prevalence rate is low at 47.66 and can be attributed to the Supreme Court's temporary restraining order on the provision of subdermal implants.

Based on the Department of Health Field Health Service Information System 2017, Region VI indicated a higher mortality rate, infant mortality rate, and maternal mortality rate, as compared to the national average in 2016. Among the provinces, Negros Occidental recorded the lowest death rate and infant death rate at 3.92% and 5.91%, while Antique has the highest death rate at 6.85% and maternal mortality rate at 71.60%. The province of Aklan had the highest infant mortality rate at 15.00%.

Based on the 2013 NDHS, 61.2% of births in Western Visayas in 2013 were delivered in a health facility, while 38.1% were delivered at home (PSA, 2013). In Western Visayas, the implementation of MNCHN can be construed to be reflected by the MMR and number of maternal deaths. The figures below show the present status of the Maternal Mortality and Infant Mortality of Select Participant Municipalities Per Province, as well as the MMR trends from 2010-2018.

Table 1. Descriptive Summary of Status Per Province

	ILOILO (34)	AKLAN (18)	ANTIQUE (14)	CAPIZ (14)	GUIMARAS (5)	NEGROS OCCIDENTAL (8)
Infant	207	196	125	47	33	82
Deaths No. (Rate)	(6.79)	(17.14)	(16.17)	(6.86)	(13.37)	(5.88)
Maternal	11	7	12	0	0	8
Mortality No. (Rate)	(36.11)	(82.74)	(61.23)	(0)	(0)	(57.39)

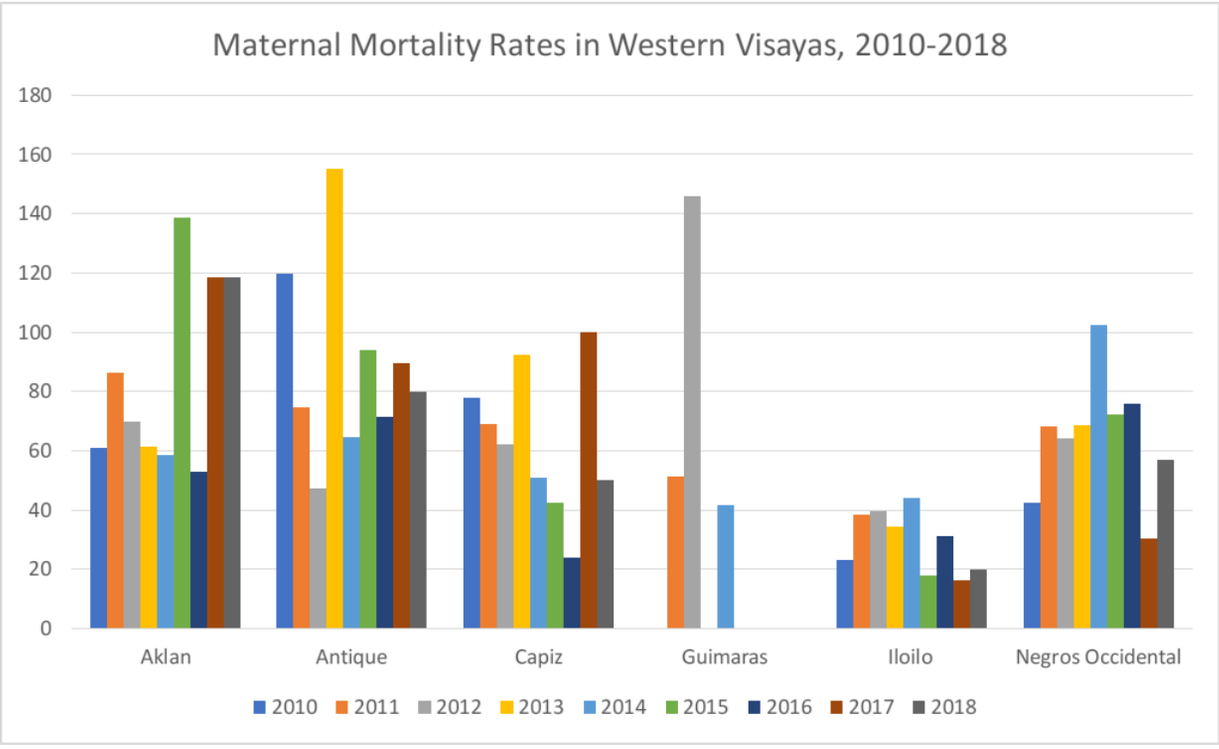

Figure 1. Maternal Mortality Rates from 2010-2018

Status of Provinces

To map out the implementation of the service delivery, the participant facilities were reviewed using 43 indicators or variables based on the following categories summarized in *Table 3*.

A total of 93 respondents were able to answer the questionnaire, with Table 6 showing the distribution of respondents based on province and income class of municipalities. Respondents were Administrator of a provincial hospital, MHO, midwives, and Public health nurses. The results provided information for a total of 93 public facilities from the following provinces in Region 6.

Health Services

To describe a better picture of the services that are delivered limitedly, the percentages were highlighted like traffic lights, summarized in the table below. In general, health education natural family planning, antenatal services, and promotion of breastfeeding are delivered without any issues. However, most of the problematic areas appear to be assisted delivery, followed by referrals in this area. *Table 4* shows the per province results of the survey.

Assisted delivery, also called imminent breech delivery, is ideally one of the BEmONC functions. Based on the regional data, it is not frequently conducted in the primary health facilities.

Among general services, only the presence of artificial family planning services is statistically significant. Other factors showing trends of association of the variables investigated are as follows: Health Human Resource i.e.: presence of BEmONC trained teams in facilities, health financing i.e. local government unit support and Health Regulation: BEmONC facilities and mother-baby friendly facilities which shows trends for association.

DISCUSSION

In the past decade, health system reforms have been implemented to improve maternal and neonatal health across different regions in the Philippines, focusing on policies that will enable health service delivery programs increase their coverage and ultimately lessen the risks for morbidity and mortality (Huntington, Banzon, Dy Recidoro, 2011). Interventions include capacity building of human health resource with developed standards provision of supplies and drugs and strengthening facility networks. These are all dependent in a decentralized system, in which local government units with very diverse capacities and capital, are responsible for making these

Table 2. Univariate analysis for factors associated to target Maternal Mortality Rate in Region 6

VARIABLE	VARIABLE	X^2	DF	SIG
Health Governance/Health Human Resource	Bemonc Team (1 Team per RHU/BHS; 3 Teams per hospital)	2.704	1	.126
	Policies	.779	1	.378
Health Financing	Financing	1.575	1	.210
Health Regulation	Bemonc	2.397	1	.122
	Bemonc Only + License to Operate	0.053	1	.817
	Mother Baby Friendly Facility	3.152	1	0.076
Health Service Delivery				
Referral Systems	Ambulance	1.877	1	.306
Access	24 Hour Availability	2.166	1	1.41
General Services	Artificial FP	5.787	1	.028*
	Natural FP	.708	1	.646
	Antenatal Care	.730	1	1.00
	Normal Delivery	1.031	1	.461
	Assisted Delivery	1.457	1	.294
	Postpartum Care	.055	1	1.00
	Newborn Care	.195	1	1.00
	Newborn Screening	.303	1	.730
	Newborn Vaccinations	0.055	1	1.00

Level of Significance at 95% interval, p-value 0.05

Table 3. Categories and Variables included in the Questionnaire

CATEGORIES	VARIABLES
General Maternal and Newborn Care Services	Health education
	Artificial family planning
	Natural family planning
	Antenatal Care
	Normal Delivery
	Assisted Delivery
	Postpartum Care
	Breastfeeding Education
	Newborn Care
	Newborn Screening
	Newborn Vaccination
Antenatal Care Services	Iron and Folic Acid Supplementation
	Tetanus-Diphtheria Vaccination
	Counseling on the Danger Signs of Pregnancy
	Counselling on Family Planning
	Counselling on Breastfeeding
	Counselling on mother-to-child transmission of sexually transmitted infections
Delivery Services	Training on Quality Assurance Package Manual/ Pregnancy, Childbirth, postpartum and newborn
	Monitoring and Management of Labor Using Partograph
	Thermal Protection, Immediate Drying and skin to skin contact
	Cord care and delayed cord cutting
	Parenteral Administration of Uterotonic (oxytocin) drug
	Manual removal of placenta
	Administration of Corticosteroids for Pre-Term Labor
	Basic Emergency Obstetric Care
	Neonatal Resuscitation
Postpartum Services	Vitamin A supplementation
	Postpartum checkup after 48-72 hours
	Postpartum checkup within 1 week of delivery
	Counselling of family planning
	Counselling on breastfeeding
	Kangaroo Mother Care
	Quality Assurance package/ Pregnancy childbirth
	Management of Breastfeeding
	Modern Methods of Family Planning
	Hepatitis B injection in first 24 hours of life
	BCG vaccination within 24 hours of life

interventions work (Cuevas, Calalang, Delos Reyes, Rosete, 2017).

This study supports a 2014 assessment of 95 BEmONC facilities across the country showing that 27.4% were not conducting any of the seven Emergency Obstetric signal functions (United Nations Development Programme, 2014). Further, performing assisted vaginal deliveries, removal of retained placental products, and the administration of parenteral anticonvulsant medications are those limitedly being conducted.

The RHUs have limited capacity in providing newborn hearing screening and laboratory diagnostic services. For population coverage through PhilHealth, RHUs cannot completely provide the Point of Care/ Point of Service enrollment. In terms of the provinces, Aklan, has the most number both in terms of IMR, MMR and gaps in services. Aklan is followed by Negros Occidental. Antique has problems in IMR and MMR, but not reflected in the data for health services. Capiz has several limitations in terms of services, it is not reflected in the MMR.

Transfer of care or referrals within the service delivery network were mainly for high-risk deliveries and conditions, prolonged labor, breech presentation, complicated delivery, or further newborn care. This is consistent with their training and protocol aimed towards patient safety. There is a need for better communication and referral mechanisms to other hospitals with specialists, such as Anesthesiology and Obstetrics, especially for high-risk conditions and will need surgical care.

Improvement in delivery and newborn care practices have been attributed to the capacity building midwives and nurses (Silvestre, et.al., 2018). Yet, to truly meet the goal of reducing maternal and infant mortality in settings with large variations in geography and capital requires "getting the basics right" – which means improving procurement and supply chains, recruiting, and retaining manpower, equipping health facilities to deliver quality care (Soto, et al., 2013).

RECOMMENDATIONS

Capacity building and training have reduced MMR, crucial to this is the cadre of the human health resource and sufficient LGU support for supplies and equipment. Investment on BEMONC and other training or capacity building activities should be continued. Local governments should invest on BEMONC refresher trainings for RHU staff through their own LGU budget. There is a need to strengthen interfacility communication for MNCHN and BEMONC services at community level, and to determine the functionality of its network. To ensure the availability of medications and other supplies needed for RHU operationalization, there is a need to strengthen LGU planning and procurement management for health services. The capacity of the hospitals within the MNCHN SDN should be enhanced to form a continuum of care from barangays to tertiary facilities.

The study has shown that licensing procedures and updated policies remain a challenge. At the hospital, LGU and regional levels, adequate planning should be done so that requirements are met on time. DOH Regional Offices have a role to support RHUs in terms of

Table 4. General Maternal and Newborn Care Services in percentages (n=93)

	ILOILO (34)	AKLAN (18)	ANTIQUE (14)	CAPIZ (14)	GUIMARAS (5)	NEGROS OCCIDENTAL (8)
Health Education	100	100	100	100	100	100
Artificial Family Planning	97	100	100	100	20	100
Natural Family Planning	97	100	93	93	100	100
Antenatal Care	91	100	100	100	100	87
Normal Delivery	100	83	93	86	100	100
Assisted Delivery	94	61	35	50	40	100
Postpartum Care	41	100	93	100	100	100
Breastfeeding Education	97	100	100	100	100	100
Newborn Care	94	83	93	100	100	87
Newborn Screening	91	83	93	100	100	87
Newborn Vaccination	100	100	100	100	80	87

planning and strategy for licensing. DOH Central Office should be familiar with policy impacts of licensing at local levels, ensuring that any changes for improvement are well-prepared.

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Unveiling the Mask: Stigma in the Eyes of a Nurse

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ABSTRACT

Background
The HIV/ AIDS epidemic has been and continues to be a pressing health issue globally. The Philippines as such is not spared from the magnitude of AIDS-related problems. Negros Occidental ranked as the second highest in Western Visayas with 590 cases in May 2017 according to the Negros Daily Bulletin. Corazon Locsin Montelibano Memorial Regional Hospital (CLMMRH), being the Center of HIV/AIDS core team in the province of Negros Occidental, is at the forefront in the implementation of the different HIV/AIDS program of the Department of Health (DOH). The core team and nurses of this institution are directly involved in the care of HIV/AIDS patients. The direct involvement of the nurses at CLMMRH in the care of HIV/AIDS patients prompted the researchers to be interested in exploring their lived experiences.

Objectives
The aim of this study was to explore the lived experiences of nurses in the care of clients diagnosed with HIV/AIDS.

Methodology
The research, utilizing purposive sampling and qualitative methodology study design, focuses on five staff nurses with 2 to 8 years of experience at CLMMRH in the care of HIV/AIDS patients. An in-depth interview was conducted using a self-made, semi- structured interview guide. Supporting data were collected using Key Informant interviews and Focus Group Discussion. All interviews were audio-recorded, transcribed, and analyzed using Tesch's Proposed 8 Steps in Data Analysis.

Results
Six themes describe the nurses' patients: *commiserated*, h*opeless*, *uninformed*, *incurable,* and *debilitated*, *stigmatized* (*branded*) and *prejudiced*. Four themes describe their dealings with their patients: nurses see *fairness* and *equality* when providing care; they are *committed to care*, but *fear and hesitations, unsafe practices* are some of the concerns. Three themes emerged from the factors that affect care: nurses' *outlook* and *attitude*, *self-preparation* and their *fear* and *hesitations*. Patients' behavior and response affect nursing care. Four themes emerged in the challenges encountered by nurses. The need of nurses for further learning and training are identified as limitations. *Occupational hazards*, d*ifficult behaviors of patients* and their significant others, Inadequate facilities and resources are also identified as difficulties. Nurses recognized three themes on the perception of their experiences: *development of empathy and caring relationship*, *gaps in nursing care* and *holistic view* of the patient. Despite the negative impact and challenges at the beginning of the nurse-patient relationship, perception and feelings changes as the nurse-patient relationship progresses. Nurses have realized meaning and fulfillment in their caring experiences. The six prevailing themes are: *empathy and non-judgmental approach*, a feeling of *fulfillment and appreciation*, *ensuring personal safety*, *personal and professional growth*, *sense of commitment*, and *going the extra mile*. After attentive reflections, intelligent understanding of the participants' responses, and unveiling of the mask of biases, an eidetic insight was articulated in the nurses' experiences, which is an experience of transformation and dedication to care no matter what the stigma is associated with HIV/AIDS.

Conclusion
The lived experiences of nurses in caring for HIV/AIDS patients is a "transformative" journey as the negative stigma is changed to *empathy* and *non-judgmental*, *feeling of fulfilment and appreciation*, *ensuring personal safety*, *personal and professional growth*, *sense of commitment*, and *taking an extra mile*.

Keywords
HIV, AIDS, stigma, nursing

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INTRODUCTION

HIV/AIDS is a familiar term but dreaded by many. The AIDS epidemic has been and continues to be a pressing health issue globally. With the alarming rate of deaths from AIDS, the global community intensifies their efforts aiming to end the epidemic.

In a report generated by the National Epidemiology Bureau on March 2016, 736 new HIV cases were identified in the Philippines. This is 10% higher compared to the same period in 2015. As of February 2017, the Department of Health Western Visayas has recorded 602 persons with HIV/AIDS in Negros Occidental, including the 307 cases from Bacolod City alone.

Putting these numbers into consideration, the Philippines is indeed not spared from the magnitude of AIDS-related problems. CLMMRH, being the center of HIV/AIDS core team, in the province of Negros Occidental, is at the forefront of the different health promotion, prevention, curative, and rehabilitative services for persons living with HIV/AIDS. The direct involvement of the nurses at CLMMRH in the care of HIV/AIDS patients prompted the researchers to be interested in exploring their lived experiences.

OBJECTIVES

The aim of this study was to explore the lived experiences of nurses in the care of clients diagnosed with HIV/AIDS.

METHODOLOGY

This study utilized qualitative research method. Purposive sampling was utilized in the selection of the participants. A self-made, semi- structured interview guide patterned from Travelbee's Human to Human Relationship Model was used.

In the data collection, varied strategies were used as follows: Key Informant Interview, In-depth Interview, Focus Group Discussion and Art Therapy.

RIGOR OF QUALITATIVE RESEARCH

To fully established the rigor of the study, the following areas were considered: *Trustworthiness, Credibility, Peer debriefing, Member check, Dependability, Confirmability and Triangulation*. The researchers started the conduct of the study by building a trusting relationship. To strengthen the credibility of the study, the researchers use varied strategies such as persistent observation, reflexivity, triangulation; peer and participants debriefing, member checks and focus group discussion. Upon the transcription of the interview, the transcribed data was presented to the research experts and participants for constructive criticism and validation of the data. Time and place triangulation were used in the conduct of the study, wherein interviews were conducted at different time of the day in different settings. Investigator triangulation was also used in this study wherein two or more researchers analyzed and interpreted the data collected. This research utilizes the Tesch's eight steps in data analysis.

RESULTS and DISCUSSION

A. Seeing a Person Diagnosed with HIV/AIDS

A.1. Commiserated

Expressing sympathy, empathy, sorrow and sadness for the patient's unfortunate condition or situation were common.

Paul (aka) verbalized *"luoy-luoy lang gid siguro pinaka impact mo da syempre naluoy ka nahinayang ka kay kis-a mga bata pa iban wala pana nila na enjoy ila kabuhi."*

A.2. Hopeless

The participants viewed HIV/AIDS patients as hopeless beings due to the irreversibility of the health condition. One of the key informants described the HIV/AIDS patients as: "*Daw ka black na gid*", referring to the health condition or the future of the patients as the disease is not susceptible to remedy or cure. Hopelessness and HIV have both been associated with each other in a study conducted by Kylma, J. (2005) entitled *Despair and hopelessness in the context of HIV--a meta-synthesis on qualitative research finding*.

A.3. Lack of Knowledge

Nurses viewed patients who had acquired HIV/AIDS as unaware, unfamiliar, and poorly educated in terms of the disease process including the mode of transmission. In addition, some participants viewed the acquisition of the disease as a consequence or outcome of the patients' own doings or actions.

One participant stated: *"para sa akon, living the life before and they're not ano sa risk nga ara sa activities gina ubra nila before they are not knowledgeable or they are knowledgeable but daw ka wala, Hindi nila ma see ang severity sang mga action nila. "* (*Maria*)

A.4. Incurable and Debilitated

Participants viewed the case of patients diagnosed with HIV/AIDS as a lifetime condition and without a cure. The worsening condition of these patients were recognized which is typical as the virus weakens the infected individuals' immune system, making the patients susceptible to a lot of opportunistic infections. As stated by *Maria* (aka):*"Sa akon ano, daw ka forever nga ara sa imo hindi na siya makuha "*

A.5. Stigmatized

Nurses even with knowledge about HIV/AIDS were not spared to have a negative stereotype view of an individual with HIV like being immoral, irresponsible, to be feared of and many more. The nurses regarded patients with HIV/AIDS as people who are considered outcasts in the community. The society tends to separate themselves from and belittle HIV/AIDS patients. As verbalized: *"may ara gid na ya stigma nga anu naman ni, basi multiple partner ni siya and stuff. pero at the same time we also think what cause them to be like that."* (*Maria*)

A.6. Gender Bias and Social Status

The general knowledge that gays engages in same sex relationship contributed to assumptions that gays are likely to acquire HIV and can be a carrier to others. This is on top of the perception that they have multiple sex partners and engages in anal intercourse. This problem has been closely associated with increased incidence among call center agents. One participant claimed that most HIV/AIDS patients belong to the LGBT, gays in particular, and mostly professionals working in Call Centers. *Inigo* (aka) mentioned:

"It's more on gays", "mostly working in call center and mga high school peers, friends of some drug addicts" (*Inigo*)

It has been reported that gays, bisexuals, and men who have sex with men are the population with the highest number of HIV/AIDS cases in the United States. (aidsinfo.nih.gov). Moreover, in a study conducted by the University of the Philippines Population Institute and the DOH entitled "Lifestyle and Reproductive Health Issues of Young Professionals in Metro Manila and Metro Cebu it was proven that the increase in the number of HIV/AIDS cases among call center workers is due to early engagement to penetrative premarital sex, and casual, non-romantic sex which mostly involves men having sex with men." (www.philstar.com)

B. Dealing with HIV/AIDS Patients

B.1.Fairness and Equality

Contrary to the results of some studies that unfavorable treatment were given to HIV/AIDS patients as Nurses who participated in the study dealt HIV/AIDS patients the same with the other patients without the infection. Furthermore, they viewed and treated patients of any case or diagnoses equally.

"Ang lessons pa gid... ano pa gid man, biskan may ano sila HIV/AIDS bisan diagnosed give them the care that they deserve amo na guro kag don't make them feel nga amo na that they will be ashamed na sa ila kaugalingon indi mo paghambalon nga may AIDS ka amo no don't judge the patient biskan tuod amo na sila they are still humans, they need care kag treat them ano gyapon as a regular person amo na na guro ah (laughs)" (Diego)

B.2.Fear and Hesitations

The stigma attached to persons with HIV specifically the fear of contracting the disease when exposed to these patients likely influenced these feelings and behavior. This is somehow true for individuals with or without the knowledge of the disease and its mode of transmission. Two of the participants associated having feelings of fear and hesitation, the first time they knew that they will be assigned to HIV/AIDS patients.

B.3.Personal Safety Issues

Healthcare providers were taught about universal precautions to deal with varying health conditions of patients. This is with the purpose of safeguarding oneself which is deemed important in any healthcare setting. In CLMMRH, the Infection Control Committee (ICC) is responsible for the implementation of policies related to safety not only of the patients but primarily that of the personnel. This likely influenced the views of the studied participants. They expressed that while they are considerate of the patients' safety and well-being, they are equally concerned of their own personal safety. Hence, they properly observe universal and standard precautions in carrying out nursing tasks. Nurses enumerated the following safety measures: *"handwashing" "special precautions... may PPE, double gloving"* (*Inigo*)

B.4.Positive Regard

Positive regard, a concept developed by the humanistic psychologist Carl Rogers, is the basic acceptance and support of a person regardless of what the person says or does, especially in the context of client centered therapy. With this, nurses are expected to care not only the physical problems as well as the emotional and spiritual health of patients. Humanistic theory of Josephine Paterson and Loretta Zderad which is the care of human as a whole has been a part of the Nursing theories taught in the foundation in nursing education.

C. Factors Affecting the Approach of Nurses Towards HIV/AIDS Patients

C.1.Nurses' Attitude, Fear, and Hesitations

Participants claimed that their fear and hesitations are among the factors that influenced how they approached HIV/AIDS patients. In addition, their attitude and behavior are also significant factors in their approach, their patience and stress level.

"Kulbaan eh, nervous kag syempre para bal an mo man bla haw daw ka challenge man bla haw kay new experience." (*Paul*)

C.2.Patients' Attitude/Behavior

Individualized approach in caring for patients has been universally accepted. This was supported by the citation in the article written by Professor Jan Draper and Dr. Josie Tetley entitled "The importance of person-centered approaches to nursing care "Person-centered approach to nursing focuses on the individual's personal needs, wants, desires and goals so cited several patient-related factors that affected how nurses dealt with the patients, thus, an individualized approach is being utilized. Below is the verbatim:

"Pero usually sila bi daw ka hindi ka open up gid... mahatag lang sila few details pero not to that extent " (*Maria*)

C.3.Self-Preparedness

Certain competencies are required in relation to the care of HIV patients and these competencies comprise knowledge of the disease, the skill to implement or carry out nursing care, and the right attitude. For a person to be competent, there are necessary preparations. Participants in this study had identified their own preparedness or readiness in handling HIV/AIDS cases as another factor which played a vital role on how nurses approached HIV/AIDS patients.

"Ang akon bala readiness or preparedness nga mag handle sang patient nga amo na basi kulang akon knowledge kung paano ko sila e handle kag basi ma latnan ko so amo na siya " (*Sam*)

One theme that emerged is the self-preparation awareness prior to the care of patient with HIV. A study entitled, *Nurses' knowledge and attitudes to HIV/AIDS-*

- an international comparison between Finland, Estonia and Lithuania, found that factors positively influencing levels of knowledge and attitudes were education, previous experience of providing care to HIV/AIDS patient or knowing someone with the infection, and willingness to provide care to HIV/AIDS patients.

D. Challenges Encountered by Nurses in Caring for HIV/AIDS Patients

D.1. Contact Procedures

HIV/AIDs can be acquired through blood and body fluids that require a nurse to always observe standard precautions. In relation to the risk associated with HIV/AIDS, nurses also have developed fear in performing nursing procedures that would put them at risk of handling blood and body fluids.

D.2. Difficult Patients and Significant Others' Behaviors

The stigma attached to HIV/AIDS would cause a major impact to the person's behavior and outlook in life. Many would go into depression, other would see themselves as hopeless causing them to be irritable and hard to manage individuals.

Three out of the 5 participants indicated that they perceive dealing with patients' difficult behavior and additionally, the need to deal with significant others pose a great challenge in caring for HIV/AIDS patients.

"*Ang gaputak da ang bantay (laugh)). Sila ya ang intense sila natabu sa pasyente mo. Sila na ma confront simu may amu sina , bali you have to deal with significant other in a nicer way, in kind manners kay eventually ma smooth na relation nyu pati sa iya nga patient.*" (*Inigo*)

D.3. Inadequate Facilities and Resources

Three (3) out of the five (5) participants stated there is inadequate facility in terms of space and availability of rooms for HIV/AIDS patients. These were one of the major concerns since these hinder the nurses from carrying out their duty as a caregiver to patients with HIV/AIDS.

"*Kadulum nga kwarto, wala suga…, kainit kag medyo uncomfortable"* (*Diego*)

An ideal work setting that would address safety and ease in working is always desired by everyone. In a study entitled, "*Stigma, an important source of dissatisfaction of health workers in HIV response in Vietnam: a qualitative study",* findings show the importance of actions to improve staff job satisfaction such as pay raises, supportive supervision, stress management, stigma reduction and workplace safety. (Pham, H.N., et.al, 2012).

This is further supported by the statement of one of the key informants when he stated: *"kulang and time, kulang and space, kulang ang tanan."*

D.4. Knowledge Deficit and Lack of Training Opportunities

Also, nurses point out that lack of training opportunities and awareness campaigns within the hospital setting regarding HIV/AIDS. As one of the participants indicated:

"*Waay siguro, daw way man gani mga seminars regarding sang amu sina. Imu lang gid guro eh ikaw na lang gid ya anu eh, ti ikaw ma na ga handled eh imu mana*". (*Paul*)

D.5. Nurse-Patient Ratio and Time Constraints

The influx of patients results in overcrowding and, nurses are faced with long working hours and a great deal of pressure as explained by the participants

According to M.V Koto & P.Maharaj (2016), *the shortage of staff has meant that they had to assume additional responsibilities and they do not have the option of refusing to undertake certain tasks. In addition, they reported feeling discouraged when they see some of their patients becoming progressively worse over time. They feel that they are working extremely hard to bring about positive changes in people's lives; however, they feel they are not winning the battle against AIDS because of the high volume of patients.*

E. Nurses' Perception of their Experience in Caring for HIV/AIDS patients.

E.1. Development of Empathy and Caring Relationship

Empathy is a complex multi-dimensional concept that has moral cognitive emotive and behavioral components. *Clinical Empathy* involves ability to understand the patients' situation, perspective, and feelings (and their attached meanings), communicate and to act on that understanding with the patient in a helpful (therapeutic) way (Mercer, S.W., Reynolds, W., 2002).

Nurses claim that the interactions with HIV/AIDS patients have brought about feelings of Empathy and has led to the development of a caring relationship in a sense that they are willing to put themselves in the patients' shoes and have become genuinely concerned of the patients' needs.

E.2. Gaps in Nursing Care

The nurses have identified several factors that have contributed to the lapses in the provision of nursing care. However, they remained aware and conscious of these lapses and continue to exhaust all efforts to provide a quality nursing care to HIV/AIDS patients.

When asked to rate themselves in a scale 1to 10 with 1 being the lowest and 10 being the highest, the participants admitted that despite efforts to provide the best possible nursing care, they have lapses in nursing care that they have provided.

E.3. Holistic Approach to Patient Care

An individual is composed of several aspects which are of equal importance. Thus, it is vital to be able to address the needs and nourish each aspect of the being so that a holistic health could be achieved.

The 5 participants viewed the patients as individuals not only in need of physical care but more of an over-all approach in the four aspects namely: Physiologic, Social, Spiritual and Emotional.

"Ihatag mo man tanan completo na da may physical may spiritual, syempre kabilugan na eh, bilang isa ka nurse eh…" (*Paul*)

F. Effect of the Experience of Caring for HIV/AIDS Patients on Nurses

F.1. Empathy and Non-Judgmental Approach

Despite the social stigma associated to HIV/AIDS, nurses have viewed HIV/AIDS patients differently given their orientation and close and constant interaction with PLWHA. The Nurse-Patient Relationship has allowed the nurse to develop a sense of Empathy and a shift on viewing the patient from a negative standpoint to a more positive, non-judgmental view.

The nurses were bias-free and were more sensitive with their approach to patients with HIV/AIDS as verified in an article published by Nursing Times (19 March 2011), it was discussed that: *Although it is unrealistic to think the stigma associated with HIV can be eliminated, we can reduce its effects by challenging misconceptions and judgmental attitudes. This will improve the quality of life of those living with HIV and is likely to increase the uptake of both screening and treatment and people with HIV are also more likely to receive and act on information about preventing onward transmission. This has both human and financial benefits as the cost of preventing HIV transmission is considerably less than the cost of treating the condition. The message going forward must be "less blame, less shame, less stigma, less HIV".*

F.2. Feeling of Fulfillment and Appreciation

Appreciation is a confirmation that the patients and relatives know and understand what the nurses are doing for them. Signs of appreciation may be expressed verbally or in a form of a survey form in the Public Assistance and Information Desk (PIAD). Three out of the 5 participants view their experience of caring for patients diagnosed with HIV/AIDS as a fulfilling experience especially when their efforts are recognized by the patients themselves or the significant others.

"*As long as gin ubra mo ang imo nga job regardless kung ano siya kung ano ang attitude ya. Basta gin ubra mo ang your job as a nurse. Siguro ma hambal ka man ya nga daw ka okay man daw na ubra ko man ang dapat ko maubra para sa iya.* "(*Sam*)

F.3. Ensuring Personal Safety

As stated in Maslow's Hierarchy of Needs Safety and Security are among the top priority of every individual. In this context, above the professional and personal responsibility that a nurse must consider, the participants still prioritize their own personal safety before giving care to patients with HIV/AIDS as verbalized:

"*The experience taught me how to be careful gid always follows the safety measure when dealing that kind of patient…Be very careful, always consider the consequences sang actions, always consider your safety and ne learn ko gid ang nursing hindi basta basta ma ubra kay ti ang imu life is also at risks when dealing those kinds of patients.*" (*Maria*)

F.4. Personal and Professional Growth

Attainment of personal and professional growth are every individual's desire. It was believed that the improvement of the nurses' knowledge, skills and attitude contribute to the individual's professional and personal growth. Participants shared their realizations on this sense of advancement:

"*Siguro mahambal ko gid nga nag grow gid professionally in terms of the knowledge sa skills mo kag sa attitude mo the way ka mag deal sa ila.*" (*Sam*)

F.5. Sense of Commitment

A deeper sense of commitment was developed by the nurses in the care of HIV/AIDS patients despite of the circumstances and struggles, they were overpowered with the will and commitment to serve.

F.6. Taking an Extra Mile

Going beyond what is required of them and extending beyond their duty hours have been expressed by the nurses . One of the participants explicitly said:

"P*ero kung you try to go beyond sa mga butang nga amo na ma realize mo nga kung wala ko siya gin insertan gali te ang bulong to wala to na hatag eh daw amo na bala haw sa amo lang na nga bagay daw damo ka man ma realize nga te you have to extend your patience kag e ano mo ang pasyente ah palangaaon as normal gyapon nga indi ka maghambal hurtful words, treat them with respect and love that they deserve amo lang na guro* " (*Diego*)

CONCLUSION

After the attentive reflections, intelligent understanding of the participants' responses the findings of the study show that the Lived Experiences of Nurses in Caring for HIV/AIDS patients is a "Transformative" one in the context of a total shift from the stigmatization of being Commiserated, Hopeless, Lack of knowledge, Incurable and Debilitated, Stigmatized and Gender Bias and Social Status into realizations of Empathy and non-judgmental approach, feeling of fulfilment and appreciation, Ensuring personal safety, personal and professional growth, sense of commitment, and taking an extra mile.

RECOMMENDATION

From the findings of the study, the researchers recommend the following:

Conduct of awareness campaign on HIV/AIDS must be continuously implemented to both healthcare care team and the public and the inclusion of HIV/AIDS during the orientation of healthcare team;

Improvement in the facilities of the HACT office especially in providing enough office space to carry out the interventions needed for patients without compromising confidentiality;

Addressing staffing issues to improve nurse-patient ratio thereby allowing more time and opportunity for nurses to deliver the highest possible quality of care to HIV/AIDS patients; and

Conducting a quantitative study to measure the level of Nurses' Knowledge, Skills, and Attitude in caring for HIV/AIDS patients which would serve as baseline data for the formulation of training programs.

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Analysis of the Compliance of Level 1 Hospitals and Infirmaries in Western Visayas to the Licensing Standards of the Department of Health

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GAPS AND CHALLENGES

Hospitals in the Philippines are regulated according to their service capacities and compliance with standards for manpower, equipment, construction, and physical facilities. The mandate to assess and classify health facilities is elaborated in AO 2012-0012 and AO 2012-0012-B, whose objectives are to protect and promote health by ensuring a minimum quality of service rendered by hospitals. The licensing of hospitals and infirmaries is one of the regulatory mechanisms currently employed by the Western Visayas Center for Health Development (CHD) in fulfilling this mandate. Aside from conducting the assessment to monitor compliance and conduct licensing, it is also mandated to provide technical guidance to health facilities. However, despite dissemination of licensing standards and technical support of the CHD, assessments of hospitals and infirmaries since the promulgation of the AO show that several facilities still fail in certain areas and are unable to be compliant.

OBJECTIVES

This study aims to assess the areas and factors affecting non-compliance of Level 1 hospitals and infirmaries in the Western Visayas Region to the licensing standards of DOH.

METHODOLOGY

This study utilized mixed methodology to analyze level 1hospitals and infirmaries utilizing quantitative and qualitative data collection. Initially, a data collection tool was developed by the team based on the 2015 licensing tool of DOH, indicating proxy indicators for the major areas of licensing. Western Visayas CHD licensing records for 2015 to 2017, the primary source of data for the review of licensing status, was reviewed by the project team and encoded in a data abstraction file. The most frequent areas of non-compliance were analyzed quantitatively based on a review of records. Factors affecting compliance were explored through qualitative methods. Key informant interviews were conducted to determine facilitating and hindering factors affecting compliance of health facilities to licensing standards.

RESULTS

The results of this study indicate that at least 38 health facilities were not compliant with licensing standards of the Department of Health for level 1 health facilities. The greatest number of non-compliant health facilities were found on ENT Diagnostic set or equivalent with 38 (58%) non-compliant health facilities, followed by Thermometer – Oral/Rectal with 30 (47%). Moreover, 30 (46%) health facilities were recorded as non-compliant in three areas of the operating room complex (Major OR, Sterile Area, and Scrub up Area), while 29 (44%) health facilities were non-compliant in all areas of ancillary services (Secondary clinical laboratory, Imaging/Radiology, and Pharmacy).

Among areas that were identified for non-compliance, it can be noted that some are lacking equipment and/or supplies that can easily be purchased through procurement process. However, a significant barrier is present in health facilities which requirements infrastructure and systems support to comply with licensing standards, such as the establishment of an operating room complex and ancillary services. These types of areas would require infrastructure support for their area, equipment and supplies, additional manpower, and integration in hospital operations, which would require significant time.

RECOMMENDATIONS FOR POLICY AND PROGRAM

The results of this study show several areas of non-compliance among level 1 health facilities and infirmaries in Western Visayas. Common areas of non-compliance include clinical services, equipment, and supplies. Moreover, the compliance of health facilities to standards are influenced by governance factors, policy and standards factors, and resource management factors. Based on the results of this study, the researchers recommend the following to enhance compliance to licensing standards:

1. DOH CHDs to conduct capacity building programs for managers on licensing, resource management, and procurement.
2. Assignment of a focal person in health facilities responsible for compliance to licensing standards, ensuring capacity in planning, projection of needs, lobbying for resources and procurement
3. Conduct of further studies be conducted at the national level to validate the findings of this study in other regions.
4. Regular evaluation by Regional and National Officials on developments in hospital services and the implications on licensing, regulation, and standard practice of health facilities.

Evaluation of Nurse Deployment Program in Health Service Delivery in Western Visayas

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GAPS AND CHALLENGES

In recent international declarations and commitments, health workforce is recognized as strongly linked to attain the global aspiration for universal health coverage to achieve better health outcomes. In October 2017, the Western Visayas Center for Health Development (CHD) released a Department Order implementing the Human Resource for Health (HRH) deployment program for doctors, nurses, dentists, medical technologists, midwives, nutritionists-dieticians, pharmacists, universal health care implementers and other health professionals. This regional policy is aligned with the strategies under the Philippine Health Agenda 2016-2022 and health related Sustainable Development Goals (SDG).

Since its implementation in the region, an evaluation on its association with specifically to the improvement of health services delivery on deployed areas at the community setting needs to be seen to enhance decision making and recommend policies regarding implementation of the program (DOH RO6 DO, 2017). The results of this study shall generate baseline knowledge to maximize the nurse deployment program of the DOH, specifically to develop strategies in deploying nurses in the community/public health setting in the region given cost to support the program.

OBJECTIVES

The study aims to assess the association of deploying nurses in communities and MNCHN indicators of Western Visayas as stipulated in the NDP. Specifically, it aims to: 1) Determine overall status of implementation of NDP in terms of number of nurses hired, location and other programmatic outputs that are routine of program monitoring; 2) Describe the roles and performance of the nurses under NDP at the community health level in Western Visayas; and 3) Analyze the relationship of performance of the professional nurses deployed under the Nurse Deployment Program (NDP) vis-a-vis health service indicators of programs implemented in Rural Health Units.

METHODOLOGY

This study will utilize mixed methods research design to achieve the research objectives. Moreover, the study will utilize a concurrent embedded design with correlational model with a qualitative embedded within a quantitative study. A total of 1341 nurses in 2017 were employed in the region as part of NDP. Based on sample size for one proportion with a 20% incomplete charts, a total of 93 randomized individual records will be included per province with listing of employed nurses by Western Visayas Human Resource Department as the sampling frame. Descriptive statistics will be used for the population and univariate analysis as well as multivariate analysis will be used for association. This will have a 95% level of significance. A purposive sampling will be done for focus group discussion, thematic analysis based on the KII/FGD guide will be done.

RESULTS

There were 93 performance records included in the desk review and one was excluded since the record have incomplete data on performance assessment. There were 13 participants who participated on focus group discussions. There were positive observations on the implementation of NDP in Western Visayas such as:

1. Nurse professionals were punctual and with good attendance record (77.42%), compliant to office rules and regulations (73.12%), good record in terms of human relations (69.89%), resourceful and has initiative (38.71%) during deployment. All target accomplishments of the seven programs have 100% accomplishment.
2. CHD of Western Visayas has strong support in NDP program in terms of leadership, partnership, policy, finance, education and HRH management system.
3. NDP is observed to be essential in the delivery of health services as it augments local workforce, distributes workload and improved skill mix in their respective area of assignments.

On the other end, challenges and gaps lies on the following:

1. Nurse professionals were not punctual and without good attendance record (22.58%), not compliant to office rules and regulations (26.88%), problems on discharging good human relations (30.11%), not resourceful and has or little initiative (61.29%) during deployment.
2. Six of fourteen public health programs have 0% accomplishment. One of seventeen public health program has no data on accomplishment.
3. There is a need to further develop competencies of NDP nurses through continuity of work in various public health programs.

RECOMMENDATIONS FOR POLICY AND PROGRAM

1. Regularizing the augmented health workforce to address skill mix and workload will contribute to the delivery of quality and safe health services.
2. Enhance education opportunities for NDPs to maximize their service capacity.
3. Review and enhance performance management system to monitor contributions of nurse deployment on various health, community, programmatic and management indicators.

Evaluation of the Community Based Rehabilitation Training Program in Western Visayas

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GAPS AND CHALLENGES

The Philippines reported an average of yearly admissions of 4,155 patients in drug treatment rehabilitation centers in the country from 2002-2016, with about 90% of admissions due to methamphetamine abuse. The 2015 Nationwide Survey on the Nature and the Extent on the Nature and Extent of Drug Abuse in the Philippines by the Dangerous Drug Board (DDB) estimated that the current prevalence rate, or current users is 2.3% or 1.8 M out of the 102.9 M Filipinos, while the lifetime prevalence is 6.1% or 4.8 M. It is also estimated that 87% of the current users are male, with a male to female ratio of 7:1. As for regional distribution, it is estimated that the Visayas region has the highest prevalence of drug users. The Duterte administration has identified substance abuse as a priority program that needed better preventive, advocacy, and interventions. Hence, the Department of Health led the Provision of the Community Based Rehabilitation Services for Persons Who Use Drugs through trainings. The program was developed to enhance human capacity development in the local government unit level on drug screening, assessment, and rehabilitation at the community level.

OBJECTIVES

This study aims to assess effectiveness of the rolled-out program to contribute to planning and implementation of community-based rehabilitation programs and services by the Department of Interior and Local Government in cooperation with the health sector. The study aims to evaluate the effectiveness of the training of Community Based Rehabilitation Services for Persons who use drugs, particularly in terms of geographic reach, training content, rehabilitation activities and training effectiveness. This is perhaps the first review of the program that was only started in 2016. Hence, it forms a situation analysis of initial implementation.

METHODOLOGY

The study utilized mixed methods. Quantitative data were collected from facilities and municipalities including number of trainings, training topics, training hours, reports from Interagency Committees on Anti-Illegal Drugs (ICAD) in municipalities, treatment utilization and outcomes. Qualitative information was collected through focus group discussions using the Kirkpatric Training Evaluation Framework namely, 1) Reaction, 2) Learning, 3) Behaviour and 4) Results. A health system + demand side analysis was conducted to have a complete picture of the training and program.

RESULTS

One-hundred and twenty-five trainings have been conducted since 2016 when the program started. Most of these (67.2%) were done in Iloilo and in Bacolod City, perhaps because these are urbanized areas with more people. The data included number of days, topics covered, ICAD reports and training outcomes e.g. drug cleared status, advocacy activities, screening, and utilization of care, etc. Other data collected included number and nature of admissions, substance of use and treatment outcomes.

Discussions identified certain themes that provide the picture of training and implementation. Initiation of the program came from the national and regional directive and training modules were provided. The shift to new guidelines was perceived to improve training and implementation. Partnership and coordination with PNP and religious groups were high even as outcome indictors were not only for health, but mostly for local governance. Implementation barriers and challenges included: changing guidelines; insufficient LGU/ LCE support; unclear roles and activities; non-functional anti-drug action groups and inadequate guidelines and aftercare services.

POLICY AND PROGRAM RECOMMENDATIONS

The community-based efforts on treatment and rehabilitation of persons who use drugs of the Western Visayas region immediately started as soon as the national government focused on anti-drug campaigns. The Region, despite the absence of national guidelines and algorithms on the latter half of 2016, was able to come up with its own training activities and local initiatives for their drug surrenderers. Mobilization for subsequent trainings that are already based with the official national level guidelines were met with ease, as the region has already collaborated and organized cities and municipality level community-based rehabilitation service providers, especially in terms of the health sector. However, there are still local chief executives and those who hold local government positions that may need more political will in prioritizing these efforts.

Clearly, this is a new program that is being developed as it is being implemented. Local knowledge and systems are still adjusting to understand and implement different activities. Weaknesses and challenges are expected in new programs. Hence, local governments and the Regional Office must keep a "developmental mindset" among their program managers and implementers. With that in mind, it is important to continue training activities, but to focus on areas where fewer activities have been conducted. Experiences, practices, and strategies that fail should be recorded with systemic perspective to improve training content, programmatic operations, and M&E indicators. The health sector is a main player in this program because outcomes of success are outcomes of health and wellbeing. Hence, M&E appropriate for health should be developed.

Assessment of the National Immunization Program Implementation and Vaccine Supply Chain in Western Visayas

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GAPS AND CHALLENGES

Since the vaccine was introduced in the Philippines, several issuances have been released to guide the implementation of the immunization program. The goal of the program is to reduce morbidity and mortality rates due to vaccine-preventable diseases. The Western Visayas Center for Health Development (CHD) had a low percentage of completely immunized children based on Department of Health (DOH) Data in 2015. According to more recent data, the region had a low immunization program implementation rate (DOH, 2016). With this premise, this study aims to assess and provide recommendations to scale-up the implementation of the NIP and improve its vaccine supply chain at the regional level. The need for this study is supported by current data that Western Visayas among 17 regions in the Philippines has the lowest percentage of completely immunized children (DOH, 2015). In addition, there is a large gap on cold chain capacity from the national down to the local level (DOH, 2011). Considering this, it is essential to establish evidence for programmatic intervention and future policy developments.

OBJECTIVES

The study aims to assess the regional implementation of the NIP and its vaccine supply chain in Region VI, Western Visayas. Specifically, it aims to:

1. Describe the regional implementation status of the immunization program in Western Visayas in the last five years.
2. Describe the regional implementation status of the NIP in Western Visayas.
3. Describe the current vaccine supply chain management in Western Visayas.

METHODOLOGY

The study employed mixed method with concurrent triangulation design through focus group discussions, key informant interviews, and facility-based surveys. The study respondents were Expanded Program on Immunization (EPI) Regional Program Manager/s, EPI coordinators and Cold Chain Managers in Western Visayas. The study population were involved in planning, implementing, monitoring, and evaluating the performance in implementing NIP and its supply chain at the regional and local levels in Western Visayas. Quantitative data was manually encoded. Qualitative data will be recorded and transcribed based on recordings during the interview sessions and uploaded in one central data repository using Google drive.

RESULTS

Extracted data from Field Health Services Information Systems of the Department of Health revealed that the national and regional immunization data showed a downward trend over the period of five years, from 2013 to 2017. In fact, at the national level the target for FIC is 95% but the national average of fully immunize children is between the range of 67.47% to 74.55%. At the regional level it is below the national average, where the range is between 66.63% to 73.39%.

The CIC target at the national level is 80%. The national average of CIC in the period of 2013 to 2017 is between 8.11% and 10.35%. At the regional level it is lower than the national average, where the range is 2.82% and 7.48%.The CPB target at the national level is 95%. The national average of CPB in the period of 2013 to 2017 is between 72.49% and over 100%. At the regional level it is lower than the national average, where the range is 82.42% and 85.23%.

Among the health systems building block, leadership and governance, medical products and technology, health workforce and service delivery are the most concerning areas. In addition, community (or demand generation) vaccine hesitancy was observed due to publicity of serious events related to vaccination.

RECOMMENDATIONS FOR POLICY AND PROGRAM

Overall, there are important considerations to improve implementation of the NIP in Western Visayas. Based on the results of this study, the following are recommended:

1. Strengthen local government partnerships with local institutions for enhanced local implementation
2. Investment on training activities to improve knowledge, skills and capacity of local health professionals on logistics and cold chain management
3. DOH M&E framework should include logistics and cold chain management with measures e.g. stock outs, delivery time, wastage, etc.
4. Streamlining of immunization information system and procedures (recording, reporting and analysis of available data) at the local, provincial and regional levels.
5. Auditing of workforce skill mix, workload and competencies in immunization services, taking note of the number of vaccines and processes that have increased over the last 10 years.
6. Ensure resources for regular bottleneck analysis and supportive supervision.
7. Ensure resources for regular community engagement sessions and improve health education and promotion services on NIP.

Rapid Assessment of the Implementation of the Maternal and Newborn Child Health and Nutrition Program in Western Visayas

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GAPS AND CHALLENGES

Western Visayas Region still has a high maternal mortality with a rate of 71.63 per 100,000 in 2016, despite increased budget allocation in the Maternal and Child Health Program. Notable MMR at the city level, Bacolod has a rate of 240 in 100,000; while at the provincial level, Negros Occidental has an MMR of 75.74 in 100,000. Region VI indicated a higher mortality rate, infant mortality rate, and maternal mortality rate, as compared to the national average in 2016. Among the provinces, Negros Occidental recorded the lowest death rate and infant death rate at 3.92% and 5.91%, while Antique has the highest death rate at 6.85% and maternal mortality rate at 71.60%. The province of Aklan had the highest infant mortality rate at 15.00%.

Reasons for the high rate of maternal mortality in the region include the delays in referrals, inadequate transportation, or emergency vehicle in geographically isolated and disadvantaged areas (GIDAs), deficiencies in blood supply and low numbers of antenatal coverage. There is lack of skilled birth attendants, especially in far-flung areas and the inadequacy in skills providing BEmONC services at the RHU level. A robust assessment of the MNCHN program implementation at the region has not yet been conducted.

OBJECTIVES

The study aims to provide a rapid assessment of the Maternal, Newborn and Child Health Program and outcomes in the Western Visayas region. A focus on the following factors/ indicators was done services, health human resources, referral systems, administrative support, policies, and facilitating and hindering factors.

METHODOLOGY

Mixed methodology was applied in the study. For the quantitative part, 43 indicators-variables were reviewed and analyzed. These indicators included general maternal and newborn care, antenatal care, delivery, postpartum and referral services. Qualitative data were collected and analyzed through guided interviews focusing on human resource capability, administrative support, health services, referral systems, and facilitating and hindering factors.

RESULTS

A total of 93 health facilities from six provinces were included in this assessment. In general, health education natural family planning, antenatal services, and promotion of breastfeeding are delivered without any issues. Assisted delivery for breech is least conducted in rural health facilities.

PhilHealth support through benefit packages reduce IMR and MMR. Aklan, Antique and Negros Occidental, where there are most numbers of facilities without PhilHealth accreditation, have higher IMR and MMR.

Although 89% of facilities are able to provide perinatal services, 11% who are not able to do so are because of inadequacy of trained doctors and nurses, especially in urbanized areas where they have other options for employment.

Barriers to effective healthcare include general mistrust of public rural health facilities, procurement delays in medicines and supplies, and licensing/ renewal of facilities.

Intermediate referrals to provincial and district hospital are essential, although most are through family-owned transportation and paid from out-of-pocket. There is potential to transfer risk of transportation from families to health insurance or facility support. There is a perception that doctors are not available in these hospitals because of lower salary compared to practice in urban areas. In urbanized areas, there is less incentives for public health centers to aim for PhilHealth accreditation because there are other options for services.

Policies on Traditional Birth Attendants vis-à-vis Facility Based Delivery have caused confusion during periods of policy shifts. But these should be improved more individuals are integrated into the formal sector and as *hilots* are going towards retirement.

POLICY AND PROGRAM RECOMMENDATIONS

1. Investment on BEmONC trainings and supportive supervision have shown positive outcomes and should be continued. Training activities, supportive supervision and monitoring should be continued.
2. LGUs through active Local Health Boards have a key role in analyzing local challenges and coming up with local solutions, particularly in local policy development, provision of resources and ensuring referral mechanisms.
3. Capacity for procurement and health facility management are essential to ensure availability of supplies and licensing/ renewal procedures. Local health officials and health professionals with roles in management should have training activities and on-the-job exposure.
4. A huge gap in maternal and child health services appear to be at the provincial and district hospitals. Obstetricians and pediatricians in this level should be familiar with the BEmONC-CEmONC approach, the public health system and have a more active role in providing mortality and complications. They will ensure availability of capacity, form referral points, provide technical guidance and quality checks and manage trust among colleagues in the health care spectrum.
5. Access to provincial hospitals with capacity should be supported through maximizing existing PhilHealth support and LGU resources.

NEUROLOGY
CASE REPORT

Decrease in Sensorium in a 43-Year-Old Male: A Case Report of Artery of Percheron Infarction

Odessa S. Sales, MD[1], Patricia Ann Canto-De Guzman, MD[2]

ABSTRACT

Background
Thalamus is situated at the rostral end of the brainstem and its important function is to relay information as well as an integrative station for information passing to all areas of the cerebral cortex, the basal ganglia, the hypothalamus, and the brainstem. Artery of Percheron (AOP) is an anatomic variant that supplies the bilateral paramedian thalami and rostral midbrain. Acute artery of Percheron infarcts represent only 0.4-0.5% of total ischemic strokes. Infarct in the area of AOP can present with altered mental status, memory impairment, and oculomotor dysfunction. MRI is the diagnostic imaging of choice and shows hyperintensity signal in the distribution of AOP. Treatment includes thrombolysis and intravenously administered heparin and long-term anticoagulants.

Narrative
A case of 43-year old male who was brought to the emergency department due to unresponsiveness. GCS 7 (E1V1M5), intubated, isocoric pupils with noted medial rectus palsy, and able to follow command. Initial Cranial CT angiogram and Cranial CT scan plain were requested however unremarkable. Lumbar tap was also done to rule out infectious process however with normal laboratory result and no microorganism seen on CSF culture. Repeat Cranial CT scan plain was done revealing subacute bithalamic and rostral midbrain infarct, Artery of Percheron territory. Antiplatelet was started and was continued as maintenance medication.

Discussion
Artery of Percheron infarcts are rare. The radiological diagnosis can initially often be judged as normal and in combination with variability in the neurological symptoms it is a rather difficult condition to diagnose. Due to diversity and inconsistency in presentation and lack of localizing signs, it causes delay in diagnosis and initiation of appropriate treatment.

Keywords
Thalamus, Artery of Percheron (AOP), Cranial CT scan, Cranial CT angiogram, Infarction

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INTRODUCTION

Acute stroke or brain attack causes onset of focal neurological findings in a vascular territory because of underlying cerebrovascular disease. Stroke remains the leading cause of disability and death in the Philippines. Based on types of strokes, 7 out of 10 are diagnosed as ischemic and the rest are hemorrhagic. Toast classification denotes four subtypes of ischemic stroke: large vessel atherosclerosis, small vessel disease or lacunar infarcts, cardioembolic strokes, and cryptogenic strokes. Artery of Percheron (AOP) is a variant of the paramedian thalamic vasculature that supplies blood to the medial aspect of the thalamus and the rostral midbrain. Presentation of infarct in this territory is characterized by nonspecific neurological deficits but the most common are altered mental status, memory impairment, and oculomotor dysfunction. Since AOP infarct lacks the classic signs of stroke, there is a delay in the recognition and treatment with the majority of patients were already started with treatment outside the therapeutic window.

This case report aims to present a case of infarct in the Artery of Percheron in a 43-year-old male, its presentation and outcome, the pathophysiology, epidemiology, approach to diagnosis, and therapeutic management.

CASE NARRATIVE

A case of a 43-year-old male, Filipino, presented into the emergency department due to decrease in sensorium. The history of present illness started 1 day prior to admission when the patient experienced tolerable throbbing headache attributing this to exposure to the sun working as a street sweeper. This throbbing headache persisted on the night prior to admission with pain scale of 7/10 relatively relieved with intake of Paracetamol. The patient went to sleep afterwards but 6 hours prior to admission, he was observed to have excessive snoring different from his usual with noted difficulty arousing the patient. He was brought to a local district hospital and was given with unrecalled medications but referred to the higher of care due to deterioration of sensorium. The patient has no comorbidities but he is a 10 pack-year smoker, occasional alcoholic beverage drinker and denies illicit drug use. There is a family history of cerebrovascular disease bleed and cardiogenic shock secondary to heart failure on the patient's maternal side.

On physical examination, the patient on presentation was GCS 7 (E1V1M5), normotensive at 110/80, with heart rate of 57 bpm, tachypneic at 22, afebrile at 36.7 degrees Celsius, with oxygen saturation at 96% at FiO2 100%. The patient had pink conjunctivae, anicteric sclerae, no neck vein engorgement, no cervical lymphadenopathies, thyroid not enlarged, no carotid bruits. For the chest and lungs, no palpable masses, equal fremitus, vesicular breath sounds. Cardiovascular exam revealed adynamic precordium, regular rhythm, no murmurs appreciated. The rest of the physical examination were unremarkable. For the neurologic examination, the following were the cranial nerves findings: CN I, II: cannot be assessed at time of examination; CN III, IV, VI: (+) pupillary constriction, (+) medial rectus palsy, no extraocular movements; CN V: (+) jaw clenching, (+) corneal reflex; CN VII: (+) forceful eyelid closing, (+) minimal facial movements, cannot assess sensory; CN VIII: (-) doll's eye reflex; CN IX, X: (+) intact gag reflex; CN XI: (+) trapezius twist; CN XII: (*intubated*) cannot be assessed at time of examination; Meningeals: (-) for Kernig's, Brudzinski, no nuchal rigidity/nystagmus; Motors: localizes on all extremities.

Figure 1. Cranial CT Scan showing no acute intracranial infarct or hemorrhage

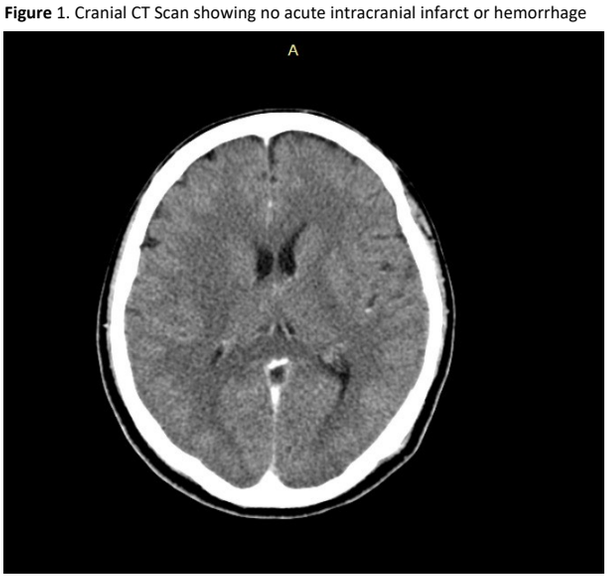

Figure 2. Cranial CT angiography. No acute intracranial hemorrhage. No evident aneurysm or AVM.

Figure 3. Repeat cranial CT scan plain. Subacute bithalamic and rostral midbrain infarct, Artery of Percheron territory.

DIAGNOSTICS

In order to rule out a possible acute cerebrovascular disease infarct vs. bleed, plain cranial CT scan plain was requested. The initial cranial CT scan (*Figure 1)* showed no evidence of an acute infarct or acute intracranial hemorrhage with only mild atherosclerosis of the Internal Carotid Arteries and sclerotic right mastoid.

A follow through cranial CT angiogram *(Figure 2)* was requested to rule out subarachnoid hemorrhage which also did not have evidence of acute intracranial hemorrhage or evident aneurysm at the time of examination.

Initial diagnostic imaging showed no relevant findings pointing to a possible vascular process. Repeat plain cranial CT scan *Figure 3)* was done on Hospital Day 5 and revealed better delineation in the brain parenchyma with hypodense foci in both thalamus and central midbrain. The radiologic impression is that of subacute bithalamic and rostral midbrain infarct, artery of Percheron territory. The patient was started on Aspirin 80 mg/tab, 2 tablets once a day for 14 days then 1 tablet once a day as maintenance. Thrombolysis cannot be given at this time due to its narrow therapeutic window.

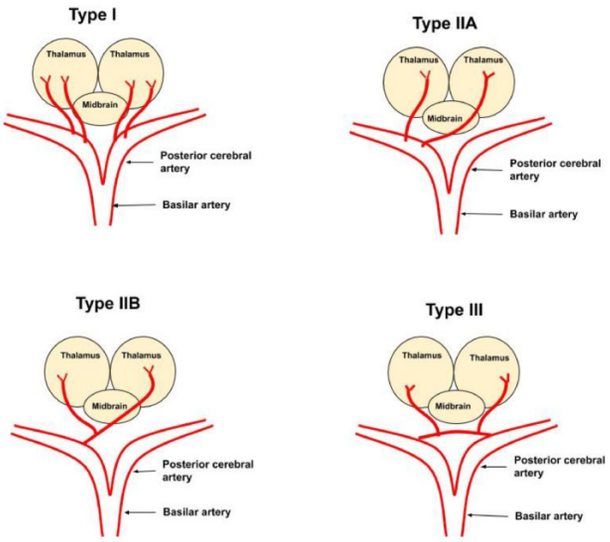

Figure 4. Blood supply of the Thalamus. Type IIb, the Artery of Percheron, a rare anatomical variant, originates unilaterally from the P1 segment and then bifurcates, supplying the bilateral paramedian thalamus and rostral midbrain. Single-vessel occlusion can cause bilateral thalamic infarct. (Lazaro, et al)[9]

DISCUSSION

This case report emphasizes the importance of early diagnosis and high index of suspicion to guide initiation of therapy of Artery of Percheron territory infarct.

Top causes of deaths in the Philippines are mainly ischemic heart disease followed by cerebrovascular disease. Stroke is the Philippines' second leading cause of death with a prevalence of 0-9%; ischemic stroke comprises 70% while hemorrhagic stroke comprises 30%. The thalamus is a large ovoid of gray matter, and it forms a major part of diencephalon. Its functional importance includes acting as a cell station to all the main sensory systems except for the olfactory pathway.

Figure 5. Ophthalmoplegia. Prominent third-nerve palsy present in the index patient in an infarct involving Artery of Percheron.

Figure 6. Follow-up. After 1 month, patient was able to follow-up at OPD with noted improvement in sensorium upon discharged.

The vascular supply of the thalamus includes four main arteries: the polar (tuberothalamic) artery, the inferolateral (thalamogeniculate) artery, the paramedian (thalamosubthalamic) artery, and the posterior choroidal arteries. Type I is the normal anatomy of the blood supply

of the thalamus. Type IIa, both paramedian arteries originate from the left P1 segment. Type IIb, the AOP, a rare anatomical variant, originates unilaterally from the P1 segment and then bifurcates, supplying the bilateral paramedian thalamus and rostral midbrain. Type III is characterized by an arterial arcade connecting the left and right P1 segments and giving rise to the paramedian arteries. *(Figure 4)*.

Artery of Percheron, as previously described, is a rare anatomical variant and is only present in 4-12% of the population and infarct involving this artery accounts only for an average of 0.4–0.5% of ischemic strokes (Ranasinghe *et al.* 2020).

An ischemic stroke in the territory of an artery of Percheron usually presents with triad of symptoms, which are found in patients with bilateral paramedian thalamic strokes. This triad consists of Oculomotor dysfunction (65%), memory impairment (58%), and altered sensorium (42%). In addition to the mentioned triad, the syndrome is characterized by other manifestation such as hemiplegia, cerebellar ataxia and movement disorders (Saida *et al.* 2020).

Thalamus also possesses nuclei including ventral posteromedial nucleus, ventral posterolateral nucleus, the medial geniculate body, and the lateral geniculate body. The thalamus serves as a relay center for a broad array of neurological domains, including sensation, movement, arousal, cognition, behavior, and emotion. As such, insults affecting the thalamus have the potential to impact many different areas of function and cause a diverse set of deficits.

The mediodorsal nucleus has extensive connections with the frontal lobe cortex and hypothalamus. There is evidence that this nucleus lies on the pathway that is concerned with subjective feeling states and personality of an individual. The anterior nucleus of the thalamus is seen within the hippocampal-diencephalic-cingulate circuits that is involve in spatial learning and memory. The rostral midbrain gives rise to the third and fourth cranial nerves and contains centers and pathways that mediate vertical gaze explaining the presentation of vertical gaze palsy in patients with AOP infarct. Management of AOP infarct include intravenous (IV) heparin and tPA if not contraindicated, followed by subsequent long-term anticoagulation. Treatment should also be focused on the pathophysiology of the underlying disease; cardioembolic events require long term oral anticoagulants, whereas cryptogenic causes require antiplatelet therapy.

OUTCOME AND FOLLOW-UP

The patient was able to follow up after 1 month at the Out-Patient Department. Sensorium of the patient improved upon discharged from GCS 13 (E1V1M5) to GCS 15 (E4V5M6). Patient also seen on wheelchair due to persistent blurring of his vision and photosensitivity affecting his ambulation. The ophthalmoplegia was still prominent. Agitation, forgetfulness, and increased impulsivity did not change upon discharged. Aspirin and atorvastatin as his maintenance medications were continued.

CONCLUSION

Artery of Percheron infarcts are rare subset of ischemic strokes and lack with well-known motor deficits seen in other types of ischemic strokes. The initial radiologic imaging can often be mistaken as normal in addition to the variability or widespread neurological symptoms making AOP infarct a difficult condition to diagnose. MRI is the neuroimaging of choice and is needed to be conducted in cases where AOP infarct is highly suspected, and this will present a hyperintense signal in the region supplied by AOP. Management of AOP infarct is the same with other ischemic strokes, it is initially treated with intravenous heparin and tPA. If the ischemic stroke is secondary to a cardioembolic event, long term anticoagulant is warranted whereas cryptogenic causes require antiplatelet therapy. Given this rare condition and infrequency, it reduces awareness among physicians causing delay in giving the proper diagnosis as well as initiation of proper treatment.

Regardless of whether a stroke is a bleed or an infarct, it is important to know the concept of 'Time is brain', that within each minute of delayed treatment, close to two million neurons die.

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CARDIOLOGY
CASE REPORT

Symptomatic Bradycardia in a 33-Year-Old Female: A Case Report of *Cor Triatriatum Dexter*

Karl Elvis S. Espinosa MD[1], Kris Laura Crucero – Manuel, MD[2]

ABSTRACT

Background

Cor Triatriatum is a congenital heart defect in which a third atrium is created by a membrane dividing the right atrium or left atrium into two chambers. *Cor Triatriatum Sinister* has an incidence of about 0.1% of all congenital cardiac conditions while *Cor Triatriatum Dexter* (CTD) has an incidence of only about 0.025% of all congenital cardiac conditions.

Case Narrative

A 33-year-old female presented with easy fatigability and recurrent syncopal attacks after her 3rd Cesarian section. She underwent an elective dual chamber permanent pacemaker insertion. The initial differential diagnosis of the symptomatic bradycardia was attributed to postpartum cardiomyopathy but further evaluation led to the final diagnosis of 3rd degree atrioventricular block with junctional escape rhythm secondary to *Cor Triatriatum Dexter*.

A Transesophageal Echocardiography (TEE) was done 4 months post-operatively revealing an incomplete membrane from the superior portion of the interatrial septum to the superoposterior wall of the right atrium which highly defined a *Cor Triatriatum Dexter*.

Discussion

Cor Triatriatum dexter is a congenital heart defect that where the right atrium is divided into two chambers by a membrane that can cause obstruction of blood flow and lead to symptoms such as shortness of breath, fatigue, syncope or even decreased exercise tolerance. The proposed pathogenesis of *cor triatriatum dexter* involves abnormalities in the development of the sinus venosus, which is a part of the embryonic heart. The atrioventricular node, which is responsible for electrical conduction between the atria and ventricles, is located near the base of the interatrial septum. The close proximity of the AV node to the abnormal septum in *cor triatriatum dexter* can lead to the development of AV block, which is a disruption in the electrical signals between the atria and ventricles. Therefore, AV block and cor triatriatum dextrum may be associated due to their close origin and the presence of the abnormal septum in the right atrium. It is important for individuals with this condition to receive appropriate medical management with early recognition and to undergo surgical correction if necessary.

Keywords

Cor Triatriatum Dexter, Symptomatic Bradycardia, Transesophageal echocardiography, Case Report

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INTRODUCTION

A *Cor Triatriatum* is a congenital cardiac abnormality in which a membrane that divides the right atrium (*Cor Triatriatum Dexter*) or left atrium (*Cor Triatriatum Sinister*) into two chambers creates a third atrium. *Cor triatriatum sinister* is the more common of the two, with an incidence of about 0.1% of all congenital cardiac conditions while *cor triatriatum dexter* (CTD) has an incidence of only about 0.025% of all congenital cardiac conditions.

This is a case of 33-year-old female admitted at Corazon Locsin Montelibano Memorial Regional Hospital (CLMMRH), presenting with symptomatic bradycardia with recurrence of syncopal attacks, with an initial ECG of 3rd degree atrioventricular block with junctional escape rhythm, a 2D echocardiography revealed linear echogenic density arising from the mid interatrial septum extending to the superior portion of the right atrium, a consideration of *Cor Triatriatum Dexter*. Patient subsequently underwent permanent pacemaker insertion with dual chamber device. For the confirmatory of the diagnosis, a transesophageal echocardiography was done 4 months post-operatively.

CASE NARRATIVE AND DIAGNOSTICS

This is a case of a 33-year-old female, married, Filipino, who was previously healthy, until 2 years prior to admission, when she presented with bradycardia after her 3rd cesarean section. There was initially no reported associated signs and symptoms. The patient was sent home with unrecalled medications and was instructed to follow up with a cardiologist but did not comply due to financial constraints.

On review of her clinicodemographic profile, the patient has no known comorbidities and no food or drug allergies. There is no other history of heart disease or heredofamilial diseases in the family except for the family history of hypertension on her paternal side. The patient is a nonsmoker and a nonalcoholic beverage drinker.

For her obstetrics and gynecology history, the patient' OB score is G3P3 (3003) with all pregnancies delivered via Cesarean section (2008, 2016 and 2020). Cephalopelvic disproportion was the indication for the CS on her first delivery, followed with subsequent repeat Cesarean sections. All pregnancies were with unremarkable pre-natal history. The patient had regular interval of her menstrual period lasting for 4 to 5 days, consuming 2 to 3 pads per day. She has no dysmenorrhea noted. The patient had no history of contraceptive use.

After her 3rd pregnancy delivery, she was noted to have episodes of occasional syncopal attacks lasting about 30 seconds to 1 minute with spontaneous resolution of deranged consciousness post ictal phase. There was note of dizziness as prodrome of syncopal attacks but with no headache and no chest pain reported. There was easy fatigability associated with daily household chores and taking care of her three children. The patient tolerated these symptoms, until February of 2022; with the persistence of syncopal attacks which prompted her to seek consult with a private physician, and was then advised for 2D echocardiography (2D echo). On the day of her scheduled 2D echo, the patient had another episode of loss of consciousness for 30 seconds but immediately regained consciousness. She was then subsequently referred to CLMMRH and admitted.

At the emergency department, the patient's heart rate ranges 36-52 beats per minute, she was normotensive (110/70mmHg), afebrile, not in cardiopulmonary distress and there was no note of desaturations at room air. She was oriented to time, place, and person and able to follow commands. Focused examination on cardiopulmonary aspect for this patient revealed no chest pain or discomfort; she had adynamic precordium, distinct heart sounds, regular rhythm albeit bradycardic, no murmurs. Her point of maximal impulse was located at the fifth intercostal space, midclavicular line. The patient had symmetrical chest expansion with bronchovesicular sounds. A 12-lead ECG was immediately requested, and revealed Third degree (Complete) AV block, Junctional Rhythm. Diagnostics included complete blood count, electrolytes, and thyroid panel, which were all unremarkable. A 2DEcho was then scheduled. During this time, a differential diagnosis of *Post-partum Cardiomyopathy* was made and the patient was referred to a Cardiologist who suggested further work-up for the patient with low likelihood consideration of postpartum cardiomyopathy with the symptoms only presenting after her 3rd pregnancy. The possibility of a cardiac structural abnormality was highly suspected at that time.

The patient was managed at the ED as symptomatic bradycardia and was given Atropine 0.5mg IV repeated every 3-5 minutes (maximum dose of 3mg/day). The patient responded to the intervention and the heart rate increased to 62 beats per minute. Dopamine IV infusion was also started (2 to 20mcg/kg/min), with the heart rate ranges to 34-66.

With note of dizziness and 2 episodes of loss of consciousness at the wards. A 24-hour Holter monitoring was done. Her captured rhythm was complete AV block

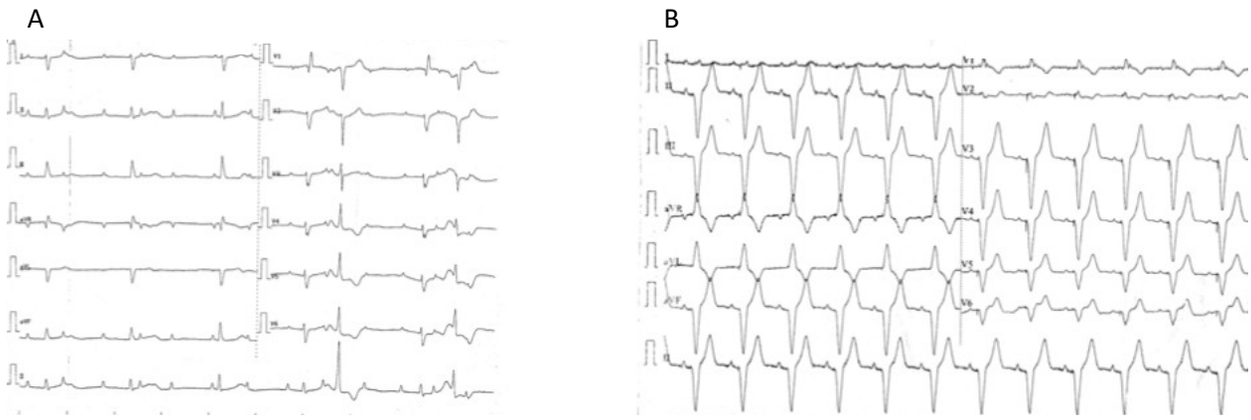

Figure 1 ***A****. Pre-operative ECG : Third degree AV Block, Junctional Escape Rhythm,* ***B****. Post-operative ECG : Paced Rhythm.*

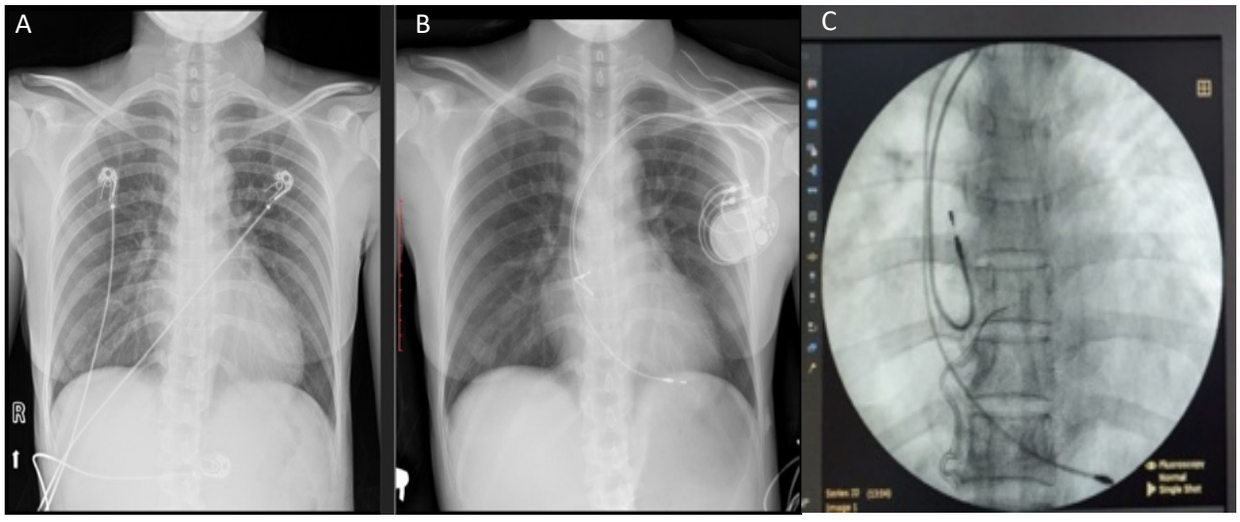

Figure 2 ***A.*** *Pre-operative Chest Xray PA : No significant lung findings,* ***B.*** *Post -operative Chest Xray PA : With dual chamber pacemaker device inserted,* ***C.*** *Intra-operative TEE : Dual Chamber Device*

with junctional escape with a minimum rate of 34 bpm with episodes of ventricular escape. The entire recording showed presence of AV block above the His with no intraventricular conduction delay, premature atrial depolarizations or episodes of supraventricular arrhythmia. She had low frequency premature ventricular depolarizations occurring singly, in bigeminy and in couplets and there were no observed significant ST segment shifts. She was then advised for permanent pacemaker insertion; however, the patient opted to be discharged against medical advice with notable relative feeling of clinical improvement. She was given Terbutaline (a Beta-2 agonist) 2.5mg/tab 1 tab twice daily.

In the interim, she still had episodes of loss of consciousness with the same character, with dizziness as prodrome. The patient was able to undergo 2D echo scheduled on the earliest possible date as outpatient basis; however, there was delayed follow up consult as she expressed she became afraid of the diagnosis written in her 2Decho results.

2D Echocardiography

The patient's 2D echo showed complete AV block, with normal left ventricular dimension, adequate wall motion, contractility and systolic function (ejection fraction of 67%). There was normal right ventricle dimension with inadequate contractility and systolic function (RVFAV 34%). The right atrium was normal with a linear echogenic density seen arising from the mid interatrial septum extending to the superior portion of the right atrium; the echocardiography consideration was that of a right atrial mass vs *cor triatriatum dexter*. There was recommendation for further study using transesophageal echocardiography (TEE) or cardiac CT scan for further evaluation.

During this phase, the patient had recurrence of loss of consciousness which prompted the patient to consult at the CLMMRH and was advised for and consented to the elective permanent pacemaker insertion.

With the assistance of a cardiothoracic surgeon, adult cardiologist, and anesthesiologist, the patient underwent elective permanent pacemaker insertion (PPI) of a dual chamber device via left subclavian approach. The operative approach included placing the patient in supine position with induction of IV anesthesia; the skin was incised at the 2nd intercostal space midclavicular line, deepened layer by layer until interpectoral groove identified. When the cephalic vein was identified, the proximal and distal control was done. Insertion of ventricular lead and atrial lead which simultaneously interrogated. Post-operatively, the patient had stable vital signs with heart rate ranging 70-90 beats per minute and blood pressure 90-110/60-70mmHg. The repeat ECG revealed Sinus Rhythm with blip *(Figure 1B)*. The only post-operative complication reported was localized pain associated with heaviness of left arm, due to the pocket implantation to the skin, which resolved spontaneously. There was no infection and hematoma noted. The patient was discharged 3 days post operatively; she was able to follow up with the out-patient department with no recurrence of syncopal attacks since insertion of the pacemaker. Her heart rate ranges 70-90 beats per minute with no limitation of daily activities. She is advised for re- interrogation after 6 months, and yearly thereafter.

Transesophageal Echocardiography

A Transesophageal Echocardiography was done for confirmatory diagnosis, 4 months post-operatively, and revealed structurally normal valves with no restriction motion. Her results showed a normal left ventricular diameter with increased left ventricular mass index, normal relative wall thickness and normal contractility and systolic function (Ejection fraction of 55% by Simpson's method). She has a normal left atrium with normal volume index and normal right ventricle with adequate contractility and systolic function. A linear echogenic density is noted traversing the right atrium and the right ventricle through the tricuspid valve, consistent with the pacemaker wire. There was a finding of a normal right atrium, with an incomplete membrane from the superior portion of the interatrial septum to the superoposterior wall of the right atrium which highly defined a *cor triatriatum dexter*. The Color Flow Doppler revealed that there was a color flow between the right atrium and the superior chamber formed by the incomplete membrane with no significant gradient between the two chambers.

DISCUSSION

The first reported c*or triatriatum* case was a postmortem description by Church[3] in 1868 which provided the first detailed pathologic description of the malformation, that is, *a heart with three atria*, but it was Borst in 1905 who coined the term *Cor Triatriatum*. A congenital anomaly in which the left atrium (*cor triatriatum sinistrum*) or right atrium (*cor triatriatum dextrum*) is divided into two compartments by a fold of

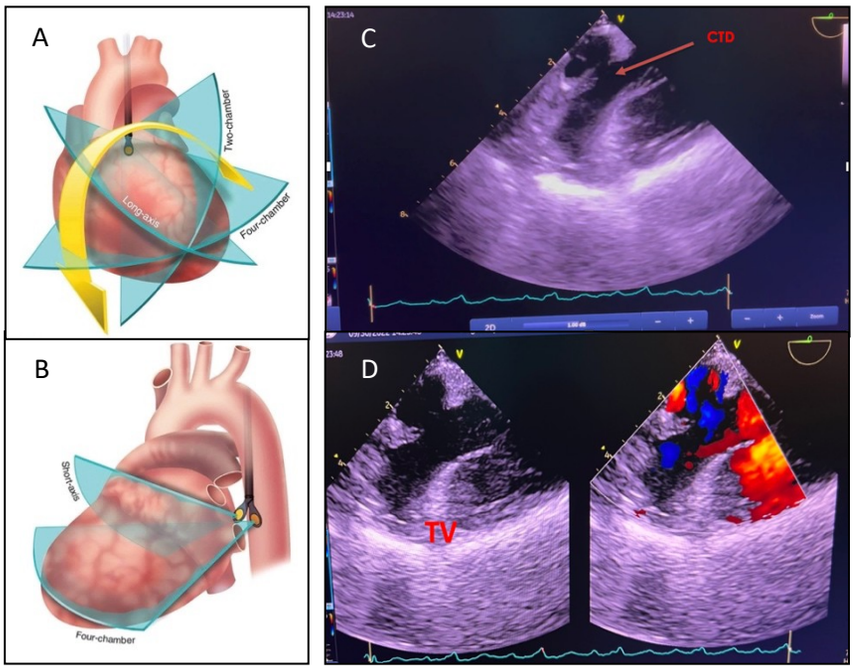

*Figure 3 Transesophageal Echocardiography **A.** Image plane in relation to the TEE probe **B.** Position of the probe in relation to the heart, visualized here are the posterosuperior portions of the interatrial septum and the right atrium (Otto, C. M. (2018) **C.** An incomplete membrane from the superior portion of the interatrial septum to the superoposterior wall of the right atrium which highly defined a Cor Triatriatum Dexter. **D.** Color Flow Doppler showing color flow between the right atrium and the superior chamber formed by the incomplete membrane with no significant gradient between the two chambers.*

tissue, a membrane, or a fibromuscular band. *Cor triatriatum sinister* is the more common of the two, with an incidence of about 0.1% of all congenital cardiac conditions while *cor triatriatum dextrum* (CTD) has an incidence of only about 0.025% of all congenital cardiac conditions.[5]

The proposed pathogenesis of c*or triatriatum dextrum* happened during heart development, the sinus venosus becomes incorporated into the right atrium that shelter the dominant cardiac pacemaker, the sinoatrial node. The sinus venosus ultimately divide into left and right horns, the left sinus horn becomes the coronary sinus and oblique vein of the left atrium and the right horn is incorporated into right atrium, forming venous valves. The right sinus venosus is flanked by two valves, the right sinus venosus valve and left sinus venosus valves. The left valve is incorporated into the interatrial septum and becomes part of the septum secundum and the right valve persists and divides the right atrium into two chambers. AV node is found at the base of the interatrial septum. As a result, AV block and CTD may be associated with their close origin. Normally, most of the membrane is reabsorbed between the 9th to 15th weeks of gestation. [6, 9, 11, 14]

A case was reported by Guler in 2014, wherein a 32-year-old female, presenting with history of exertional dyspnea and fatigue, an electrocardiogram demonstrated complete atrioventricular block with a ventricular rate of 40 beats per minute, a membranous structure within the right atrial cavity, extending from the ostium of inferior vena cava to the middle of the atrial septum, giving the appearance of a divided right atrium as seen in transesophageal echocardiogram.

Bradycardia according to Harrison's is caused by failure of the sinus node function or AV conduction or both. This can be physiologic or pathologic and can be symptomatic or asymptomatic. It results from a failure of either impulse initiation or impulse conduction. Atrioventricular (AV) block refers to a partial or whole blockage of the impulse's path from the atria to the ventricles. Idiopathic fibrosis and sclerosis of the conduction system are the most typical causes. Diagnosis is by electrocardiography; symptoms and treatment depend on degree of block, but treatment, when necessary, usually involves pacing. An escape rhythm is a heartbeat arising from an ectopic focus in the atria, the AV junction, or the ventricles; this happens when the Sinus Node fails in its role as a pacemaker or when the sinus impulse fails to be conducted to the ventricles as in complete heart block. The AV block, makes heart beat slowly or skip beats and heart can't pump blood effectively to systemic circulation.

The brainstem normally receives hemodynamic inputs from the heart and central nervous system, which are then balanced by sympathetic and parasympathetic tone to maintain perfusion. If this mechanism doesn't work, there will be paradoxical decreases in sympathetic tone and increases in parasympathetic discharge leading to neurocardiogenic syncope. Vasodilation and relative hypotension combined with bradycardia lead to poor cerebral perfusion resulting to syncope.

Patients with *cor triatriatum dexter* may be asymptomatic, however, cyanosis may occur at birth and, as in our case, can persist into later life. Usually, remnants of the RSV valve are not large enough to cause clinical symptoms, although, for unclear reasons, symptoms may first appear in adolescence or adulthood. Clinical manifestation of a patient with CTD is considerably variable, depending on the degree of septation. [11] When the septation is mild, the condition is often asymptomatic and is an incidental finding during echocardiographic examination or surgical correction for other cardiac abnormalities. More severe septation can cause right-sided heart failure and elevated central venous pressures due to obstruction of the tricuspid valve, the right ventricular outflow tract, or the inferior vena cava. Asymptomatic patients do not require treatment unless they are undergoing cardiac surgery for other reasons. Patients with obstructive symptoms need surgical or percutaneous resection of the membrane. [8]

Another case, reported by Eichholz et.al., in 2013, was a 43-year-old male with recurrent episodes of loss of consciousness. The patient's ECG revealed sinus rhythm with first degree AV block. A transthoracic echocardiogram showed a membrane that subdivided the left atrium (*cor triatriatum sinister*). Management options included conservative observation and surgical resection of the membrane, the patient chose surgical correction. The fenestrated membrane was effectively exposed by opening the left atrium above the right PV orifices and below the intra-atrial septum. During the next 6 months, he had no syncopal events or arrhythmias.

Cor triatriatum dexter in two adults both presenting with heart failure was reported by Erdogan et. Al in Turkey (2005). One patient was managed medically with diuretics and no surgical intervention was done, since the patient is asymptomatic with Class 1 functional capacity. The second patient, presented with heart failure symptoms. Elective cardiac catheterization was done and the patient was subsequently discharged. Both patients were diagnosed thru transesophageal echocardiography.

A case report by Xiang et al. in 2015, was that of a 87-year-old woman with *cor triatriatum dextrum* who had atrial fibrillation with rapid ventricular response which was later found to have high grade AV block. She underwent the first transvenous permanent pacemaker placement, dual chamber device through left subclavian venous approach. Her TEE revealed a division of the right atrium by this membrane that was not complete. Color doppler confirmed partial obstruction in the superior portion. Subsequently the patient was cardioverted to normal sinus rhythm without complication.

In our locality, only one has been reported with case of *cor triatriatum dextrum*, this is from Pangasinan, a 33-year-old woman who presented with increasing dyspnea on walking, occasional chest pain, and an episode of presyncope. 2D echocardiogram with color Doppler revealed a presence of a linear density that appears to divide the right atrium into the proximal and distal atrial chamber forming a tri-atrial heart. However no TEE was done.[10]

There is no evidence *cor triatriatum* is related to pregnancy, or any other proceedings, leading to the development of CTD, an exact mechanism of how *cor triatriatum* develops symptoms later in life is not yet documented.

Currently, the diagnosis of *cor triatriatum dexter* is best established by two-dimensional transthoracic echocardiography (TTE) or transesophageal echocardiography (TEE). These are excellent methods for the diagnosis of CTD because of their ability to visualize posterior cardiac anatomic structures.[6]

CONCLUSION

Our patient underwent permanent pacemaker insertion, dual chamber device, with an indication of having symptomatic bradycardia from a 3rd degree AV block from *cor triatriatum dexter*. The proposed pathogenesis of *cor triatriatum dextrum* happened during heart development, wherein the Sinus venosus becomes incorporated into the right atrium that shelter the dominant cardiac pacemaker, the sinoatrial Node. The left and right horns of the sinus venosus eventually separate, the left horn developing into the coronary sinus and oblique vein of the left atrium, and the right horn integrating into the right atrium and forming venous valves.

The right sinus venosus flanked by two valves, the right sinus venosus valve and left sinus venosus valves. The left valve is incorporated into the interatrial septum and becomes part of the septum secundum and the right valve persists and divides the right atrium into two chambers. AV node is found at the base of the interatrial septum. As a result, A-V block and CTD may be associated with their close origin.

The clinical manifestation of a patient with *cor triatriatum dexter* may differ significantly depending on the degree of septation, hence the management depends on the severity of symptoms for the patient. Two-dimensional transthoracic echocardiography (TTE) or Transesophageal echocardiography (TEE), excellent method for the diagnosis of CTD because of its ability to visualize posterior cardiac anatomic structures.

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    5. Manuscript in IMRAD format (Introduction, Methods, Results and Discussion), with conclusion,
    6. References cited in the text in numerical order using Arabic numerals

REVIEW AND SELECTION

All articles are evaluated by the Editorial Board for suitability for publication consideration in Cor Illumina. Potentially acceptable submissions will be reviewed by two peers or content experts and authors will have two opportunities to revise the manuscripts. The process will be double-blinded and final acceptance will be upon the discretion of the Editorial Board.

TABLES, FIGURES, ILLUSTRATIONS AND PHOTOGRAPHS

All tables, figures, illustrations and photographs should be cited in the text, in numerical order by type. Separate files for tables, figures and illustrations with titles, and legends (if appropriate) for each table. For figures and illustrations, titles, legends (if appropriate), and captions (no longer than 15-20 words) should be provided. If table, figure, or illustration is adapted, this should be expressed and included in the reference.

Original unprocessed images should be provided with the highest quality of resolution at least 300 dpi.

SPECIAL ANNOUNCEMENTS

Special announcements may be considered in the form of upcoming scientific conferences, conventions, call for research grants or research fora or other announcements deemed relevant by Cor Illumina. The Editorial Board reserves the right for acceptance and publication of special announcements.

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