# Meeting National and Global Health Goals: Utilization of Health Information for Policy Formulation in Iligan City and Oroquieta City

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## Abstract

*The study sought to determine the achievements of Iligan City Health District and Oroquieta Interlocal Health Zone (ILHZ) in terms of health-related Millenium Development Goals (MDGs) and the National Objectives for Health (NOH) and the functionality of health information as manifested in health resolutions and ordinances; it also sought to assess the data collection, recording, and reporting processes. A triangulation of quantitative and qualitative data, both primary and secondary, was done to meet research objectives. Quantitative data comprised of 2008-2013 data pertaining to health-related MDGs and NOH. Qualitative data on health data capture and reporting, and on the*

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*functionality of health information, were obtained through key informant interviews, focus group discussions and assessment of resolutions/ordinances. Findings reveal that the two geographic health areas have met targets for reducing child mortality but are struggling to reduce maternal mortality. Targets on access to safe water by households have similarly been met, but only the Oroquieta ILHZ has met targets for access to basic sanitation. Local decision making with regard to health were generally not in direct response to local health data but as local action to national mandates. Data capture, recording and storage remained largely paper-intensive despite the implementation of the web-based Field Health Service Information System (eFHSIS). Recommendations include further training of Barangay Health Workers (BHWs) to enable them to use the eFHSIS, a more active role of the local health boards to influence evidence-based health policies by the LGU, and exploring opportunities in using open data to allow civil society open access to health information thereby enabling greater participation in health affairs.*

***Keywords:*** health goals, health information system, interlocal health zone, eFHSIS, MDGs

## Introduction

Public health decision-making is critically dependent on the timely availability and reliability of health data. Meeting the United Nation's Millennium Development Goal (MDG) targets can be facilitated, for instance, by the presence of high quality data support. It is important to note that out of the eight MDGs there are several which are focused on health. Goal 1, *which is to eradicate extreme poverty and hunger*, has as one of its indicators a health concern: *prevalence of underweight children under-five years of age.* Goal 4 is basically a health issue, which is to *reduce child mortality.* Related to this is Goal 5, *which is to improve maternal health.* On the other hand, Goal 6 *aims* to *combat HIV/AIDS, malaria and other diseases.* Moreover, Goal 7, *which ensures environmental sustainability,* has as its targets *to reduce by half the proportion of people without sustainable access to safe drinking water* and *access to basic sanitation.*

Health is a vital component of the MDGs in the United Nations. With the Philippines being a UN member, the Philippine government has aligned with the MDGs its Medium Term Philippine Development Plan (MTPDP) 2004-2010. The National Objectives for Health (NOH 2005-2010 and NOH 2011-2016), the Department of Health's (DOH) current articulation of its implementation framework for health sector reform, are similarly geared toward the attainment of the MDGs.

Health information helps monitor progress towards health goals, improves quality of services, and promotes equity in access to medical and health resources. Additionally, utilization of health information strengthens the evidence base for effective health policy formulation and scaling-up health efforts; it improves health governance, the regulation of providers of health goods and services, the mobilization and allocation of scarce resources, and health infrastructure development.

The findings provide inputs to the DOH - the principal health agency in the country - and the administrators of its various data systems such as the Field Health Service Information System (FHSIS) and the Health Management Information System (HMIS) on how health information *equip* or *could equip* local officials in the Iligan Health District and the Oroquieta Inter-local Health Zone to address health goals. Anent to this, the DOH and its affiliated health agencies will gain insights on the capability of the Iligan Health District and the Oroquieta Interlocal Health Zone to determine other data needs to enhance their knowledge management and decision-making. Such insights would then lead to effective decision-making on the part of the DOH, particularly to improve outcomes in health governance.

## Review of Literature

Decision-making to meet health targets requires timely and appropriate health information. Health information incorporates data to protect and enhance population health and said data include birth, morbidity and mortality data, qualifications and ratio of health personnel to population and type and quality of health services provided. Countries, including the developing ones, have attempted to put in place some form of health management information systems (HMIS). Many of these HMIS, however, have limited functionality, thereby constraining meeting health targets (Central Board of Health, Zambia, 2003; Cibulskis and Hiawalyer, 2002; Graham and Hussein, 2004; Gladwin,

Dixon and Wilson, 2002; Heeks, Mundy and Salazar, 1999; Kimaro and Nhampossa, 2006; Stansfield, 2005; WHO, 2006).

The Health Resource Center of the Department for International Development (DFID) of the United Kingdom (2006) reported that in Tanzania and Mozambique, there is a tendency for information systems to be too rigidly designed, and as such constrain government use. The report also noted that in Papua New Guinea, key success factors in the use of health information center revolve around creating a "policy culture" that needs accurate information to help decision makers.

Abou Zahr and Boerma (2005) meanwhile, argued for the importance of health information in public health. They observed, however, that in reality, health information systems seldom function systematically and are more often complex, fragmented and unresponsive to needs. On the other hand, Bambas (2005) pointed out that health information systems can play an important role in supporting human rights. These can document and track health inequities, create a platform for action and accountability and can support effective health development by providing access to population health information that is socially and economically disaggregated.

The Philippine Health Information Network, using the framework on the International Health Metrics Network, did a review and assessment of the Philippine Health Information System in 2007. Six components for health information systems (HIS) were assessed. These are HIS resources, indicators, data sources, data management, information products, and dissemination and use. Findings indicated that health information resources were present but not adequate; while laws and executive orders govern the generation of vital statistics and health statistics; and there is no law focusing on a health information system. Findings also revealed that less than half of the provinces and more than half of the cities and municipalities have functional health boards. Given the critical contribution of these health boards in health concerns including health information, the use of health information needs to be enhanced at the local level. Findings further showed that while there is national capacity in core health information sciences to meet health information needs, this is not so in the local levels. The Philippines, however, has a highly adequate set of indicators for measuring relevant health-related MDGs. Unfortunately, data sources were rated as present but not adequate. The National Statistics Office and National Statistical Census Board statistics were rated highly, indicating the credibility of

these statistics offices. Data management, which was considered not functional, got the lowest rating. There is no integrated data warehouse with written procedures for data management and metadata dictionary and while there is available data for public health facilities, there is none for private health facilities. Information products (i.e., mortality and morbidity) were considered adequate, but timeliness and consistency/completeness were rated as inadequate as health indicators. Finally, the dissemination and use of health information were rated as inadequate, owing mainly to the need for more analyses and use of existing data. Not all disseminated information is relevant to the city and municipal levels and there is a lack of data disaggregation by *barangay*, *purok* (geographical units within a *barangay*), and gender and age groupings do not coincide.

Lamberte (1993) did a study on the experiences of 116 health centers in the National Capital Region (NCR) concerning data collection and recording processes inherent in the FHSIS of the DOH. The study found out that while organizational arrangements and procedures suitable to the implementation of the information system were already established, there were some deviations between what was prescribed in the FHSIS manual and what was actually happening at the health centers with respect to data collection and recording system. According to Lamberte, the deviations could be traceable to the following key factors: inadequacy of the training received by the health workers; lack of ready supplies of the forms and health care commodities; the number of patients; and the many types of FHSIS forms and data required per form. Lamberte further found out that hazy procedures in the FHSIS, logistics, educational attainment, position, travel time, and residence of personnel, location of health facility, and level of involvement in the tasks affected the dispositions of the field personnel. He deemed it fitting and relevant for the national and regional health supervisors to improve the existing information system (http://serp-p.pids.gov.ph/details.php3?tid=1501).

The above findings triggered the interest on the study of the performance toward the attainment of health goals, and the collection, recording, and utilization of health information in decision-making in a health district and in an interlocal health zone in Region X.

## Objectives of the Study

The study sought to determine the progress toward the attainment of the health-related MDGs, specifically MDG 4, 5, and 7, and the corresponding NOH for the period 2008-2013 in the Iligan City Health District and in the Oroquieta Interlocal Health Zone, and the functionality of health information for policy formulation by looking into the health-related resolutions and ordinances passed by the LGUs where the health district and the interlocal health zone are lodged. The study also sought to do an initial assessment of data collection, recording and storage vis-à-vis the mandated implementation of the electronic Field Health Services Information System.

## Methods

### Research Design and Data Sources

The research is primarily descriptive and made use of quantitative and qualitative data. Quantitative data comprised of vital health statistics and other health information that are relevant to the attainment of the MDGs 4, 5, and 7 and the NOH. These were obtained mainly from the FHSIS records of the Iligan City Health District and the Oroquieta Interlocal Health Zone (ILHZ). Some data where obtained from the Annual Operational Plan and the Medium Term Investment Plan for Health of the health district/interlocal health zone.

Qualitative data on health data capture, storage and reporting, and on the functionality of health information were obtained through key informant interviews and focus group discussions. Resolutions and ordinances in response to health data are used as indicators of the functionality of health information.

### Research Ethics

The conduct of the study was preceded with an entry protocol which was initially done in 2010 when the study was yet in its proposal stage to ascertain the viability of the undertaking. A second entry protocol was done in March 2013 as the 2012 elections resulted in a new set of leadership in the LGUs and in the health agencies. The free and

prior consent of key informants were sought before the conduct of the interviews. Seeking prior consent was similarly adhered to in the conduct of focus group discussions and in the taking of pictures.

**Research Setting.**

**The Iligan City Health District.** Iligan City is a highly urbanized city situated in the northern part of the province of Lanao del Norte in Region 10. Figure 2 shows the location map of Iligan City. The city is composed of 44 barangays which comprise the Iligan City Health District. These *barangays* are subdivided into seven district service areas Fifteen of these 44 *barangays* are in the hinterlands, six of which are difficult to access owing to their steep and rugged terrain. Poverty incidence in the city stood at 28.03% in 2005 (NSCB, 2005 SAE Poverty Estimates).

The Iligan City Health District has five hospitals (one public and four private) 49 *barangay* health centers and one main health center – the Iligan City Health Office. The Gregorio T. Lluch Memorial Hospital (GTLMH), a 120-bed hospital facility, is the health district's public hospital and serves as the city's main referral hospital. The Iligan City Health Office is the main health center.

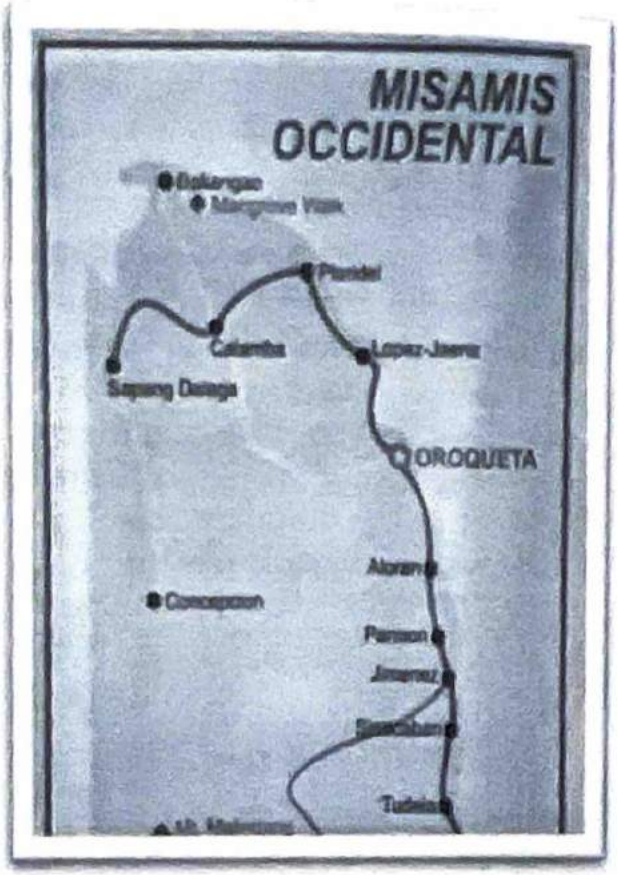


**Figure 3.** Map showing the Oroquieta ILHZ which is composed of Oroquieta City and the municipalities of Lopez Jaena, Aloran, Panaon and Jimenez.

**The Oroquieta Interlocal Health Zone.** The Oroquieta Interlocal Health Zone (ILHZ) was the first ILHZ established in the province of Misamis Occidental, Region 10. It is comprised of Oroquieta City, Lopez Jaena, Jimenez, Aloran, Panaon. It has two referral hospitals, the Misamis Occidental Provincial Hospital and the Jimenez Medicare Community Hospital. It has four other major hospitals. The Oroquieta City Health Office is the main health center; a *barangay* health unit can be found in every barangay.

Jimenez is a third class municipality and is the site of the other referral hospital in the Oroquieta ILHZ. Lopez Jaena and Aloran are fourth class municipalities while Panaon is a fifth class municipality.

**Subject Selection**

Officials in the local health boards, particularly the heads of the city/municipal health offices, the heads of the referral public hospitals and the chair of the Committee on Health in the *Sangguniang Panlunsod* (City Council) are the primary decision-makers on health matters and served as key informants of the study. FHSIS coordinators similarly served as key informants for their key role in gathering, storing and reporting health data to the local health boards.

Field health workers and health program implementers in the study sites, particularly in the Iligan City Health District, served as participants in the focus group discussions. In the Oroquieta ILHZ, however, key informant interviews served as the main tool for health data verification and clarification of data capture and reporting processes. This is because of the distance between the municipalities in the ILHZ and the difficulty in obtaining a common free time for the health workers for focus group discussions.

## Results and Discussions

Joining hands with the global community, the Philippines in 2000 adopted the Millennium Development Goals (MDGs) as a framework to work together toward common targets to achieve human development. The MDGs are time-bound and measurable targets in addressing extreme poverty in its many dimensions - income poverty, hunger, disease, lack of adequate shelter, and exclusion – while simultaneously promoting gender equality, education, and environmental sustainability. The MDGs are eight international development goals established after the Millennium Summit of the UN in 2000 (http://www.un.org/millenniumgoals/bkgd.shtml). Among the MDGs are health-related goals:

> MDG 4: Reduce child mortality. This has three indicators: under-five mortality rate which is the probability of dying between birth and the fifth birthday; infant mortality rate which is the probability of dying before the first birthday; and the proportion of one-year-old children immunized against measles. The third indicator is not considered in this paper.

MDG 5: Improve maternal health. It includes: the reduction of the maternal mortality ratio (MMR) by three-quarters between 1990 and 2015; the eradication of adolescent birth rate; the proportion of births attended by skilled health personnel; the contraceptive prevalence rate (CPR); antenatal care from a health professional; and unmet need for family planning (FP). Only MMR is considered in this paper.

MDG 7c: It intends to halve by 2015 the proportion of the population without access to safe water and improved sanitation. Indicators are the proportion of households with access to safe water supply and proportion of households with sanitary toilet facility. Both are discussed in this paper.

## Addressing MDG 4: Reducing Child Mortality

Both the NOH and MDG15 targets of 17 and 19 mortalities per 1,000 live births (Table 1), respectively, have already been met, with the Oroquieta ILHZ faring better than the Iligan City Health District on a year-to-year comparison (Table 2). Infant mortality rates in the Iligan City Health District and in the Oroquieta ILHZ are also consistently better than the national averages from 2008 to 2013. .

**Table 1.** National Objectives for Health (NOH) and MDG Target for Reducing Child Mortality

| Objective/Target | NOH 2010[a] | NOH 2016[b] | MDG 2015[c] |
|---|---|---|---|
| Reducing infant mortality per 1000 live births | 17 | 17 | 19 |
| Under 5 mortality rate 1000 live births | 32 | 25.5 | 26.7 |

Sources: [a] NOH 2010-2015, [b] NOH 2011-2016, [c]http://www.nscb.gov.ph/stats/mdg/mdg_watch.asp

Table 2. Infant Mortality Rates in the Iligan City Health District and Oroquieta Inter-Local Health Zone, 2008-2013

| Year | Iligan City Health District[a] | Oroquieta Inter-Local Health Zone[b] | National Average[c] |
|---|---|---|---|
| 2008 | 11.67 | 7.13 | 26 |
| 2009 | 20.81 | 9.01 | 26 |
| 2010 | 17.38 | 11.58 | 25 |
| 2011 | 16.24 | 4.29 | 25 |
| 2012 | 12.87 | 8.23 | 24 |
| 2013 | 7.74 | 6.25 | 23 |

Sources: [a]Iligan City Health Office, [b]Oroquieta ILHZ Office, [c]National Demographic Household Survey Data

Many of the infant mortality cases in the two geographic areas studied were attributed to preventable causes such as acute respiratory distress and pneumonia. Health officials interviewed pointed out that training of health workers in Integrated Management on Childhood Diseases (IMCD) coupled with massive information and education campaigns for child care would greatly help decrease further the occurrence of preventable diseases among infants.

**Table 3.** Child Mortality (less than 5 year old) in the Iligan City Health District and in the Oroquieta Inter-Local Health Zone

| Year | Iligan City Health District [a] | Oroquieta Inter-Local Health Zone [b] | National Average |
|---|---|---|---|
| 2008 | 17.69 | 7.13 | 34[1] |
| 2009 | 29.82 | 9.01 | 33[3] |
| 2010 | 19.78 | 11.58 | 29.4[2] |
| 2011 | 21.30 | 13.69 | 30[3] |
| 2012 | 27.28 | 10.42 | 31[4] |
| 2013 | 11.02 | 6.24 | 30[4] |

Sources: [a] Iligan City Health Office, [b] Oroquieta ILHZ Office, [1] 2008 National Statistics Office, [2]2010 Family Health Survey [3]2011 Philippine Demographic Household Survey, [4]http://data.worldbank.org/indicator/SH.DYN.MORT

Child mortality figures within the age group less than 5 years old in the Iligan City Health District and in the Oroquieta ILHZ were fluctuating during the 2008-2013 period (Table 3). Nonetheless, the two health areas surpassed the NOH 2010 target of 32/1,000 under 5 mortality rate (Table 1) as the reported figures for the Iligan City Health District and for the Oroquieta ILHZ were 19.78 and 11.58, respectively. Moreover, the two health areas have already achieved the NOH 2016 <5 mortality rate of 25.5 and MDG 2015 <5 mortality rate of 26.7 (see also Table 1) in 2013 based on the posted data of 11.02 for Iligan and 6.24 for the Oroquieta ILHZ.

Interviews of key informants in Iligan revealed that massive efforts to conduct health education among parents, trainings of health workers on IMCD and disease surveillance resulted to a remarkable decline to 11.02 in 2013. In the Oroquieta ILHZ, there was an increasing child mortality rate from 2008 with 7.13 to 13.69 in 2011, but was declining until 2013, owing also to trainings in IMCD. It should be noted that throughout the period studied, local child mortality rates were also lower than the national rates. Worth mentioning as well is child mortality rates in the Oroquieta ILHZ were consistently lower than those of the Iligan City Health District's. Causes of death among the age group were preventable diseases like pneumonia.

## Addressing MDG 5: Improve Maternal Health

Table 4 shows the NOH and MDG 2015 targets for the maternal mortality rate while Table 5 shows the maternal mortality rates in the two health areas studied, as well as national averages for 2008, 2010, and 2011.

Table 4. National Objectives for Health and MDG Targets for Maternal Mortality Rate

| Objective/Target | NOH 2010[a] | NOH 2016[b] | MDG 2015[c] |
|---|---|---|---|
| Maternal mortality rate per 100,000 live births | 90 | 50 | 52 |

Sources: [a] NOH 2010-2015, [b] NOH 2011-2016, [c]http://www.nscb.gov.ph/stats/mdg/mdg_watch.asp

Table 5. Maternal Mortality Rate in the Iligan City Health District and Oroquieta Inter-Local Health Zone, 2008-2013

| Year | Iligan City Health District[a] | Oroquieta Inter-Local Health Zone[b] | National Average[a] |
|---|---|---|---|
| 2008 | 137 | Not available | 162[1] |
| 2009 | 93 | -do- | |
| 2010 | 79 | -do- | 163[2] |
| 2011 | 97 | 46 | 221[3] |
| 2012 | 93 | 155 | |
| 2013 | 129 | 97 | |

Sources: [a]Iligan City Health Office, [b] Oroquieta ILHZ Office, [1]2008 NDHS, [2]NEDA 2011, [3]NEDA Report, http://newsinfo.inquirer.net/631866/child-death-rate-now-lower-but-maternal-mortality-up

The rate of reducing maternal mortality per 100,000 live births *vis-à-vis* targets was moving at a snail pace, prompting NEDA Director General Arsenio Balisacan to say that the Philippines' probability of achieving the MDG 2015 target was very low (Balisacan, 2014).

Nonetheless, the Iligan City Health District and the Oroquieta ILHZ had better outcomes than the national averages during the 2008-2013 period (Table 5). But just as the country found it difficult to achieve the maternal mortality rate of 52 per 100,000 live births, the same was true in the two health areas studied. Data for Iligan were fluctuating, and so were the three-year data for the Oroquieta ILHZ. Key informant interviews yielded causes for maternal deaths as similar to that of the national scene cited by Balisacan in 2014 which were delays in deciding to seek maternal care, delays in reaching appropriate medical care, and delays in receiving care at physical facilities. The prominent causes of maternal deaths included post-partum hemorrhage, puerperal sepsis, and incomplete abortion, severe pre-eclampsia and severe eclampsia. These causes of maternal deaths are consistent with the DOH 2013 report.

## Addressing MDG Goal 7.C: Better Access to Safe water and Basic Sanitation

Health through safe drinking water and basic sanitation is a worldwide undertaking and access to these are part of the MDGs. In the National Objectives for Health it is emphatically stated that *"access to safe water is linked with sanitation and personal hygiene as an approach to addressing water-related diseases such as diarrheal diseases, cholera, typhoid fever, Hepatitis A, skin diseases, and dengue fever, among others,"* (NOH 2005-2010, p. 252).

The NOH 2010 average target percentage of households with access to safe water at national level, urban areas, and rural areas were 94%, 98% and 90%, respectively (Table 6). Due to the 2008 general average of only 81.4% goal attainment, however, the average overall target percentage of households with access to safe water for 2016 was scaled down to 88% (NOH, 2011-2016). The MDG target was lower, or 86.5% by 2015. The Philippines already met the NOH 2016 and MDG 2015 targets in 2013, with a national average of 89.40%.

Iligan City Health figures for 2008-2013 show that the percentage of households with access to safe water in the Health District consistently surpassed the NOH 2010 national average targets and the MDG 15

average target (Table 7). But an average of 5.0% of households still got their water from natural springs and wells (Level 1 sources) and 14.81% of households from public faucets (Level 2 sources). The Health District also surpassed the 98% target average percentage of households with access to safe water in urban areas for 2008-2010. However, a decline was posted for the 2011-2013 period. The decline was attributed by the City Health Office to some discrepancies in the actual household count. Tropical Storm *Sendong* (International Name: Washi) which devastated Iligan City in 2011 reportedly affected also water sources, resulting in a reduced proportion of only 94.97% households accessing safe water in 2012. Repairs and rehabilitation works, however, raised the proportion to 96.97% in 2013.

**Table 6.** National Objectives for Health and MDG Targets for Households with Access to Safe Water

| Objective/Goal | NOH 2010[a] | NOH 2016[b] | MDG 2015[c] |
|---|---|---|---|
| Households with access to safe water | | | |
| - National level | 94% | 88% | 86.5% |
| - Urban areas | 98% | - | - |
| - Rural areas | 90% | - | - |

Sources: [a] NOH 2010-2015, [b] NOH 2011-2016,
[c]http://www.nscb.gov.ph/stats/mdg/mdg_watch.asp

**Table 7.** Proportion of Households in the Iligan City Health District with Access to Safe Water, by Level, 2008-2013[a]

| Years | Total No. of HHs | Level I Freq | Level I % of Total | Level II Freq | Level II % of Total | Level III Freq | Level III % of Total | Total Freq | Total % of Total |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | 67,810 | 3,487 | 5.14 | 8,077 | 19.00 | 56,510 | 82.47 | 67,074 | 98.86 |
| 2009 | 68,691 | 4,060 | 5.91 | 13,062 | 19.00 | 51,317 | 74.70 | 68,439 | 99.61 |
| 2010 | 70,112 | 4,025 | 5.17 | 13,903 | 19.83 | 52,200 | 74.50 | 69,824 | 99.50 |
| 2011 | 71,550 | 3,034 | 4.24 | 9,800 | 13.83 | 57,102 | 79.80 | 70,032 | 97.87 |
| 2012 | 73,030 | 4,936 | 6.76 | 8,881 | 12.19 | 56,209 | 77.00 | 69,956 | 94.97 |
| 2013 | 74,535 | 2,676 | 3.59 | 8,001 | 10.08 | 60,598 | 79.67 | 72,274 | 96.34 |
| Average | | | 4.98 | | 14.81 | | 78.06 | | 97.64 |
| National Average, 2013[b] | c | d | e | f | g | h | | i | 86.40 |

Sources: [a]Iligan City Health Office,
[b]http://www.nscb.gov.ph/stats/mdg/mdg_watch.asp

Except for 2011, the Oroquieta HLHZ similarly surpassed the NOH and MDG targets (Table 8) but had a higher average percentage of households sourcing their water from natural springs and wells (12.02%) and from public faucets (31.16%) than that of Iligan City for the 2008-2013 period. Most Oroquieta HLHZ municipalities are classified as Fourth Class and may have encountered difficulties in financing Level 3 water supply (households with direct water connections from the waterworks system of the LGU and hence have their own faucets). Nonetheless, its 2013 accomplishment of 97.28% was much higher than the national average. Oroquieta City consistently surpassed the target for urban areas, posting an average of 98.91% during the 2008-2013 period.

Table 8. Proportion of Households in the Oroquieta Inter-local Health Zone with Access to Safe Water, by Level, 2008-2013[a]

| Years | Total No. of Hhs | Level 1 Freq. | Level 1 % of Total | Level 2 Freq. | Level 2 % of Total | Level 3 Freq. | Level 3 % of Total | Total Freq. | Total % of Total |
|---|---|---|---|---|---|---|---|---|---|
| 2008* | 26,242 | 3,965 | 15.11 | 9,312 | 35.48 | 12,835 | 48.91 | 26,112 | 99.50 |
| 2009* | 27,103 | 3,347 | 12. 35 | 8,997 | 33.20 | 13,529 | 49.92 | 25,873 | 95.46 |
| 2010* | 32,061 | 3,098 | 9.66 | 10,770 | 33.60 | 16,572 | 51.68 | 30,440 | 94.94 |
| 2011 | 33,386 | 4,503 | 13.49 | 6,991 | 20.94 | 17,206 | 51.54 | 28,700 | 85.97 |
| 2012 | 32,513 | 3,884 | 11.94 | 9,962 | 30.64 | 17,687 | 54.40 | 31533 | 96.98 |
| 2013 | 33,078 | 4,963 | 15.00 | 10,959 | 33.13 | 16,258 | 49.15 | 32180 | 97.28 |
| Average | | | 12.92 | | 31.16 | | 50.93 | | 95.02 |
| National Average, 2013[b] | | | | | | | | k. | 89.40 |

Sources: [a]Oroquieta ILHZ Office,
[b]http://www.nscb.gov.ph/stats/mdg/mdg_watch.asp
*No data for Lopez Jaena for 2008-2009; no data for Panaon for 2009-2010

The NOH 2010 average national target for the proportion of households with sanitary toilet facilities was 91%; a higher standard of 96% was set for urban settings while for rural settings the target was 86%. The NOH national standard was higher than the MDG target of 83.8% by 2015 (Table 9). The Philippine performance for this MDG was already 92.20% in 2013, indicating that it was on track to meet the 2015 target.

Table 9. National Objectives for Health and MDG Targets for Households with Access to Sanitary Toilet

| Objective/Goal | NOH 2010[a] | MDG 2015[b] |
|---|---|---|
| Households with access to sanitary toilets | 91% | 83.8% |
| Urban areas | 96% | |
| Rural areas | 86% | |

Sources: [a] NOH 2010-2015,
[b]http://www.nscb.gov.ph/stats/mdg/mdg_watch.asp

Data posted by the Iligan City Health District reveal that the annual percentage of households in Iligan City from 2010-2013 which had access to sanitary toilet facilities was below the NOH 2010 national target of 91% despite the fact that Iligan City is a highly urbanized city (Table 10). The health district was confident, however, that it could meet the MDG 2015 target of 83.8%. The declining figures posted from 2011 to 2013 were attributed to Tropical Storm *Sendong* left many families homeless. Some changes in the estimated number of households and the thoroughness imposed in the surveys starting 2011 were similarly cited by the health district as reasons for the decline. 2014 and 2015 data, however, were not yet available as of this writing.

**Table 10.** Proportion of Households with Access to Sanitary toilets.

| Years | Iligan City Health District* | | | Oroquieta Inter-Local Health Zone* | | |
|---|---|---|---|---|---|---|
| | Total No. of Hhs | Freq. | % of Total | Total No. of Hhs | Freq. | % of Total |
| 2008* | 67,310 | 57,294 | 85.12 | 26,240 | 24,735 | 94.26 |
| 2009* | 68,697 | 58,880 | 85.71 | 27,103 | 25,059 | 92.46 |
| 2010 | 70,112 | 61,110 | 87.16 | 32,061 | 30,362 | 94.70 |
| 2011 | 71,556 | 57,186 | 79.92 | 32,598 | 30,425 | 93.33 |
| 2012 | 73,030 | 58,169 | 79.65 | 32,552 | 29,290 | 89.98 |
| 2013 | 74,535 | 59,382 | 79.67 | 33,098 | 29,430 | 88.92 |
| Average | | | 82.87 | | | 92.28 |
| National Average, 2013[1] | | | | | | 92.20 |

Source: [1]http://www.nscb.gov.ph/stats/mdg/mdg_watch.asp
* No data for Lopez Jaena on years 2008-2009

The Oroquieta ILHZ, on the other hand, posted an average of 92.28% of households with sanitary toilets in 2008-2013 (see also Table 10), with an annual rate of accomplishment that was higher than the MDG 2015 target, and with only the years 2012-2013 missing the NOH 2010 target. Oroquieta figures were also above the NOH 2010 national target, except for 2012 and 2013. Similar to the Iligan City Health District, changes in the estimated number of households and more thorough survey procedures were pinpointed as the main reasons for the declining figures. Figures for 2014 and 2015 were also not obtained.

## Assessing the Utilization of Health Information as Manifested in Health Resolutions and Ordinances

The utilization and functionality of health data is assessed in this paper through two manifestations: the issuing of (1) resolutions and (2) ordinances by the LGU. A resolution is a statement of a position, will or intent while an ordinance is a local law that regulates persons or properties and usually pertains to a matter of a general and permanent nature (Budds, MASC, n.d.). As such, an ordinance is more authoritative than a resolution.

An inventory of Iligan City and Oroquieta resolutions and ordinances that relate directly or indirectly to reducing child mortality, improving maternal health and improving access to safe water and basic sanitation for 2008-2014 can be found in Tables 11 and 12, respectively.

With regard to reducing child mortality, Iligan City has five resolutions relating to it but three are through the Early Child Development (ECD) Program of the DSWD and pertain more to the hiring of and honorarium for ECD workers. The fourth resolution is on improving health stations to improve the delivery of health services, including childcare. The fifth resolution addresses general welfare including children's welfare; however, it is worth noting that this resolution is a localization of a national mandate and not a response to local health data. No ordinance that directly pertains to reducing infant mortality has been issued. Earlier discussions have pinpointed to the Iligan City Health District's meeting the NOH and MDG target reduction levels in child mortality, thus this could explain the absence of a specific resolution and ordinance.

**Table 11.** Number of Resolutions/Ordinances that Respond to Health Information in the Iligan City Health District, 2008-2013

| Themes | Iligan City Health District | |
|---|---|---|
| | No. of Resoutions | No. of Ordinances |
| Reducing child mortality | | |
| *Through resolutions on Early Child Development: (1) Contract of Services for child development workers for the CSWD's ECD Program (2) Contract of Services with day care workers for the CSWD's ECD Program, and (3) honorarium to midwives for ECD services; (4) improve delivery of basic services by improving health stations; (5) support for the General Welfare Clause of RA 7160* | 5 | - |
| Improve maternal health | 1 | - |
| *Thru the improvement of delivery of basic services* | | |
| Access to safe water and basic sanitation | 6 | 2 |
| *(1) water sampling to determine reliability of reports on unsafe operations of a nearby company; (2) petition to the Nat'l Water Resources Board for the increase of discharge of water sources for the ICWS water supply dev't project*; (3) ICWS dev't project to solve the perennial water problem of Iligan residents; (4) LGU to ensure support for the General Welfare Clause of RA 7160 which includes access to safe water and solid wastes management; (5) replacement of existing asbestos pipes along the City's water system; (6) adopting Ordinance No. 13-6021* on environment and sanitation and providing funds* | | |

Source: Sangguniang Panglunsod, Iligan City
* Ordinances

Table 12. Number of Resolutions/Ordinances that Respond to Health Information in the Oroquieta Interlocal Health Zone, 2008-2013

| Themes | Oroquieta ILHZ | |
|---|---|---|
| | No. of Resolutions | No. of Ordinances |
| Reducing child mortality<br>*(1) infant immunization in GIDA; (2) improve delivery of basic services by improving health stations in the urban areas; (3) implementing Primary Care Benefit 1; (4) implementing facilities development program in GIDA* | 4 | 1* |
| Improve maternal health<br>*(1) granting allowances to midwives to improve facility-based service delivery; (2) implementing Primary Care Benefit 1; (3) health facilities development program in urban areas; (4) facilities development program in GIDA* | 4 | 1* |
| Access to safe water and basic sanitation<br>*(1) water testing to determine potability; (2) assessment of families without sanitary toillets for appropriate action* | 3 | 1** |

Source: Sangguniang Panglunsod, Oroquieta City
* Barangay Health Workers Ordinance
** Revised Comprehensive Solid Wastes Management of Oroquieta

According to the key informants from Oroquieta, resolutions responding to the goal to reduce child mortality were the results of health information presented by the local health board. Except for infant immunization, however, the three other resolutions also addressed general health care. Oroquieta, like Iligan, already met NOH and MDG targets on reducing child mortality; the specific concern for child immunization in the Geographically Isolated and Disadvantaged Areas (GIDAs) was in consideration of equity issues. This supports the premise of Bambas (2005) that health information systems can record health inequities and can be a springboard for action.

The Iligan resolution on improving maternal health was also non-specific and similarly dealing with the improvement of the general delivery of health care. There was no ordinance calling for efforts to reduce maternal mortality despite the health district's not being able to be on track (129 maternal deaths per 100,000 live births for 2013) *vis-à-vis* the MDG target of 52 maternal deaths per 100,000 live births in 2015. In Oroquieta, the resolutions and the ordinance attempted to address delays in deciding to seek maternal care, delays in reaching appropriate

medical care, and delays in receiving care at physical facilities – reportedly to improve accomplishments by 2015 as the ILHZ was still in the 97 maternal deaths level as of 2013.

While on track in providing access to safe water to households by 2015, key informants in Iligan stressed that the issuing of resolutions and ordinance on the matter was triggered by the knowledge that many households in Iligan City still lack Level 2 or Level 3 water supply. Access to sanitary toilet was not specifically addressed by the resolutions nor ordinances, but the health district is on track with meeting the MDG 2015 target of 83.8% with 82.7% of its households having sanitary toilet. As mentioned, the low figure was attributed to damages caused by *TS Sendong*. In the Oroquieta ILHZ, resolutions for testing water potability directly address the issue of access to safe water, especially in the rural areas. The ILHZ, like Iligan, has already met the MDG 2015 target for safe water availability to households. The ILHZ has similarly accomplished the MDG 2015 target of 83.8% of households having access to sanitary toilet; nonetheless, an even better performance was attempted as evidenced by the issuance of a resolution assessing families without sanitary toilets. The Revised Comprehensive Solid Wastes Management of Oroquieta ordinance is also a help toward this direction.

A surprising finding of the study, which could largely explain poor evidence-based decision making and activities on health, is the lack of information of many members of local health boards on the DOH's National Objectives for Health (NOH) and the health district's/health zone's Annual Operational Plan (AOP) and Medium Term Investment Plan for Health (MTIPH). The NOH gives updates on the national health situationer, mandates, and goals; the AOP and MTIPH provides local health data, shows how national goals are cascaded to the local health units, the level of accomplishments, and the budgetary requirements/allocations for health programs. During the FGD conducted with Iligan's Local Health Board, many of its members mentioned seeing the AOP only for the first time and were glad to note that the legal bases for their proposed resolutions/ordinances, activities and funding could actually be found in the AOP. This revelation provides additional evidence to the findings of the Philippine Health Information Network (2007) that some local health boards need data support to enhance their functionality. Familiarity with the AOP was common among local health board members in the Oroquieta ILHZ and this could

explain the ILHZ's generally better health performance during the study period.

## Assessing Data Collection, Recording and Storage

In the Philippines, the Field Health Services Information System (FHSIS), which is managed by the Department of Health serves as the information system for public health. The FHSIS was conceptualized in 1987 to respond to the need for streamlining the health reporting system and aid in decision making in the government and private sectors. It was implemented nationwide in 1989. The data generated by the FHSIS comes from the barangays. The FHSIS is facility-based, and data are generated by the Barangay Health Stations (BHS) and the Rural Health Units. Non-inclusion of data coming from private health units – hospitals, clinics, and other health facilities was a weak characteristic of the early FHSIS.

The FHSIS has undergone various modifications since its implementation. FHSIS version 2008 was a good enhancement over previous versions and benefitted from consultations with health program managers from the rural to the provincial and national health levels; LGUs were consulted to identify information needs and health indicators. Advancements in ICT led to the development of an electronic version of the FHSIS; the intent was to make recording and reporting of health data easier and less time-consuming thereby allowing health personnel more time for patient care. The eFHSIS was developed and piloted in 2009. Further fine tuning was done in 2010; this eFHSIS version was further enhanced in 2012 to update indicators based on the needs of the health program managers and local government units (http://nec.doh.gov.ph / index.php?option=com_content & view =a rticle &id = 59&Itemid=78).

Health officers of Iligan and Oroquieta narrated that eFHIS version 2012 was implemented in 2013 and following the Social Development Network principle, health data of the private hospitals were consolidated with those of the City/Provincial Health Office data. FHSIS version 12 makes use of the following recording tools: the Individual Treatment Record (ITR), Target Client List (TCL), Summary Table (ST) and the Monthly Consolidated Table (MCT). These are facility-based documents containing detailed data based on the day-to-day activities of the health workers. Meanwhile, the reporting tools for FHSIS version 12 are the summary data that are transmitted to the next

higher level of health managers on a monthly, quarterly and on an annual basis: the Monthly Forms (M), Quarterly Forms (Q), and the Annual Forms (A-BHS, A1, A2, A3).

Data capture is the process of gathering and storing data, for use at a later time. The health data is obtained at the point of delivery of services to the patients or clients in the Barangay Health Centers. There are two means by which information is captured: through the ITR and the TCL. The ITR includes the patient's name, address, presenting symptoms or complaints, and vital signs. It may also contain diagnosis and/or treatment. Where forms are unavailable due to the constraints in local funds, like in some cases in Iligan City, treatment information is written on a clean sheet of bond paper.

The next fundamental source of information is the TCL. The form identifies "targets" or the "eligible population" for prenatal care, post-partum care, family planning care for infants, among others, to a) plan and carry out patient care and service delivery; b) facilitate monitoring and supervision of the service delivery and c) report services delivered. Immediate recording on the TCL is important for the *barangay* health workers (BHWs) as they are required to submit monthly, quarterly and annual reports to the supervising nurses who are also required to submit reports to the City/Municipal Health Officer through the local FHSIS coordinator. BHWs in the study sites who were interviewed revealed they were more comfortable recording information in logbooks which served as their reference in making reports. The logbooks also served as duplicate copies of reports.

Raw data were written by BHWs in the prescribed FHSIS form. BHWs were assigned to collect a specific data. In the Iligan Health District the completed forms were given to the supervising nurses of a health cluster while in the Oroquieta ILHZ the forms were given to the chief supervising nurse. Data were validated and verified before these were submitted to the FHSIS coordinator; an encoder would then input data into the FHSIS. Reports generated from FHSIS were submitted to the City/Municipal Health Office for interpretation and reporting in local health board meetings for surveillance and tracking, policy making and funding.

Midwives or BHWs were assigned specific household areas for target clients. They engaged in house-to-house visits and door-to-door campaigns to determine and monitor eligible and targets. BHWs, however, could only get information from households willing to cooperate.

Data from well-to-do households who could afford the services of private medical practitioners were often missed.

The consistency of the data is important but the mobility of people presents some challenges. Data on pregnant women, for instance, can be inconsistent with those who gave birth as women can be pregnant in one place and give birth in another.

It was also noted that Health Units have different ways of recording data to generate reports for the City/Municipal Health Office. Midwives and BHWs in some health units equipped with desktop computers still opted to write their reports in the forms and maintain paper files rather than use the eFHSIS software. The health workers attributed this to the lack of hands-on training on eFHSIS. Age could also be a factor as most BHWs were already advanced in age. Data encoding in other health units, meanwhile, were still done in old versions of FHSIS which uses Microsoft Access. The weak internet connection was cited as the major obstacle for using the web-based eFHSIS. There were also encoders who would create Excel files for health data rather than use the eFHSIS. Health data encoding in one municipality in the Oroquieta ILHZ, however, was already direct to the web-based eFHSIS. All of the midwives in the health unit claimed to have been given ample training on the web-based eFSHIS and felt empowered to use it.

Overall, data capture served mainly the data reporting needs of the local health offices to higher levels of health offices, and ultimately to the DOH which still largely decides on health policies and interventions despite the devolution of health services. Addressing the health data needs of other parties, e.g., the academe and non-government organizations involved in development undertakings, remain wanting despite the eFHSIS.

## Conclusions

The NOH and MDG-related average health statistics in the Iligan City Health District and in the Oroquieta ILHZ for the period 2008-2013 were found to be better than the national averages, except for access to sanitary toilet where the Iligan City Health District's average figure lagged behind due to the onslaught of TS Sendong in late 2011. The NOH 2016 and MDG 2015 goals of reducing infant mortality, reducing child mortality for those under 5 years old, and better access to safe

water were already met in 2013. The Oroquieta HUZ already met in 2013 the MDG 2015 goal for better access to sanitary toilets while the Iligan City Health District experienced setbacks due to the ravages of Tropical Storm Sendong. Similar to the rest of the country, the two health areas studied were far from achieving the MDG 2015 target of reducing their respective maternal mortality rates.

Policy formulation that uses health data *vis-à-vis* health goals, as manifested in resolutions and ordinances, were generally tangential rather than direct. Localization of national mandates was observed.

Health workers were found to be more comfortable with the conventional way of collecting, recording and storing data. Recording these in logbooks or in forms remained popular, owing primarily to the lack of hands-on training using eFHSIS. Advancement in age and weak Internet connectivity were also major constraints cited for the slow transition to the e-version of data capture, storage and reporting.

## Recommendations

The recommendations are basically for improvements in local data capture and functionality to optimize the role of health information in helping all levels of governance determine health priorities as expressed in resolutions and ordinances, as well as to make health data available to the general citizenry for it to be more actively involved in health undertakings.

More hands-on training for BHWs on the eFHSIS is definitely needed to ensure the use of the web-based health system. In some instances when resistance to using the software is a great challenge, the health units can avail of the ICT and health informatics skills of nursing and medical students of higher education institutions in the locality who are given assignments in these health units. These enthusiastic young students can serve as a ready pool of human resources who can augment and complement the existing few human resources in health services with these skills. Their assistance can similarly hasten data transmission to the city/municipal health offices, thereby ensuring the availability of updated health data.

Health information has always been cited as vital for policy making and prioritization of resources. Resolutions and ordinances on health in the geographic health areas studied showed, however, that health information has not been optimized in crafting interventions that

respond directly to health issues. This calls for more effort from the local health boards to influence LGU decision-making. It would be best for the local health boards to always be well-informed about the DOH's National Objectives for Health. The local health boards should not only be knowledgeable about the Annual Operational Plan and Medium Term Investment Plan for Health, but should actively participate in their crafting. This will empower them to pursue the implementation of the AOP and the MTIPH, especially that the Sangguniang Panlunsod chair of the health committee sits in the local health board.

On the macro level, it is being recommended that to make health information usable to all parties needing it for audit, research or developmental purposes, the opportunities offered by open data should be explored; the sooner this is done, the better it will be. Open data is data that is publicly available and can be universally and readily accessed, utilized, and redistributed free of charge. Even when it is so, private, personal and proprietory information are still protected in the data release process, (McDermott, 2010; O'Hara, 2012 in Ona, et.al., n.d.). Forty countries currently practice open data in government, and its benefits – and costs – particularly in the health sector, are being discussed worldwide (Bauer and Kaltenbauk, 2010). The Aquino Administration has already launched Open Data Philippines (ODP) in January 2014 to create an environment that can foster transparency, participation and collaboration. The OPD also envisions the active participation of the private sector, civil society and the academe. OPD in the health sector can help foster a data-driven and evidenced-based decision-making.

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