Uncovering Opportunities for Open data in Community Health practices:
Imperatives for building stakeholder capacities in the Philippines

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Abstract:
The move towards openness and innovation has resulted in a mix of opportunities and challenges. The founding of the Open Government Partnership (OGP) in 2011 underscored the importance of adopting transparency and accountability mechanisms by using open government techniques. Furthermore, this sparked a global trend of re-examining the role of data and how the opening of data sets can result to better governance. However, recent experiences show that merely opening data sets is just an initial step. One of the major challenges is on how to bridge the supply of open data to that of demand. For local governments, bridging supply with the demand for open data mean that there is a need to ensure its efficacy and relevance in addressing local requirements.

In the Philippines, open government initiatives are often linked to the agenda of good governance and inclusive growth. In particular, the Millennium Development Goals (MDGs) has functioned as one of the yardsticks for attaining inclusive growth. As for its commitment to the OGP, the Philippines has embarked on several initiatives aimed at making government more transparent and governance more participative with local government units (LGUs) being considered as the next frontier. However, in 2012, the government has conceded that the MDG target on maternal mortality (MDG-5) will not be met. Local studies point to the inadequate management of community health data as one of the reasons why there is difficulty in monitoring maternal health cases thus contributing to the failure to achieving MDG-5. With this recognition, we see an opportunity to link open government initiatives in local governments to MDG targets in community health. Through the development the human capacities of LGUs to use their local data sets to enhance their ability to manage their health information and at the same time addressing their commitment to the national objectives on good governance.

In our paper, we used the results of our previous study on the community practices in maternal health and child care (MHCC) in selected municipalities. Administered by the local government units (LGUs), these practices show the different opportunities on how to use health data sets. With the intent of adding to our previous findings, we conducted an analysis of stakeholder requirements. Moreover, our study was able to surface themes pertaining to the data-information management practices through the use of critical incidence technique. These themes were examined and were presented as possible factors necessary to develop an open government capacity building program for community health practitioners in LGUs. We also examined 2 LGU websites using content analysis to determine the possible venues for open data.

Keywords:
Open data, information technology, data sets, community health, participation and local governance.
I. Introduction

As a public health concern, maternal health and child care (MHCC) continues to be a priority in the Philippines. In fact during the past two decades, MHCC concerns have figured prominently in the national health programs. With the intention of attaining its MDG-5 targets by 2015, the government’s universal health agenda (2011-2016) underscored the importance of MHCC by increasing the allocation of financial resources. This move by the national government signalled its desire to improve the situation on the ground by building more community health centers, hiring more health professionals, and increasing medical supplies. However, despite these significant developments, the Philippine maternal mortality rate (MMR) rose to 221 per 100,000 live births in 2011 from 162 in 2009 (DOH, 2012). Another related (and equally alarming) trend shows a 65% increase in teenage pregnancy from 2000-2010 (NSO, 2012).

This reality suggests that the Philippines will definitely miss the prescribed MDG-5 target of 52 per 100,000 live births. Furthermore, it leads us to question why such failure exists despite of the government’s commitment to improve its MMR. Given the significant investments in national and community health programs, these recurring problems seem to suggest that a holistic-systematic approach might be needed. This approach must take into account all the facets that surround MHCC especially in the local communities (known locally as “barangay”). It is also interesting to note that aside from the usual problems on supplies, literacy, and other socio-economic related issues, prevailing literature also point to the inability to manage information-data of MHCC and that it continues to hamper the efficient delivery of services. This is due to the inadequate organizational and human capacity which is further aggravated by the lack of information management tools and skills.

In this paper, we focused on the need to develop the local capacities in managing MHCC data. In particular, we examined the needs and requirements of MHCC stakeholders. Anchoring our paper on the previous studies of MHCC practices in local communities, we again posit that open government techniques and learning content can be used to address information-data related concerns. By ensuring the access to relevant data and its visualization, we further argue that open data techniques can support decision-making tasks in LGUs and mobilize community stakeholders. Moreover, making such efforts is consistent with the desire of the local government units (LGUs) for achieve its seal of good governance goals on transparency, accountability and participation.

II. Prevailing literature and the background of the Study

MHCC programs are considered as one of the basic health services in the Philippines. Categorized as a primary healthcare need, MHCC initiatives have seen a steady increase in budget allocation thus resulting to significant gains.

However, current community-barangay health practices are often characterized as nationally-driven (top-down), centralized, and resource-oriented practices (Angeles, 2014) (La Vicente et al, 2012). These practices discourages the active participation of the community and results to dependence on the national government. Another concern is on the occurrence of information gaps which causes the inability of health officials to accurately determine health requirements. Angeles (2014) further notes that these practices exhibited passive participation and the monologic communication mode of participation which often leads to poor health practices such as labor intensive service delivery, untimely health services and reactive intervention to health issues.
On a related issue, a 2007 review and assessment of the Philippine health information system points to the existence of “core problems” of the health and management information system. The study enumerated the following as:

“a) information gaps; b) underutilization of data; c) excessive generation of data; d) poor reliability and validity of data; e) inadequate skills in information management; f) lack of cost effectiveness in health management” (PHIN, 2007);

The PHIN study also cited the previous work of Jayasuriya (1994) in which the author pointed to major information gaps due to “inappropriateness of available information regarding needs and that such information was not used in the different management levels”. The study also highlighted the high cost of maintaining routine information systems. (p. 28). In addition, Huntington et al (2011) further reiterated that data collection in community health remains to be a challenge, citing it as a laborious and expensive process. In particular, the study specifically points to the difficulty of harmonizing information from different data sources. Hence, numerous studies have reiterated the findings of the PHIN assessment, citing the need to improve the health information system (HIS) to enable effective monitoring of MHCC cases (Huntington et al, 2011) (La Vicente et al, 2013).

To further understand these information-data related practices and the possible open data implications, the study of Ona et al (2014) examined community-level MH practices in selected rural communities. This study observes that that data management practices are consistent with the findings of Huntington et al (2011) and the PHIN report (2007). However, the study also underscored the existence of practices that tend to utilize data both for decision-making and transaction management. These practices are the mapping of MHCC cases using spot maps and the use of log books to consolidate MH data. Ona et al (2014) argues that these activities the use of visualization and physical data sets in community health planning thus opening opportunities for the use of OG-OD techniques. The study of Ching et al (2014) further captures these artefacts and argued that indeed these are opportunities for open data to explore.

Open Data: Challenges and opportunities

Open data is an emerging practice that opens public information and data for possible re-use (Bauer and Kaltenbock, 2011). As a movement, it advocates for transparency and accountability (O’Hara, 2012; O’Rain et al 2012; Jansen, 2011). Current studies show the potentials of open data in healthcare. Curcin et al (2012) points to the need to establish data registries to facilitate access and discovery of new information. While Moyes et al (2013) proved the power of open data through visualization of data sets for malaria monitoring and control. However, Pisani et al (2010) were quick to point out that many countries are reluctant to share data and avail of services that may contradict political goals. The same study also mentioned that government and researchers alike are wary of sharing their methods and the seemingly lack of metadata standards.

However, a closer examination of the current practices shows that most of these open government-open data initiatives are still seen as being top-down and supply (usually public sector) driven. This often results in a mismatch between the data being supplied and the demand coming from users (Davies, 2014). Data alone does not guarantee positive outcomes and does not automatically lead to an increase in citizen access (Carter, 2012). These works further argue that lack of context may even result to hindering citizen participation. This concern on context is also seen as an important facet in ensuring the relevance of open data initiatives through its meaning (or purpose) and correct interpretation of data sets (Gurstein, 2011). Furthermore, the work of Gaventa and McGee (2013) proposes a balanced
equation between supply and demand, arguing that an enabling environment is needed to achieve this balance. In addition, both authors stress the importance of examining the factors of success related to achieving the balance by studying the capacity and responsiveness of the state to provide relevant data and the absorptive capacity of citizens.

III. Problem statement, Objectives and the scope of the study

Meanwhile, it is prudent to exercise caution in adopting a generalist stance of, “one size fits all” for open government-open data (OG-OD) initiatives. Citing the importance of examining local context, Meijer and Thaens (2010) cites the unique environmental conditions and local challenges. While Dawes (2010) warn against possible misinterpretation and manipulation of open data sets, thus the need to ensure the purpose and relevance of OG-OD programs, thus stressing the need to develop organizational capacities (Dawes and Helbig, 2010). Another notable characteristic of OG-OD initiatives is its developed country-western roots, thus there is a need to explore OG-OD using the lens and context of developing countries (Davies et al, 2013). These arguments show that indeed OG-OD is not an off-the-shelf, ready to use the concept. Careful consideration of the socio-economic conditions and the political situation must be done to ensure acceptability of these initiatives.

In developing countries the need to build institutional capacities for open government remains a challenge. In the Philippines, the full disclosure policy and its seal of good housekeeping program by the Department of the Interior and Local Governments (DILG) aims to institutionalize the good governance by adopting transparency and access policies in LGUs. In a similar move, the Department of Budget and Management (DBM) adopted participatory budgeting thus encouraging communities, LGUs, CSOs and other constituent-level stakeholders to be part of the budget process. Moreover in line with the open government thrust of the national government, the Department of Health (DOH) website contains data sets pertaining to health statistics disaggregated according to region and disease type. Lastly, the DBM is also leading the Open Data Task Force (ODTF), whose main objective is to encourage national government agencies to adopt OG-OD techniques. ODTF sees OG-OD in the local government level as the next frontier, citing the need to build local capacities to ensure its sustainability (GGAP, 2012).

However, most of these OG-OD initiatives are anchored on the government’s anti-corruption drive. Although this is a popular theme for most Filipinos, we propose that there is a need to link OG-OD to the attainment of inclusive growth objectives. We further argue that a good area to consummate this link is in the area of community health, in particular MHCC. This is due to the gravity of the MMR problem and the presence of data sets that remains unorganized and underutilized thus limiting the ability for impactful decision-making at the national and local levels.

These discussions highlight the need to develop capacities, especially in the local levels, thus prompting us to ask the question, “What are the needs and requirements of local health practitioners in developing their information-data management practices? How can OG-OD techniques complement these requirements?” Furthermore, our study aims to uncover local capacity needs of community-health practitioners in managing their information-data and identifying the possible opportunities of OG-OD. We believe that by surfacing these needs and requirements, an OG-OD initiative in the LGUs can be made more relevant and sustainable.
IV. Research Design and Scope of the Study

With this paper, we intend to uncover the stakeholder requirements that can be used in designing a capacity building in relation to information-data management and identify possible opportunities to use OG-OD techniques.

Using qualitative techniques, our study gathered data from the rural health units of the four municipalities of Iloilo province namely Zarraga, Leganes, Sta. Barbara and Pavia. Data were primarily sourced using the following tools: (1) semi-structured interviews with key informants namely: the municipal health officers (MHOs), barangay health center heads / midwives, barangay nutrition scholars (BNSs) and barangay health workers (BHWs); (2) actual observation; (3) document review of community health records (i.e. target client list, individual patient records, summary reports).

V. Analysis of Results

Overview of the Study’s Domain
The Province of Iloilo is located in the Western Visayas (Central) region of the Philippines. Iloilo province is subdivided into 42 municipalities, one component city, and one independent, highly urbanized city. According to the 2010 national census, the population of the province, excluding Iloilo City is 1,805,576. Iloilo province showed exemplary performance in good governance, transparency and accountability earning the DILG's Seal of Good Housekeeping award in 2011 and 2014. The Seal of Good Housekeeping is awarded to local government units (LGUs) which successfully comply with (a) the tenets of the full disclosure policy; (b) exhibit exemplary standards of the frontline services and procurement; (c) proven to have no adverse findings in its annual audit report by the Commission on Audit.

The municipalities in our study are all located in the 2nd district of the Province of Iloilo. The municipality of Sta. Barbara is located 16 kilometers away from the City of Iloilo. Santa Barbara is politically subdivided into 60 barangays. The municipality of Pavia is 9 kilometers away from the City of Iloilo. Pavia is considered to be the smallest municipality of the province in terms of land area which is subdivided into 18 barangays. Zarraga is 14 kilometers away from Iloilo City. It is divided into 24 barangays. The municipality of Leganes is located 11 kilometers north of the capital Iloilo City. It is politically subdivided into 18 barangays.

In recognition of their efforts on local legislation and planning, fiscal management, transparency, accountability and full disclosure of local budget and finances bids the selected municipalities bagged the DILG’s Seal of Good Housekeeping award. Sta. Barbara prides itself for receiving the award twice (2011 & 2014). In addition, both Zarraga and Pavia received the award in 2011.

Uncovering Stakeholder Requirements
Using key informant interviews combined with snowballing techniques, we were able to identify the direct stakeholders of MHCC in local communities. During the interviews, the key themes were also revealed. Table 1 provides a summary of the problems encountered and the perceived information-data needs.
<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Responsibilities</th>
<th>Skills and Nature of Work</th>
<th>Problems</th>
<th>Information-data needs and demands</th>
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| **Rural Health Unit Head / Municipal Health Officer (MHO)** | • Assess community health status and supervise all aspects of health  
• Plan and implement health programs in accordance with DOH guidelines and with the approval of Local Government Unit (LGU) | • Medical Doctor-Physician  
• Administered by the DOH and LGU | • Limited information technology resources  
• Limited human resource capability in managing health information-data | • Harness and convert data to information for local health planning, monitoring and surveillance  
• ensure that all reports are accomplished properly and submitted promptly to LGU and Provincial Health Office |
| **Barangay Health Station Head / Midwife** | • Provide preventive, promote clinical Maternal, New-born and Child Health and Nutrition (MNCHN) services to community members  
• Monitor the overall health status of the barangay | • Certified Midwife  
• Normally with a tertiary educational degree  
• Administered by the DOH and the LGU | • Paper-intensive data collection, recording, storage and reporting  
• Inadequate skills in information-data management  
• Low computer literacy  
• No computers in the barangay health station (BHS) | • Capture, store, manage and harness health data for barangay health monitoring and surveillance  
• Consolidate and summarize reports (monthly, quarterly) and ensure that these are submitted promptly |
| **Barangay Nutrition Scholar** | • Monitor the nutritional status of children in the community  
• Deliver nutrition services (Operation Timbang) and other community health related activities (i.e. backyard food production, environmental sanitation, feeding and family planning) to the barangay | • Community Volunteer  
• Trained by the DOH  
• Administered by the LGU  
• With primary-secondary educational attainment | • Paper-intensive data collection and reporting  
• Inadequate skills in information-data management  
• Low computer literacy | • Keep a record on the nutrition and health profile of families in the barangay  
• Formulates a BNS Action Plan  
• Prepares a record of monthly accomplishments |
| **Barangay Health Workers** | • Assist the physicians, nutritionists, public health nurses, and midwives in the promotion of primary health care services  
• Conduct spot mapping activities, verify target clients, assess immediate MHCC situation in the community, and monitor teenage pregnancy cases  
• Mobilize community participation | • Community Volunteer  
• Trained by the DOH  
• Administered by the LGU  
• With primary-secondary educational attainment | • Paper-intensive data collection and reporting  
• Inadequate skills in information-data management  
• Low computer literacy | • Collect vital statistics  
• Maintain records and prepare reports |

Table 1: Summary of MHCC Stakeholder Needs

Table 1 also points to a demand for “useful data” that can be used for local health planning (e.g. budgeting, resource allocation), health management (e.g. monitoring, surveillance, and reporting) and
local legislation. At present available data does not allow for a holistic health management practice mainly because of the limited organizational capacity to manage information-data resources. The DOH mandated reports are mainly for consolidation of community and regional level statistical data. Although this technique of national consolidation might be useful for national health planners, it however provides a limited view of the total health picture of the communities. Interviewees were quick to add that if utilized properly, their health data can provide more information about their assigned areas. Aside from skills, interviewees linked this limitation to the inadequate allocation of computers per rural health unit.

Our examination also revealed certain themes regarding information-data demands of community health such as the following: (1) profiling; (2) consolidation; and (3) support to localized decision-making (see Figure 1). Profiling health data is needed to identify set of health indicators and to show comparison of health status of the community to the national average. Timely and accurate consolidated reports are also needed by the LGU and national DOH for surveillance and monitoring. Thus, these data are deemed essential in the decision-making process for local planning and national policy formulation.

Our observation revealed that indeed there are existing difficulties in information-data management. Aside from the inadequate computers, we noticed that most of the health records are physical/manual (e.g. Log books, paper forms, etc.) and are stored in cabinets. Despite these realities, it is notable to mention that there are attempts to use spot mapping techniques, but these are usually based on memory recall, personal assessment of reports and pencil-paper techniques of data manipulation. Excel tools are used but mainly for report generation. We also noticed the non-use (or limited use) of data capture forms which can be traced to the lack financial resources to reproduce these forms.

**Figure 1.** Key themes from MHCC stakeholders in local communities

*Results of Observation*

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Survey of LGU Websites
We also conducted a survey on the website of the two municipalities included in our study. Using content analysis figures 2 and 3 show that these municipalities adhere to Full Disclosure Policy (FDP) by publishing FDP related documents in their websites. Moreover, these websites exhibit the use of popular social media applications such as Facebook and Twitter which provides a feedback venue thus promoting online citizen participation.

Figure 2: Full Disclosure Page of the Municipality of Pavia Website

Figure 3: Full Disclosure Page of the Municipality of Sta. Barbara Website
While in Table 2, we highlighted the key contents of each website. Aside from the FDP provisions and general information about their respective municipalities, these websites are mainly used for promoting business and tourism opportunities.

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<tbody>
<tr>
<td><strong>Central Theme</strong></td>
<td>Development projects, activities, business and investment opportunities, key officials and functions</td>
<td>Development agenda / local government initiatives, achievements, activities, information related to government services and functions, key officials</td>
</tr>
<tr>
<td><strong>Pages / Tabs</strong></td>
<td>General information, officials, programs and projects, doing business, tourism, products, development projects, full disclosure, resolution and ordinances, links to various government websites, link to its official Facebook page</td>
<td>General information, officials, offices and functions, tourism, governance, BAC, Full Disclosure Policy, News and Articles, other pages (Citizens charter, downloadables), links to various government websites, link to its official Facebook page</td>
</tr>
<tr>
<td><strong>Updating of news and articles</strong></td>
<td>Regular</td>
<td>Regular</td>
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**Table 2: Summary of Website Content**

VI. Discussion of Results

The results of our study show that the problems and challenges encountered in the rural health units are consistent with existing literature. Usually traced to inadequate resources, our study complements previous findings on the need to define information-data management in community health. In particular, our results further underscore the need to consider the stakeholder skill requirements, they are (a) how to develop health profiles per geographic area (e.g. area mapping, report generation); (b) how to accurately consolidate data, and (c) how to use these data sets for decision-making purposes. A constant concern is on how to convert existing manual data to digital further aggravated by the non-use of data capture forms. In addition, the current skills of community (barangay)-level health volunteers suggest the need for computer literacy training.

As to how OG-OD techniques can be used, we believe that the techniques of data visualization, data storytelling, and possibilities of collaboration through joint planning can be used in MHCC. This can open the possibility of a more inclusive community health-MHCC program. Moreover, the use of OG-OD techniques also implies a possible “back-to-basics” scenario. This calls for a basic appreciation of data and data sets and how its manipulation can result to better decision-making. The concept of OG-OD can
be further emphasized by linking these concepts to the FDP. We refer to this as the need to do a “piggybacking” approach to the current FDP program.

The survey of the websites also provides us with some insights on how the concern LGUs view its use. Generally, these websites are used for information dissemination purposes. Aside from the usual updates and news about LGU programs, these websites serve as venues for the FDP program. Feedback in also ensured by the use of social media and traditional mediums such as email and telephony services.

Lastly, open government initiatives in local governments are part of the evolutionary process for the FDP. Aside from community health practitioners, we see the need to involve the local chief executives and other LGU officials. In our interview with 2 local chief executives, it was further stressed that a workshop/seminar is needed to orient municipal officials and their staff about OG-OD.

VII. Limitations of the Study and Recommendations

As a limitation, our study only focused on the direct stakeholders of MHCC. The study did not include patients and indirect stakeholders such as the peoples’ organizations, donors, and provincial health officials. We further recommend the study be expanded to include the other MHCC stakeholders. A full-blown stakeholder analysis should be conducted and a validation technique for the findings must be adopted. We also recommend that the results of the study be presented to the LGUs. Aside from feedback, the results can serve as useful inputs for their own programs.

VIII. Bibliography


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