An Evaluation of Public Health Surveys in the Philippines

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RESEARCH ARTICLE

Abstract

Background and Objectives: In order to constantly provide important and reliable sources of information for various health stakeholders, public health surveys should be neatly-planned, well-conducted, and implemented. The study evaluated the design and implementation of six major public health surveys conducted in the Philippines (2002-2012); identified stakeholders' utilization of the different survey results; and recognized areas of improvement in the design and implementation of these surveys.
Methodology: The study purposively selected and evaluated six major public health surveys based on the contents of their respective final reports. The study also identified areas in the design and implementation of these surveys that can be improved. The researchers also conducted key informant interviews (KIIs) and focus group discussions (FGDs) within the Department of Health (DOH) to validate the usefulness of the results of these surveys in developing health policies.
Results: Each survey had an adequate description of the sampling design, scientific determination of the sample size, appropriately described cluster selection, completely discussed survey questionnaires, and a very comprehensive analysis of survey results. However, not all surveys presented a thorough description of the field operations and discussed survey organization and data management procedures. Common problems as reported by the stakeholders include lack of access to the data results, absence of disaggregated data, and the differences of methodology that hamper comparisons between surveys.
Conclusion: In the development of protocol and standard operating procedures on the design and implementation of each public health survey, there should be a close coordination among the stakeholders to promote harmonization of survey methodology and research outcomes. Effective dissemination plans should also be devised for a more efficient data utilization. There is a need for a central repository of all databases to further promote data sharing and harmonization of public health data. Disaggregation of survey results up to the provincial level is also recommended for local planning, policy formulation, and decision making. Lastly, data on health human resources and migrant health might be additional areas of concern that a public health survey might address.

Keywords: *survey sampling, sampling design, cluster sampling, public health survey, public health data*

Introduction

Public health surveys have been and will continue to be important sources of information for health care policymakers, public health professionals, private providers, insurers, and health care consumers concerned with the planning, implementation, and evaluation of health-related programs and policies [1].

Scientific rigor in the design of public health surveys is crucial to ensure that the final results are accurate and representative. If the sampling design is of poor quality, the value of the survey will be undermined [2]. At the onset, the probability of a successful research project is enhanced when precise research goals and objectives are correctly defined so that the writing of the research plan and its successful implementation can be easily identified and organized [3]. It is important that appropriate research design and methodology are used to ensure representativeness and accuracy of research outcomes. Careful attention should be given to the use of appropriate survey design, survey procedures, data management, and analysis to minimize

sampling and non-sampling errors, and at the same time obtain precise and accurate results efficiently.

Public health surveys undertaken in the Philippines aim to primarily collect, analyze, and disseminate information on public health in consonance with the National Health Research Agenda (NHRA). They are conducted to obtain information on public health to address the different heath issues and problems in the country, particularly of the poor and disadvantaged segments of the population. The information gathered provide inputs to national plans and programs of the country, which may be useful in providing the benchmarks by which to gauge the country's progress towards achieving the Millennium Development Goals (MDGs) [4].

The literature provides a number of public health surveys conducted in the Philippines on a national level, such as the 2006 National Oral Health Survey (2006 NOHS), 2007 Nationwide Tuberculosis Prevalence Survey (2007 NTPS), 2008 National Demographic and Health Survey (2008 NDHS), 2009 Global Adult Tobacco Survey (2009 GATS), 2011 Family Health Survey (2011 FHS), and 2011 Updating of the Nutritional Status of Filipino Children and Other Population Groups (2011 Updating Survey), to name a few. The problem, however, is that these public health surveys employ different sampling designs and methodology. Given the magnitude and complexity of a national survey on public health and the resources needed to carry out these surveys, there is a need for the evaluation of public health surveys in the Philippines.

This paper evaluated the design and implementation of public health surveys conducted in the Philippines. The study also identified areas in the design and implementation of these surveys that can be improved, which may be useful for planning and impact evaluation of the health delivery system in the country.

Methodology

Ensuring reliability, accuracy of data tools, representative samples, and the validity of participant responses are the challenges faced by health surveys worldwide [5]. Recognizing the importance of the study design and methodology in public health surveys, the study evaluated six major public health surveys conducted in the Philippines (2002-2012) in terms of survey designs, survey procedures, data management, and analyses employed in these nationwide surveys based on the contents of their respective final reports. These public health surveys were purposively selected by the funding agency (DOH) and were agreed upon by the researchers.

The study also identified areas in the design and implementation of these public health surveys that can be improved. The abstracted analyses and observations from these surveys were deliberated and agreed upon by both researchers.

The researchers also conducted key informant interviews (KIIs) and focus group discussions (FGDs) within the DOH and other related agencies in order to validate the usefulness of the results of the different public health surveys in developing health policies. In the same process, data gaps and problems on data sharing and access were also identified.

The study was given clearance by the National Bioethics Committee of the Department of Science and Technology (DOST).

Results

The six major public health surveys reviewed were the following: 2006 NOHS, 2007 NTPS, 2008 NDHS, 2009 GATS, 2011 FHS, and 2011 Updating Survey.

The 2006 NOHS was a stand-alone survey which comprised of dental clinical examination and sociological survey. It gathered information on the oral health status of the 12 million public elementary school children in the Philippines. The survey was carried out by the Department of Education (DepEd) from November 2005 to February 2006 [6].

The 2007 NTPS was a stand-alone, cross-sectional study of the population to determine the point prevalence of tuberculosis (TB) based on bacteriologic parameters. The survey was undertaken from July 23 to December 12, 2007 by the Tropical Disease Foundation on behalf of the DOH [7].

The 2008 NDHS was conducted by the National Statistics Office (NSO) (August 7 to September 27, 2008), designed to assess the demographic and health situation in the country. It provided information on fertility, childhood mortality, contraceptive knowledge and use, maternal and child health, nutritional status of mothers and children, violence against women, and knowledge, attitude and behavior regarding HIV/AIDS and tuberculosis [8].

The 2009 GATS was a household survey of all non-institutionalized men and women aged 15 years and older, designed to produce internationally comparable data on

tobacco use and tobacco control measures. It was launched in February 2007 as a new component of the Global Tobacco Surveillance System (GTSS) [9].

The 2011 FHS was a stand-alone survey conducted by the NSO (August to September 2011) to provide up-to-date information on fertility, family planning practice, selected maternal and child health, and key health indicators in the country for the use of the government in assessing the progress of its programs on population and health [10].

The 2011 Updating of Nutritional Status of Filipino Children and Other Population Groups was conducted by the Food and Nutrition Research Institute, Department of Science and Technology (FNRI-DOST) from June to December 2011. It served as a follow-up survey in between National Nutrition Surveys. Its primary objective was to provide a continuing flow of updated information on the nutritional status of Filipino children and other population groups [4].

The goals and objectives of these surveys were all clearly defined, specific, measurable, attainable, realistic, and time-bound. In terms of scope and coverage, some of these surveys overlap. Three surveys gathered information on TB, namely: the 2007 NTPS, 2008 NDHS, and 2011 FHS. The 2007 NTPS gathered information on the knowledge about the symptoms, cause, and transmission of TB, and health-seeking behavior of TB symptomatic and subjects with parameters of the disease from 30,667 individuals. The 2008 NDHS, on the other hand, collected information on the knowledge and treatment of TB, and TB-related discrimination from around 14,000 women of reproductive age (15-49 years old). The 2011 FHS included information on help-seeking behavior for TB from 53,000 women of reproductive age (15-49 years old). Both the 2008 NDHS and 2011 FHS provided information on fertility, family planning, maternal and child health, TB, and health care utilization. Although both had information on under-five childhood mortality rate, it was only the 2011 FHS that provided information on maternal mortality. Both the 2008 NDHS and 2011 FHS had information on breastfeeding practices of infants but, in addition, the 2011 Updating Survey had information on young child feeding practices.

Survey Design

Sampling Design

A sampling design refers to the set of rules that need to be followed for sample selection including the method of estimating population characteristics (parameters) based on sample data [11].

The ultimate goal in sampling surveys is to extract a representative sample from the population. In surveys in which data can be collected without direct contact with individuals, the use of simple random sampling is feasible. However, in surveys where direct contact with a large number of individuals is required, the time and cost of collecting data individually from the sample is not practical. When simple random sampling is not feasible, an alternative approach is to use cluster sampling [11].

Table 1 shows the different sampling designs used by the different public health surveys. All surveys used cluster sampling. The 2006 NOHS used a modified cluster sampling with schools as clusters. The 2007 NTPS had barangays as clusters. Since the 2008 NDHS, 2009 GATS, 2011 FHS, and 2011 Updating Survey used the 2003 master sample of NSO as frame (list of population units), these surveys had enumeration areas (EAs) as clusters [12].

Table 1. *Sampling design used by each public health survey*

Public Health Survey	Sampling Design
2006 NOHS	Modified Stratified Cluster Sampling
2007 NTPS	Stratified Two-stage Cluster Sampling
2008 NDHS	Stratified Three-stage Cluster Sampling
2009 GATS	Stratified Three-stage Cluster Sampling
2011 FHS	Stratified Three-stage Cluster Sampling
2011 Updating Survey	Stratified Three-stage Cluster Sampling

Both the 2008 NDHS and 2009 GATS used one of the four replicates of the 2003 master sample. For both surveys, 794 EAs were selected with probability proportional to the estimated number of households from the 2000 Census of Population and Housing. However, the definition of an EA in both surveys differs. Whereas in the 2008 NDHS, an EA was an area with discernable boundaries within barangays and consisting of 150 contiguous households, in the 2009 GATS, it was composed of approximately 350 contiguous households.

Although both the 2011 FHS and 2011 Updating Survey used all the four replicates of the 2003 master sample, their definitions of EAs also differ. Whereas in the 2011 FHS, an EA was composed of about 300 contiguous households, in the 2011 Updating Survey, it was composed of only150-200 contiguous households.

Sample Size Calculation

When cluster sampling is employed in sample surveys, there is more uncertainty about the parameter than simple random sampling of the same size. Thus, the sample size in a cluster sampling, compared with simple random sampling, must be increased because individuals in the same cluster are likely to be more similar to each other, and therefore, provide less information than other individuals in other clusters [11].

In a cluster sample survey, the key concepts that need to be considered in the calculation of the sample size are relative precision and design effect (DEFF). Relative precision is the width of the confidence interval, expressed as a proportion of the value of the parameter [11]. The DEFF is the ratio of the variance of the estimate obtained from a more complex design to the variance obtained using simple random sample of the same size [11,13]. It has two primary uses: in sample size calculation and in assessing the precision of the survey estimates [11]. When used in the estimation of the sample size, the DEFF for a cluster sample survey is the multiple by which the sample size must be increased, compared with the sample size using simple random sampling, to ensure that the estimate is as precise as that obtained using simple random sampling [13].

Table 2 presents the different sample sizes and the assumptions used in the calculation. Only the 2006 NOHS and 2007 NTPS mentioned about assumptions on precision, relative precision, and the DEFF. The 2009 GATS used the GATS protocol in sample size determination. In the 2008 NDHS, 2011 FHS, and 2011 Updating Survey, no specific calculation of the sample size was mentioned.

Sample Selection

In cluster sampling, the selection of clusters is typically a multi-stage process. It may start with the selection of primary sampling units (PSUs), followed by secondary sampling units (SSUs), and so on until the level of geographical areas comprising only the clusters is reached. If the clusters vary in their population size, then the cluster is selected with probability proportional to size (PPS); however, if the clusters are similar in their population size, then the cluster may be selected using simple random sampling [2].

In all the surveys, the cluster was appropriately defined. In the 2006 NOHS, the schools served as the clusters. In the 2007 NTPS, the cluster was composed of 600 individuals in the selected barangay. In the 2008 NDHS, 2009 GATS, 2011 FHS and 2011 Updating Survey, the clusters were the EAs.

The surveys incorporated stratification in the sampling design before the actual sample was selected in order to achieve a more homogeneous sub-population. The 2006

Table 2. *Sample size used by each public health survey*

Public Health Survey	Sample Size	Assumptions Used
2006 NOHS	4,052 students	80% estimated caries prevalence; 3% desired precision; 95% confidence; 1.5 design effect
2007 NTPS	30,000 individuals	Estimated prevalence of smear-positive TB within 25% of the expected value; 95% confidence; 1.25 design effect
2008 NDHS	13,500 households	None
2009 GATS	12,086 individuals	GATS protocol (minimum of 8000 individuals and design effect of 2.0)
2011 FHS	48,586 households (52,769 women)	None
2011 Updating Survey	38,894 households (198,022 individuals)	None

NOHS had the region and urban/rural schools classification, while the 2007 NTPS had Metro Manila, Other Urban Areas, and Rural Areas as strata. The 2008 NDHS, 2009 GATS, 2011 FHS, and 2011 Updating Survey had male/female and urban/rural stratification.

The selection of clusters was clearly described. In the 2008 NDHS, 2009 GATS, 2011 FHS, and 2011 Updating Survey, the selection of clusters was done in three stages: the PSUs and SSUs were selected with PPS, and in the third stage, housing units were systematically selected. In the 2007 NTPS, the PSUs (provinces) and SSUs (barangays) were also selected with PPS.

Survey Procedure and Organization

Survey Organization and Training

Strong lines of supervision are needed throughout the conduct of the survey to ensure its proper implementation. All the personnel involved in the design and implementation of the survey must receive training in line with their individual and overall responsibility throughout the conduct of the survey [2].

The surveys satisfactorily discussed the survey organization and training of the key personnel involved, except for the 2011 FHS; these surveys discussed the major roles and responsibilities of each committee involved.

Informed Consent

Informed consent must be obtained from all participants. It is an ethical requirement for all routine surveillance, as well as research studies, following the Declaration of Helsinki in 1964 concerning studies on human subjects [14].

Only the 2009 GATS and 2011 Updating Survey mentioned about informed consent. Ethical principles were carefully considered in the conduct and implementation of these surveys. The reports also mentioned that the data collected from the subjects were treated with utmost confidentiality and that the results will only be used for research purposes.

Data Collection Tools/Interview/Questionnaire

The survey may employ a self-administered questionnaire or an interview. The interview consists of a set of standardized questionnaires that collect data to answer specific questions. The questionnaire should be clear, simple, concise, and as precise as possible, and the procedure for completing the questionnaire must be clearly described to maintain data quality [2].

The surveys discussed the different questionnaires used to obtain information from the sample households or individuals to answer the objectives of the survey. The specific contents of the different modules were completely described in the final report.

Pilot Survey (Pretest)

When standard operating procedures (SOPs) are in place and training of field survey personnel is completed, a pilot survey should then be carried out before launching the actual field data collection because it provides an opportunity to improve the conduct of the survey [11].

Only the 2008 NDHS, 2009 GATS, and 2011 Updating Survey discussed the conduct of pilot survey prior to the actual field operation. These pretests were conducted mainly to simulate the various processes involved in data collection procedure and to improve and modify the design and implementation of the actual survey.

Data Collection/Field Operations

The field operations should be planned considering several factors, such as logistics, weather conditions, national and local events, maintaining the health of staff, time for reporting of the completed cluster work, and preparation for the next cluster [2].

It is important that the field manager or supervisor checks all questionnaires at the end of each day during the field operations to ensure they are correctly completed and to promptly identify any errors that could be corrected. On-the-spot correction and clarification of errors will help ensure that the data quality is good. It is also advisable to perform quality assurance on the data collected to ensure that the enumerators are accurately recording genuine information and that data are not being fabricated [2].

In the 2006 NOHS, 2009 GATS, and 2011 Updating Survey, prescribed procedures were strictly followed in the field operations for data collection. The final report of the 2007 NTPS presented a very extensive and comprehensive discussion of the field activities undertaken, as well as the SOPs that were followed. The 2008 NDHS just briefly described data collection and the key personnel involved in

the field operations. The 2011 FHS did not mention any of the SOPs that were followed in the course of data collection.

Data Management/Data Processing

Data management consists of the procedures for collecting, monitoring, handling, storing, processing, validating, and archiving data from the start of the survey to its completion. It aims to produce a high-quality dataset so that survey results can be analyzed and reported with high level of precision [2].

A Data Management Plan should be developed before the survey. The plan describes the procedures and processes to ensure that all data management activities correctly follow data protocols. It is essential to establish a central Data Management Unit (DMU), headed by an experienced data manager, to take charge of all the data management procedures [2].

The 2007 NTPS and 2011 Updating Survey thoroughly discussed the procedures used in data management. Efforts were made to ensure completeness, legibility, and consistency of entries. The encoded data were checked and validated to eliminate incorrect and inconsistent entries. Descriptive summary measures were also generated for each variable in order to detect outlier observations. Efforts were also made to minimize data entry errors and eventually produce high quality data sets in the 2006 NOHS, 2008 NDHS, and 2009 GATS. The 2011 FHS did not mention anything about data management procedures.

Analysis and Reporting

The first step in data analysis is data cleaning to check for errors. The procedure to handle missing data should also be specified. The computations that lead to the estimates are performed and the evaluation of the precision of these estimates follow. It is a good practice to report the amount of error to be expected in the most important estimates [11].

The estimates from a sample survey are affected by two types of errors: nonsampling and sampling errors [11]. Nonsampling errors are impossible to avoid and difficult to evaluate statistically. Sampling errors, on the other hand, can be evaluated statistically. A sampling error is usually measured in terms of standard error, which is a measure of precision. The lower the value of the standard error, the higher would be the degree of precision of the estimate.

In cluster sampling, a DEFF value of 1.0 indicates that the sample design is as efficient as a simple random sample, while a value greater than 1.0 indicates the increase in the sampling error because of the use of a more complex and less statistically efficient design [8]. A measure very similar to the DEFF is the DEFT. The DEFT is defined as the square-root of the DEFF. Sometimes researchers prefer to use the DEFT because it is less variable than the DEFF [13].

Participation or response rates should also be mentioned to assess the quality of survey results and the magnitude of bias introduced. Basic description and summary of data, as well as statistical tables, should also be included. Concluding remarks should refer to the quality of the survey in terms of how many cases were expected to have been missed [2].

All the surveys had comprehensive analysis of survey results. The results were cross-tabulated by the different strata and different regions, as well as other demographic characteristics. Summary measures were also generated and presented in statistical tables. Sampling weights were generated to produce unbiased estimates except for 2006 NOHS. Estimates of certain characteristics were obtained and the expected amounts of error were also reported for some important estimates. The precision of the estimates were evaluated based on the standard error of these estimates. Confidence intervals incorporating the standard error of the estimates were also obtained. The DEFF or the DEFT were also produced in the 2007 NTPS, 2008 NDHS, 2009 GATS, and 2011 FHS, but not in the 2006 NOHS and 2011 Updating Survey. The 2011 Updating Survey used the coefficient of variation (CV) in addition to the standard error in evaluating the precision of the estimates. Only the 2008 NDHS, 2009 GATS, and 2011 FHS indicated household and individual response rates.

The comparison of the different public health surveys based on selected domains (other than the sampling design and sample size calculation) is shown in Table 3.

Focus Group Discussions and Key Informant Interviews

FGDs and KIIs were conducted in both regional (DOH 6) and national (NCR) offices of the DOH. Different program heads/directors and staff members were interviewed and they participated in both FGDs and KIIs.

There were a total of four FGDs and KIIs (two each in DOH 6 and DOH NCR). There were a total of 10 respondents from DOH 6 and 30 from DOH NCR. All the respondents were married, holders of professional degrees, and either a

Table 3. *Comparison of public health surveys by selected domain*

Domain		2006 NOHS	2007 NTPS	2008 NDHS	2009 GATS	2011 FHS	2011 Updating Survey
Survey Design	Was the cluster appropriately defined?	Yes	Yes	Yes	Yes	Yes	Yes
	Was the selection of clusters clearly described?	Yes	Yes	Yes	Yes	Yes	Yes
Survey Procedure and Organization	Did the survey satisfactorily discuss survey organization and training of key personnel?	Yes	Yes	Yes	Yes	No	Yes
	Did the survey mention about informed consent?	No	No	No	Yes	No	Yes
	Did the survey discuss the different questionnaires used for data collection?	Yes	Yes	Yes	Yes	Yes	Yes
	Did the survey discuss the conduct of pretest prior to actual field operation?	No	No	Yes	Yes	No	Yes
	Did the survey mention SOPs that were followed in the course of data collection?	Yes	Yes	Yes	Yes	No	Yes
Data Management/ Data Processing	Did the survey discuss data management procedures?	Yes	Yes	Yes	Yes	No	Yes
	Did the survey mention about data processing?	Yes	Yes	Yes	Yes	No	Yes
Analysis and Reporting	Did the survey present a comprehensive analysis of survey results?	Yes	Yes	Yes	Yes	Yes	Yes
	Were the expected amount of error reported for some important estimates?	Yes	Yes	Yes	Yes	Yes	Yes
	Were the estimates evaluated based on the precision of these estimates?	Yes	Yes	Yes	Yes	Yes	Yes
	Were household and individual response rates presented in the report?	No	No	Yes	Yes	Yes	No

program manager or coordinator of the different programs of the DOH.

All respondents (100%) were aware (10 in a scale of 1-10) of the surveys in this study that were related to their area of specialty. However, most of them were not aware of the other surveys unrelated to their specializations (mean score of 2.3).

All respondents rated utilization and completeness of the data as 8-10, and emphasized that all of them had utilized and found the data complete in order to formulate their programs and recommend policy to their respective departments. However, accessibility rated only a mean of 4.5. The respondents complained that copies of the surveys were difficult to access because only very few copies were given by the NSO and these were hard to find online. Some suggestions for better storage and sharing of data would be a central repository of public health data in the DOH central office or another related government agency. Coordination between the DOH and NSO is also very lacking when it comes to accessibility and dissemination of information, because some terminologies and formulas were too technical and cannot be fully appreciated by the medical personnel.

Increased collaboration of the DOH and NSO was suggested when deciding on the final sampling design because, in some instances, some formulas and definition of terms in the final report do not match those of the medical formulas and definitions.

One of the most important concerns of the respondents was the lack of disaggregation of data. The policy makers, who are the end users of the data, particularly in the regions, found the data applicable only in the national context. Thus, these surveys may not be translated into policy implications in the regional down to the provincial level.

The issue of survey costs and funding agencies were also discussed. Since the surveys were also partly funded by international aid agencies, sometimes these surveys were done on the basis of the priorities set by the funding agency. Also, increased and better coordination between the DOH, NSO, and DOST should be encouraged for maximum data utilization.

The respondents recommended that the areas of migrant health, specifically the health needs and challenges of the Overseas Filipino Workers (OFWs) and reliable data on the human resources for health should also be included in a public health survey. This is to set further policy recommendations on how DOH can also coordinate with DOLE in addressing the health needs of the OFWs, and for DOH to have a more holistic picture of the actual distribution of health workers all over the Philippines.

Discussion

The description of the sampling design used in each survey was adequate, although in the 2008 NDHS, 2009 GATS, 2011 FHS, and 2011 Updating Survey, the size of the enumeration areas were different even though they used the same frame. The determination of the sample size in each survey was scientific and systematic. The sample size calculation in the 2006 NOHS and 2007 NTPS were supported with assumptions on relative precision and the design effect. In the case of the 2009 GATS, the sample size calculation was based on the GATS protocol (minimum of 8,000 respondents and a design effect of 2.0) and incorporated adjustments for eligibility and response rate. The sample size in the 2008 NDHS, 2011 FHS, and 2011 Updating Survey was based heavily on enumeration areas contained in the 2003 NSO master sample. In all the surveys, the cluster was appropriately defined. The stratification of the population into homogeneous subpopulation was clearly stated, and the selection of the clusters was also clearly described.

All the surveys satisfactorily discussed the survey procedure and organization involved in the proper conduct and implementation of the survey, as well as the adequate training received by each involved key personnel, except for the 2011 FHS. Only the 2009 GATS and 2011 Updating Survey mentioned about informed consent obtained from the respondents. The surveys completely discussed the questionnaires, including the forms and modules needed to gather information to answer the specific objectives of the survey. They also presented a thorough description of the field operations involved in data collection, except for the 2008 NDHS and 2011 FHS. Only the 2008 NDHS, 2009 GATS, and 2011 Updating Survey discussed the conduct of pilot survey/pretest prior to the actual field operation procedure to possibly modify and improve the design and implementation of the actual survey.

All the surveys sufficiently discussed the processes and procedures involved in data management/data processing in order to produce reliable and high quality data, except for the 2011 FHS. In addition, the surveys had very comprehensive analysis of survey results. Sampling weights were generated to produce unbiased estimates of the population characteristic of interest. Estimates of certain characteristics of the population were obtained, and the expected amounts of error, as well as the degree of precision of these estimates, were evaluated.

Based on the findings of the FGDs and KIIs, the DOH personnel lack access to results of commissioned surveys that are being implemented by other government agencies, such as the NSO. The availability of final reports (hard or soft copies) is difficult to access and retrieve by an ordinary DOH personnel. Thus, there is a need to improve accessibility of these survey results.

Close coordination among key government agencies (DOH, NSO, DOST, etc.) and other stakeholders is necessary in the development of the protocol and SOPs on the design and implementation of public health surveys to promote harmonization of survey methodology and research outcomes. The protocol and SOPs should also include effective dissemination plan of the survey results. A plan with an adequate timeline for results dissemination should be clearly described in the protocol to promote data sharing. The protocol must specify how and when survey results will be disseminated to collaborating partners, sponsors, stakeholders, and the general public. Once survey results are available, public forum should be conducted across the country, so that the public would understand the results of the survey and realize the importance and impact of each public health survey.

To further promote data sharing and harmonization of public health data, there is a need for a central repository of all databases and survey results for all public health surveys. The DOH should be the lead agency in the management and maintenance of all databases and survey results. A website should be established in which all information is available, so that stakeholders, academic researchers, and the general public will have easy access on these data for research and policy making. Electronic copies of survey results should be easily downloaded from the website.

Disaggregation of data is very important. It might be impossible to get reliable data up to the municipal level of disaggregation but, aside from regional data, provincial data should be made available. Regional centers and provincial clusters would also need such local data for their own program planning, policy proposals, and decision making. This makes it imperative for the DOH to be actively involved in the planning and design of these public health surveys.

Lastly, there is paucity of data in the areas of health human resources and migrant health (international health). These specific areas can be included in other survey platforms, such as the National Demographic and Health Survey.

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