ORIGINAL ARTICLE

Technical Capacity Mapping for Clinical Practice Guideline Development in the Philippines

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ABSTRACT

Background. A 2017 situational analysis assessing Clinical Practice Guidelines (CPG) development in the Philippines revealed CPGs of inconsistent quality. In response, the Department of Health (DOH)-Philippine Health Insurance Corporation Manual for CPG Development was developed to outline the standardized steps of the CPG development process. To implement this, technically qualified institutions and individuals should be commissioned.

Objective. To identify qualified institutions and individuals and map out their technical skills and potential for capacity building in CPG development

Methods. Mixed methods were used in this cross-sectional study. A snowballing method identified specific institutions and individuals. Self-administered surveys and key informant interviews were conducted to determine competence, strengths, and gaps in the development of CPGs.

Results. A total of 74 individuals from 45 institutions with competencies in CPG development were identified. Of the 45 institutions, 72% were non-clinical, with roughly half working on formal research. Of the 74 individuals, 96% possessed relevant knowledge and skills and 85% already provided training on CPG development topics. Around half of the respondents have been part of a CPG development task force. Only about half were able to incorporate social concepts of equity, and only one-third had experience in managing conflicts of interest.

Conclusion. Qualified institutions and individuals identified in this capacity mapping can be tapped in future CPG development in the country. Incorporation of social concepts and management of conflicts of interest still need to be ensured.

Keywords: clinical practice guideline, capacity building, technical mapping

INTRODUCTION

Clinical Practice Guidelines (CPGs) are developed to support the decision-making processes of physicians and other healthcare workers in their provision of care and services. CPGs prioritize evidence-based medicine, reduce the inappropriate practice, and serve as benchmarks for quality control.[1] In our quest for Universal Health Care, the healthcare system has to move towards rational utilization of resources.[2] CPGs play a vital role in this movement since they translate cost-effectiveness lessons from evidence-based medicine (EBM) into clinical practice.

The number and use of CPGs have risen in the past decade. However, the potential of CPGs to exert a positive impact on healthcare delivery and outcomes is compromised

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when CPGs are of poor-to-modest quality in terms of content and methodological rigor.

A 2013 study conducted in Estonia analyzed the quality of available CPGs. Results showed that the overall quality of the guidelines was poor. To improve the quality of guideline development, the Estonian Guideline Development Handbook was revised. In addition, capacity development was emphasized. Existing technical capacity among clinicians and academic institutions was identified to assist in the creation of guidelines. The need for further capacity building was also identified.[3]

In another study conducted in South Africa aimed at assessing factors promoting the implementation of high-quality CPGs, findings revealed that capacity building to help individuals understand, write and implement CPGs was essential. Collaboration at the national, provincial, and regional levels among the different involved sectors was needed to achieve and implement high-quality CPGs. It was therefore recommended that a central agency for CPG methods, writing, and implementation be created.[4]

In the Philippines, a situational analysis commissioned by the Department of Health (DOH) was conducted in 2017 to assess CPG development processes. This systematic review and analysis evaluated 87 CPGs developed and published in the Philippines from 1999 to 2016. The results revealed that markedly variable methodologies were used in the development of CPGs resulting in guidelines of inconsistent quality.[5] Specifically, there were (1) large variations in the processes utilized for CPG development, (2) lack of technical expertise and funds, (3) markedly inadequate dissemination and evaluation, (4) lack of publicly declared and adequately managed conflicts of interest (COIs) and funding sources, (5) inadequate consideration of equity (present in only 23% of the CPGs' recommendations), and (6) lack of coverage for the most burdensome local disease conditions with only 11 of the 48 (23%) top burdensome conditions covered.[6]

In response to these findings, the development of a manual of standardized CPG development processes in the Philippines was recommended to the DOH. A team headed by Dr. Leonila Dans of the Asia Pacific Center for Evidence-Based Healthcare (APCEBH) developed the DOH-Philippine Health Insurance Corporation (PHIC) Manual for Clinical Practice Guideline Development.[7] It outlined the steps of a standard CPG development process to ensure the production of high-quality and relevant CPGs. Furthermore, the manual proposed the creation of the Philippine National Guideline Clearinghouse (PNGC) to govern and implement the CPG development processes in the country.

The manual proposed three main groups to be involved in the CPG development process: (1) the PNGC Secretariat, (2) an *ad hoc* Lead CPG Developer or a Contracted Research Agency (CRA) for each CPG developed, and (3) an Independent Quality Review Panel (IQRP) for each CPG developed. The PNGC Secretariat would serve as the overall coordinator of the entire CPG development process, who will coordinate with the individual CRAs and IQRPs.

The nature and scope of the work of the CRA consist of the following:

1. Provide administrative and technical support to the guideline development project
2. Engage additional content and technical experts as necessary
3. Convene the Task Force (TF) that will organize the CPG working groups, including the group of Evidence Review Experts (ERE) consisting of individuals with technical knowledge and skills in summarizing evidence and CPG development
4. Manage COIs

To accomplish the nature and scope of work stated above, the CRA should be composed of at least one of each of the following:

- CPG/GRADE methodologist who should act as a team leader for the project
- Clinical epidemiologist or evidence-based healthcare practitioner, who may also act as the scientific writer
- Health economist / Biostatistician
- Designated CRA officer who can manage COIs

The Grading of Recommendations, Assessment, Development and Evaluation (GRADE) methodology is a widely accepted international standard utilized by the WHO and other agencies to assess the quality of evidence and strength of recommendations of practice guidelines.[8] The method was developed by an international panel that considered clinical questions on diagnosis, screening, prevention, and therapy, making it applicable for use in a wide range of fields, including rehabilitation, public health, and health systems.[9]

Once the CPG is completed, it will be reviewed by the IQRP. The IQRP is an external review group composed of one DOH official or personnel, two content experts, and two methodologists. Its role is to appraise the CPGs completed by the CRAs and to recommend to the PNGC whether the CPGs can be applied to actual clinical practice or if there is a need to undergo revision by the CRA.

Therefore, to implement the above-mentioned policy, there is a need to identify and recognize technically qualified institutions and individuals. This study aimed to identify local research and/or academic institutions and individuals that can be tapped to participate as CRAs in the CPG development process. The technical competencies on the CPG development process of these institutions and individuals were also described. These academic and/or research centers may also serve as training institutions to provide capacity building to augment the existing pool of CPG development experts. This study should ultimately enable the development of high-quality CPGs in the Philippines to generate a positive impact on healthcare.

MATERIALS AND METHODS

Study Design

This was a mixed-method cross-sectional study. A snowballing method was used to identify qualified institutions, wherein the study participants were asked to provide referrals for other institutions that could be invited to participate in the study. After the identification of institutions and individuals with competencies to be CRAs, self-administered surveys and key informant interviews (KII) were utilized. The survey determined the levels of competence in CPG development, while the KIIs identified strengths and gaps in the competencies of individuals to develop CPGs.

As many institutions and individuals as possible were enumerated within the duration of the data collection phase. This created a comprehensive list of potential partners with technical expertise in CPG development in the country. No sampling was conducted and no sample size was computed since the study collected as many data points as feasible, with the intent to cover the whole target population of institutions and individuals.

This study was approved by the Manila Central University–Filemon D. Tanchoco, Sr. Medical Foundation, Inc. Institutional Review Board, and consent was collected before survey and interview administration.

Study Population and Institutions

A preliminary list of research and/or academic institutions previously identified by the DOH was examined to determine if the institutions met the following inclusion criteria:

1. Currently in operation
2. Has a track record of health-related research projects of no less than three years (This proxy of experience is used to reflect adequate skills and proficiency in the field vital to producing high-quality CPGs. It should also reflect adequate financial resources to allow the contractor to endorse the institutions' capability in handling the finances and operations.)
3. SEC-registered or a member of a government agency
4. Able to provide adequate evidence of past research work (e.g., technical reports, publications in scientific journals, etc.).

Training of Data Collectors

The research assistants underwent a two-day training by the investigators on the tool to be used before pre-testing. Day one of this training covered the study objectives and the current situation of CPGs in the country. On day two, the researchers were trained on the use of the questionnaires, with a demo/return demo tackling the KII questions. Data collectors were only allowed to commence with study implementation if the investigators deemed their performance to be satisfactory. Throughout the study, data collectors who were unable to properly perform their functions were given one-day retraining. After retraining, data collectors who still performed poorly were replaced.

Data Collection

After identifying institutions that met the inclusion criteria, the institution heads and members/students were asked to answer the survey questionnaire. In case the members or heads of the institution did not agree to answer the questionnaires or were unable to provide sufficient data for analysis, they were withdrawn from the study.

The institutions that fulfilled the inclusion criteria served as the initial population of institutions. From this initial population, a snowballing method was employed to cover all other potentially qualified institutions. The heads of the institutions were asked if they knew of other institutions that are capable of producing CPGs and must be covered in the study (provided they meet the inclusion criteria).

To identify individuals capable of producing CPGs, a list of universities across the country that offer programs potentially relevant to CPG development (i.e., 'programs of interest') was first sought from the Commission on Higher Education (CHED). The programs of interest were chosen from the following fields: (1) public health, (2) clinical epidemiology, (3) biostatistics, (4) health economics, and (5) evidence-based healthcare. The universities identified by CHED were contacted and requested to provide a list of graduates of the specified programs with their corresponding e-mail addresses. If this information was provided within the specified data collection period, their graduates were included in the study. These program graduates, along with the graduates of the Master of Science in Clinical Epidemiology program of the University of the Philippines (UP)-Manila, served as the initial population of individuals studied. From this list, a snowballing method was employed to cover other potentially qualified individuals.

Self-administered questionnaire-based surveys were used to identify the level of competency in CPG development of the identified institutions and individuals. The respondents were likewise asked to provide information on relevant training they have undergone, as well as perceived training needs and recommendations. The surveys were pre-tested on 15 participants who were students from other health-related courses of UP Manila. The pretesting was staggered to five respondents for each run. After every run, a revised form was furnished. After three runs, the final questionnaire was generated for the data collectors. Throughout these runs, the dummy tables were modified to serve as the analysis framework to be used in the actual study implementation.

The survey was followed by KIIs in cases where questionnaire responses required further explanation. Three pre-tests KIIs were done to prepare the team for coding and thematic analysis.

Both the institution and individual surveys were distributed via electronic mail initially. A cover letter was attached to introduce the research team and the study

objectives through the study information sheet. Informed consent forms were also provided for the respondents. The heads or representatives of the institution served to represent the whole institution.

After reading the study information sheet and accomplishing the informed consent form, the respondents completed either the questionnaire for institutions or the questionnaire for individual participants. The respondents also accomplished the questionnaire for training programs.

The respondents were given four weeks to respond. The investigators followed up with the respondents twice by email (one week after the first kit was sent through email, and then two weeks after) and once via phone call. The first follow-up contact reminded the respondent that the kit had been emailed. In the second follow-up, the kit was sent again. The third and last reminder was by phone on the third week after the first kit was sent.

The KIIs were conducted via face-to-face or phone interviews. Consent for the recording of the interviews was obtained. The questions were about the respondents' answers in the questionnaires in case some of the answers required further probing. After the interviews were completed, the recorded interviews were transcribed and translated, as needed. The investigators then analyzed the data accordingly.

Data Analysis

Data was cleaned and processed in Microsoft Excel. Qualitative data were coded to permit concept and structure analysis by survey questions and main outcome measures. Recommendations were thereafter formulated through an outline of thematic responses by individuals from programs of interest and institutions with the capacity to be CRAs. Descriptive statistics were performed on demographics, programs, and the current occupations of respondents. Stata statistical software release 14 (College Station, TX: StataCorp LP) was used to generate the results presented.

RESULTS

General Overview of Data Collection Results

The list of institutions with potential competencies in CPG development provided by the Department of Health was used as the initial target study population. Out of the 40 institutions, only 27 (68%) responded. Of these 27 institutions, 24 expressed willingness to participate, while 3 refused. Reasons for refusal included residence outside the country, retirement from government service, and being too busy with other engagements. Thirteen (32%) did not respond to the researcher's study invitation despite the strict implementation of follow-up protocol.

The researchers collected additional data from 21 institutions that were not part of the initial study population but were identified through the snowball technique. Taken together, the researchers were able to collect data from a total of 45 institutions. These 45 institutions were represented by a total of 74 individuals who were either heads or staff members of the institutions. Of the 45 institutions, 32 were in Metro Manila, 2 in the Cordillera Administrative Region (Benguet), 2 in Region III (Pampanga), 1 in Region IVA (Cavite), 1 in Region VI (Iloilo), 2 in Region VII (Cebu), 1 in Region IX (Zamboanga Del Sur) 1 in Region X (Misamis Oriental) and 3 in Region XI (Davao). Of the 74 individuals, 57 were based in Metro Manila, 2 in the Cordillera Administrative Region (Benguet), 2 in Region III (Pampanga), 3 in Region IVA (Cavite), 1 in Region VI (Iloilo), 2 in Region VII (Cebu), 2 in Region IX (Zamboanga Del Sur) 1 in Region X (Misamis Oriental) and 4 in Region XI (Davao). Figure 1 illustrates the response rates during data collection.

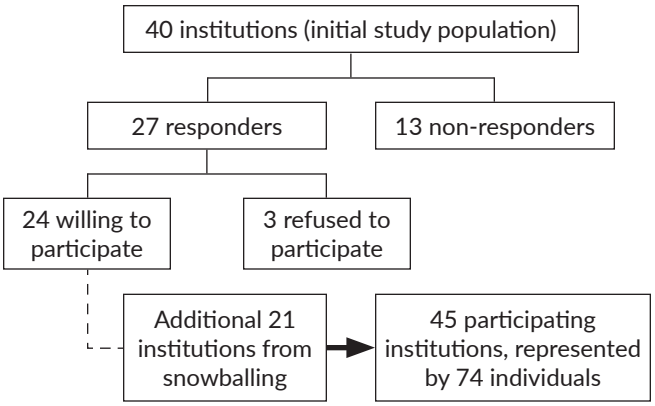

Figure 1. Engagement of respondents.

Profile of Study Participants: Institutions

Of the 45 participating institutions, 17 (38%) were clinical institutions (defined as providing actual patient care), while 28 (72%) were non-clinical institutions.

Institutions were also asked if they were involved in research, academe, healthcare provision, or consultancy/technical assistance. All 45 institutions worked on more than one of the four areas. Specifically, 23 worked on formal research, 20 on teaching/academics, 17 on healthcare provision, and 13 on consultancy/technical assistance.

Profile of Study Participants: Individuals Representing the Institutions

Each study participant had a specific clinical discipline. Some individuals also worked in relevant non-clinical disciplines. The average length of experience in their respective fields was 19 years (range: 2 to 44 years).

Among the 74 individuals, 71 (96%) possessed knowledge and skill on at least one topic relevant to CPG development (Table 1).

Among the 71 individuals knowledgeable and skilled on CPG development topic(s), 63 (89%) were already providing training for one or more of the topics. Table 2 shows the number of individuals able to provide training for the CPG development topics and the corresponding percentage out of the total 74 individuals who participated in the study.

Experience in CPG Development

Of the 74 participants, 38 (51%) have been part of a CPG development task force in the past, whether as chairperson or member of the CPG technical working group. The CPGs they developed covered a wide array of topics, including communicable and non-communicable diseases. Of the 38 participants who had previous involvement in CPG development, 34 (89%) had experience in doing evidence search, 3 (8%) were not experienced, while 1 (3%) did not indicate an answer. Of the 34 who did evidence search, 31 (91%) did it formally by performing a systematic search of relevant articles, guided by a proper search protocol and inclusion criteria.

Additionally, of the 38 participants who were previously involved in CPG development, 36 (95%) were experienced in critical appraisal of evidence. In this phase of the CPG development process, experts critically appraise the available evidence for each patient-important outcome based on a specific critical appraisal tool. The evidence for each outcome is scored based on components such as the risk of bias, consistency, directness, precision, publication bias, effect size, dose-response relationship, and confounding variables. Table 3 shows the different critical appraisal tools used in appraising evidence for and the number and percentage of participants who used these tools.

After the evidence summaries are completed, the next step in the development process involves the determination of the overall quality of the evidence for all critically important outcomes. Among the 38 participants with previous involvement in CPG development, 34 (89%) were experienced in overall evidence rating. Multiple methods were used for overall evidence rating, the most common of which was the GRADE methodology. Table 4 shows the different methodologies used for assessing and rating overall evidence quality, and the number and proportion of participants who used these methodologies.

The next step is to decide on the final recommendations. Of the 38 who had experience in CPG development, the

Table 1. Number and proportion of individuals with prior knowledge and skill on CPG development topics. (N=74)

CPG development topic	Individuals with knowledge and skills, n (%)
Clinical epidemiology	57 (77)
Systematic reviews and meta-analyses	52 (70)
Evidence-based health practice	51 (69)
Medical writing/editing	50 (68)
CPG methodology	43 (58)
GRADE methodology	42 (57)
Biostatistics	24 (32)
Health economics	18 (24)
Health informatics	14 (19)

CPG, Clinical practice guideline; GRADE, Grading of Recommendations Assessment, Development and Evaluation

Table 2. Number and proportion of individuals able to provide training on CPG development topics (N=74)

CPG development topic	Individuals able to provide training, n (%)
Evidence-based health practice	43 (58)
Clinical epidemiology	35 (47)
Systematic reviews and meta-analyses	33 (45)
Medical writing/editing	32 (43)
CPG methodology	22 (30)
Biostatistics	16 (22)
GRADE methodology	15 (20)
Health informatics	11 (15)
Health economics	7 (9)

CPG, Clinical practice guideline; GRADE, Grading of Recommendations Assessment, Development and Evaluation

Table 3. Critical appraisal tools and the number of participants who use these tools (N=38)

Critical appraisal tools used for appraising evidence for each patient outcome	Participants who used these tools, n (%)
Painless EBM Critical Appraisal Tool	30 (79)
Cochrane Risk of Bias Assessment Tool	6 (16)
British Medical Journal Appraisal Tool	1 (3)
Consolidated Standards of Reporting Trials (CONSORT) (Modified version)	1 (3)
Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) (Modified version)	1 (3)
Standards for Quality Improvement Reporting Excellence (SQUIRE) (Modified version)	1 (3)
Philippine College of Surgeons-formulated appraisal tool	1 (3)

Table 4. Methods used for assessing and rating the overall quality of evidence and the number and proportion of participants who use these (N=38)

Methodology used for assessing overall quality of evidence	Participants who used these methods for assessing and rating quality, n (%)
Grading of Recommendations, Assessment, Development and Evaluation (GRADE) methodology	27 (71)
Oxford Center for Evidence-Based Medicine (CEBM) 2011 Levels of Evidence	2 (5)
Modified GRADE (by Global Initiative for Asthma)	1 (3)
United States Preventive Services Task Force (USPSTF) Grading Scheme	1 (3)
Infectious Diseases Society of America (IDSA) Assessment System for Levels of Evidence	1 (3)
Philippine Academy of Family Physicians QA Grading Scheme	1 (3)

majority (26/38 or 68%) used consensus methods in deciding the final recommendations. Commonly used consensus methods included open panel voting by Nominal Group Technique, Delphi method, or both. Others did closed panel voting through secret ballots. A few did panel discussions, the results of which were disseminated in a public forum. Votes on the public forum were used as the basis for identifying the final recommendations. Following the consensus methods, the development process concludes with the writing of the final recommendations. The most common format followed for writing was the GRADE format, where a recommendation is stated in terms of both the direction (for or against an intervention) and the strength (strong or weak) based on the quality of evidence available. Other formats used were specific to the working group, such as the Global Initiative for Asthma methodology for asthma CPGs, and the American College of Cardiology Foundation / American Heart Association CPG methodology.

In some CPGs, recommendations were also made for specific population subgroups. Of the 38 participants who had previous involvement in CPG development, 21 (55%) were experienced in developing CPGs for particular population subgroups.

Of the 38 individuals with previous involvement in CPG development, 20 (53%) had experience in adapting CPGs. Of the 20 who adapted CPGs, 15 (75%) used criteria. The most common criteria used was the AGREE II instrument following the ADAPTE process. This process is also the one prescribed in the DOH-PHIC Manual for CPG Development.[7]

Of the 38 participants previously involved in CPG development, only 20 (53%) had experience incorporating social concepts such as those of equity, patient values and preferences, and prevalence of practice (i.e., acceptability of interventions). Thirteen participants (34%) were experienced in managing COIs. The COIs that were managed were mainly financial. Of the 13 participants, 12 had experience in managing financial COI. An example of a financial COI is having relationships with pharmaceutical companies through drug speakership or being a member of the pharmaceutical advisory board. Intellectual COIs were fewer and included involvement in related research. Of the 13 participants, 3 had experience in managing intellectual COI. Two participants reported having experience in managing both financial and intellectual COI. The processes followed in addressing the COIs include disclosure of COIs at the beginning of the CPG development process and divestment, if necessary.

Of the 38 participants with experience in CPG development, 27 (71%) published CPGs in the past five years.

DISCUSSION

For CPGs to be useful in clinical decision-making, they should provide a comprehensive review of the available evidence, including a multidisciplinary group of experts whose potential COIs are managed, show grading of the quality of the evidence and strength of recommendations, and consider health equity. Various medical societies and organizations initiate and conduct CPG development and adaptation in the Philippines. However, the quality of these CPGs is not guaranteed because of the commonly identified weaknesses such as variability in the development process and documentation, limited funds, and lack of technical expertise.

As part of the DOH initiative to pursue standardization of CPG development processes, identification of key individuals and institutions with knowledge and experience in developing and adapting CPGs is necessary to strengthen the task force that will assist DOH in the development and adaptation of high-quality guidelines.

Capacity may refer to the workforce, knowledge and training, funding, and policies. This study describes the prospective members of the workforce and their background knowledge and training relevant to CPG development and adaptation. It is vital to describe the current capacity to properly identify which aspects should be strengthened. The hierarchy of needs in capacity building should be considered to attain sustainable changes in standardizing CPG development. The four levels of this hierarchy include (1) system structure, (2) members and facilities, (3) skills, and (4) tools.[10]

Currently, the Philippines has existing institutions with proficient members (74 individuals representing 45 institutions) that could fit the system structure of CPG development recently started by the DOH. The non-clinical institutions are academic and research institutions that do not provide direct patient care. However, the members of these non-clinical institutions are not necessarily restricted to one institution. There are participants, mostly practicing physicians, who declared multiple affiliations to institutions. Among those affiliated with clinical institutions, i.e., private or public tertiary hospitals, only seven participants reported focusing solely on healthcare provision. The rest are also involved in research and training. Because the majority of the study participants belonged to more than one institution, either non-clinical or clinical, we analyzed the necessary skills in CPG development by individual capacity instead of by institutional capacity.

A considerably high percentage (96%) of study participants already possessed knowledge and skills relevant to developing or adapting CPGs. The majority of these participants received formal training on Evidence-Based Medicine from the Department of Clinical Epidemiology at the University of the Philippines Manila. More than half of the participants reported knowledge and skill on CPG methodology, GRADE methodology, clinical epidemiology, evidence-based practice, systematic reviews and meta-analyses, and medical writing. These individuals are the ones that can be tapped for the review and writing of new CPGs and can be part of the CRA and IQRP. The number

of individuals who possess the knowledge and skill on health economics, health informatics, and biostatistics, however, is relatively small. However, this is already deemed sufficient considering the limited number of CPGs that can be produced within a year, and considering that these technical experts can be tapped to participate in the simultaneous development of more than one CPG. Moreover, 89% of the study participants reported that they provide training in at least one of the topics relevant to CPG development. When the PNGC commences the standardized CPG development, these individuals can be engaged to conduct workshops and seminars on the CPG development process. Since the CPG methodology is a moving target at present, we need to continuously upgrade the available capacity. As part of capacity building, the DOH should partner with relevant institutions to facilitate technical skills training to promote self-sufficiency and adaptability in this field so that the generated positive changes can be sustained.

Only 38 individuals had experience in developing CPG de novo, and they served either as heads or members of the task force. There is also a low number of participants who had been involved in adapting CPGs. The ADAPTE process was reported to be a common guide used in modifying or adapting existing CPGs to fit the needs of the local context. This process enhances efficiency and ensures the quality of CPG development.

An advantage of determining the participants' experiences in the CPG process is that we can identify which components of the process need additional capacity strengthening to ensure the quality of CPGs from the CRAs. In this study, only 13 individuals reported experience in declaring or managing COIs. A COI refers to a situation in which the judgment of a professional on a primary interest becomes questionable because of influence by a secondary interest from a financial source and/or intellectual background.[11] COIs are a significant source of bias. Expectedly, the main COI declared in this survey was financial. Financial COI is "more subtle and pervasive and are hardly eliminated".[12] Because of this common observation, it is essential to manage the COIs to maintain impartiality and ensure the integrity of the guidelines. In the DOH-PHIC Manual for CPG Development, policies were proposed to manage COIs.[7] The members of the working group must declare the COIs. Depending on the nature of the COIs, these members may not be necessarily removed from the group but their participation will be restricted. CPG development requires funding support which should be managed similar to individual COIs. The funding agencies and their exact role and participation in the CPG development should be declared.

The quality of CPGs is also affected by the methodological rigor and validity of the systematic reviews, meta-analyses, and other best available evidence included to answer the pre-determined clinical questions set by the guideline developers. After an exhaustive search of potential evidence, critical appraisal is a significant step to examine the integrity of the evidence used to answer the clinical question. About 49% of the participants were able to critically appraise evidence during their respective CPG development. The most common appraisal tool used by the study participants is the Painless EBM Critical Appraisal Tool.[13] The questions in the critical appraisal tool vary depending on the type of question asked (i.e., diagnosis, therapy, prognosis, harm, or cost-effectiveness). Most of the time, systematic reviews are the ones subjected to appraisal in CPGs. The appraisal tool for systematic reviews evaluates the (1) directness of the question; (2) validity of the review based on its inclusion criteria, literature search process, the validity of individual studies, and reproducibility of the assessment process; (3) results based on its homogeneity and precision; (4) applicability based on biologic and socioeconomic issues; and (5) individualization of the results. Compared with the Painless EBM Critical Appraisal Tool, the Cochrane Risk of Bias Tool has similar domains but focuses only on the potential biases of the evidence. Unlike Painless EBM, the Cochrane Risk of Bias Tool allows for a nominal type of measurement (i.e., high, low, or unclear) of appraisal in all the items on bias. The Cochrane Risk of Bias Tool also recommends that judgments be made separately by two or more people.[14] Both tools are easy to use, but Painless EBM allows the reviewers to tackle other important issues such as applicability in the local setting. These issues may guide the reviewers in formulating the final recommendations. Nonetheless, both tools provide an assessment of the risk of bias and require critical judgment and appraisal of the systematic reviews.

For the overall rating of the evidence quality, the GRADE methodology was the most commonly used among the participants. GRADE has been used by various international organizations including the World Health Organization (WHO), Cochrane Collaborations, the National Institute for Health and Clinical Excellence (NICE), and the Scottish Intercollegiate Guideline Network (SIGN). The GRADE process guides the formulation of recommendations based on the consensus decision of the group (for or against an intervention) and the strength of the decision based on the quality of the supporting evidence. The DOH-PHIC Manual for CPG development recommends that GRADE should be utilized.[7] GRADE was deemed a good fit in our local setting since it takes into account important factors such as patient values and preferences, cost, and equity.

To decide on the final recommendations, the most common method used was consensus among the panelists. There are various methods to generate the final recommendations after critical appraisal, but an important factor is the arrival at consensus among those involved in generating the recommendations. The final recommendations must be clear in terms of the strength of recommendation. They must also be informative regarding anticipated benefits, harms, costs, and patient preferences, and they must be

supported by the quality of evidence used. Considerations may also be made for specific subgroups, if necessary, to settle issues on the applicability of evidence. These subgroups may consider the target population's age, disability, gender, race, cultural or religious beliefs, and co-morbidities.

A central element in the four levels of hierarchy in capacity building is the knowledge of the local context.[10] In the context of CPG development, one of the salient gaps in this capacity mapping is the lack of knowledge in promoting equity in the guidelines.

Healthcare is beyond diagnosing and treating a medical condition, and health outcomes do not pertain merely to working body functions. Access to medical services is a significant factor in achieving positive health outcomes for certain populations (i.e., disadvantaged groups). CPGs are intended to improve the quality of healthcare and incorporating patient values and preferences with equity should be one of its strongest features. However, only 20 respondents reported having experience in integrating social concepts in every phase of the CPG development process. One possible reason is that clinicians may become too engrossed with the technicalities of their practices such that social concepts are inadvertently overlooked. Lack of technical guidance may have also contributed to these important issues being minimized throughout the development process. With the standardization of CPG development in the Philippines, these relevant issues are expected to be addressed.

The motivation to generate CPGs is multifactorial. It is directed by a focus on a particular intervention, influence of international practices, monetary benefits, and consensus among practitioners in certain specialty fields. A common apprehension in initiating CPG development is the lack of content experts in the field. The primary motivation to generate CPGs is commonly to assist practicing physicians. However, it is important for those involved in CPG development to recognize that other healthcare professionals also have interests in the process. For example, a guideline for managing neurologic conditions among children will not be relevant only to pediatricians, but also to allied health professionals, nurse practitioners, and other healthcare workers who provide services to these children at all levels of healthcare (primary to tertiary). Another example is the late diagnosis of childhood pneumonia, which is the leading infectious cause of mortality among children.[15] Healthcare workers, other than physicians should participate in developing a CPG to enable early recognition of pneumonia.

Agencies that will be contracted to develop or adapt CPGs should recognize the necessity of generating recommendations from a multidisciplinary team. International guideline development groups are multidisciplinary because of the need to address conflicts from having different perspectives and values, and to obtain support from all key disciplines.[16]

In this capacity mapping project, the percentage of individuals knowledgeable in the process of CPG development is already high (96%). However, these individuals do not customarily work solely on CPG development but are also occupied with other areas of health-related work. The CPG development and adaptation process will expectedly be time- and energy-consuming in all of its phases, so the challenge now lies in the practicable distribution of tasks among those who have the knowledge and experience in CPG development.

The field of CPG development is rapidly undergoing methodologic innovations to improve and standardize the evidence-based approach to the CPG recommendations and decision-making. Methodologies to ensure that CPGs are aligned with international standards and appropriate in the local setting must be comprehensive and reliable. Because we currently have limited capacity to form guideline development task forces to work on simultaneous CPGs, appraisal tools must be straightforward, reliable, and valid to expedite critical evidence reviews. The current situation also calls for additional training of individuals who may have the basic knowledge but not the experience in actual CPG development. Based on the expected demand for CPGs in the country in the coming years, the technical capacity for CPG development in the Philippines needs to be further augmented and developed.

Limitations

Despite our efforts to increase the response rate among invited participants, some individuals seemed apprehensive to be involved in CPG development which is why they refused to participate in the survey. Factors that may have contributed to this apprehension are multiple commitments, paucity of knowledge of the process, or fears of potential restrictions in clinical decision-making. Another limitation is that majority of the institutions and individuals who participated in the study are based in Metro Manila. The technical capacity in other provinces may not have been adequately represented in this study.

CONCLUSION

CPGs are based on a thorough search and review of the best available scientific literature to support the decision-making process of clinicians. One of the barriers in the Philippines is the lack of technical expertise to guide the process of CPG development.

Through this capacity mapping project, we have identified 74 individuals representing 45 institutions that have capabilities in CPG development. The number of individuals who can be tapped for CPG development seems adequate. However, there is an evident limitation in skills needed for CPG adaptation, with only a small number of physicians reporting experience and knowledge of this process. The individuals who possess the information, skill, and experience in the process of CPG development and adaptation use the recommended appraisal tools and

documentation mentioned in the DOH-PHIC Manual for Clinical Practice Guideline Development.

Reports of the study participants reveal that incorporation of social concepts (i.e., patient values and preferences, costs equity) and minimization of potential biases (i.e., systematic search, evidence appraisal, managing conflict of interest) need to be improved. These identified issues must be addressed through future capacity-building exercises that will support standardization of CPG development and improvement of the quality of local CPGs.

In light of these findings, the authors recommend that a database of institutions and individuals with technical expertise in CPG development be maintained and continuously updated by the DOH, lead CPG developers, or CPG steering committees who can easily identify and establish contacts for technical support for CPGs. This will facilitate and hasten the CPG development process. In the context of Health Technology Assessment and Universal Health Care, recommendations from good-quality evidence-based CPGs are essential in medical decision-making and health policy-making.

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Statement of Authorship

All authors contributed in the conceptualization of work, acquisition and analysis of data, drafting and revising and approved the final version submitted.

Author Disclosure

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