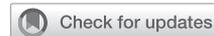


Original Article

Consensus Building on Health Indicators to Assess PC Global Development With an International Group of Experts



Natalia Arias-Casais, MD, MGH, Eduardo Garralda, MA, Jesús López-Fidalgo, PhD, John Y. Rhee, MD, MPH, Juan José Pons, PhD, Liliana de Lima, MHA, and Carlos Centeno, MD, PhD

ATLANTES Research Program (N.A.-C., E.G., J.J.P., C.C.), Institute for Culture and Society, University of Navarra; IdiSNA (Instituto de Investigación Sanitaria de Navarra/Institute of Health Research of Navarra) (E.G., C.C.); Universidad de Navarra (J.L.-F.), ICS, Statistics Unit, Campus universitario, Pamplona, Spain; Department of Medicine (J.Y.R.), Mount Sinai Hospital, New York; International Association for Hospice and Palliative Care (L.d.L.), Houston, USA; and Department of History, History of Art and Geography (J.J.P.), University of Navarra, Pamplona, Spain

Abstract

Context. International consensus on indicators is necessary to standardize the global assessment of palliative care (PC) development.

Objectives. To identify the best indicators to assess current national-level PC development.

Methods. Experts in PC development were invited to rate 45 indicators organized by domains of the World Health Organization Public Health Strategy in a two-round RAND/UCLA-modified Delphi process. In the first round, experts rated indicators by relevance, measurability, and feasibility (1–9). Ratings were used to calculate a global score (1–9). Indicators scoring >7 proceeded to the second round for fine-tuning of global scores. Median, confidence interval, Content Validity Index, and Disagreement Index were calculated. Indicators scoring a lower limit 95% confidence interval of ≥ 7 and a Content Validity Index of ≥ 0.30 were selected.

Results. 24 experts representing five continents and several organizations completed the study. 25 indicators showed a high content validity and level of agreement. Policy indicators ($n = 8$) included the existence of designated staff in the National Ministry of Health and the inclusion of PC services in the basic health package and in the primary care level list of services. Education indicators ($n = 4$) focused on processes of official specialization for physicians, inclusion of teaching at the undergraduate level, and PC professorship. Use of medicines indicators ($n = 4$) consisted of opioid consumption, availability, and prescription requirements. Services indicators ($n = 6$) included number and type of services for adults and children. Additional indicators for professional activity ($n = 3$) were identified.

Conclusion. The first list including 25 of the best indicators to evaluate PC development at a national level has been identified. *J Pain Symptom Manage* 2019;58:445–453. © 2019 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.

Key Words

Indicators, national level, palliative care, development, assessment, global, public health

Introduction

Indicators to accurately track the development of palliative care (PC) at the national level around the world are needed.^{1,2} They are important to inform

on the progress made in improving patient's access to PC nationally and globally. According to the World Health Organization (WHO) Public Health Strategy for PC, four domains are key to assure achieving this goal: inclusion of PC in national health policies, access

Address correspondence to: Natalia Arias-Casais, MD, MGH, Institute for Culture and Society University of Navarra, 31080 Pamplona, Spain. E-mail: narias@unav.es

Accepted for publication: April 18, 2019.

to essential medicines for pain relief and PC, training of health professionals, and the enablement of PC services.³

Recently, PC associations and global organizations have strived to define a single or set of indicators to track progress in PC provision around the world. As an example of this growing need, the 71st World Health Assembly approved the inclusion of a specific national-level PC indicator in the WHO's Impact Framework.⁴ To date, neither groups researching PC development nor specific PC international associations and transnational organizations have agreed on which indicators best assess national-level PC development. However, indicators in the literature have traditionally assessed variables of the WHO Public Health Strategy domains and have used experts as main sources of information.^{5,6}

Several indicators have been used in the literature to address this issue. A recent systematic review identified last decade's 38 most frequently used indicators in 54 studies assessing national-level PC development around the world,⁵ with several repeating indicators among studies. The study showed that a total of 165 indicators were used for this purpose following 480 different formulations. Indicators are presented both individually and in sets. A prominent single indicator is WHO's 2013 *consumption of morphine per cancer death*. This indicator received strong critiques that led to its amendment and resulted in its re-wording to "consumption of morphine per death". The change aimed at including a wider population of people in need of PC other than patients with cancer and overcoming issues related with the lack of specific cancer registries in different countries amongst others.⁷ Meanwhile, other relevant regional and global studies addressing the field of PC development used combinations of different sets of indicators.^{2,8-14} However, none of the above implemented a validating process neither for selection nor for implementations of indicators included in the studies. Only one study in Africa used a regional consensus process to identify its indicators engaging specific regional experts.²

It is urgent to count with indicators and evaluation systems to assess PC development, whereas knowledge from global studies on this field steadily increases. Indicators' use in new global studies on PC development cannot continue to depend on research groups' efforts and should instead rely on results achieved through the consensus of international experts on this field (Fig. S1). In preparation of the next edition of the EAPC Atlas of PC, our group decided to conduct an international consensus process with the aim of identifying national-level indicators.

Methods

A working group (WG) of the University of Navarra's Atlantes Research Group was designed for the project. The WG included a leader of the International Association of Hospice and Palliative Care (L. d. L.), the director of the European Association for Palliative Care Task Force on PC development (C. C.), and three other researchers (J. Y. R., E. G., and N. A. -C.) with experience in PC developing studies. The WG designed and agreed on the protocol of this study following the methodology of a two-round RAND/UCLA-modified Delphi process.¹⁵ The protocol was reviewed by members of the EAPC Task Force, the EAPC Board, and professionals working in PC issues at the World Health Organization. The Institutional Review Board of the University of Navarra approved the study (IRB-2017.22) on January 11, 2018. For this study, WHO's definition of PC¹⁶ was adopted, understanding that "development," in this context, refers to processes, structures, policies, and resources that support the delivery of PC.¹²

The consensus process was conducted in five steps:

Step 1: Initial List of Indicators

In a previous publication,⁵ the most frequently used national-level indicators assessing PC development were identified through a systematic review targeting cross-national studies conducted in the last decade around the world. 45 indicators were most frequently reported. The indicators were categorized into the WHO dimensions: eight for use of medicines, nine for policy, 11 for services, and nine for education. The remaining eight fell into other dimensions: research, professional activity, and international cooperation.

In preparation for the Delphi process, indicators were reworded to match existing formulations. Each indicator was characterized in an informative sheet containing the definition, questions to measure the indicator, additional information, and references to studies that previously used it. All was prepared to be presented in an online format.

Step 2: Expert Selection

The criteria used for selection of experts to participate in the study were the following: 1) proven experience with national-level indicators for PC, 2) proven experience in PC development evaluation projects, and 3) participation in PC networks or advocacy activities for at least four years. The group consisted of experts from various backgrounds based in different countries to ensure a broad geographical representation. They were invited via e-mail; those accepting to

participate were included in the study. Written consent was asked (Panel 1).

Step 3: First RAND/UCLA Delphi Round

For the first round, the experts received a link for the online questionnaire (surveymonkey.com). Indicators were displayed one at a time and with a link to its information sheet. Experts were asked to rate, on a 1 to 9 scale, each indicator by three parameters: relevance, measurability, and feasibility. Relevance was defined as the degree to which the indicator is related to PC development at a national level. Measurability was defined as the degree to which an indicator can be quantified or measured. Because this study was conducted in the framework of the next assessment of PC in Europe, in this case, feasibility was defined as the degree with which an indicator would be easily obtained or collected by PC experts in the WHO-European region.

The average of each of the three parameters' medians was used to calculate a global score (GS). For the first round, the higher level of consensus was determined by the upper tercile of possible scores ($GS \geq 7$). Comments on each indicator were assessed by the WG and used to 1) amend a particular indicator's wording and definition and 2) amend particular indicators raising concern in terms of reliability or feasibility. These were submitted for individualized consideration.

Step 4: Second RAND/UCLA Delphi Round

Selection of indicators scoring over 7 GS, and thus reduction of those not fulfilling this criterion, was chosen as the most appropriate approach for the purpose of the study. Our aim was selecting the best indicators to assess national-level PC, therefore elimination of those low rated (consensus on their low importance) allowed narrowing down the initial list, thus presenting a more manageable one to experts on the second online round. Selection and reduction of indicators has been identified as a common and valid approach to the design of Delphi rounds.^{17,18}

Scoring per indicator was presented in the questionnaire in the second round. More detailed information on scores per parameter was offered on request. In this round, each expert rated indicators fine-tuning the previous global score they gave knowing the rating of the group.¹⁻⁹

Step 5: Analysis and Presentation of Results

The data obtained were analyzed by median and 95% confidence interval (CI),¹⁹ Disagreement Index (DI), and Content Validity Index (I-CVI). DI was calculated following the RAND/UCLA Delphi method¹⁸ based on the interpercentile ranges, a commonly used statistical measure to assess the degree of

disagreement on rated items. A $DI \geq 1$ means disagreement among experts' ratings, whereas $D \leq 1$ shows agreement among experts. $D \leq 1$ scores represent experts rating on the same range, the closer to zero, thus stronger the agreement. $DI \geq 1$ scores show that experts scored in different ranges, with wider dispersion. Thus, 1 marks the threshold to consider disagreement among experts. I-CVI²⁰ focuses on the agreement of relevance of the indicator rather than the agreement per se. It is computed as the number of experts computing the highest scores on the Likert scale^{8,9} divided by the number of experts.²⁰ An I-CVI of 1 means unanimity in terms of relevance.

To define the final list of best indicators, more consensus was required to narrowing down the list. Final consensus was defined as indicators scoring in the lower limit of the 95% CI ≥ 7 and an I-CVI ≥ 0.30 . An I-CVI of 0.3 means that at least one of three experts evaluated that the indicator score was the highest. Individual consideration was given to outliers.

Results

Forty four experts fulfilled all selection criteria. They were contacted and invited to participate. 14 did not reply, and 30 did. 30 experts were invited to participate and were sent the online questionnaire. The five continents and a significant number of international, regional, and national PC institutions were represented (Panel 1).

In the first round, 27 experts participated (response rate = 90%). 34 of 45 indicators scoring $GS \geq 7$ proceeded to next round. Comments were used to modify indicators and information sheets. Two indicators that scored over 7 were excluded because of strong concern on their reliability as expressed through experts' comments. Of note, in the first round, although relevance and measurability scored highly, feasibility determined whether or not an indicator was excluded.

In the second round, 24 experts completed the study (response rate = 80%). 25 of 34 indicators scoring a lower limit 95% CI ≥ 7 and I-CVI ≥ 0.30 coincided in having high medians (≥ 7) and low DI (≤ 0.30). An exception was the use of medicines indicator: "Requirement of specific licenses to prescribe opioids." Its lower limit 95% CI was 6; however, its I-CVI was high (0.52), showing that half of the experts considered this indicator of high relevance. For this reason, the indicator was included in the study.

In the policy domain, eight indicators were selected. The most highly rated indicator was the existence of a designated human resource staff in the Ministry of Health responsible for PC. Experts also highly scored the inclusion of PC services in the basic health package and in the list of services provided at the primary care level. Both indicators have been quite recently

Table 1
Selected Indicators Resulting From the International Consensus Process Organized by WHO's Public Health Strategy Domains

Domain	Code	Indicator Wording	Global Score	Confidence Interval of the Median	Content Validity Index	Disagreement Index
Policy	P1	Designated human resource (labeled as unit, branch, department) in the Ministry of Health (or equivalent) responsible for palliative care	9	8–9	0.76	0.13
	P2	Existence of a current national palliative care plan, program, or strategy	8	8–9	0.76	0.13
	P3	Existence of a specific palliative care national law	8	7–8	0.57	0.16
	P4	Existence of national standards and norms for the provision of palliative care services	8	8–9	0.71	0.13
	P5	Allocation of funds for palliative care activities in the national health budget by the Ministry of Health or equivalent government agency	8	7–9	0.62	0.29
	P6	Inclusion of palliative care services in the basic package of health services	8	7–8	0.62	0.16
	P7	Inclusion of palliative care in the list of health services provided at primary care level in the national health system	8	7–8	0.57	0.16
	P8	Existence of systems of auditing, quality evaluation, improvement, or assurance for palliative care services	7	7–7.6	0.30	0
Education	E1	Existence of a process of official specialization in palliative medicine for physicians, recognized by the competent authority	9	8–9	0.39	0.13
	E2	Medical schools including mandatory palliative care education in undergraduate curricula	8	8–9	0.95	0.13
	E3	Nursing schools including mandatory palliative care education in undergraduate curricula	8	8–8	0.9	0
	E4	Professorship in palliative care in medical schools	7	7–8	0.33	0.16
Use of medicines	M1	Opioid consumption—in morphine equivalence (ME) excluding methadone—per capita as reported to the International Narcotics Control Board (year) ^a	9	8–9	0.81	0.13
	M2	General availability of immediate-release oral morphine (liquid or tablet) at the primary care level ^a	8	8–9	0.86	0.13
	M3	Requirement of specific licenses to prescribe opioids	8	6–8	0.52	0.37
	M4	Professionals legally allowed to prescribe opioids	8	7–9	0.67	0.29
Service provision	S1	Number of specialized home palliative care teams (estimate)	8	7–8	0.57	0.16
	S2	Number of inpatient palliative care units in hospitals (public and private) (estimate)	8	7–8	0.52	0.16
	S3	Number and type of palliative care programs for children (estimate)	8	7–8	0.62	0.21
	S4	Number of inpatient hospices	7	7–8	0.38	0.16

(Continued)

Table 1
Continued

Domain	Code	Indicator Wording	Global Score	Confidence Interval of the Median	Content Validity Index	Disagreement Index
	S5	Number of specialized hospital palliative care support teams	7	7–8	0.48	0.16
	S6	Number of specialized palliative care services in the country per population	7	7–8	0.48	0.16

^aInformation for these indicators, to be sourced from specialized databases and agencies and not from informants at the country level.

introduced in the international evaluation of PC development. The policy domain received low scoring in comparison to other domains; therefore, the indicator scoring the highest from this domain presented lower scores among all domains (Table 1 and Fig. 1).

In the education domain, four indicators were selected. The most highly rated indicator was the existence of a process of official specialization in palliative medicine for physicians. The inclusion of mandatory PC education at the undergraduate level, both for nursing and medicine students, was also considered as a highly important indicator of PC development. Professorship in PC was also included, being a very recently introduced indicator on the field of PC development assessment (Table 1 and Fig. 1).

Four indicators from the use of medicines domain were selected. The most highly rated indicator were opioid consumption—in morphine equivalence excluding methadone—per capita as reported to the International Narcotic Control Board per year and the general availability of oral morphine at the primary care level. Experts also selected the prescription requirement as an important development indicator depicting this domain (Table 1 and Fig. 1).

Six indicators were selected for the service provision domain. The most highly rated indicator was the estimated number of specialized home PC teams. Three indicators scored 7 GS, which is lower than the average⁸ of the selected indicators. Experts gave less relevance to having specialized services than other dimensions. In this category, the number of specialized

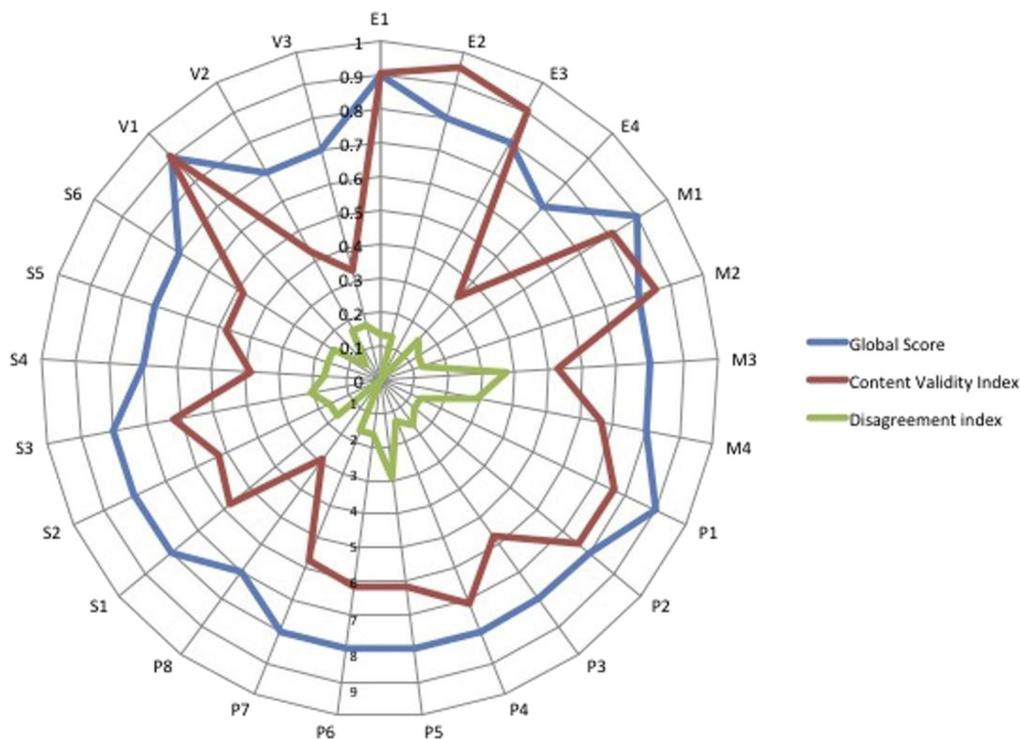


Fig. 1. Best indicators for the evaluation of national-level palliative care development. Two scales are presented. Global score in scale 1–9. Content Validity Index and Disagreement Index in scale 0–1. Note: See indicators’ codes in Tables 1 and 2.

Table 2
Selected Indicators Resulting From the International Consensus Process Included in the Additional Domain Professional Activity

Domain	Code	Indicator Wording	Global Score	Confidence Interval of the Median	Content Validity Index	Disagreement Index
Professional activity	V1	Existence of at least one national palliative care association	9	8–9	0.9	0.06
	V2	Existence of a national palliative care directory of services	7	7–8	0.43	0.16
	V3	Number of scientific articles on PC development in the past five years ^a	7	7–8	0.33	0.16

^aInformation for these indicators, to be sourced from specialized databases and agencies and not from informants at the country level.

home PC teams, the number of inpatient PC units, and the number and type of PC programs for children were the most highly rated indicators (Table 1 and Fig. 1).

Finally, experts also considered three indicators, which we have categorized in a new dimension called “professional activity.”²¹ The most highly rated was the existence of a national PC association. The existence of a national PC directory of services and the number of scientific publications on PC development were also important indicators to assess within the domain (Table 2 and Fig. 1).

Conclusion

We have identified the 25 of the best indicators to assess national level in the understanding of an international panel of experts. Our study brought, for the

first time, the contribution of a balanced group of PC professionals with expertise in regional and global development assessment, from several countries and institutions, to achieve consensus of how we should measure the development on this field internationally.

A consensus list of indicators improves national-level assessment studies by providing a specific evidence-based starting line on the development of palliative care, providing the studies with transparency and replicability, and, not less important, allows to assess national-level progress, to conduct comparative analysis and prospective studies. Tracking the indicators across the time offers the opportunity to pooling data in a same repository that could be prospectively evaluated, allowing the international observation of PC development.

The studies that measured PC development, thus far, have used indicators agreed on within their research

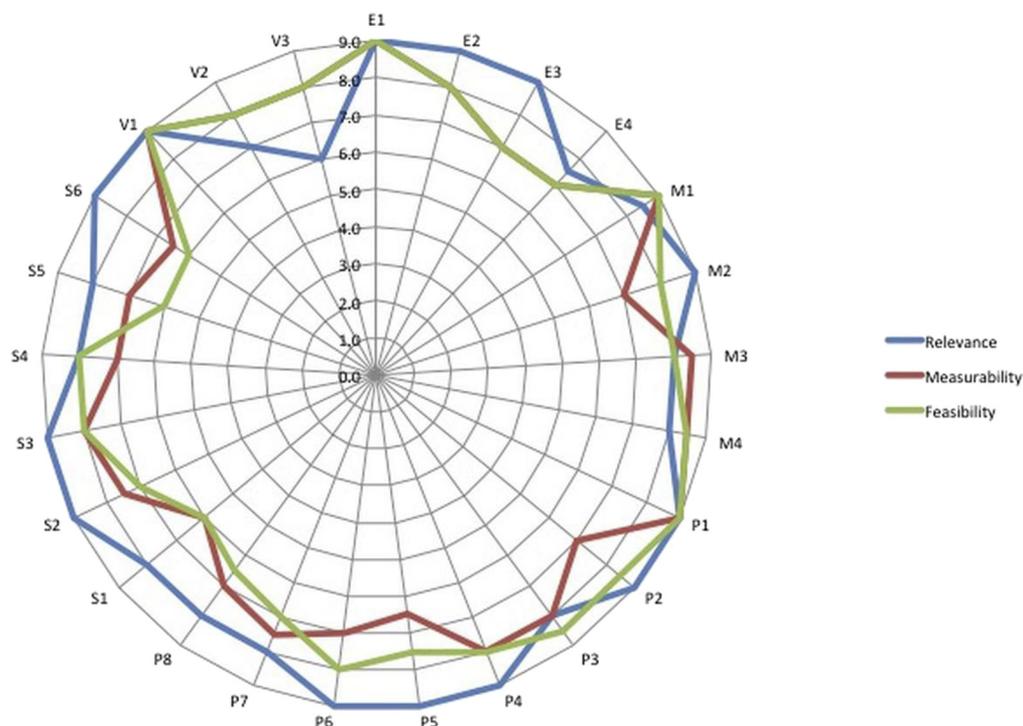


Fig. 2. Best indicators for the evaluation of national-level palliative care development after first consensus round. Note: See indicators' codes in Tables 1 and 2; Relevance, measurability, and feasibility scores in scale 1–9.

teams and therefore vary in type, number, and quantity. For instance, one study uses categories with no clear mention to the indicators used,²² whereas others adopt different sets of indicators.^{8,9} However, none of the studies has used a consensus process neither with international nor regional experts. In 2017, our group carried out a study looking for the best indicators for Africa, conducting a Delphi process with regional experts.²³ Interestingly, 12 of 18 of the indicators designed for the African study have been also identified in other studies through the systematic review and have been thus included in the present study.

This consensus was carried out in preparation of the next European Atlas survey. A question can be done regarding its applicability in regions other than Europe. Could this list of indicators be implemented in other regions? We think so. Of note, during the first round, experts were asked to assess the feasibility of applying each indicator specifically to Europe, while also assessing their relevance and measurability. As shown in [Figure 2](#), all the indicators passing to Round 2 were assessed as highly relevant and measurable, regardless of where they were to be applied. In addition, our survey was carried out not by European but international experts representing all continents and was based on a systematic review that provided indicators retrieved from studies conducted all around the world. Therefore, we can strongly suppose that our results are internationally applicable too. However, this has to be verified in future regional studies other than Europe.

The indicators here presented need to be tested for feasibility and relevance within the region to evaluate. These indicators are suggested as an initial selection of items to use in national and cross-national assessment studies. However, further research to prove the generalization of this study to other regions or globally is required. Also of note, before selecting indicators to run an assessment study, researchers should consider the capacity of informants to respond. This is relevant to gathering reliable data to depict the development profile of countries.

It is worth considering what the relative importance of indicators in each category is, as well as the relative importance of each category. The first one is reflected through experts' assessment. Within categories, experts have rated some indicators with higher scores than others, prioritizing them. For instance, within policies the highest rated indicator is the existence of a designated human resource with responsibility for PC at the Ministry of Health; within services, the number of specialized home PC teams. With this regard, [Table 1](#) presents indicators by category and GS, those scoring higher are considered to be the most important. A second point worth considering is the interpretation of the importance between categories. Is a category more important than other? This will depend on contextual factors: in a low-

resource setting, the most relevant category does not need to match that of a rich country. To appraise the relative importance between categories, data on the answers to the indicators used must undergo specific regional analysis. This process was followed in Africa²³; experts pondered the weight of each category before establishing an international ranking.

Our sample experienced six losses during the consensus process, three in the first round and three in the second. Two of them represented Asia, leaving the region underrepresented with only one expert for India and one for Singapore. The other four losses (one for Africa, two for the U.S., and one for Europe) are compensated by other experts from the same region. We believe that the best sample possible was achieved; however, it can be improved by engaging more representatives from Asia.

A weakness of this study is that it was conducted without an in-person consensus round, reason why we've called it a modified technique. Although in-person rounds are suggested by the RAND/UCLA Delphi methodology, online processes are not discouraged.^{17,18} In such, it did not include a face-to-face round, and thus, experts were not able to discuss results of the first round with each other. Other Delphi consensus processes in the scientific literature have been also conducted without in-person round.^{17,24,25} Owing to geographical dispersion of participants, such a round was not feasible for this study. However, changes on indicators between rounds were minor and addressed wording. To overcome this issue, experts were provided with the group scores in Round 2 and more information on the results of the first round was offered. In addition, because we chose selection and reduction of indicators as the approach to narrow the list of indicators between Rounds 1 and 2, experts were not able to change their minds on already deleted indicators. Nevertheless, indicators that were deleted in the first round had low GS, thus showing consensus on their low importance. Furthermore, the reduction and deletion approach is a valid one that has been previously endorsed in the literature.¹⁸

A conversation about PC integration at different levels (primary care, long term facilities, PC for children, public health, etc.) is deemed necessary. The indicators included in the study miss these important areas of PC integration and continue to assess the issue as it has traditionally been done⁵ by focusing on PC general development and on the implementation of services. An example of the need to identify new integration indicators is the relevance given in this study to items addressing the articulation of PC at the primary care level. For instance, the highest scored indicator on the services domain was the number of specialized home PC teams. This indicator speaks to the need of making PC accessible to those

in need, and this can only be achieved, as stated in WHA67.19²⁶ and the Astana Declaration,²⁷ by strengthening the primary care provision of PC. In this light, a new process to identify and agree on indicators addressing PC integration is necessary to complete the picture of PC development at national levels.

As future implications of this study, the selected indicators could be compiled in a manual to be consulted by researchers and stakeholders interested in assessing PC development. This Manual on Health Indicators for Global PC Development (<http://dadun.unav.edu/handle/10171/56523>) could be presented by dimensions, including the working definitions followed in this study, questions to assess the indicator, complementary information, references to previous studies, and the metrics that this unique consensus process has achieved. For the first time, the best indicators for the evaluation of the development of PC at a national level have been identified through a consensus process. The set of indicators shows high content validity and level of international agreement.

Disclosure and Acknowledgments

No conflict of interests exists for all authors. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

1. Knaul FM, Farmer P, Krakauer E, et al. Alleviating the access in palliative care and pain relief- an imperative of universal health coverage: the Lancet Commission report. *Lancet Comm* 2017;10128:1391–1454.
2. Rhee JY, Luyirika E, Namisango E, Powell RA. *APCA Atlas of Palliative Care in Africa*. Houston TX: IAHP Press, 2017.
3. Sjernswärd J, Foley KM FF. The public health strategy for palliative care. *J Pain Symptom Manag* 2007;33:486–492.
4. World Health Organization (WHO). WHO 13th General Programme of Work (GPW13) Impact Framework: Targets and Indicators. 2018. p10. Available from: https://www.who.int/about/what-we-do/GPW13_WIF_Targets_and_Indicators_English.pdf. Accessed January 2, 2019.
5. Arias N, Garralda E, De Lima L, Rhee JY, Centeno C. Global palliative care and cross national comparison: how is palliative care development assessed? (Accepted article). *J Palliat Med* 2018;22:580–590.
6. Loucka M, Payne S, Brearley S. How to measure the international development of palliative care? A critique and discussion of current approaches. *J Pain Symptom Manag* 2014;47:154–165. Available from: <https://doi.org/10.1016/j.jpainsymman.2013.02.013>. Accessed December 26, 2018.
7. De Lima L, Wenk R, Krakauer E, et al. Global framework for noncommunicable diseases: how can we monitor palliative care? *J Palliat Med* [internet] 2013;16:226–229. Available from: http://www.pubmedcentral.nih.gov/article-render.fcgi?artid=3698669&tool=pmcentre_z&rendertype=abstract. Accessed December 26, 2018.
8. The Economist Intelligence Unit. The 2015 Quality of Death Index Ranking palliative care across the world. *Econ* [Internet] 2015; 71. Available from: <http://www.apcp.com.pt/uploads/2015-EIU-Quality-of-Death-Index-Oct-6- FINAL.pdf>. Accessed January 2, 2019.
9. Human Rights Watch. Global State of Pain Treatment. 2011. Available from: <http://www.hrw.org>. Accessed January 2, 2019.
10. Connor S, Clark D, Lynch T, Connor S, Clark D. Mapping levels of palliative care Development: a global Update. *J Pain Symptom Manag* 2012;45:1094–1106. Available from: <https://doi.org/10.1016/j.jpainsymman.2012.05.011>. Accessed January 2, 2019.
11. World Palliative Care Alliance, Connor SR, Sepulveda Bermedo MC. Global atlas of palliative care at the end of life. WHO, 2014:111. Available from: <http://www.who.int/cancer/publications/palliative-care-atlas/en/>. Accessed January 2, 2019.
12. Centeno C, Lynch T, Donea O, Rocafort J, Clark D. *EAPC Atlas of Palliative Care in Europe 2013*. Full Edition. [Internet]. European Association for Palliative Care, 2013: 1–410. Available from: <http://www.eapcnet.eu/Themes/Organisation/DevelopmentinEurope/EAPCAtlas2013.aspx>. Accessed January 2, 2019.
13. Osman H, Rihan A, Garralda E, et al. Atlas of Palliative Care in the Eastern Mediterranean Region. 2017. Available from: <http://hdl.handle.net/10171/43303>. Accessed January 2, 2019.
14. Pastrana T, De Lima L, Pons JJ, Centeno C. Atlas de Cuidados Paliativos en Latinoamérica 2012:99.
15. Fitch K, Bernstein SJ, Aguilar MD, et al. The RAND/UCLA Appropriateness Method User's Manual 2001:123.
16. World Health Organization (WHO). Definition of palliative care. 2008. Available from: <http://www.who.int/cancer/palliative/definition/en/>. Accessed January 2, 2019.
17. Jünger S, Payne SA, Brine J, Radbruch L, Brearley SG. Guidance on Conducting and Reporting Delphi Studies (CREDES) in palliative care: Recommendations based on a methodological systematic review. *Palliat Med* 2017;31:684–706. Available from: <http://journals.sagepub.com/doi/10.1177/0269216317690685>. Accessed January 2, 2019.
18. Fitch K, Bernstein SJJ, Aguilar MDD, et al. The RAND/UCLA Appropriateness method user's manual. *Transformation* 2001:109. Available from: https://www.rand.org/content/dam/rand/pubs/monograph_reports/2011/MR1269.pdf. Accessed January 25, 2019.
19. Mood AM, FAG. *Introduction to the Theory of Statistics*, 2nd ed. New York: McGraw–Hill, 1963.
20. Denise F, Cheryl Tatano Beck Polit, Owen SV. Focus on research methods is the CVI an acceptable indicator of content validity? *Appraisal and Recommendations*. *Res Nurs Heal* 2007;30:459–467.
21. Woitha K, Garralda E, Martin-Moreno JM, Clark D, Centeno C. Ranking of palliative care development in the countries of the European Union. *J Pain Symptom Manag* 2016;52:370–377.
22. Wright M, Wood J, Lynch T, Clark D. Mapping levels of palliative care development: a global view. *J Pain Symptom*

- Manag 2008;35:469–485. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/18243637>. Accessed January 2, 2019.
23. Rhee JY, Luyirika E, Namisango E, et al. APCA Atlas of Palliative Care in Africa 2017:1–79.
24. Woitha K, Van Beek K, Ahmed N, et al. Validation of quality indicators for the organization of palliative care: a modified RAND Delphi study in seven European countries (the Europall project). *Palliat Med* 2014;28:121–129.
25. Campbell SM, Cantrill JA, Roberts D. Prescribing indicators for UK general practice: Delphi consultation study. *BMJ* 2000;321:425–442.
26. World Health Assembly. Sixty-seventh World Health Assembly: Agenda Item 15.5: Strengthening of palliative care as a component of comprehensive care throughout the life course [Internet]. 2014. Available from: http://apps.who.int/gb/ebwha/pdf_files/WHA67/A67_R19-en.pdf. Accessed January 2, 2019.
27. World Health Organization (WHO). Astana Declaration on Primary Health Care: From Alma-Ata towards Universal Health Coverage and the Sustainable Development Goals. 2018. Available from: <https://www.who.int/docs/default-source/primary-health/declaration/gcphc-declaration.pdf>. Accessed January 2, 2019.

Appendix

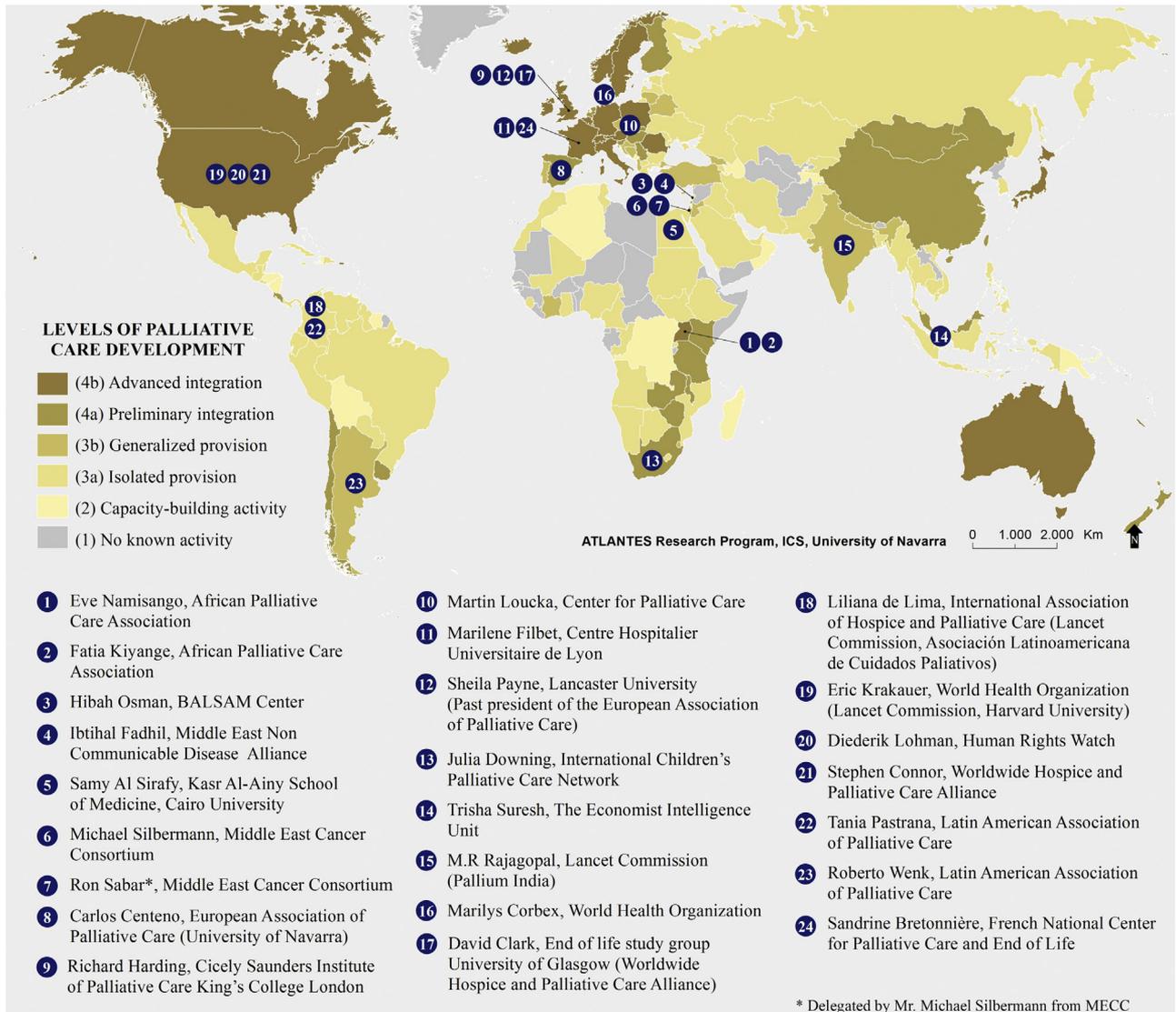


Fig. S1. International experts who participated in the study.