*Special Article*

# Mapping Levels of Palliative Care Development: A Global Update

Thomas Lynch, PhD, Stephen Connor, PhD, and David Clark, PhD
*International Observatory on End of Life Care (T.L.), Lancaster University, Lancaster; Worldwide Palliative Care Alliance (S.C.), London; and School of Interdisciplinary Studies (D.C.), University of Glasgow, Glasgow, United Kingdom*

***Abstract***

*Our purpose is to categorize palliative care development, country by country, throughout the world, showing changes over time. We adopt a multi-method approach. Development is categorized using a six-part typology: Group 1 (no known hospice-palliative care activity) and Group 2 (capacity-building activity) are the same as developed during a previous study (2006), but Groups 3 and 4 have been subdivided to produce two additional levels of categorization: 3a) Isolated palliative care provision, 3b) Generalized palliative care provision, 4a) Countries where hospice-palliative care services are at a stage of preliminary integration into mainstream service provision, and 4b) Countries where hospice-palliative care services are at a stage of advanced integration into mainstream service provision. In 2011, 136 of the world's 234 countries (58%) had at least one palliative care service—an increase of 21 (+9%) from 2006, with the most significant gains having been made in Africa. Advanced integration of palliative care has been achieved in only 20 countries (8.5%). Total countries in each category are as follows: Group 1, 75 (32%); Group 2, 23 (10%); Group 3a, 74 (31.6%); Group 3b, 17 (7.3%); Group 4a, 25 (10.7%); and Group 4b, 20 (8.5%). Ratio of services to population among Group 4a/4b countries ranges from 1:34,000 (in Austria) to 1:8.5 million (in China); among Group 3a/3b countries, from 1:1000 (in Niue) to 1:90 million (in Pakistan). Although more than half of the world's countries have a palliative care service, many countries still have no provision, and major increases are needed before palliative care is generally accessible worldwide.* J Pain Symptom Manage 2013;45:1094–1106. 

***Key Words***

*Palliative care, hospice, map, global development*

## *Introduction*

Interest in the comparative analysis of palliative care development has been evident, particularly in Europe, since the late 1990s.[1] The first study to review palliative care using comparative methods was reported in 2000, and it focused on seven countries in Western Europe.[2] In 2003, a study commissioned by the Open Society Foundation International Palliative Care Initiative (IPCI) successfully mapped the development of palliative care across 28 former communist countries in Eastern Europe and Central Asia.[3] As a direct

*Address correspondence to:* Thomas Lynch, PhD, International Observatory on End of Life Care, Institute for Health Research, Alexandra Square, Lancaster University, Lancaster LA1 4YT, United Kingdom. E-mail: t.lynch@lancaster.ac.uk

*Accepted for publication: May 18, 2012.*



0885-3924/$ - see front matter
http://dx.doi.org/10.1016/j.jpainsymman.2012.05.011

result of the IPCI project, the International Observatory on End of Life Care (IOELC) was established by D. C. at Lancaster University in the U.K. The IOELC used comparative methods in its reviews of hospice-palliative care activity and devised a common template to present its research-based reports on countries; this resulted in major reviews of palliative care development in Africa (26 countries), the Middle East (six countries), and South East Asia (three countries) as well as a study covering the whole of India. The European Association for Palliative Care (EAPC) Task Force on the Development of Palliative Care in Europe began in 2003 under the leadership of Professor Carlos Centeno, and has substantially contributed to the agenda of documenting the progress of palliative care across countries and regions.[4] Jaspers and Schindler[5] reviewed hospice and palliative care provision in Germany compared with those in ten other European countries, and Gronemeyer et al.[6] undertook a comparative review of palliative care provision in 16 countries across Eastern and Western Europe.

Emerging from this series of studies was an ambitious attempt in 2006 to measure and classify the development of palliative care in every country in the world. The IOELC built on a basic description that had been produced earlier by the Hospice Information Service but attempted to build more depth into the analysis by developing a four-part typology depicting the levels of hospice-palliative care development across the globe: no known hospice-palliative care activity (Group 1 countries); capacity building activity (Group 2 countries); localized hospice-palliative care provision (Group 3 countries); and countries where hospice-palliative care services were reaching a measure of integration with the mainstream health care system (Group 4 countries). By presenting a "world map" of hospice-palliative care development, the study sought to contribute to the debate about the growth and recognition of palliative care services and, in particular, whether or not the four-part typology reflected sequential levels of palliative care development.[7] This mapping project was commissioned by the Worldwide Palliative Care Alliance, with funding from Help the Hospices in the U.K., and the National Hospice and Palliative Care Organization in the U.S.

Since 2006, there have been further comparative studies on palliative care development. For example, in 2008, the work of the EAPC Task Force on the Development of Palliative Care in Europe was extended in a collaborative study that specifically focused on the 27 member states of the European Union.[8] This study was important in moving beyond a descriptive comparison of the data to sketch out the beginnings of a more detailed method for ranking the 27 countries by the level of their palliative care development. A study commissioned by the Lien Foundation in Singapore and carried out by the Economist Intelligence Unit was published in 2010. This too attempted a ranking of palliative care development, this time in 40 countries of the world, and with a more complex set of indicators.[9] In 2011, a report from Human Rights Watch also documented the state of pain and palliative care services in 40 countries.[10]

## Methods

Although the 2006 study has been heavily cited in the literature and adopted as a tool for international palliative care advocacy, it became clear that the rankings might benefit from refinement and the method of categorization also could be made more robust. To update the original findings and also address the definitional and methodological concerns, the 2006 mapping exercise was repeated in 2011, with some new criteria in the ranking. Within the typology, changes have been made in the criteria for the level of palliative care development in Groups 3 and 4, and these have been subdivided to produce two additional levels of categorization (Groups 3a, 3b, 4a, and 4b).

### *Location and Extraction of Relevant Data*

Data on palliative care development were initially collected from the following sources: published articles in peer reviewed and professional journals, books and monographs, palliative care directories, palliative care and related websites, data provided by the EAPC Task Force for the Development of Palliative Care in Europe, IOELC reviews and databases, as well as gray literature and conference presentations (Fig. 1). We explored questions of palliative care coverage, public awareness, education

and training, opioid availability, and reimbursement. We also focused on service types and settings, the impact of palliative care on policy, links with academic institutions, and the relationship between palliative care services and other mainstream service providers. Critical points included whether there was evidence of government support, the implementation of strategic plans, published research, and palliative care elements in medical as well as nursing curricula and accredited courses.

In-country "key experts" in palliative care were particularly important sources of data for the study. Palliative care "champions" with extensive knowledge of both national and international development were identified in a variety of ways: within the sources cited above, from their participation in the previous study in 2006, from information provided by 66 national palliative care associations, and from international palliative care sources (International Association for Hospice and Palliative Care, Help the Hospices, and Worldwide Palliative Care Alliance). In countries where a champion was identified, they were requested to 1) provide information on the number and different types of palliative care services in their country, and 2) indicate which category within the new typology most accurately reflected the current status of palliative care in their country. Eighty-five palliative care champions were identified, and they provided information about the status of palliative care in their respective countries. Where no palliative care champion could be identified, regional palliative care associations (e.g., Asia Pacific Hospice Palliative Care Network and African Palliative Care Association) acted as "proxies" and provided valuable information on behalf of a further 77 countries.

In countries where a palliative care champion could not be identified and where the information from a regional palliative care association was not available, data collected from the initial sources identified above (particularly from the previous study in 2006) were revisited to determine to which category the country in question should be allocated; knowledge gained by the authors while working on other hospice and palliative care-related projects (e.g., work undertaken with the Open Society Foundation IPCI) also was used to achieve this objective. In total, the status of palliative care development in 72 countries was calculated in this manner. In cases where categorization of a particular country was unclear (approximately 14 in total), the authors undertook a consultative process with each other. The initial categorization was made by T. L. based on the available evidence; S. C. and D. C. then conferred on cases that were particularly difficult to categorize, using their extensive and detailed knowledge of many of the countries in the study, in some cases based on visits made to those countries in recent years. The country in question was then allocated to one of the following categories based on its *perceived* level of palliative care development:

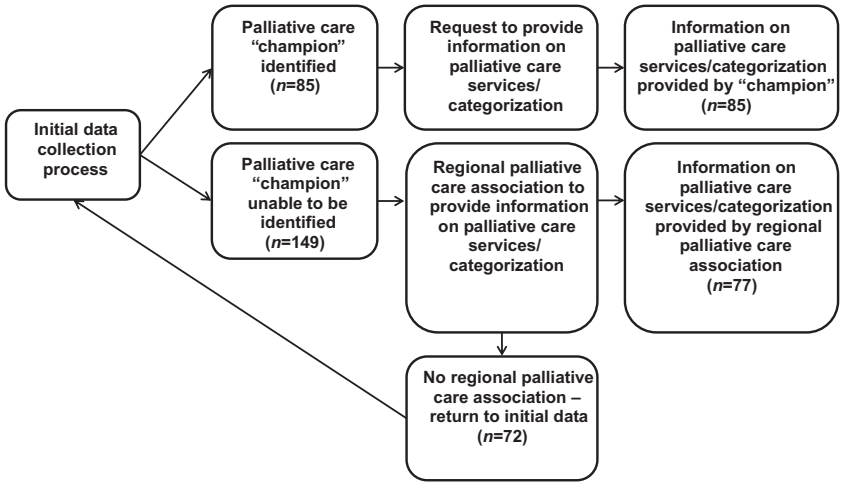


Fig. 1. Method of locating and extracting relevant data.

*Group 1 Countries: No Known Hospice-Palliative Care Activity.* Although we have been unable to identify any palliative care activity in this group of countries, we acknowledge there may be instances where, despite our best efforts, current work has been unrecognized.

*Group 2 Countries: Capacity Building Activity.* In this group of countries, there is evidence of wide-ranging initiatives designed to create the organizational, workforce, and policy capacity for the development of hospice-palliative care services although no service has yet been established. The developmental activities include attendance at, or organization of, key conferences; personnel undertaking external training in palliative care; lobbying of policy makers and Ministries of Health; and incipient service development.

*Group 3 Countries*

*Group 3a: Isolated Palliative Care Provision.* This group of countries is characterized by the development of palliative care activism that is patchy in scope and not well-supported; source of funding that is often heavily donor-dependent; limited availability of morphine; and a small number of hospice-palliative care services that are often home-based in nature and limited in relation to the size of the population.

*Group 3b: Generalized Palliative Care Provision.* This group of countries is characterized by the development of palliative care activism in several locations with the growth of local support in those areas; multiple sources of funding; the availability of morphine; several hospice-palliative care services from a community of providers who are independent of the health care system; and the provision of some training and education initiatives by the hospice organizations.

*Group 4 Countries*

*Group 4a: Countries Where Hospice-Palliative Care Services Are at a Stage of Preliminary Integration into Mainstream Service Provision.* This group of countries is characterized by the development of a critical mass of palliative care activism in a number of locations; a variety of palliative care providers and types of services; awareness of palliative care on the part of health professionals and local communities; the availability of morphine and some other strong pain-relieving drugs; limited impact of palliative care on policy; the provision of a substantial number of training and education initiatives by a range of organizations; and existence of (or at least an interest in the concept of) a national palliative care association.

*Group 4b: Countries Where Hospice-Palliative Care Services Are at a Stage of Advanced Integration into Mainstream Service Provision.* This group of countries is characterized by the development of a critical mass of palliative care activism in a wide range of locations; comprehensive provision of all types of palliative care by multiple service providers; broad awareness of palliative care on the part of health professionals, local communities, and society in general; unrestricted availability of morphine and most strong pain-relieving drugs; substantial impact of palliative care on policy, in particular on public health policy; the development of recognized education centers; academic links forged with universities; and the existence of a national palliative care association.

Finally, global hospice-palliative care development was categorized using the revised typology, country by country, throughout the world; this development is depicted in a series of world and regional maps. The maps presented here make use of the United Nations (U.N.) list of 234 "countries or areas," which are grouped into 21 regions (such as Central America) and then allocated to eight "major areas" designated as "continents" (Sub-Saharan Africa; Middle East, North Africa, and Greater Arabia; North America; Central America and the Caribbean; South America; Asia; Europe; and Australia and Oceania). Significantly, the U.N. list includes small territories such as the Aland Islands, Isle of Man, and the Holy See (the Vatican). The size of these countries ranges from 17 million square kilometers (Russia), to 0.44 square kilometers (the Vatican). The most populated country is China, with around 1.35 billion people whereas the least populated is Pitcairn Island, with about 50 people.

*Other Development Indicators*

To gain a broader view of the development of a country, data also were collected regarding

human development. The U.N. Human Development Index[11] (HDI) measures a country's achievements in the three aspects of longevity, knowledge, and standard of living, which highlight the development in human rather than economic terms (The HDI was created to re-emphasize that people and their lives should be the ultimate criteria for assessing the development of a country, not economic growth). Figures relating to population size were taken from the World Health Organization website[12] (192 countries at that time) and supplemented by estimated figures from the World Fact Book[13] (42 countries), which are supplied by the U.S. Census Bureau and are based on statistics from population censuses and vital statistics registration systems.

## Results

In 2006, 115 of the world's 234 countries (49%) had established one or more hospice-palliative care services; in 2011, 136 of the world's 234 countries (58%) had one or more hospice-palliative care services established—an increase of 21 countries (+9%). In 2006, 156 countries (67%) were actively engaged in either delivering a hospice-palliative care service or developing the framework within which such a service could be delivered; in 2011, there had been a slight increase in this number to 159 countries (68%)—an increase of 1%. Table 1 lists the countries in each of the six categories showing changes from 2006, and Fig. 2 displays these countries in a map of the world.

### *Palliative Care and Human Development*

In most regions of the world, a strong association exists between palliative care and human development. Thirty (67%) of the 45 countries in Groups 4a/4b (preliminary/advanced palliative care integration) have a *very high* level of development as measured by the U.N. HDI, and five countries (11%) have a *high* level of human development. Only six countries (13%) in Groups 4a/4b have a *low* level of human development, yet this is a significant increase from the figure for 2006, which suggested that only one (3%) country from Group 4 was in the *low* development group. All six countries from Groups 4a/4b with *low* levels of human development are from Africa, suggesting that, in contrast to other regions of the world, the level of palliative care development in this particular area may not be concomitant with the overall levels of human development. In Group 1 (no known palliative care activity), only two (3%) of the 75 countries have a *very high* level of human development and seven (9%) countries have a *high* level of human development. By contrast, 20 (27%) countries in Group 1 have a *low* level of human development, and 33 (44%) countries in this group have no HDI at all (Table 2).

### *Ratio of Services to Population*

Countries in Groups 4a/4b have multiple services; within this group, the ratio of services to population does not exceed 1:8.5 million (China). Countries in Groups 3a/3b frequently have a single service provision and a ratio of services to population that extends to 1:90 million (Pakistan) (Table 3).

### *Regional Variations*

A regional analysis of palliative care development produces striking variations in the levels achieved by neighboring countries and in each country's ratio of services to population. In North America, both Canada and the U.S. are in Group 4b, whereas no palliative care activity could be identified in Greenland. In Latin America, Chile, Costa Rica, Puerto Rico, and Uruguay are in Group 4a, whereas several other countries in the region provide either a single or a relatively small number of palliative care services (Table 4); several Caribbean Islands also offer a single palliative care service.

In Western Europe, only small countries, such as Andorra, Monaco, and the Holy See (Vatican), or U.K. regions such as the Falkland Islands are in Groups 1 or 2; other U.K. regions such as Guernsey and the Isle of Man are in Group 3a. Greece is also in Group 3a, with Cyprus, Malta, and Portugal in 3b; the remainder of Western European countries are in Groups 4a/4b (Table 5).

In Central and Eastern Europe/Commonwealth of Independent States (CEE/CIS), countries such as Turkmenistan and Uzbekistan have no known palliative care capacity; this is in stark contrast to countries such as

*Table 1*
**Distribution of Countries and Global Population by Category (2011), $N = 234$**

| | |
|---|---|
| Group 1 No known activity $n = 75$ (32%) | Afghanistan, American Samoa, Andorra, Anguilla, Antigua and Barbuda, Aruba, Benin, Bhutan, Burkina Faso, Burundi, Cape Verdi, Central African Republic, Chad, Comoros, Cook Islands, Djibouti, Equatorial Guinea, Eritrea, Falkland Islands, Faroe Islands, French Guiana, French Polynesia, Gabon, Greenland, Grenada, Guam, Guinea, Guinea-Bissau, Kiribati, Korea (DPR), Laos, Liberia, Libya, Liechtenstein, Maldives, Marshall Islands, Martinique, Mauritania, Mayotte, Micronesia, Monaco, Montserrat, Nauru, The Netherlands Antilles, New Caledonia, Niger, Norfolk Island, Northern Mariana Islands, Palau, Pitcairn, Saint Helena, Saint Kits and Nevis, Saint Pierre and Miquelon, Saint Vincent and the Grenadines, Samoa, San Marino, Sao Tome and Principe, Senegal, Solomon Islands, Somalia, Svalbard, Syria, Timor-Leste, Togo, Tokelau, Tonga, Turkmenistan, Turks and Caicos Islands, Tuvalu, US Virgin Islands, Uzbekistan (− from category 2), Vanuatu, Wallis and Fortuna, Western Sahara, Yemen. |
| Group 2 Capacity building $n = 23$ (10%) | Aland Islands (− from category 3), Algeria, Azerbaijan (− from category 3), Bolivia, British Virgin Islands, Democratic Republic of Congo, Dominica, Fiji, Haiti, Holy See (Vatican), Honduras (− from category 3), Madagascar, Mauritius, Montenegro (+ from category 1), Nicaragua, Oman, Palestinian Authority, Papua New Guinea, Qatar, Reunion, Seychelles, Suriname, Tajikistan, The Bahamas. |
| Group 3a Isolated provision $n = 74$ (31.6%) | Angola (+ from category 1), Armenia, Bahrain (+ from category 2), Bangladesh, Barbados, Belize (+ from category 2), Bermuda, Botswana, Brazil, Brunei (+ from category 2), Bulgaria, Cambodia, Cameroon, Cayman Islands, Colombia, Congo, Cuba, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia (+ from category 2), Ghana (+ from category 2), Gibraltar, Greece, Guadeloupe, Guatemala, Guernsey, Guyana, Indonesia, Iran (+ from category 2), Iraq, Isle of Man, Jamaica, Jersey, Kazakhstan, Korea (South), Kuwait (+ from category 2), Kyrgyzstan, Latvia, Lebanon (+ from category 2), Lesotho (+ from category 2), Macedonia, Mali (+ from category 1), Mexico, Moldova, Morocco, Mozambique (+ from category 2), Myanmar, Namibia (+ from category 2), Nigeria, Niue (+ from category 1), Pakistan, Panama, Paraguay (+ from category 2), Peru, Philippines, Reunion, Russia, Rwanda (+ from category 2), Saint Lucia (+ from category 2), Saudi Arabia, Sierra Leone, Sri Lanka, Sudan (+ from category 2), Gambia, Thailand, Trinidad and Tobago, Tunisia, Ukraine, United Arab Emirates, Venezuela, Vietnam. |
| Group 3b Generalized provision $n = 17$ (7.3%) | Albania, Argentina (− from category 4), Belarus, Bosnia and Herzegovina, Cote D'ivoire (+ from category 2), Croatia, Cyprus, Czech Republic, Georgia, India, Jordan, Lithuania, Malta, Nepal, Portugal, Swaziland, Turkey (+ from category 2). |
| Group 4a Preliminary integration $n = 25$ (10.7%) | Chile, China (+ from category 3), Costa Rica, Denmark, Finland, Hungary, Israel, Kenya, Luxembourg (+ from category 3), Macau (+ from category 3), Malawi (+ from category 3), Malaysia, Mongolia, The Netherlands, New Zealand, Puerto Rico (+ from category 2), Serbia (+ from category 3), Slovakia (+ from category 3), Slovenia, South Africa, Spain, Tanzania (+ from category 3), Uruguay (+ from category 3), Zambia (+ from category 3), Zimbabwe (+ from category 3). |
| Group 4b Advanced integration $n = 20$ (8.5%) | Australia, Austria, Belgium, Canada, France, Germany, Hong Kong, Iceland, Ireland, Italy, Japan, Norway, Poland, Romania, Singapore, Sweden, Switzerland, Uganda, U.K., U.S. |

Poland and Romania that are in Group 4b (Table 6).

In Western Asia, only Israel is in Group 4a (preliminary integration); a number of other countries in the region offer limited palliative care provision and are in Groups 3a/3b (Table 7).

In Africa, no palliative care service could be identified in 28 of the continent's countries; this contrasts with the categorization of Uganda in Group 4b and several other countries in the region that are categorized in Group 4a (Table 8). A good example of progress in Africa is provided by Cote' D'Ivoire, which moved from Group 2 in 2006 to Group 3b in 2011. There are now 26 hospice-palliative care services in Cote D'Ivoire (22 government hospitals/health facilities, three mission hospitals, and one private hospital). The African Palliative Care Association (APCA) and other partners have worked in Cote D'Ivoire to develop palliative care; a palliative care infrastructure has been developed and palliative care services provided. Despite remaining in the same group as 2006 (Group 3), Nigeria is reported as "making progress" in the development of palliative care. The seven palliative care services in Nigeria include two private hospices and five government-owned, tertiary health, hospital palliative care services. There are five formally qualified physicians and four formally qualified nurse specialists practicing palliative care in the country. "Much progress" is reported from Kenya, where 44 services

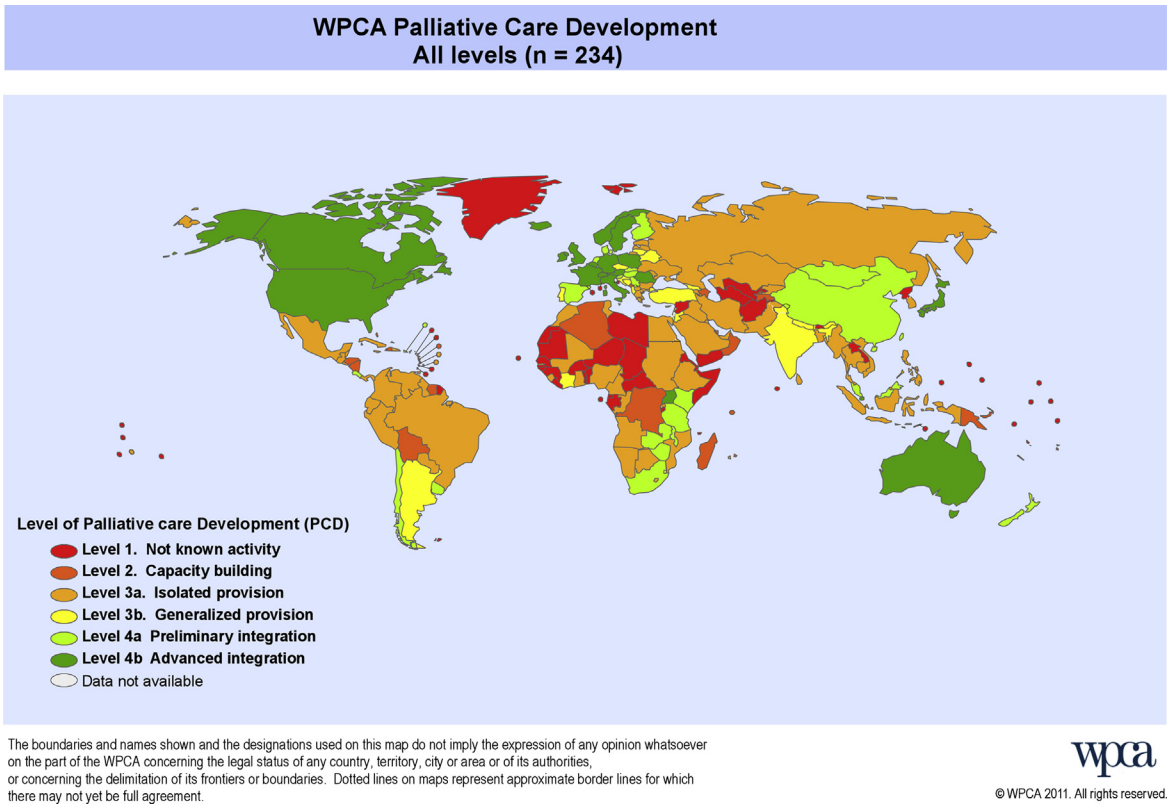


Fig. 2. WPCA Palliative Care Development All Levels ($n = 234$). The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the WPCA concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. WPCA = Worldwide Palliative Care Alliance.

currently exist, including the recent integration of palliative care into ten government hospitals. There are several medical institutions delivering educational courses on palliative care, and the discipline is gradually being integrated into the curricula of medical, nursing, pharmacy, and dental schools across the country (e.g., the Nursing Council of Kenya). In addition, the National Cancer Control Strategy contains explicit reference to palliative care. Some African countries with only a single palliative care service are beginning to develop education and training initiatives; for example, the organization "Pallia Familli," which provides home-based palliative care in Kinshasa, has organized several palliative care training and education initiatives in conjunction with the Congolese Federation for Palliative Care. Even countries such as Senegal that remain categorized as having "no known palliative care capacity," are reported as displaying "some aspects of capacity-building." The impact of

*Table 2*
**Human Development and Levels of Palliative Care Development, by Group**

| Group | Total Countries ($N$) | Very High, $n$ (%) | High, $n$ (%) | Medium, $n$ (%) | Low, $n$ (%) | No HDI, $n$ (%) |
|---|---|---|---|---|---|---|
| 1 | 75 | 2 (3) | 7 (9) | 13 (17) | 20 (27) | 33 (44) |
| 2 | 23 | 1 (4) | 7 (30) | 8 (35) | 4 (17) | 3 (13) |
| 3a | 74 | 8 (11) | 23 (31) | 20 (27) | 14 (19) | 9 (12) |
| 3b | 17 | 7 (41) | 5 (29) | 3 (18) | 2 (12) | 0 (0) |
| 4a | 25 | 12 (48) | 4 (16) | 3 (12) | 5 (20) | 1 (4) |
| 4b | 20 | 18 (90) | 1 (5) | 0 (0) | 1 (5) | 0 (0) |
| Total | 234 | 48 (100) | 47 (100) | 47 (100) | 46 (100) | 46 (100) |

HDI = Human Development Index.

*Table 3*
**Ratio of Palliative Care Services to Population**

| Group | Lowest | Services (*n*) | Ratio 1:000s | Highest | Services (*n*) | Ratio 1:000s |
|---|---|---|---|---|---|---|
| 3a | Niue | 1 | 1 | Pakistan | 2 | 90,404 |
| 3b | Lithuania | 65 | 51 | Turkey | 14 | 5344 |
| 4a | The Netherlands | 295 | 56 | China | 159 | 8511 |
| 4b | Austria | 247 | 34 | Uganda | 34 | 962 |

unpredictable and volatile political situations on the development of palliative care in the region is evident in countries such as Zimbabwe, which has moved erratically between different groups since the initial process of categorization commenced.

In the Asia Pacific and Oceania regions, Australia, Hong Kong, and Singapore have achieved advanced palliative care integration (Group 4b), although many other countries in the region offer either a limited number of palliative care services or no services at all (Table 9). It should also be noted that approximately one-fifth of the world's population is found in China, and one-sixth in India.

*Table 4*
**Indicative Ratio of Hospice-Palliative Care Services to Populations Within the Americas and the Caribbean**

| Country | Services (*n*) | Population | Ratio 1:000s |
|---|---|---|---|
| Bermuda | 2 | 68,679 | 34 |
| United States | 6568 | 314,659,000 | 48 |
| Cayman Islands | 1 | 51,384 | 51 |
| Canada | 500 | 33,573,000 | 67 |
| Costa Rica | 42 | 4,579,000 | 109 |
| Puerto Rico | 35 | 3,989,133 | 114 |
| Uruguay | 24 | 3,361,000 | 140 |
| St. Lucia | 1 | 172,000 | 172 |
| Barbados | 1 | 256,000 | 256 |
| Belize | 1 | 307,000 | 307 |
| Argentina | 90 | 40,276,000 | 448 |
| Guadeloupe | 1 | 452,772 | 453 |
| Guyana | 1 | 762,000 | 762 |
| Chile | 21 | 16,970,000 | 808 |
| Trinidad and Tobago | 1 | 1,339,000 | 1339 |
| Jamaica | 2 | 2,719,000 | 1359 |
| Guatemala | 5 | 14,027,000 | 2805 |
| Panama | 1 | 3,454,000 | 3454 |
| Cuba | 3 | 11,204,000 | 3734 |
| Ecuador | 3 | 13,625,000 | 4541 |
| El Salvador | 1 | 6,163,000 | 6163 |
| Paraguay | 1 | 6,349,000 | 6349 |
| Colombia | 7 | 45,660,000 | 6522 |
| Mexico | 14 | 109,610,000 | 7829 |
| Brazil | 22 | 193,734,000 | 8800 |
| Peru | 3 | 29,165,000 | 9722 |
| Dominican Republic | 1 | 10,090,000 | 10,090 |
| Venezuela | 1 | 28,583,000 | 28,583 |

In 2006, there was no known palliative care activity in 78 of the world's 234 countries (33%); by 2011, this figure had decreased by three countries (−1%) to 75. The number of countries that were demonstrating capacity-building potential in 2006 was 41 (18%); by 2011, this number had decreased by a total of 18 countries to 23 (−8%). Countries with localized hospice-palliative care provision in 2006 totaled 80 (34%); in 2011, the combined number of countries in Groups 3a and 3b totaled 91 (39%)—an increase of 11 countries (+5%). Finally, the division of Group 4 indicates that although 25 countries (10.7%) are now approaching integration with mainstream health service providers, only 20 countries (8.5%) have actually achieved this. In 2011, the total number of countries in Group 4 was 45 (19%), as opposed to 35 (15%) in 2006—an increase of 10 countries (+4%) (Tables 10–12).

*Table 5*
**Indicative Ratio of Hospice-Palliative Care Services to Populations in Western Europe**

| Country | Services (*n*) | Population | Ratio 1:000s |
|---|---|---|---|
| Gibraltar | 2 | 28,956 | 14 |
| Isle of Man | 4 | 84,655 | 21 |
| Guernsey | 2 | 65,068 | 33 |
| Austria | 247 | 8,364,000 | 34 |
| Iceland | 8 | 323,000 | 40 |
| Jersey | 2 | 94,161 | 47 |
| UK | 1295 | 61,565,000 | 48 |
| Germany | 1690 | 82,167,000 | 49 |
| Belgium | 210 | 10,647,000 | 51 |
| Norway | 88 | 4,812,000 | 55 |
| The Netherlands | 295 | 16,592,000 | 56 |
| Sweden | 140 | 9,249,000 | 66 |
| Ireland | 57 | 4,515,000 | 79 |
| Spain | 502 | 44,904,000 | 89 |
| Switzerland | 81 | 7,568,000 | 93 |
| Luxembourg | 5 | 486,000 | 97 |
| Denmark | 45 | 5,470,000 | 122 |
| France | 471 | 62,343,000 | 132 |
| Italy | 376 | 59,870,000 | 159 |
| Cyprus | 5 | 871,000 | 174 |
| Malta | 2 | 409,000 | 204 |
| Finland | 26 | 5,326,000 | 205 |
| Greece | 32 | 11,161,000 | 349 |
| Portugal | 20 | 10,707,000 | 535 |
| Turkey | 14 | 74,816,000 | 5,344 |

*Table 6*
**Indicative Ratio of Hospice-Palliative Care Services to Populations in Central and Eastern Europe/Commonwealth of Independent States**

| Country | Services (*n*) | Population | Ratio 1:000s |
|---|---|---|---|
| Lithuania | 65 | 3,287,000 | 51 |
| Poland | 432 | 38,074,000 | 88 |
| Hungary | 78 | 9,993,000 | 128 |
| Latvia | 16 | 2,249,000 | 141 |
| Bulgaria | 41 | 7,545,000 | 184 |
| Slovenia | 8 | 2,020,000 | 252 |
| Republic of Macedonia | 7 | 2,042,000 | 292 |
| Mongolia | 7 | 2,671,000 | 382 |
| Romania | 55 | 21,275,000 | 387 |
| Belarus | 21 | 9,634,000 | 459 |
| Czech Rep | 22 | 10,369,000 | 471 |
| Slovakia | 11 | 5,406,000 | 491 |
| Albania | 6 | 3,155,000 | 526 |
| Georgia | 7 | 4,260,000 | 608 |
| Moldova | 5 | 3,604,000 | 721 |
| Russia | 165 | 140,874,000 | 854 |
| Croatia | 5 | 4,416,000 | 883 |
| BosniaHerzegovina | 4 | 3,767,000 | 942 |
| Ukraine | 38 | 45,708,000 | 1202 |
| Estonia | 1 | 1,340,000 | 1340 |
| Kyrgyzstan | 3 | 5,482,000 | 1827 |
| Serbia | 5 | 9,850,000 | 1970 |
| Kazakhstan | 6 | 15,637,000 | 2606 |
| Armenia | 1 | 3,083,000 | 3083 |

## *Discussion*

Since 2008, there has been an increase in the number of countries of the world that have established one or more hospice-palliative care services (+9%), although only a slight increase has occurred in the total number of countries actively engaged in either delivering a hospice-palliative care service or developing the framework within which such a service can be delivered (+1%). Since 2006, a total of 21 countries (9%) have moved from Groups 1/2 (no known activity/capacity building) into Groups 3/4 (some form of palliative care provision). It should be acknowledged, however, that, within the context of these results, there are many instances in

*Table 7*
**Indicative Ratio of Hospice-Palliative Care Services to Populations in Western Asian Countries**

| Country | Services (*n*) | Population | Ratio 1:000s |
|---|---|---|---|
| Israel | 17 | 7,170,000 | 422 |
| Bahrain | 1 | 791,000 | 791 |
| Kuwait | 2 | 2,985,000 | 1492 |
| Jordan | 4 | 6,316,000 | 1579 |
| Lebanon | 2 | 4,224,000 | 2112 |
| UA Emirates | 2 | 4,599,000 | 2299 |
| Saudi Arabia | 3 | 25,721,000 | 8573 |
| Iraq | 1 | 30,747,000 | 30,747 |
| Iran | 1 | 74,196,000 | 74,196 |

*Table 8*
**Indicative Ratio of Hospice-Palliative Care Services to Populations in Africa**

| Country | Services (*n*) | Population | Ratio 1:000s |
|---|---|---|---|
| Swaziland | 5 | 1,185,000 | 237 |
| South Africa | 210 | 50,110,000 | 239 |
| Botswana | 4 | 1,950,000 | 490 |
| Namibia | 3 | 2,171,000 | 724 |
| Reunion Island | 1 | 800,000 | 800 |
| Cote d'Ivoire | 26 | 21,075,000 | 811 |
| Kenya | 44 | 39,802,000 | 905 |
| Uganda | 34 | 32,710,000 | 962 |
| Zimbabwe | 13 | 12,523,000 | 963 |
| Zambia | 13 | 12,935,000 | 995 |
| Malawi | 9 | 15,263,000 | 1696 |
| Gambia | 1 | 1,705,000 | 1705 |
| Lesotho | 1 | 2,067,000 | 2067 |
| Tanzania | 20 | 43,739,000 | 2187 |
| Congo | 1 | 3,683,000 | 3683 |
| Ghana | 5 | 23,837,000 | 4767 |
| Rwanda | 2 | 9,998,000 | 4999 |
| Tunisia | 2 | 10,272,000 | 5136 |
| Sierra Leone | 1 | 5,696,000 | 5696 |
| Cameroon | 3 | 19,522,000 | 6507 |
| Mali | 1 | 13,010,000 | 13,010 |
| Angola | 1 | 18,498,000 | 18,498 |
| Sudan | 2 | 42,272,000 | 21,136 |
| Nigeria | 7 | 154,729,000 | 22,104 |
| Mozambique | 1 | 22,894,000 | 22,894 |
| Egypt | 3 | 82,999,000 | 27,666 |
| Morocco | 1 | 31,993,000 | 31,993 |
| Ethiopia | 2 | 82,825,000 | 41,412 |

*Table 9*
**Indicative Ratio of Hospice-Palliative Care Services to Populations in the Asia Pacific and Oceania Regions**

| Country | Services (*n*) | Population | Ratio 1:000s |
|---|---|---|---|
| Niue | 1 | 1000 | 1 |
| Australia | 320 | 21,293,000 | 67 |
| New Zealand | 48 | 4,266,000 | 89 |
| Japan | 686 | 127,156,000 | 185 |
| Singapore | 23 | 4,737,000 | 206 |
| Korea (South) | 97 | 23,906,000 | 246 |
| Malaysia | 110 | 27,468,000 | 250 |
| Macau | 2 | 573,003 | 286 |
| Brunei | 1 | 400,000 | 400 |
| Hong Kong | 15 | 7,122,508 | 475 |
| Philippines | 108 | 91,983,000 | 852 |
| India | 284 | 1,198,003,000 | 4218 |
| Nepal | 6 | 29,331,000 | 4889 |
| Thailand | 13 | 67,764,000 | 5212 |
| Cambodia | 2 | 14,805,000 | 7402 |
| China | 159 | 1,353,311,000 | 8511 |
| Myanmar | 3 | 50,020,000 | 16,673 |
| Sri Lanka | 1 | 20,238,000 | 20,238 |
| Indonesia | 10 | 229,965,000 | 22,996 |
| Bangladesh | 7 | 162,221,000 | 23,174 |
| Vietnam | 3 | 88,069,000 | 29,356 |
| Pakistan | 2 | 180,808,000 | 90,404 |

*Table 10*
**Gross Changes in the Number of Countries in Each Category**

| Group | 2006 | 2011 | Change (*n*) | Change (%) |
|---|---|---|---|---|
| 1 | 78 (33%) | 75 (32%) | −3 | −1 |
| 2 | 41 (18%) | 23 (10%) | −18 | −8 |
| 3 | 80 (34%) | 91 (39%) | +11 | +5 |
| 4 | 35 (15%) | 45 (19%) | +10 | +4 |

which palliative care remains inaccessible to the majority of a country's population.

A regional analysis of palliative care development between 2006 and 2011 indicates that the most notable regions involved in the change from Groups 1/2 (no known activity/capacity building) to Group 3a (isolated provision) are Africa (+9 countries), the Middle East (+5 countries), and the Americas/Caribbean (+3 countries). In the Middle East, a good example of progress is provided by Lebanon, which moved from Group 2 to Group 3a. In Africa, much progress has been initiated by the APCA, ably supported by funders such as the Open Society Foundation IPCI, among others. Angola moved from Group 1 to Group 3a because the APCA conducted an exploratory study there and initiated some palliative care contacts that resulted in a service being established. Ghana also moved from Group 1 to Group 3a because a national palliative care association was formed and several palliative care services have since been established. Ethiopia, Namibia, Rwanda, and Sudan all moved from Group 2 to Group 3a because a palliative care infrastructure had been developed and isolated palliative care services were provided, albeit at a low level. Cote d'Ivoire moved from Group 2 to Group 3b for the same reason, although the progress has been reported as "slightly greater" than in other countries of the region.

Progress from Group 3 to Group 4a again showed Africa as the most prominent region (+4 countries). Malawi, Tanzania, Zambia, and Zimbabwe changed category because of the work done by the APCA and other partners to develop and scale up palliative care in those countries; the APCA suggests that these countries have made "tremendous progress" in recent years and envisage them being recategorized to Group 4b (advanced integration) in the near future. Other African countries believed to be close to moving from Group 3 to Group 4 include Botswana, Cameroon, Morocco, and Nigeria. However, the impact of funding withdrawal by The Diana, Princess of Wales Memorial Fund from Africa in 2012 on the continued development of palliative care in the region is as yet unknown.

Progress is also reported in a number of CEE/CIS countries after prolonged support from international funders such as IPCI; for example, two countries moved from Group 3 to Group 4a. Slovakia was recategorized because several hospice beds are now available in hospitals and teaching hospitals, palliative care was being implemented in postgraduate education for physicians and undergraduate education for nurses, there was good availability of morphine, and a National Association of Palliative Care has been established. Serbia was recategorized as a result of the impact of its three-year National Strategy for Palliative Care Development, which would substantially increase the number of hospital/home-based palliative care teams and palliative care units

*Table 11*
**Changes in Palliative Care Direction by Country 2006−2011**

| Group | Country (+/−) |
|---|---|
| 1 | Uzbekistan (− from category 2) |
| 2 | Montenegro (+ from category 1)/Aland Islands (− from category 3) Azerbaijan (− from category 3) Honduras (− from category 3) |
| 3a | Angola (+ from category 1) Bahrain (+ from category 2) Belize (+ from category 2) Brunei (+ from category 2) Ethiopia (+ from category 2) Ghana (+ from category 2) Iran (+ from category 2) Kuwait (+ from category 2) Lebanon (+ from category 2) Lesotho (+ from category 2) Mali (+ from category 1) Mozambique (+ from category 2) Namibia (+ from category 2) Niue (+ from category 1) Paraguay (+ from category 2) Rwanda (+ from category 2) Saint Lucia (+ from category 2) Sudan (+ from category 2) |
| 3b | Cote D'ivoire (+ from category 2), Turkey (+ from category 2), Argentina (− from category 4) |
| 4a | China (+ from category 3) Luxembourg (+ from category 3) Macau (+ from category 3) Malawi (+ from category 3) Puerto Rico (+ from category 2) Serbia (+ from category 3) Slovakia (+ from category 3) Tanzania (+ from category 3) Uruguay (+ from category 3) Zambia (+ from category 3) Zimbabwe (+ from category 3) |
| 4b | |

*Table 12*
**Changes in Palliative Care Direction by Region 2006–2011**

| Group | Region (+/−) |
|---|---|
| 1 | 1 − CEE/CIS (− from group 2) |
| 2 | 1 − CEE/CIS (+ from group 1)/1 − Europe (− from group 3)<br>1 − CEE/CIS (− from group 3) 1 − Americas/Caribbean (− from group 3) |
| 3a | 2 − Africa (+ from group 1) 7 − Africa (+ from group 2) 5 − Middle East (+ from group 2) 1 − Asia Pacific/Oceania (+ from group 1) 3 − Americas/Caribbean (+ from group 2) |
| 3b | 1 − Africa (+ from group 2) 1 − Europe (+ from group 2)/1 − Americas/Caribbean (− from group 4) |
| 4a | 2 − Asia Pacific/Oceania (+ from group 3) 1 − Europe (+ from group 3) 4 − Africa (+ from group 3) 1 − Americas/Caribbean (+ from group 2) 1 − Americas/Caribbean (+ from group 3) 2 − CEE/CIS (+ from group 3) |
| 4b | |

throughout the country, provide education and training initiatives for both health professionals and the families of patients, improve the availability of oral morphine and other forms of opioids, and ultimately result in the integration of palliative care into the Serbian health care system.

In Western Europe, the respondent from Luxembourg recategorized the country from Group 3 to Group 4a because of an increase in the number of hospice and palliative care units and the substantial development of palliative care education and training initiatives in the country; progress also has resulted from the introduction of a new law in 2009 regarding palliative care.

In the Americas/Caribbean, Uruguay was recategorized from Group 3 to Group 4a for several reasons: the number of hospice/palliative care services had increased, palliative care is now recognized in the National Health Program, a Diploma in Palliative Care had been introduced into the State University along with undergraduate palliative care programs in other universities, the national association was "developing rapidly," and the availability of opioids was described as "good." In contrast, although Argentina had made "major advances in palliative care over the last 20 years," there was still only localized hospice-palliative care provision; "great disparity" still existed in the palliative care that was provided, according to geography and differing levels of complexity; and areas still existed where palliative care was inaccessible. As a result, Argentina was recategorized from Group 4 to Group 3b.

### *Limitations*

This study has certain limitations. As with the 2006 study, despite our best efforts in attempting to ascertain the status of palliative care development, there remained an absence of data for some countries. Also, the way in which services are counted proved problematic. Two systems operate in tandem. Services in five of the six continents tend to be counted by provider, irrespective of the number of services. In Europe, they are usually counted by type (e.g., home care, day care, inpatient units, or hospital teams). Although this allows a degree of comparability for services in the countries of Europe as well as within and across the other five continents, it also inhibits any comparable worldwide analysis. In addition, listing services by provider is by no means foolproof and could be a source of bias, as a country with few but large-scale provider organizations would show a lower ratio of services per capita compared with a country having several small providers. Differences in the way in which services are counted may be an artifact of the ways in which relevant studies have worked and the procedures of the "counting" organizations. We attempted to address these issues by listing the number of providers and services in the same category of data under the heading "services/providers," and attempting to glean clarification from key persons and local palliative care experts.

A major problem was that of standardization and definition in how services are characterized. Terms such as "hospice," "inpatient unit," or "mobile team" do not have a universal currency, and globally, there were difficulties in comparing "like with like." We also note the diversity of provision and the different "histories" of palliative care in specific jurisdictions and acknowledge the absence of agreed upon standards and quality measures globally. In addition, most data regarding palliative care development originate from

palliative care activists in each respective country, and this is acknowledged as a potential source of bias or inaccuracy.

Respondents were selected from data provided by a variety of sources, for example, the 2006 study, the EAPC Task Force for the Development of Palliative Care in Europe, IOELC reviews and databases, and information from work that we had undertaken on other related projects. Respondents in 2011 were asked to grade the level of palliative care development in their respective country. A limitation was that respondents often experienced difficulty in choosing between the divided Groups 3a or 3b and 4a or 4b. Some respondents suggested that their country "did not fit into any category," that their country was "somewhere on the border" between two categories, or that "strengths and limitations" existed within each subcategory. This situation was reflected in several countries in the CEE/CIS, where national palliative care associations had been formed but because of financial problems and political changes that resulted in inconsistent public health policy, the progress of palliative care remained "very slow." Respondents from the Americas/Caribbean also experienced some difficulty in determining between the newly divided categories, for example, the respondent from Panama stressed that her country was "not 3a at all, but cannot be categorized as 3b either." In the Asia Pacific and Oceania region, the respondent from Nepal experienced some difficulty in choosing between Groups 3a and 3b, whereas the respondent from Australia found differentiating between Groups 4a and 4b somewhat problematic. Several Western European countries (e.g., Austria, Denmark, The Netherlands, and Spain) also had difficulty in categorizing themselves in either Group 4a or Group 4b, suggesting that they often "scored differently for the different items" and, therefore, were "somewhere in between." In the African region, the respondent from South Africa proposed another subcategory within Group 4 to further refine the typology.

## Conclusion

We have demonstrated that it is possible to map and measure levels of palliative care development, country by country, throughout the world. Our purpose is to facilitate cross-national comparative analysis and stimulate advocacy, policy making, and service development. To provide a more refined view of existing levels of palliative care development, the mapping exercise from 2006 was updated, new data were collected, and the typology was amended. The strong association between the categorization of palliative care development and human development provides an indication that the typology has an element of validity and reliability. Limitations to the study included the absence of data for some countries, problems in the counting and categorization of services, self-reporting by key persons who may have been subject to bias or inaccuracy, and respondents' difficulty in choosing between the newly divided categories.

In 2011, 136 of the world's 234 countries (58%) had one or more hospice-palliative care services established, an increase of 21 countries (+9%) from 2006. A regional analysis of palliative care development between 2006 and 2011 indicates that the most significant gains have been made in Africa. Although there are indications of interest in palliative care on the part of national governments and policy makers, advanced integration of palliative care with wider health services has been achieved in only 20 countries globally (8.5%). Despite increasing calls for palliative care to be recognized as a human right, there remains much to be done before palliative care is accessible equitably and globally.

## Disclosures and Acknowledgments

This study was commissioned by the Worldwide Palliative Care Alliance and was undertaken independently in consultation with the funding body. There are no potential conflicts of interest in the research reported or the development of the submission.

During the course of this study, advice was sought from a number of organizations and individuals involved in palliative care worldwide. The authors are greatly indebted to all who contributed and provided valuable advice, information, and assistance. Special acknowledgment is given to the International Observatory on End of Life Care for continued support and assistance throughout the duration of this project.

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