Quality Indicators to Assure and Improve Cancer Care in Spain Using the Delphi Technique

Carlos Camps, MD; Joan Albanell, MD; Antonio Antón, MD; Enrique Aranda, MD; Alfredo Carrato, MD, PhD; Javier Cassinello, MD; Daniel Castellano, MD; Juan J. Cruz, MD; Pilar Garrido, MD; Vicente Guillem, MD; Cristina Grávalos, MD; Guillermo López, MD; César Llorente, MD; Antonio Lorenzo, MD; Ana Lluch, MD; Emilio Ignacio, PhD; and Eduardo Díaz-Rubio, MD

Abstract

Background: The quality of cancer care has become a priority for health care systems. The goal of this research was to develop a set of evidence-based quality indicators (QIs) for organization, palliative care, and colorectal, breast, and lung cancers for introducing a system of benchmarking in Spain. Methods: A comprehensive evidence-based literature search was performed to identify potential QIs. An expert panel (the healthcare quality promotion group) of 9 oncologists identified indicators and evaluated them. A Delphi process involving 58 physicians was used to rank QIs by clinical relevance (validity). The expert panel then evaluated the selected indicators in terms of their feasibility of measuring them in Spanish hospitals, their usefulness for comparisons, their degree of clinical relevance, and their sensitivity to the impact of health care improvements. Results: From the literature review, 99 potential QIs were identified. The Delphi process shortened the list to 72 QIs. A final set of 57 QIs was established by the health care quality promotion group: 12 related to organizational issues, 11 to colorectal cancer, 11 to breast cancer, 12 to lung cancer, and 11 to palliative care. This final set included structure (n=2), process (n=36), and outcome (n=19) indicators. Conclusions: A set of QIs has been developed using a validated Delphi method, meaning that we can be confident of their validity, feasibility, sensitivity, and acceptability. These QIs are to serve as the basis of a strategy for benchmarking across oncology services in Spanish hospitals and should enable us to assure and improve the quality of cancer care.


Background

In 2012, 102,762 people died of cancer in Spain (three-quarters of whom were >65 years of age), and this corresponds to an age-standardized rate of 98.1 cases per 100,000 inhabitants per year. The most prevalent type of cancer in men is prostate cancer, followed by lung and colorectal cancers, and in women it is breast cancer, followed by colorectal, cervical, and lung cancers. Based on population growth and aging, an estimated 227,076 new cancer cases and 108,390 deaths from the disease will have occurred in 2015.

In the past 15 years, important technological advances have occurred in diagnostic and therapeutic capacity. Clinical practice guidelines have been established for the most
improving the quality of care provided to patients with cancer is a priority for health care systems, although initiatives in this area are relatively recent in European countries.4,5

Health care is ever more complex and clinical decisions are made in the context of uncertainty about the merits of different diagnostic and therapeutic options. This uncertainty leads to unnecessary variability among different health care providers,6–9 and makes it difficult to deliver the quality of care patients expect to receive.

In many areas, continuous improvement through the establishment of standards and the introduction of benchmarking systems is helping to ensure the provision of a high quality of care.10–13 With this same goal, the Foundation for Excellence and Quality in Oncology (Fundación ECO) undertook this study to identify quality indicators (QIs) for the provision of care to patients with cancer based on agreed-upon quality criteria that would make it possible to create measures of quality that are comparable between different services and providers within the public health system in Spain.

Methods
The study was based on a systematic review of the scientific literature and qualitative techniques for reaching a consensus (discussion groups and a Delphi process). It was conducted between April and July 2013 with the involvement of a health care quality promotion (HQP) group, composed of 9 oncologists (2 were the scientific directors), and an additional 39 oncologists from 32 hospitals in the Spanish public health system (Figure 1). We decided to define QIs (grouped under criteria), set standards, and establish levels of evidence for each of the following aspects of care: organization of care for patients with cancer in general; diagnosis and treatment of colorectal, breast, and lung cancers; and palliative care.

In this study, we defined an indicator as a way of measuring or evaluating (usually quantitatively) a criterion; a criterion as a condition that clinical practice should meet to be considered high quality; and a standard as the degree of adherence to a given quality criterion.

Systematic Review
Manual and computerized searches of the literature were conducted using the following electronic databases and meta-search engines: PubMed (MEDLINE and other databases), Trip Database, SUMSearch, and Index Medicus. The following Medical Subject Heading (MeSH) terms were used: “cancer,” “chemotherapy,” “indicators,” “quality of health care,” “colorectal cancer,” “breast cancer,” and “lung cancer.” The search was confined to peer-reviewed research articles that addressed key aspects of care and reported standards and indicators related to the organisation of the aforementioned types of care; systematic reviews; meta-analyses; and guidelines published in English or Spanish between 2009 and 2014. References from retrieved articles and guidelines were searched to identify additional studies. The following organizations were also considered accurate sources of information: ESMO, Spanish Society of Medical Oncology (SEOM), Scottish Intercollegiate Guidelines Network (SIGN), National Institute for Health and Care Excellence (NICE), NCCN, GuíaSalud project, ASCO’s Quality Oncology Practice Initiative (QOPI), Cancer Quality Council of Ontario, and Scottish Cancer Taskforce. The inclusion criteria were that papers should be systematic reviews, meta-analysis of clinical trials, guidelines, or original studies on quality assurance in colorectal, breast, and lung cancers.

The studies were reviewed by 3 independent professionals to determine whether they met the inclusion criteria based on the titles, abstracts, or full articles. The final decision was made jointly by the reviewers considering the level of evidence of the original papers, consisting mainly systematic reviews and meta-analyses of clinical trials. This review enabled us to produce a first list of potential QIs and these were ordered according to the classification system defined by SIGN.

Expert Group Discussion
For each type of cancer considered, a list of potential indicators was selected and assigned a strength of recommendation by critical reading of the literature analyzing the quality of the evidence to justify their inclusion, the existence of reference standards in the literature related to them, the reliability of the information sources used to establish the indicator, and their suitability to the context of the Spanish National Health System. A consensus was reached on this list of indicators in a joint meeting of the reviewers with the HQP group.
Delphi Method Study
This initial list of indicators was agreed upon by the HQP group and then evaluated by oncologists from hospitals across Spain, seeking their opinions and clinical experience. This evaluation was performed using the Delphi method (with online surveys). The initial list of indicators was used for the first-round questionnaire. The purpose of this phase of the research was also to spread awareness of this initiative among professionals and encourage their commitment to the defined QIs. We invited a total of 58 oncologists with a sound professional reputation working in the public health service hospitals to participate.

Participants were asked to rate their degree of agreement with each of the criteria using a 9-point Likert-type scale (<3 = “disagree”; 4-6 = “neither agree nor disagree”; and 7-9 = “agree”) and also to select and rank a set of health care QIs that they felt were the most clinically relevant for each of the 5 aspects of care under consideration: general organization; colorectal, breast, and lung cancer diagnosis and treatment; and palliative care.

A second round of the method was completed. Between the rounds, participants received a report of the intermediate results obtained by the panel in the form of a graph with the response rate, together with the anonymous comments of members of the panel during the first round, providing them the opportunity to compare their opinion with that of the other panelists. Consensus was considered to be reached among participants when less than a third of their scores were outside the 3-point range around the median score. Indicators were considered not clinically relevant when they obtained a median score of 3 or less, and clinically relevant for scores of 7 or greater, with the results for the remaining indicators being considered inconclusive. The indicators given the highest ratings were selected for the next phase of the study, whereas all of the inconclusive indicators were presented again, in the second round, to be reconsidered. The results were shared with the participants and discussed in a teleconference session with the HPQ group.

Definition of Criteria, Indicators, and Standards
To select the most relevant indicators for each aspect of health care considered, the indicators that had obtained the highest ratings in the Delphi process were rated by the HQP group members (on a scale of 1–9) in terms of reliability (existing data sources to measure the indicator should be trustable and have minimal bias); validity (the indicator should really measure what was intended to be measured and not...
other phenomena); accessibility (it should be possible to access indicator data); opportunity (indicator data should be available and up-to-date at the time required); practicality (monitoring should be simple, and, if possible, automated); sensitivity (the indicator must be able to detect significant changes in the degree of suitability of the health care provided); and reach (the indicator reflects as many factors with an impact on the reference standard as possible).

The indicators selected by the HQP group were grouped by similarity to corresponding quality criteria. For each of the indicators prioritized by the HQP group (in the aforementioned assessment), we completed a chart with the following fields: name of the criterion, definition, formula for its calculation, justification, exceptions or clarifications, type of indicator (structure, process, or outcome), sources of information, target or acceptable level (standard), and a list of references in the scientific literature that provide data supporting the reference standard. These charts were reviewed and validated by 2 professionals with experience in quality assurance and specifically in the design of QIs for the implementation of benchmarking strategies.

Results

The HQP group selected 37 papers, 44 guidelines, and 18 reports of agencies, associations, and health care organizations. A total of 101 health care QIs were identified; 18 related to organizational issues, 22 to colorectal cancer, 33 to breast cancer, 14 to lung cancer, and 14 to palliative care. Two were discarded after they were considered to be similar to others when carefully examining their definitions. Hence, the questionnaire for the first round of the Delphi process presented a total of 99 candidate indicators.

In the Delphi process, 39 professionals responded in the first round and 31 in the second (participation rates of 67.24% and 53.44%, respectively). In the first round, there was consensus on 82 indicators and none were considered to be of insufficient clinical relevance, with results being inconclusive for the other 17 indicators. Of these, 7 were classified as clinically relevant in the second round.

The ratings of the HQP group members led to the prioritizing of 12 indicators concerning organizational issues, 11 palliative care, 11 breast cancer, 11 colorectal cancer, and 12 lung cancer. These indicators were grouped under 35 quality criteria (see supplemental eTable 1, available with this article at JNCCN.org). In terms of type, 2 can be considered structure indicators, whereas 36 relate to processes and 19 to outcomes. In terms of type, 2 can be considered structure indicators, whereas 36 relate to processes and 19 to outcomes.

Supplemental eTable 2 shows 3 examples of the charts describing indicators (including the formulae for calculating them), corresponding criteria and standards, as well as the supporting evidence, how regularly the data are updated, and other relevant information.

Discussion

Based on a literature review, expert group consensus, and the Delphi method, we have identified a set of indicators to assess the quality of the treatment provided to patients with cancer. This proposal of indicators is envisioned to foster the development of an environment to assure and improve the quality of care provided to these patients in Spain. In this way, Spanish hospitals join the movement to develop quality improvement strategies for patients with cancer that is underway in other countries.

Our proposal is based on the idea that health care providers would participate voluntarily. In relation to this, we have considered that the indicators should be based on existing sources of data, acceptable to doctors, sufficiently sensitive to detect changes on the introduction of clinical practice guidelines, and clinically relevant. The source of information is available on medical records. Calculating these QIs requires the development of information systems to easily and reliably extract the information required. In the meantime, a data review of a representative sample of total treated cases in the medical records may be necessary. The set of indicators has been obtained in a transparent way to promote its acceptance by clinicians and hospitals. Specifically, we have been guided by recommendations on the development of reference models and experiences reported in similar studies.

Approximately 12 indicators have been selected for each aspect of care considered. Our proposal is similar in terms of the number of indicators to that of the Swedish Register of Palliative Care, and is similar in terms of approach and types of indicators.
Cancer Quality Indicators in Spain

Our study is also based on this research by the ECO Foundation though conceived to be used in a benchmarking system, our set of indicators could also be used to evaluate oncology services, as suggested in other studies, or as the starting point for developing a quality certification system.

Indeed, QIs are used for clinical management and for planning and management of health care. The information provided is used to assure and improve the quality of care by clinicians, managers, and policy-makers, at various different levels. Reaching a consensus among professionals on information gathered from a thorough search of the scientific literature is a good way to identify indicators that are both able to describe the quality of clinical interventions and sufficiently sensitive to detect changes in clinical practice.

Approaches based on the Delphi method have been widely used to reach consensus on oncology indicators. Our study is also based on this methodology, and has involved an expert panel that has led the study and selected QIs that were both clinically relevant and applicable to clinical practice to ensure that the proposal would be acceptable to most clinicians from the outset.

The objectives of this study are comparable to those of the Quality Oncology Practice Initiative and other strategies being implemented in Europe. In this case, we considered the types of cancer that are most prevalent and responsible for the highest mortality in Spain, and focused on the practical goal of assuring and improving the quality of care for patients with cancer in our country.

The development of indicators in oncology is complex for several reasons. First, the effectiveness of the interventions cannot be seen in the short term. Second, the concept of quality requires the use of several indicators to explore different dimensions. Third, technological changes and the emergence of new treatments are ongoing and rapid. Fourth, the interdisciplinary nature of clinical interventions makes their assessment more difficult. Fifth, elderly people are rarely included in randomized clinical trials. This issue represents a limitation when assessing clinical practice, and underlines why the use of outcome measures based on quality indicators is essential.

**Limitations**

The level of evidence available on the QIs identified in the scientific literature is variable, as noted in other studies. We used the concept of an expert panel to minimize the effect of this potential limitation. In addition to their clinical relevance, we considered the feasibility of calculating the indicators and their acceptability, and therefore certain valid indicators may have been excluded from our list. This proposal has been designed to be applied from the outset by oncology services, and in the future, additional indicators could be added or used to replace one on the current list in response to technical and therapeutic advances. A considerable proportion of the indicators proposed are related to hospital settings, this being attributable to the fact that most of the clinical activity for the types of cancer considered occurs at this level of care. However, future reviews of the set of indicators should pay more attention to ambulatory care processes for these types of patients. Our proposed list does not include QIs related to patient-reported outcome measures. As these are developed and valid instruments become available, these types of indicators should be incorporated.

**Conclusions**

There is no doubt that increasing interest is being shown in the quality of cancer care among clinicians, managers, patients, policy-makers, and society in general. This research by the ECO Foundation is pioneering in Spain and aims to respond to this concern about assuring and improving the quality of care in oncology. It seeks to promote an environment in which patients will receive high-quality evidence-based care in hospitals across the health system.

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References


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