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RESEARCH ARTICLE

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Development of a set of process and structure indicators for palliative care: the Europall project

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Abstract

Background: By measuring the quality of the organisation of palliative care with process and structure quality indicators (QIs), patients, caregivers and policy makers are able to monitor to what extent recommendations are met, like those of the council of the WHO on palliative care and guidelines. This will support the implementation of public programmes, and will enable comparisons between organisations or countries.

Methods: As no European set of indicators for the organisation of palliative care existed, such a set of QIs was developed. An update of a previous systematic review was made and extended with more databases and grey literature. In two project meetings with practitioners and experts in palliative care the development process of a QI set was finalised and the QIs were categorized in a framework, covering the recommendations of the Council of Europe.

Results: The searches resulted in 151 structure and process indicators, which were discussed in steering group meetings. Of those QIs, 110 were eligible for the final framework.

Conclusions: We developed the first set of QIs for the organisation of palliative care. This article is the first step in a multi step project to identify, validate and pilot QIs.

Keywords: Quality indicator, Organisation, Europe, Public health, Palliative care, Europall

Background

Following the 2002 definition of the World Health Organisation (WHO), palliative care is no longer restricted to patients with cancer; it should be available for all patients with life-threatening diseases [1]. Furthermore, palliative care is applicable early in the course of the disease and can be delivered in conjunction with interventions that aim to prolong life. Palliative care needs a team approach in order to relieve not only pain and other somatic symptoms but also to provide multi-dimensional care including psychosocial and spiritual care and support for patients and their proxies. This wider definition implies an increase of the number of patients eligible for palliative care. Due to successful medical interventions, the aging population and improved survival of patients with chronic diseases or with cancer, the demand for palliative care will increase too [2,3].

In 2003, the Council of Europe launched recommendations for the organisation of palliative care regarding settings and services, policy and organisation, quality improvement and research, education and training, family, communication with the patient and family, teams and bereavement. This included further cooperation between European countries [4]. As most scientific studies focus on clinical outcomes, it is unclear whether these recommendations and the WHO definition have been implemented in the organisation of palliative care in Europe. By measuring the quality of the organisation of palliative care, patients, caregivers and policy makers can monitor whether in their country, specific settings and networks for palliative care meet the recommendations of the council of Europe and of the WHO. This information would give better insight, which is needed for the measurement of the impact of palliative care programs [5].

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A valid and reliable method for assessing the quality of the organisation of care is the use of structure and process quality indicators (QIs). QIs are ‘explicitly defined and measurable items referring to the outcomes, processes or structure of care’ [6,7]. In a systematic review published in 2009, clinical indicators appeared to be widely overrepresented over indicators that assess organisational issues of palliative care, and most QIs were developed in and for one specific country or setting [8]. Therefore, we aimed to develop a scientifically sound European set of structure and process QIs, as a first step in quality measurement and improvement.

Methods
The study, undertaken by partners from seven collaborating countries (Belgium, United Kingdom, France, Germany, Netherlands, Poland and Spain), ran from October 2007 till September 2010 [9]. It was co-funded by the European Executive Agency for Health and Consumers (EAHC).

QI sets can be based on existing sets of QIs, recommendations from clinical guidelines, scientific literature, best practice or expert consensus [6]. We used a combination of these.

As palliative care, being a relatively young field within health care is changing rapidly. The initial phase of this project was an update and extension of a previous review aiming to find already existing QIs in literature or aspects of the organisation of the palliative care for which QIs would be useful [8]. QIs were operationalized as ‘measurable items referring to the outcomes, processes or structure of care’ [6,7]. Organisation of palliative care was defined as ‘systems to enable the delivery of good quality in palliative care’, which made us focus on processes and structures [7]. Besides publications that describe the development or use of QIs for the organisation of palliative care, publications were used that describe the structure or process of good palliative care, in order to develop QIs if not available yet.

Main database search
As an update and extension of an existing systematic review, the following bibliographic databases were searched: Medline, Scopus, PsycINFO, Social Medicine, CINAHL, the Cochrane Database, Embase, SIGLE, ASCO, and Google Scholar by an existing search strategy (Additional file 1: Appendix A) [8]. If applicable, Mesh terms were changed, as these are database-specific.

Inclusion criteria were a publication period from December 2007 to May 2009, as the systematic review ran until December 2007 and containing information about the development or use of (sets of) QIs.

Papers describing QIs about palliative care for children, clinical outcome indicators, patient outcome and on treatment were excluded, as well as scientific papers that were not written in English.

The initial selection process was based on independent screening by three researchers of title and/or abstract, followed by a selection based on full text. Additionally, reference lists of obtained papers were studied and hand searches were performed (Current Opinion in Supportive and Palliative Care, Journal of Pain and Symptom Management, Palliative Medicine and Quality and Safety in Health Care Journal).

The QIs derived from the search were categorized in a framework. It was based on (1) a previously developed framework for evaluation of the organisation of general practice and adapted for palliative care and (2) the recommendations of the Council of Europe [4,10]. It contains the domains 1. Definition of a palliative care service, 2. Access to palliative care, 3. Infrastructure, 4. Assessment tools, 5. Personnel, 6. Documentation of clinical data, 7. Quality and safety issues, 8. Reporting clinical activity of palliative care, 9. Research and 10. Education.

Grey literature search
If a domain or subdomain of the framework was not covered with QIs found in the literature search, an additional grey literature search was performed. Grey literature was defined as ‘literature which has not been formally published in peer-reviewed literature’ [11]. Inclusion of grey literature was restricted to reports from government agencies or scientific research groups, white papers and websites from national organisations of the seven participating countries. Finally, the network of the Europall research group was used to identify relevant papers.

Methods of screening and article selection
The steering group of the Europall project planned two meetings in September and October 2009 with all project members (Additional file 1: Appendix B).

QI selection
The draft set of structure and process QIs was discussed during the first steering group meeting in September 2009. Academic experts from several disciplines in palliative care, all from one of the seven participating European countries were invited. Consensus was based on 1. whether it considered a process or structure QI 2. whether it overlapped with other proposed QIs, 3. to which domain of the framework (Table 1) it belonged [10] and 4. for which settings it was applicable. Based on the grey literature search, the project partners could suggest new QIs about aspects that were relevant but not yet operationalised as QIs.
| Table 1 Quality indicator set | Definition of a palliative care service |
|-----------------------------|----------------------------------------|
| 1 | All the services below are part of a comprehensive palliative care service: Palliative day care, Palliative home care support team, Hospice beds, Palliative hospital support team, Inpatient palliative care hospital beds, Palliative care outpatient clinic, Bereavement support |
| 2 | All the services below are part of a comprehensive palliative care service: Palliative day care |
| 3 | All the services below are part of a comprehensive palliative care service: Palliative home care support team |
| 4 | All the services below are part of a comprehensive palliative care service: Hospice beds |
| 5 | All the services below are part of a comprehensive palliative care service: Palliative hospital support team |
| 6 | All the services below are part of a comprehensive palliative care service: Inpatient palliative care hospital beds (e.g. palliative care unit) |
| 7 | All the services below are part of a comprehensive palliative care service: Palliative care outpatient clinic |
| 8 | All the services below are part of a comprehensive palliative care service: Bereavement support |
| 9 | A palliative care team is available at the request of the treating professional/team in all of the following settings: Day care, at home, Hospital, Hospice, Nursing home, Outpatient clinic, Day care |
| 10 | A palliative care team is available at the request of the treating professional/team in all of the following settings: Day care (excluding palliative day care) |
| 11 | A palliative care team is available at the request of the treating professional/team in all of the following settings: At home (or home replacing institution such as mental institution, prison) |
| 12 | A palliative care team is available at the request of the treating professional/team in all of the following settings: Hospital |
| 13 | A palliative care team is available at the request of the treating professional/team in all of the following settings: Hospice |
| 14 | A palliative care team is available at the request of the treating professional/team in all of the following settings: Care home |
| 15 | A palliative care team is available at the request of the treating professional/team in all of the following settings: Outpatient clinic (excluding palliative care outpatient clinic) |
| 16 | For every professional/team specialised palliative care advice is available 24 hours a day, 7 days a week |
| 17 | Patients in need of palliative care and their families have access to palliative care facilities: Throughout the entire duration of their disease |
| 18 | Patients in need of palliative care and their families have access to palliative care facilities: With no extra financial consequences for the patient |
| 19 | Patients receiving palliative care have access to diagnostic investigations (e.g. X-rays, blood samples) regardless of their setting |
| 20 | Palliative care is available for the patient and their family by phone |
| 21 | Palliative care is available for the patient and their family by visiting the patient |
| 22 | Palliative care is available for the patient and their family by: Bringing the patient to the service |
| 23 | For a palliative patient in a crisis, the following can be arranged within 24 hours: Admission |
| 24 | For a palliative patient in a crisis, the following can be arranged within 24 hours: An urgent discharge to patients home |
Table 1 Quality indicator set (Continued)

| Indicator Number | Description                                                                 | Process Indicator | Primary Care Indicator | Change Type |
|------------------|------------------------------------------------------------------------------|-------------------|------------------------|-------------|
| 25               | For a palliative patient in a crisis, the following can be arranged within 24 hours: Transfer to another setting of care |                   |                        |             |
| B. Out of hours (All settings) |                               |                   |                        |             |
| 26               | A member of a palliative care team is available 24 hours a day, 7 days a week: For palliative care consultation by phone | Process indicator | All settings           | Changed     |
| 27               | A member of a palliative care team is available 24 hours a day, 7 days a week: To provide bedside care in a crisis | Process indicator | All settings           | Changed     |
| Drugs            |                                                                               |                   |                        |             |
| 28               | The following treatments are available for a palliative patient 24 hours a day, 7 days a week: Opioids and other controlled drugs | Structure indicator | Primary care indicator | Combined/ Changed |
| 29               | The following treatments are available for a palliative patient 24 hours a day, 7 days a week: Anticipatory medication for the dying patient | Structure indicator | Primary care indicator | Combined/ Changed |
| 30               | The following treatments are available for a palliative patient 24 hours a day, 7 days a week: Syringe drivers | Structure indicator | Primary care indicator | Combined/ Changed |
| C. Continuity of care (All settings) |                                           |                   |                        |             |
| 31               | There is a procedure for exchange of clinical information across caregivers, disciplines and settings | Process indicator | All settings           | Changed     |
| 32               | Before discharge/transfer/admission there is information transfer to the caregivers in the next setting regarding care and treatment | Process indicator | All settings           | Changed     |
| 33               | There is a professional caregiver per individual palliative patient nominated as responsible ‘key worker’ who coordinates care | Process indicator | All settings           | Combined/ Changed |
| 34               | The responsible ‘key worker’ pays special attention to continuity of care within and across settings | Process indicator | All settings           | Combined/ Changed |
| Inpatient setting (Hospital, Palliative care unit, Hospice) |                                           |                   |                        |             |
| 35               | General practitioners (GP’s) are routinely called when a patient is being discharged home or transferred to another setting | Process indicator | Inpatient setting indicator | Changed |
| 36               | The discharge/transfer letter of palliative care patients contains a multidimensional diagnosis, prognosis and treatment plan (see indicator 48 Clinical record ) | Structure indicator | Inpatient setting indicator | Changed |
| Primary care     |                                                                               |                   |                        |             |
| 37               | The primary care out-of-hours service has handover forms (written or -electronic) with clinical information of all palliative care patients in the terminal phase at home | Structure indicator | Primary care indicator | Changed     |
| Infrastructure   |                                                                               |                   |                        |             |
| 38               | Specialist equipment (e.g. anti decubitus mattresses, aspiration material, stoma care, oxygen delivery, special drug administration pumps, hospital beds, etc.) is available for the nursing care of palliative care patients in each specific setting | Structure indicator | All settings           | Changed     |
| 39               | There is a dedicated room where multidisciplinary team meetings within one setting takes place | Structure indicator | All settings           | New developed |
| 40               | There are dedicated facilities for multidisciplinary communications across settings: A dedicated room for meetings | Structure indicator | All settings           | Changed     |
| 41               | There are dedicated facilities for multidisciplinary communications across settings: Facilities for video or telephone conferences | Structure indicator | All settings           | Changed     |
| Information about care |                                           |                   |                        |             |
| 42               | There is an up to date directory of local caregivers and organisations that can have a role in palliative care | Structure indicator | All settings           | New developed |
| 43               | There are dedicated information about the palliative care service: A website | Structure indicator | All settings           | Changed     |
| 44               | There are dedicated information about the palliative care service: Leaflets or brochures | Structure indicator | All settings           | Changed     |
| 45               | Patient information should be available in relevant foreign languages | Structure indicator | All settings           | Changed     |
| Table 1 Quality indicator set (Continued) |
|----------------------------------------|
| 46 Appropriately trained translators should be available if professional caregivers and patient or family members do not speak the same language |
| 47 There is a computerised medical record, to which all professional caregivers involved in the care of palliative care patients have access: Within one setting |
| 48 There is a computerised medical record, to which all professional caregivers involved in the care of palliative care patients have access: Across different settings |
| B. Inpatient setting (Hospital, Palliative care unit, Hospice, Nursing home) |
| 49 Consultations with the patient and/or family/informal caregivers are done in an environment where privacy is guaranteed (e.g. there is a dedicated room) |
| 50 Dying patients are able to have a single bedroom if they want to |
| 51 There are facilities for a relative to stay overnight |
| 52 Family members and friends are able to visit the dying patient without restrictions of visiting hours |
| 53 There is a private place (e.g. dedicated room) for saying goodbye to the deceased |
| C. Home care |
| 54 For a palliative care patient staying at home there is the possibility, if needed, to provide someone (a volunteer or professional) to stay overnight if needed |
| Assessment tools |
| 55 There is a holistic assessment of palliative care needs of patients and their family caregivers (e.g. SPARC) |
| 56 There is an assessment of pain and other symptoms using a validated instrument |
| Personnel palliative care services |
| A. Staff |
| 57 The multidisciplinary team that provides palliative care consists of at least one of the following disciplines: Physician |
| 58 The multidisciplinary team that provides palliative care consists of at least one of the following disciplines: Nurse |
| 59 The multidisciplinary team that provides palliative care consists of at least one of the following disciplines: Spiritual/religious caregiver |
| 60 The multidisciplinary team that provides palliative care consists of at least one of the following disciplines: Psychologist/Psychiatrist |
| 61 The multidisciplinary team that provides palliative care consists of at least one of the following disciplines: Social worker |
| 62 The multidisciplinary team that provides palliative care consists of at least one of the following disciplines: Physiotherapist |
| 63 The multidisciplinary team that provides palliative care consists of at least one of the following disciplines: Occupational therapist |
| 64 The multidisciplinary team that provides palliative care consists of at least one of the following disciplines: Dietitian |
| 65 The multidisciplinary team that provides palliative care consists of at least one of the following disciplines: Bereavement counselor |
| 66 The multidisciplinary team that provides palliative care consists of at least one of the following disciplines: Pharmacist |
| B. Education and training for staff/volunteers |
| 67 New staff receives a standardised induction training |
| 68 All team members have certified (accredited?) training in palliative care, appropriate to their discipline |
| Table 1 Quality indicator set (Continued) |
|------------------------------------------|
| **69** All volunteers have training in palliative care. | Process indicator | All settings | Combined/ Changed |
| **C. Support systems** | |
| **70** All team members have an annual appraisal | Process indicator | All settings | Changed |
| **71** All team members who professionally deal with loss have access to a program for care for the carers | Process indicator | All settings | Changed |
| **72** Satisfaction with working in the team is assessed (e.g. Team Climate Inventory) | Process indicator | All settings | Changed |
| **D. Organisation of care** | |
| **73** Palliative care services work in conjunction with the referring professional/team | Process indicator | Inpatient setting indicator | New developed |
| **74** There is a regular interdisciplinary/multi-professional meeting to discuss palliative care patients: daily meetings to discuss day-to-day management of palliative care patients | Process indicator | All settings | Combined/ Changed |
| **75** There is a regular interdisciplinary/multi-professional meeting to discuss palliative care patients: weekly (inter- and multidisciplinary) meeting to review palliative care patients referrals and care plans | Process indicator | All settings | Combined/ Changed |
| **E. Information sharing** | |
| **76** All relevant team members are informed about patients who have died | Process indicator | Inpatient setting indicator | Changed |
| **Documentation of clinical data** | |
| **A. Clinical record (All settings)** | |
| **77** For patients receiving palliative care a structured palliative care clinical record is used | Process indicator | All settings | Changed |
| **78** The palliative care clinical record contains evidence of documentation of the following items: Clinical summary | Process indicator | All settings | Changed |
| **79** The palliative care clinical record contains evidence of documentation of the following items: Physical aspects of care | Process indicator | All settings | Changed |
| **80** The palliative care clinical record contains evidence of documentation of the following items: Psychological and psychiatric aspects of care | Process indicator | All settings | Changed |
| **81** The palliative care clinical record contains evidence of documentation of the following items: Social aspects of care | Process indicator | All settings | Changed |
| **82** The palliative care clinical record contains evidence of documentation of the following items: Spiritual, religious, existential aspects of care | Process indicator | All settings | Changed |
| **83** The palliative care clinical record contains evidence of documentation of the following items: Cultural aspects of care | Process indicator | All settings | Changed |
| **84** The palliative care clinical record contains evidence of documentation of the following items: Care of imminently dying patient | Process indicator | All settings | Changed |
| **85** The palliative care clinical record contains evidence of documentation of the following items: Ethical, legal aspects of care | Process indicator | All settings | Changed |
| **86** The palliative care clinical record contains evidence of documentation of the following items: Multidimensional treatment plan | Process indicator | All settings | Changed |
| **87** The palliative care clinical record contains evidence of documentation of the following items: Follow up assessment | Process indicator | All settings | Changed |
| **B. Timely documentation** | Inpatient setting (Hospital, Palliative care unit, Hospice, Nursing home) |
| **88** Within 24 hours of admission there is documentation of the initial assessment of: Prognosis, Functional status, Pain and other symptoms, Psychosocial symptoms, The patient’s capacity to make decisions | Process indicator | Inpatient setting indicator | Changed |
| **89** There is documentation that patients reporting pain or other symptoms at the time of admission, had their pain or other symptoms relieved or reduced to a level of their satisfaction within 48 hours of admission | Process indicator | Inpatient setting indicator | Changed |
| **90** There is documentation about the discussion of patient preferences within 48 hours of admission | Process indicator | Inpatient setting indicator | Changed |
Table 1 Quality indicator set (Continued)

| No. | Process indicator | Inpatient setting indicator | Changed |
|-----|-------------------|----------------------------|---------|
| 91  | A discharge/transfer summary is available in the medical record within 48 hours after discharge/transfer | All settings | Changed |
| 92  | There is documentation of pain assessment at 4 hour intervals | All settings | Changed |
| 93  | The discussion of patient’s preferences is reviewed on a regular basis (in parallel with disease progression) or on request of the patient | All settings | Changed |
| 94  | There is documentation that within 24 hours after patient transfer, the responsible physician in the receiving setting has visited the patient | All settings | Changed |
| 95  | There is documentation that within 24 hours after patient transfer, the new palliative care team in the receiving setting has visited the patient | All settings | Changed |

Quality and safety issues

A. Quality policies

| No. | Process indicator | Inpatient setting indicator | Changed |
|-----|-------------------|----------------------------|---------|
| 96  | The palliative care service has a quality improvement program | All settings | Changed |
| 97  | There is documentation whether targets set for quality improvement have been met | All settings | Changed |
| 98  | Clinical audit are part of the quality improvement program | All settings | Changed |
| 99  | The setting uses a program about early initiation of palliative care (e.g. the Gold Standards Framework) | All settings | Changed |

B. Adverse events

| No. | Process indicator | Inpatient setting indicator | Changed |
|-----|-------------------|----------------------------|---------|
| 100 | There is a register for adverse events | All settings | Changed |
| 101 | There is a documented procedure to analyse and follow up adverse events | All settings | Changed |

C. Complaints procedure

| No. | Process indicator | Inpatient setting indicator | Changed |
|-----|-------------------|----------------------------|---------|
| 102 | There is a patient complaints procedure | All settings | Changed |

Reporting clinical activity of palliative care services

| No. | Process indicator | Inpatient setting indicator | Changed |
|-----|-------------------|----------------------------|---------|
| 103 | The palliative care service uses a database for recording clinical activity | All settings | Changed |
| 104 | The following is part of the database: Diagnosis, Date of diagnosis, Date of referral, Date of admission to the palliative care service, Date of death, Place of death, Preferred place of death | All settings | Changed |
| 105 | From the database the service is able to derive: Time from diagnosis to referral to palliative care, Time from referral to initiation of palliative care, Time from initiation of palliative care to death, Frequency of unplanned consultations with the out-of-hours service for palliative care patients who are at home, Frequency of unplanned hospital admissions of palliative care patients, Percentage of non-oncological patients receiving palliative care | All settings | New developed |
| 106 | Based on the database, an annual report is made about the service | All settings | Changed |

Research

| No. | Process indicator | Inpatient setting indicator | Changed |
|-----|-------------------|----------------------------|---------|
| 107 | There is evidence that the palliative care service is involved in research in palliative care (e.g. authorship of publications, research grants) | All settings | Changed |

Education

| No. | Process indicator | Inpatient setting indicator | Changed |
|-----|-------------------|----------------------------|---------|
| 108 | All health and social care students have standardised learning objectives for basic training in palliative care | All settings | Changed |
| 109 | All health and social care professionals have standardised learning objectives for continuing basic training in palliative care | All settings | New developed |
| 110 | There is a program for specialised training in palliative care for professionals working in a service that provides specialised palliative care | All settings | New developed |
3. Based on this meeting, adaptations were made and a new draft QI set was presented in the second steering group meeting in October.

**Results**

**Search flow**

The literature search resulted in 541 papers, including a previous systematic review on quality indicators for palliative care [8]. Most of the papers came from the database search (n=527), followed by the hand search (n=29) and least of grey literature search (n=14).

In the screening process 16 duplicates were identified, and titles and abstracts of 511 papers were searched. Of these, 389 documents were excluded, as they did not contain QIs. Full papers were obtained of 122 publications, from which 63 papers were included; 57 resulting from the database search [12-68] and another six papers from the additional hand searches (Figure 1) [69-74].

**Results grey literature search**

The grey literature search yielded seven papers, deriving from Belgium, the Netherlands and the UK [9,75-80]. These sources included government sites, national health organisations and national institutes (Figure 1).

**QI development**

Six hundred-thirty-five QIs were derived from this literature review. After screening of duplicates, selecting process and structure QIs and combining QIs covering the same topic, the remaining 151 QIs were organised in the framework and discussed in the first steering group meeting. The two steering group meetings resulted in a reduction from 151 to 110 QIs (Additional file 1: Appendix C) (Figure 2). For instance the domain about finance QIs was excluded for the final set as the QIs were more useful on national level than in the setting specific palliative care institutions.

The rest of the QIs were distributed over the framework (Table 1) [10].

The majority of the 110 QIs were process QIs (n=76), the other structure QIs (n=34). Some of the QIs (n=24) were only applicable in specific settings; ten in primary care, thirteen in inpatient settings and one in home care. The others were meant for all settings that deliver palliative care.
Twenty-four QIs were developed based on organisational aspects found in literature (Table 1, QI 51). Finally, several QIs (n= 86), were changed in their presentation of text during the procedure. For example, originally developed QIs for other settings like the intensive care unit, were adapted to make them appropriate for palliative care settings.

**Discussion**

We were able to develop an international framework with 110 QIs to assess the organisation of palliative care in several kind of settings. To our knowledge, this study presents the first systematically developed international set of QIs on this topic. Part of the QIs are setting specific, whereas others will be applicable in all kind of settings that deliver palliative care.

Where Pasman et al. performed a systematic review on all kind of QIs for palliative care, and Pastrana et al. focused on outcome indicators for Germany, we focused on process and structure QIs [8,81]. By using an international perspective and by not limiting the study to symptom control, our study follows the recommendations of Ostgathe et al. [82]. Our set also contains two QIs that are linked to the World Health Assembly's proposed global health indicator 'Access to palliative care assessed by morphine-equivalent consumption of strong opioid analgesia (excluding methadone) per death by cancer', but without the restriction to patients with cancer [83].

**Strength and limitations**

We chose an approach with several consecutive methodological steps to develop a set of QIs. Of those aspects that were considered important for the organisation of palliative care but of which no QIs could be found, we developed QIs ourselves [84]. Of those QIs that were developed for a restricted group of patients or setting (e.g. ICU or vulnerable elderly) we checked whether we could rephrase them into QIs for more types of settings or palliative patients. Defining QIs in a consensus procedure is a good
option if scientific literature is not yet available [7], particularly because it combines several methods to improve validity. Using a group approach has the advantage that participants can share their expertise and experience. Groups often make better decisions than individuals [85].

The naming of QIs as process or structure indicators can be discussed. Yet, this only influences the categorisation and not the content, importance or use of a QI.

Another strong aspect of our procedure is the inclusion of grey literature, which created the possibility to include documents from important although not scientific sources [86].

As the Europall project was a collaboration of seven European countries, only experts of these countries were represented in the steering group meetings. Other European countries, with different health care and financing systems, cultures and palliative care, were not involved at this stage.

This first step resulted in a set of structure and process QIs, that can help professionals or settings to measure the quality of care of their setting. In a next step, a subset will be developed of which each QI is applicable in the seven participating countries.

Based on a modified RAND Delphi method the following set will be interesting for international comparison. The advantage of this comprehensive set enables each country and each setting the opportunity to see all QIs that are available on this topic.

The last step will describe a pilot study to test the set of QIs on face-validity, applicability and discriminative power. This includes almost all (26) European countries. These studies will be published separately.

Further research

The final set can be used to provide feedback to settings or countries to reflect on their performance, for supporting quality improvement activities, accreditation, research, and enhancing transparency about quality. They can be used to evaluate the implementation of the WHO definition and the recommendations of the council of Europe [1,4].

From 2011 to 2015, a follow-up project to Europall called IMPACT (funded by the EU 7th framework) will develop and test strategies to implement these QIs.

Conclusions

This review resulted in the first comprehensive framework of QIs for the organisation of palliative care.

Additional file

Additional file 1: Supplementary online content. Development of a set of process and structure indicators for palliative care: the Europall project. Appendix A- Search strategies for databases. Appendix B- Project partners. Appendix C- Indicators set for the organisation of palliative care.

Competing interest

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Authors’ contributions

KVib participated in the literature search, design of the study and drafted the manuscript. NA participated in the literature search, design of the study and drafted the manuscript. JH participated in the literature search, design of the study and drafted the manuscript. JVM was actively involved in the selection and developmental process of the QI. She attended the expert meeting. IC was actively involved in the selection and developmental process of the QI. She attended the expert meeting. LR and helped to draft the manuscript and had an advisory role. KV participated in the study and participated in its design and coordination and helped to draft the manuscript. YE conceived of the study and participated in its design and coordination and helped to draft the manuscript. All authors read and approved the final manuscript.

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