Methodology for defining quality indicators (QI) in order to monitor and improve oncological care within Comprehensive Cancer Care Networks (CCCN)

The tool for development of QI-Sets in Oncology (QISO)

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Abbreviations and Acronyms

CCCN	Comprehensive Cancer Care Network
CanCon	European Guide on Quality Improvement in Comprehensive Cancer Control
CraNE	Network of Comprehensive Cancer Centres: Preparatory activities on creation of National Comprehensive Cancer Centres and EU Networking
EC	European Commission
EU	European Union
iPACC	Innovative Partnership for Action Against Cancer
iET-QI	iPAAC evaluation tool for QI
JA	Joint Action
QI	Quality Indictaor
QISO	QI-Sets in Oncology Tool
QIWG	QI working group
SoS	Set of Standard
WP	Work Package

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Executive summary

This document is based on the work of the Joint Action iPAAC Work Package 10 (WP10) as well as incorporates updates and further development which are the results of the QI working group (QIWG) of the Joint Action CraNE Work Package 6 (WP6) task 3.

The document provides the methodology for defining quality indicators (QIs) in order to monitor and improve structures, processes and results in the field of Oncology.

The document describes how the methodology should be applied in oncology and how QIs should be used to monitor and improve oncological care onsite.

Chapter 1 gives the background on how the methodology was developed, agreed upon, and piloted within the Joint Action iPAAC. Chapter 2 describes the further development of the methodology within Joint Action CraNE WP6 towards a generic methodology to define tumour-specific QI-sets. Chapter 3 outlines the re-evaluation and updating of QISO QI-sets and chapter 4 describes the application of the QISO tool for the development of QI-set for Lung Cancer.

Following this methodology, QI-sets were developed and implemented for colorectal, pancreatic and lung cancer.

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1. Background

The tool for development of QI-Sets in Oncology (QISO) is based on the "iPAAC evaluation tool for QI" (iET-QI) which was a result of the Joint Action iPAAC WP 10.

The iET-QI tool offered for the first time the possibility to create QI sets with a defined methodology in a standardized modified DELPHI Process, that has been agreed upon in an European Joint Action (see "2 – Methodology).

The QI sets for colorectal and pancreatic cancer that were derived in iPAAC were implemented and piloted in two Comprehensive Cancer Care Networks (CCCNs) in two Member States (Lower Silesian Oncology, Pulmonology and Hematology Center, Wroclaw, Poland and Comprehensive Cancer Centre Charité, Berlin, Germany).

The process was evaluated externally and confirmed the applicability of the iET-QI tool and the two QI-sets in different Member States.

Based on the results of the evaluation it was agreed in the scope of the new Joint Actin CraNE to further develop the iET-QI methodology including defining a QI-set for lung cancer and adding an updating process for already existing European QI-sets.

The Development of QI-Sets in Oncology Tool (QISO) and the corresponding derived QI-sets for colorectal, pancreatic and lung cancer should be used at national, regional and CCCN level. The tool provides the flexibility to create tumour-specific QI sets that are applicable in the respective health system of a MS.

The QI sets have clear numerator and denominator definitions and thus allow a comparison of the quality provided.

The defined QIs can be adapted to the characteristics of specific health care systems and can thus be used for the evaluation and governance of oncology care.

At the regional and local level, the QIs are suitable for evaluating and, if necessary, improving the cooperation between the partners in the CCCNs as well as to monitor the adherence to the medical guidelines.

From the patient's point of view, the use of QIs lead to an improvement of care, as QI sets address areas for which there is potential for improvement from a scientific point of view. With this oncological treatment can be standardised and it will be realised that all patients receive the same, quality-based oncological care.

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2. Methodology of the QISO

The QISO tool builds on the iPAAC Evaluation Tool for pancreatic and colorectal QI-sets (iET-QIs) which were developed under the Joint Action iPAAC. The goal is to further develop the iPAAC-QI instrument into a generic methodology how to define sets of tumour-specific QIs that can be used for the monitoring of the quality of care in oncology, for instance in CCCNs.

The QISO methodology follows the G-I-N reporting standards as far as applicable. In table 1 the G-I-N criteria are outlined and the respective methodological steps for the QISO tool described.

Table 1. Criteria according to defined reporting standards [1] and assessment of the proposed methodologic steps

GIN reporting standards	Methodological steps of QISO	Comments
1 + 2 Guideline selection and selection of guideline recommendations *[Not applicable for this process, since the QI candidates are not primarily generated from guideline recommendations]*	Search for QI International Literature search for implemented QI with published results of the QI application. Additional search on websites of national and international QA organizations following a standardized protocol (*see document literature search link*) The search can be generic or tumour-specific. The methodology used to define the implemented QI must be described.	Results of the searches for the target tumour entity
3 Selection process of performance measures	First step of selection (“First screening”) [2] A1) duplication Explanation: There are two or more QI candidates exactly addressing the same topic. Formally, one candidate is kept the others are excluded by criterion A1. A2) lack of understandability Explanation: The wording of the QI candidate is ambiguous. For example, it may not be concluded which population (mentioned in the nominator or denominator) is defined or the intervention is unclear. A3) not feasible for the European CCCN setting. Explanation: This addresses QI candidates which comprise elements, which are	The first selection should be performed by the designated QI working group (QIWG) of resp. task within the EU-project

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	unavailable in a European CCCN setting, such as drugs or non-drug interventions which are unavailable in European countries as well as health care structures (for example specific for setting in the U.S.) which cannot be provided. A4) defining of numerator and denominator not possible / no numerator and denominator defined. Explanation: The QI is not univocally defined by a ratio of numerator and denominator elements (for example number of individuals receiving treatment out of the total of the diagnosed patients) or The QI does not have a defined numerator and denominator	
4 Core attributes of performance measures (appraisal)	Second step of selection ("Second Screening") [3-7]: Assessment of: 1. Relevance (potential for improvement /clinical relevance) Question: The quality indicator includes the potential for improving relevant patient outcomes. 2. Feasibility (measurability) Question: The data is routinely documented by the service provider or an additional survey requiring a reasonable level of effort. 3. Usability (clarity of definition) Question: The indicator is clearly and unambiguously defined and is related to a supply aspect that can be influenced by the service provider.	Assessment sheet for second screening (see Annex 1) Answer categories: "no" and "yes" A QI is accepted if the agreement is greater than or equal to 75% for criteria 1-3. Voting by medical experts
5 Specification of performance measures	See first screening, A4: Possibility to create a numerator and denominator is a base for a QI candidate to proceed to the assessment process.	
6 Intended use of performance measures	The use should be defined within the CCCN setting	

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7 Praxis test of performance measures	A praxis test should be performed within selected CCCNs	
8 Review and re-evaluation of performance measures	After QI implementation, generating and analysing QI results a process should be defined in order to assess whether a QI should be kept, retired or modified.	
9 Composition of the panel deciding on Quality Indicators	Panels are composed by multidisciplinary experts, stakeholders in the field, experts in quality measurements and patient representatives.	In this project two different groups had been involved: The QIWG for the first screening, a multidisciplinary group of external experts for the second screening

3. Updating process for QISO QI-Sets

QIs always refer to the current evidence. Therefore, when e.g. an underlying guideline had been updated, the QI WG needs to be reactivated to evaluate the results of the measured QIs and to determine whether the previous QIs need to be updated.

The general recommendation is, that the QI-WG convenes once every three years. Beside changes in evidence and subsequently in QI the information of already implemented and analyzed QI needs to be reported to the QI-WG at an annual base in order keep QI harmonized with underlying evidence.

Changes and additions compared to the first quality indicator development process are as follows:

3.1. Existing and implemented QI

The aim is to close the quality circle, which means that the results of implemented guideline-based quality indicators are presented to the QI-WG at the beginning of the QI Update round. Thereby, it is possible to assess the existing QI and any results and feedback available and make decisions on how to proceed with the QI developed in the previous round:

- Keeping QI without changes
- Modify QI
- Retire or drop the QI

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3.2. New additional QI

Further, the QI-WG will follow the steps of the first QI development round. Additional QI candidates derived from an update search for internationally reported QI will be screened and assessed in different rounds.

That means that final updated set of QI will consist of the assessed existing QI plus additional new QI.

Every following update round will proceed the same way.

4. Application of the tool for development of QI-Sets in Oncology (QISO)

The methodology for defining a set of QIs in order to monitor and improve care of oncological patients has been successfully applied in several CCCNs.

In the following chapters the application of the QISO is explained in detail on the example of Lung Cancer QI.

4.1 Search and compilation of potential QI to be assessed

As described above, searches had been performed in literature databases and on defined homepages of QA institutions.

The systematic review included 16 studies reporting on 183 QIs. The detailed results are described in the document “Research on international Quality Indicators for Lung Cancer” (see Annex 1). Only these QIs of the 183 QI were used for the list of potential QIs, for which the methodology of their definition was described in the corresponding publication.

The additional search on websites of European Quality Assurance institutions for lung cancer identified 71 potential QIs. Only these QIs were used for the list of potential QIs, for which the methodology of their definition was described on the website. The results of the QIs search are reported in the document “Research on international Quality Indicators for Lung Cancer” (see Annex 1).

4.2 Specification and description of the indented use of QI

For the first screening an excel document was prepared. The numerators and denominators of the potential QIs were taken from the publications or, if necessary, redefined. In addition, the area of application of the QIs (screening, diagnostics, therapy, etc.) was defined.

The prepared Excel document consisted of a total of 254 QIs for lung cancer.

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4.3 Pre-selection of potential QI ("first screening)

The first screening of potential QIs was carried out by the QI working group based on the criteria described in table 1.

After the steering group assessment, which was conducted within 21 days, 39 out of 254 QIs candidates for lung cancer were selected.

4.4 QI appraisal ("Second Screening")

The second phase of selection according to the above-described criteria was delegated to an expert panel group.

Members of this committee were identified among experts active in the specific tumour entity. The selection of the expert members was performed by the QI working group after evaluation of their CVs. Approval or denial of each member's participation proposal was expressed by the members of the QI working group. Approval to the application of the expert to the panel was given when the majority of the QI working group voted in favor of the candidate.

Expert panel members were required to assess each QI in correspondence with the above-mentioned criteria (relevance, feasibility and usability) per each QI by answering yes or no (see Annex 2) Based on the written assessment of all members of the expert panel who are entitled to vote a QI is accepted if the agreement is greater than or equal to 75% for each criterion.

4.5 Final set of QI

The list of potential QI is evaluated and discussed by the expert panel group. The result of the assessment is the final set of QI.

The list of potential QIs was evaluated by 5 lung cancer experts of the 9 selected lung experts of the expert panel group. The expert panel assessment lasted 30 days and for the final set of 20 QIs for lung cancer were accepted.

4.6 Piloting

A practice of consented QIs will be implemented in a pilot CCCN.

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