

Quality Indicators of Clinical Cancer Care (QC₃) in the territory of Canton Ticino: a population-based study

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Introduction

Research on the Quality of Cancer Care (QoCC) throughout the last decade has demonstrated that increases in the knowledge of treatments with proven efficacy do not always translate directly into the optimal delivery of such treatments to patients. [1, 2] Moreover, the assessing of QoCC has become even more important to providers and purchasers of care in response to the growing demand for services, rising costs, constrained resources and evidence of variation in clinical practice. [3] QoCC studies and structured programmes on specific quality indicators (QI) have been developed in US, Canada and Europe since the late '90s. [1, 2, 4-7] So far, in Switzerland no population-based study on QoCC with a prospective design has been conducted. Into the bargain, the development of a national QoCC system in a federal setting such as the Switzerland is likely to be a highly complex undertaking with substantial implications for clinicians, patients, institutional leaders, policy makers and stakeholders. On the other hand, a QoCC study at a regional level could be made more acceptable by clinicians, increasing the likelihood of their recruitment and participation. We, therefore, suggested to implement, on a 3-year time period (2011-2013), in the territory of Canton Ticino, the project QC₃ (*Quality indicators of Clinical Cancer Care*) which is being finally conducted at the population-based Ticino Cancer Registry, representing the essential informative system of the epidemiologic knowledge of the local population and providing many variables necessary for the assessment of the clinical performance. In addition, the Registry is an

independent observatory, thus assuring an impartial evaluation service and avoiding any conflicts of interest.

Aims of the QC₃ Project

The overall objectives of the QC₃ project are the following: 1) to identify a panel of specific QI, useful to measure QoCC of colorectal, lung, prostate, ovary and uterus cancers; 2) to perform the data collection needed to compute the QI calculation; 3) to define, at the regional level, standards of care for each QI, in terms of minimum and target requirements.

Methods

The entire process followed to implement the QC₃ project is described in Figure 1.

Phase I: identification of quality of cancer care indicators

QC₃ QI are developed using a 2-step modified Delphi process, a methodology born in 1978, based on the involvement of cancer-specific Working Groups (WGs) of local

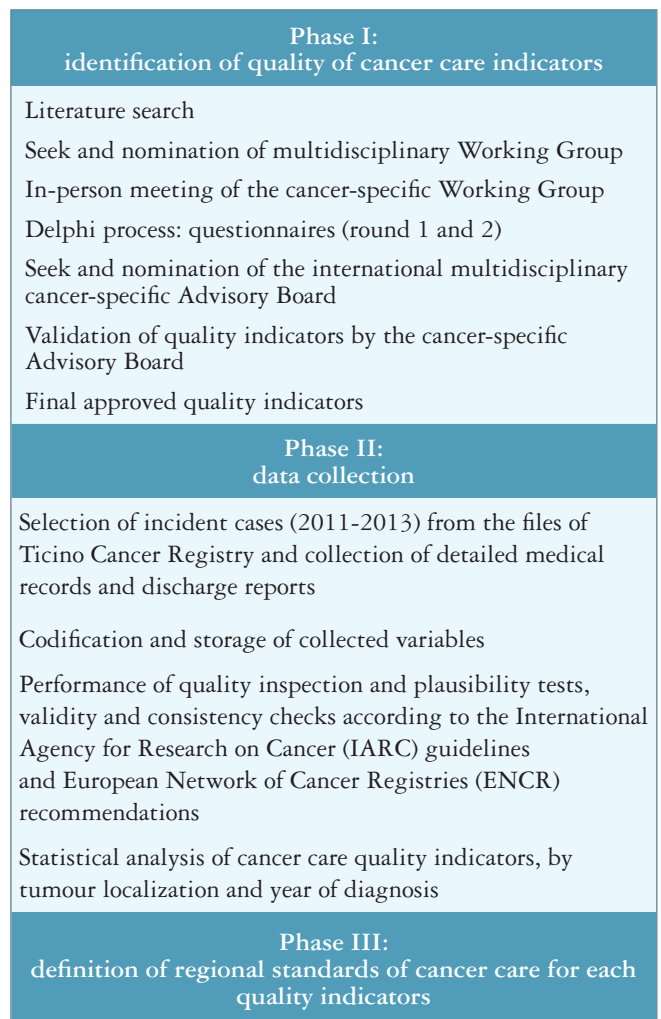


Figure 1. Process followed to implement the Quality of Clinical Cancer Care (QC₃) project.

health care providers (colorectal cancers WG, lung cancers WG, prostate cancers WG, ovarian/uterine cancers WG) to obtain experts opinions in a systematic, anonymous and individual manner for the validation of both evidence- and expert-based items. [8] Each WG offers a multidisciplinary perspective on practice, including specialists, professionals, clinicians and researchers of all concerned disciplines (pathology, surgery, oncology, radiology, radiation oncology, nuclear medicine, gastroenterology, gynaecology, urology, pneumology) coming from both public and private hospitals and clinical cancer care services of Canton Ticino. [9-11] Thus individual and collective interests of the essential groups as well as key contents areas are adequately represented. The initial cancer-specific list of QI, derived from a comprehensive literature search on PubMed/MEDLINE of relevant peer-reviewed articles, is proposed to the WGs during an in-person meeting. The participants are asked to select those QI considered perti-

nent for the QoCC measurement and eventually to suggest additional QI not already included. After this initial revision, the list of QI is formatted as a questionnaire and distributed to the WGs in two separate rounds; respondents have to rate each QI adopting the RAND appropriateness technique (scale 1 to 9, 1= extremely inappropriate; 9= extremely appropriate) or the megatrends method (response yes/no to the suitability of each QI) according to its association with quality and patient outcomes. [12] Furthermore, the list of selected cancer-specific QI derived from the two Delphi rounds, is then submitted to an independent international multidisciplinary cancer-specific Advisory Board (AB), in order to get an additional evaluation and to define a final approved list of QI. Actually, the phase I of the study is concluded for colorectal and prostate cancers. Table 1 reports for these tumour sites some examples of QI approved by the cancer-specific WGs and ABs.

Tumour site	Quality Indicator	Denominator
Colon-rectum	Proportion of patients with colorectal cancer, evaluated by preoperative colonoscopy	Patients with colorectal cancer undergoing surgery
	Proportion of patients with colorectal cancer and preoperative staging according to the American Joint Committee on Cancer TNM 7th edition	Patients with colorectal cancer undergoing surgery
	Proportion of patients with colorectal cancer not undergoing neo-adjuvant radio±chemotherapy and a number of resected lymph nodes ≥ 12	Proportion of patients with colorectal cancer undergoing surgery
	Proportion of patients with colorectal cancer operated on with free margins	Patients with colorectal cancer undergoing surgery
	Proportion of patients with colon cancer and American Joint Committee on Cancer TNM stage II high-risk or III undergoing adjuvant chemotherapy	Patients with colon cancer and American Joint Committee on Cancer TNM stage II high-risk or III
	Proportion of patients with locally advanced rectal cancer (T3-4 and/or any T, N+, and M0) undergoing neo-adjuvant radio±chemotherapy	Patients with locally advanced rectal cancer
Prostate	Proportion of patients with prostate cancer and diagnosis based on prostatic biopsy	Patients with prostate cancer
	Proportion of patients with multiple biopsies (n≥8)	Patients with prostate cancer undergoing biopsies
	Proportion of patients with prostate cancer whose biopsy pathology report includes the tumour quantification (i.e. number of cores positive / total number of cores and proportion of prostatic tissue involved by tumour)	Patients with prostate cancer undergoing biopsies
	Proportion of patients with prostate cancer and documented multidisciplinary discussion	Patients with prostate cancer
	Proportion of patients with prostate cancer undergoing radical prostatectomy ± pelvic lymphadenectomy with uninvolved margins	Patients with prostate cancer undergoing radical prostatectomy ± pelvic lymphadenectomy
	Proportion of patients with prostate cancer died just after radical prostatectomy ± pelvic lymphadenectomy or within 30 days from the intervention	Patients with prostate cancer undergoing radical prostatectomy ± pelvic lymphadenectomy

Table 1. Quality of cancer care indicators of colorectal and prostate cancers: some examples.

Phase II: data collection

Once defined the final list of QI, the next step is to perform the data collection needed to compute the calculation. The QI refers to all patients resident in Canton Ticino according to the inhabitants control database and diagnosed between 2011 and 2013 with a new cancer in a localization above described. Cases are selected from the files of the population-based Ticino Cancer Registry. [13] Data collection is performed consulting different sources of information and following international guidelines. [14, 15] Furthermore, each cancer-specific WG assures that necessary data will be delivered to the recruited medical oncologist coordinating the study at the Ticino Cancer Registry. All collected variables are coded before their storage, statistical analysis and comparison with other Cancer Registries or QoCC programs outcomes. Particularly, tumour topography and morphology are classified using the International Classification of Diseases for Oncology (ICD-O-III) and the WHO Classification of Tumours. [16-21] The first quality inspection and plausibility tests are automatically performed by the computer system during the data-entry phase. In addition, in order to achieve the best data comparability, both inside and outside the Registry, case registration, validity, and consistency checks are performed according to the International Agency for Research on Cancer (IARC) guidelines and the European Network of Cancer Registries (ENCR) recommendations. [14, 15, 22, 23]

According to the incidence rate and the relative time trends observed in Canton Ticino in the period 1996-2010, we expect to collect information for about 220, 200, 240, and 70 patients per year with colorectal, lung, prostate and ovarian+uterine cancers, respectively. The final step of this phase is the statistical analysis of cancer care quality indicators, by tumour localization and year of diagnosis. Actually, the phase II of the study is ongoing for colorectal and prostate cancers. Some preliminary results concerning incident colorectal cancers occurred in 2011 have been shown to the WG and presented at two cancer registries international meetings in order to stimulate the technical discussion. [24, 25]

Phase III: definition of regional standards of cancer care

This last phase of the project consists in the definition of standards of cancer care at the regional level, in terms of minimum and target requirements, for each QoCC measure and tumour localization. The definition of these standards of care arises from the results of quality indicators and is based on the evidence-based medicine of diagnostic and treatment modalities. Cancer-specific WGs is involved in this final activity. The development of this phase has not been defined yet.

Discussion

The project wants to identify, with the collaboration of local multidisciplinary WGs and international multidis-

ciplinary ABs, indicators capable to assess the QoCC in the diagnostic and therapeutic process for colorectal, lung, prostate, ovarian and uterine cancers. Through the data collection and QI calculation, it will be possible to define standards of health care in terms of minimum and target requirements at the regional level.

The study is instrumental to draw a population-based picture of the quality of treatment modalities currently in use in the territory of Canton Ticino and to open new perspectives on quality-related issues in oncology. A system of evaluation and auto-evaluation is implemented in order to favour the surveillance and monitoring of the comprehensive level of the oncologic care in the region, the clinical performance homogeneity, the possible weakness of the clinical network, and finally the corrective interventions to be adopted to improve the QoCC. Finally, it could help stimulating and designing similar studies and models at the national level, and allow comparisons with international data obtained from other QoCC systems.

In summary, specific strengths of the QC₃ project include the following:

1. the research is innovative and represents a pragmatic instrument to contribute in the improvement of the QoCC;
2. the research could have an impact on routine care with a direct benefit for oncologic patients;
3. the prospective design allows the production of up-to-date results, reproducing the currently used pattern of care;
4. the research defines QoCC indicators and standards of health care which could be considered for other similar studies;
5. the population-based design allows comparisons with other national and international studies on QoCC;
6. the population-based design implies the inclusion of patients older than 65 years usually excluded from RCTs;
7. the study could contribute to the process of standardization of diagnostic and treatment modalities according to evidence-based medicine;
8. the study additionally promotes the multidisciplinary team work and discussion at the population-based and regional level;
9. the study favours the rationalization of data transmission modalities to Cancer Registry;
10. the study increases the expectations of Cancer Registry data system, moving from the static retrospective evaluation of cancer treatment outcomes to dynamic interventions to monitor and ensure optimal multidisciplinary cancer care.

Conflict of interest: none

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The list of the members of the QC₃ working Groups and of the International QC₃ Advisory Boards can be seen at: sakk.ch/de/download/179 at the end of the article.

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