

Bern, 3 June 2019

Invitation for conducting a scoping report on low-dose CT (LDCT) screening for lung cancer

1. Introduction

The aim of the Cancer Screening Committee is to develop recommendations in the field of cancer screening for the Swiss context. The Cancer Screening Committee is a project of the National Strategy against Cancer. The committee develops recommendations for or against cancer screening modalities in four phases: Topic Identification and Selection, Scoping report, Assessment report, Appraisal (for more information).

One of the chosen topics is low-dose CT (LDCT) screening for lung cancer. Lung cancer has the highest mortality among all cancer. However, it can be more successfully treated if diagnosed early in the course of the disease. Thus, screening and early diagnosis have the potential to lower the mortality from this disease. Chest x-rays have been first used to screen for lung cancer, however this screening did not show a reduction in lung cancer mortality. Later on, in the 1990s, LDCT imaging has been introduced for lung cancer screening and since then several controlled trials have evaluated its effectiveness with more promising results.

Few countries have so far implemented or are about to implement LDCT screening for lung cancer, such as the USA, UK (pilot study) and Poland. The effectiveness of LDCT lung cancer screening has already been evaluated by some organisations^{1,2}, however the publication of the results of a large European trial, the NELSON trial, is still pending³.

In Switzerland LDCT lung cancer screening is currently not supported by the health authorities and not reimbursed by the statutory health insurance.

2. Question of the scoping report

What is the clinical effectiveness (and cost-effectiveness) of LDCT lung cancer screening compared to usual care or another screening test among high-risk adults?

Further questions:

- What are the criteria that define positive (suspicious) and indeterminate LDCT findings?
- How should nodules from positive and indeterminate LDCT findings best be managed?
- How are high-risk individuals defined? (e.g. smoking history, age, exposure to asbestos)
- What screening intervals (and for how many screening rounds) for the given definition of high risk individuals give the best balance between benefits, harms and costs?

3. PICO outline:

| | |
|--------------|---|
| Population | <ul style="list-style-type: none"> Individuals at high risk of lung cancer (defined by smoking history, age, exposure to asbestos, ...) |
| Intervention | <ul style="list-style-type: none"> LDCT, combined or not with a smoking cessation program : consider different screening strategies |
| Control | Usual care or other screening test (e.g. chest x-ray) |
| Outcomes | <ol style="list-style-type: none"> All-cause mortality Lung cancer mortality Lung cancer stage Number of lung cancers detected Number of false positive nodules Interval lung cancer incidence Health-Related Quality of Life measure Costs of screening Overall strategy costs (including costs of cancer screening) Quality-adjusted life years per strategy Incremental cost-effectiveness ratio (cost per QALY gained) Budget impact Overdiagnosis Smoking cessation rate Anxiety/worry associated with taking the screening Follow-up investigations following LDCT with positive or indeterminate findings Complications following an invasive procedure |
| Setting | Outpatient |
| Study design | <p>For clinical effectiveness: RCTs randomizing individuals to LDCT lung cancer screening or to no screening/other screening modality.</p> <p>For health economic evaluation: de-novo modelling, literature review or a combination of these two approaches.</p> |

Ad population:

Individuals at high risk of lung cancer (to be defined).

Subgroup analyses: variations of effectiveness according to the definition of high risk for lung cancer (e.g. age range, number of pack-years) and to participants' characteristics (e.g. age, sex).

Ad intervention:

LDCT screening, both as single screening and screening in multiple rounds.

Subgroup analyses: variations in the screening modality (technique used, criteria defining positive and indeterminate LDCT findings), management of positive and indeterminate LDCT findings, screening intervals, number of screening rounds.

4. Content of the scoping report

- a.) For the assessment of the **clinical effectiveness** of LDCT lung cancer screening:
- To describe the rationale for the evaluation of the clinical effectiveness of LDCT lung cancer screening (LDCT lung cancer screening versus no screening or other screening modality)
 - To define the main question(s) of the systematic review and make a first prioritization of the outcomes
 - To describe the outlines of the systematic review of the literature (including first explorative results of the search): aims of the literature search, methods of the literature search (such as study design, inclusion/exclusion criteria, databases or period of search that will be considered and the tool that will be used for evaluating the quality of included studies)
 - To describe the methods of data synthesis
 - To describe subgroups that should be analyzed separately in the systematic review (e.g. different definition of high-risk individuals)
 - To identify possible sensitivity analyses
- b.) For the **health economic assessment** of LDCT lung cancer screening:
- To describe the rationale for the economic evaluation of the LDCT lung cancer screening
 - To define the main question(s) for the health economic assessment
 - To describe the outlines of the systematic review of the literature (including first explorative results of the search): aims of the literature search, outline of the literature search (such as study design, databases or period of search that will be considered or the tool that will be used for evaluating the quality of the studies)
 - To define the cost-effectiveness model that will be used for the assessment
 - To define how cost–benefit relationship and budget impact will be assessed
 - To describe subgroups that should be analyzed separately in the systematic review (e.g. different definition of high-risk individuals)
 - To describe possible sensitivity analyses.
- c.) For the assessment of **patients' values and perspectives, ethical and legal issues**
- To describe how patients' values and perspectives are planned to be evaluated (literature review, focus group, workshop, ...)
 - To describe how potential ethical and legal issues are going to be identified.

Examples of external scoping reports can be found [here](#) (scoping reports from the Swiss Medical Board).

5. Contracting authority, Duration, Expenditure

The Swiss Cancer League is the contracting authority and is responsible for the implementation of the project 2.3 Cancer Screening Committee from the National Strategy against Cancer.

This invitation for conducting the scoping report for LDCT lung cancer screening is addressed to potential mandate holders. The mandate is initially limited to the scoping report. If the Cancer Screening Committee decides after the scoping report to continue with the topic, an assessment will be commissioned. Ideally the assessment report will be conducted by the same team as for the scoping report.

Payments will be issued 50% upfront and 50% upon completion. A budget according to the following schema is recommended.

| Output | Time expenditure in hours | Amount in CHF |
|--|---------------------------|---------------|
| 1. | | |
| 2. | | |
| Sub-total excl. additional charges and VAT | | |
| 3. Additional charges (expenses, mailings, etc.) | | |
| Sub-total excl. VAT | | |
| 4. VAT | | |
| Total | | |

Only the offers, which arrive by the deadline and are structured according to the following points will be considered:

1. Letter of intent
2. Expertise and proof of activities for example experience in conducting HTA, systematic reviews (including meta-analysis)
3. Relevant reference projects
4. Work and time schedule
5. Budget

Attachment: Information on the planned project staff members.

6. Offer submission

The offer is to be sent on or before 10 July 2019 to the office of the Cancer Screening Committee: office@cancerscreeningcommittee.ch

Any questions regarding this invitation procedure need to be addressed via email to the office of the Cancer Screening Committee (see above). Answers will be provided for all invited potential mandate holders.

Schedule for the offer and mandate

| | |
|--|-------------------|
| Offer | |
| Invitation | 3 June 2019 |
| Deadline for submitting questions | 18 June 2019 |
| Answers to all invited potential mandate holders | 25 June 2019 |
| Deadline for submitting the offer | 10 July 2019 |
| Order confirmation and conclusion of contract | 31 July 2019 |
| Mandate scoping report | |
| Draft report | 31 August 2019 |
| Meeting Cancer Screening Committee | 5 September 2019 |
| Stakeholder Meeting | 26 September 2019 |
| Final version | 13 October 2019 |

The draft report will be followed by a meeting with stakeholders to hear and gather their comments. The mandate holder should be present at this meeting.

7. Award criteria and evaluation

For the selection of the offer, the following award criteria will be considered:

| Award criterion | Question for the rating | Weighted score |
|------------------------|---|-----------------------|
| Letter of intent | Is the motivation comprehensible and convincing? | 10% 0-10 points |
| Expertise | Does the provider have the necessary expertise? | 20% 0-20 points |
| Reference projects | Do the reference projects or does a reference project indicate that the supplier is able to perform the task in the required quality? | 30% 0-30 points |
| Work and time schedule | Is the work and time schedule realistic and comprehensible? Is the staff secured? | 10% 0-10 points |
| Costs | Are the cost estimate and pricing comprehensible? What are the costs compared to other providers? | 30% 0-30 points |

The award criteria are evaluated as follows:

| The requirements are ... | Evaluation |
|---|-------------------|
| ... fully met and demonstrated by evidence comprehensible | 100 points |
| ... partially fulfilled or only partly and incompletely explained | 50 points |
| ... not met or evidence missing | 0 points |



References:

1. Snowsill T, Yang H, Griffin E, et al. Low-dose computed tomography for lung cancer screening in high-risk populations: a systematic review and economic evaluation. *Health Technol Assess (Rockv)*. 2018;22(69):1-276. doi:10.3310/hta22690
2. U.S. Preventive Services Task Force. Final Research Plan: Lung Cancer: Screening - US Preventive Services Task Force. <https://www.uspreventiveservicestaskforce.org/Page/Document/final-research-plan/lung-cancer-screening1>. Published 2018. Accessed May 13, 2019.
3. van Iersel CA, de Koning HJ, Draisma G, et al. Risk-based selection from the general population in a screening trial: Selection criteria, recruitment and power for the Dutch-Belgian randomised lung cancer multi-slice CT screening trial (NELSON). *Int J Cancer*. 2007;120(4):868-874. doi:10.1002/ijc.22134