Template/Guidance for submission of documentation for Single Technology Assessment of medical device, diagnostic methods and procedures

1. Introduction

The national system for the introduction of new health technologies within the specialist health service will involve the rapid assessment of health technologies in relation to the introduction of medical devices, diagnostic methods, procedures and pharmaceuticals.

Two templates for Single Technology Assessment (STA) have been prepared:

1. Template on submission of documentation for the STA of medical devices, diagnostic methods and procedures
2. Template on submission of documentation for the STA of pharmaceuticals

**The System Description is the main document. We refer to it for information about the national system, and description of various types of Health Technology Assessments (HTAs) Nettside- klikk her

**This template will be for submission of documentation to the Norwegian Knowledge Centre for the Health Services for Single Technology Assessment (STA).

The actual template should only be used by the manufacturers that are asked to send in documentation. The template is to be used after RHA Forum (Regional Health Authorities Forum for the commissioning of HTAs) requests (through the use of a proposal order) the Norwegian Knowledge Centre for the Health Services to carry out a STA. The Norwegian Knowledge Centre for the Health Services will then ask for documentation by the actual manufacturer in accordance with the guidance in this template.

Questions concerning the template or any requests for assistance, meetings, etc. in regard to submission of documentation should be sent to: Metodevurdering@kunnskapssenteret.no
The economic analyses in the health technology assessments that are to be conducted are based on the recommendations in the Norwegian Directorate of Health’s guideline for health economic analyses, which in turn follow the recommendations in the Ministry of Finance’s guideline to socio-economic analyses and the Ministry of Government Administration, Reform and Church Affairs’ Instructions for Official Studies and Reports. The template on submission of documentation for STA also contains a number of specific requirements as regards content and requirements concerning reporting. These are in part based on the requirements in the guideline for health technology assessments for the National Institute for Health and Clinical Excellence (NICE). It will also be necessary to seek assistance concerning the health technology description in the Norwegian Knowledge Centre for Health Services manual “Slik oppsummerer vi forskning” (in Norwegian) or the Cochrane Handbook.

The Norwegian Knowledge Centre for Health Services asks manufacturers to ensure that the documentation is presented systematically as proposed in this template. Deviations from the template and elements that are considered by the manufacturer not to be relevant must be justified. Documentation may be submitted in either English or a Scandinavian language. The documentation should be submitted electronically in Word format. If a health economic model has been used to calculate cost-effectiveness, it is assumed that this will also be submitted and that it has been created using a program that is familiar to the Norwegian Knowledge Centre for Health Services (Excel, TreeAge).

If the documentation contains confidential information (commercial secrets or data awaiting publication), which cannot be published by the Norwegian Knowledge Centre for Health Services, this must be agreed in advance. The Norwegian Knowledge Centre for Health Services will publish completed reports on its website.

The template has been prepared by the Norwegian Knowledge Centre for the Health Services in collaboration with the national working group for the introduction of New Health Technologies in the Specialist Health Service.
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2. Technology to be appraised
Briefly describe what task the submission of STA documentation is to respond to.

3. Information about the manufacturer’s / manufacturer’s representative
Applicants contact information.

4. Background
4.1 Description of the health technology
4.1.1 What type of health technology is involved
- Medical devices? (If yes, outline category)
- Diagnostic methods?
- Procedures?
- Other methods? Please specify
4.1.2 How does the health technology work? State the principle.
4.1.3 Is the health technology new or a further development of an existing health technology?
4.1.4 Is the health technology or procedure already in use for other patient groups or for other indications?
4.1.5 What is the status of the health technology concerning any certification, CE-marking, use or approval in a) Norway and b) other countries (internationally)?
4.1.6 Describe briefly the development process for the health technology or procedure
4.1.7 List ongoing studies or other documentation which may become available for assessment during the next twelve months and subsequent years

4.2 Description of the context for use
4.2.1 What patient groups/conditions are to be helped using the health technology or procedure?
- Describe the most relevant patient group(s), including current and anticipated developments in prevalence/incidence.
- Describe the disease(s) for which the health technology is indicated, including consequences of the disease in the short and long term, as well as severity of the disease
4.2.2 What advantages is the health technology intended to give compared with the current health technology?
4.2.3 Which treatment(s), including other health technologies will be displaced – either partly or entirely- by the new technology?
- What place is the health technology thought to have in the everyday clinical set-up/health service?
4.2.4 How many patients will be affected?
4.2.5 Describe any Norwegian national clinical guidelines for the condition which could be affected by the health technology

4.2.6 Will the health technology or procedure result in changes in the course of diagnostics or treatment?

4.2.7 Will the introduction of the new technology result in changes of the infrastructure (organisation of the health service, spatial requirements, training, monitoring, follow-up, administration or costs)?

4.2.8 What are the key groups for comparison? Justify the choice on the basis of Norwegian clinical practice.

4.2.9 Could introducing the new technology have negative consequences for vulnerable patient groups?

4.2.10 Describe the current Norwegian treatment tradition / practice

5. Clinical effect
What clinical documentation is available to demonstrate that the health technology is effective and safe?

In cases where the actual health technology has been through clinical studies, a certification and/or an approval process in Norway or abroad, the information should be included.

Additionally, systematic searches for studies involving the new technology and comparison alternatives must be performed in relevant databases detailing relevant outcome objectives. For information about systematic searches see the Norwegian Knowledge Centre for Health Services health technology manual «slik oppsummerer vi forskning” (In Norwegian).
http://www.kunnskapssenteret.no/verkt%26B8y/slik-oppsummerer-vi-forskning

5.1 Description of the study identification
5.1.1 Inclusion and exclusion criteria
- Describe what has been done to identify relevant clinical data, both published and unpublished.
- In connection with searches for published studies, describe the selection of electronic databases, which databases were searched, state the date and time of the search and enclose complete search strategies with the number of hits (may be in enclosures). The search will be checked by an employee of the National Knowledge Centre for the Health Services.
- Describe the inclusion and exclusion criteria in the studies:
Inclusion criteria | Population/patient group/indication  
|-----------------|----------------------------------
|                 | Intervention                      
|                 | Comparison                        
|                 | Endpoint                          
|                 | Study design                      
|                 | Linguistic limitations            
|                 | Study quality                     

Exclusion criteria | Specify whether there were any special exclusion criteria

5.1.2 Selection of studies
- Describe the process for the selection of studies and create a flow chart for the process.
- If possible, state the number of studies of each type/design that were available during each stage in the process. If appropriate, adapt the flow chart developed by PRISMA (http://www.prisma-statement.org/statement.htm)
- Specify whether data from a single study has been published in several publications.

5.1.3 Relevant studies
- Prepare a complete list of relevant studies.

<table>
<thead>
<tr>
<th>Study (acronym, ID no.)</th>
<th>Reference</th>
<th>Population</th>
<th>Intervention</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of design</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study 1</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Study 2</td>
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<tr>
<td>Etc.</td>
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</tr>
</tbody>
</table>

- If any of the identified studies will not be used further as part of the documentation basis, this must be stated and justified.

5.2 Description of studies included
5.2.1 Studies included
- Give a brief summary in text and describe details from each study in table form. Specify any important differences between the studies.

<table>
<thead>
<tr>
<th>Study (acronym, ID no.)</th>
<th>Study 1</th>
<th>Study 2</th>
<th>Etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location/place conducted/country</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design/study type</td>
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<td></td>
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<tr>
<td>Duration of the study</td>
<td></td>
<td></td>
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<tr>
<td>Randomisation method</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blinding method (investigator, patient, outcomes assessor)</td>
<td></td>
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</tr>
</tbody>
</table>
### The patients/participants in the studies

- Describe the patients/participants in each study
- Give a brief summary in text and describe details from each study in table form. Specify any important differences between the studies.

<table>
<thead>
<tr>
<th>Study (acronym, ID no.)</th>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
<td>Important inclusion criteria such as age, gender, diagnosis, severity, etc.</td>
<td></td>
</tr>
<tr>
<td>Study 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Present an overview table of important baseline characteristics of the patients in the studies included.

<table>
<thead>
<tr>
<th>Study (acronym, ID no.)</th>
<th>Intervention</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1 (n=)</td>
<td>(n=)</td>
<td>(n=)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
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<tr>
<td>etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study 2 (n=)</td>
<td>(n=)</td>
<td>(n=)</td>
</tr>
</tbody>
</table>

### Endpoints

- Describe the endpoints in each study
- The choice of endpoints should be in line with the guidelines by [EUnetHTA](http://example.com). Describe the selections for this research issue. When appropriate, state whether the tools used have been validated and are valid in Norway.

<table>
<thead>
<tr>
<th>Study (acronym, ID no.)</th>
<th>Primary outcome</th>
<th>Validity in current practice</th>
<th>Secondary outcome, including side effects</th>
<th>Validity in current practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study 2</td>
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<tr>
<td>etc.</td>
<td></td>
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</tr>
</tbody>
</table>
5.2.4 **Statistical analyses and definition of study groups**

- Describe the research hypothesis that was investigated and the statistical analyses that were used.
- Specify the strength calculation and sample size calculation, including the assumptions that have been made.
- State clearly whether the analyses include patients that withdrew/had missing measurements and, if so, how this was handled.

<table>
<thead>
<tr>
<th>Study (acronym, ID no.)</th>
<th>Hypothesis</th>
<th>Statistical analysis</th>
<th>Sample size, strength calculation</th>
<th>Handling of data (withdrawals, missing measurements, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
<td></td>
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<td></td>
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<tr>
<td>Study 2</td>
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<tr>
<td>etc.</td>
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</tr>
</tbody>
</table>

5.2.5 **Flow chart**

- Present a flow chart of the patient’s progress through the study (randomised patients, withdrawal from the groups, replacement of groups, etc.). See for example [Consort’s chart](#).

5.3 **Detailed description of included studies**

5.3.1 **Give a detailed description of all included studies included.**

- See the [Norwegian Knowledge Centre for Health Service’s health technology manual “Slik oppsummerer vi forskning”](#) (in Norwegian).
  
  A complete quality evaluation of all studies must be enclosed.
  
  The evaluation will be checked by an employee of the National Knowledge Centre for the Health Services.

5.4 **Presentation of results**

5.4.1 **Present results for all relevant endpoints.**

- Where possible, data must be presented as “intention-to-treat” analyses (analyses where all the patients are analysed in the group in which they started). Depending on the study design and type of endpoint, other types of analysis may also be relevant (e.g. “on-treatment” and “safety-on treatment”).
- Always define which patients are included in the analysis and, where applicable, the reasons why any patients were not included in the analyses.
- State clearly whether the analyses include patients that withdrew/had missing measurements and, if so, how this was handled.
- Data should be presented in the form of text, table and graphics where possible.

5.4.2 Meta-analyses
- If there is more than one study, consideration must be given to performing meta-analyses. Clearly present the assessment behind the decision regarding whether or not meta-analyses are suitable.
- In cases where meta-analyses are included, provide at least the following: selection method (random or fixed effects model, choice of effect parameter, sensitivity analyses) and test for heterogeneity.

5.4.3 Indirect comparisons
- If there are no directly comparable studies (head-to-head studies), consideration must be given to the execution of indirect comparisons. See the EUneHTA’s guidelines for indirect comparisons.
- Present clearly the assessment behind choices made, how the studies for indirect comparison were identified, how the data was extracted and the method adopted for analysis.

5.5 Summary of the key findings
- Briefly summarize key findings of presently available clinical documentation, with a focus on effects and side effects of the new health technology (the device or procedure).
- Give a brief summary of the strengths and weaknesses inherent in the documentation available for the new health technology (the device or the procedure).

5.6 Relevance to Norwegian conditions
- Briefly discuss how and to what extent the provided documentation is relevant for the application.
- Identify factors which could be of significance for the external validity of the study results when applied in normal clinical practice.
6. Cost-effectiveness

6.1 Previously published cost-effectiveness analyses

6.1.1 Identification of other relevant published analyses

If published health economic analyses that are relevant to the case exist, the Norwegian Knowledge Centre for Health Services wishes that such analyses are enclosed.

Fill in the following table summarizing identified studies.

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Country in which the study was conducted</th>
<th>What type of model analysis?</th>
<th>Patient population (age, gender, state of health, etc.)</th>
<th>Incremental QALY* benefit</th>
<th>Incremental costs</th>
<th>ICER**</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
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<td>Study 2</td>
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<td>Etc.</td>
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</tbody>
</table>

* QALY: Quality-Adjusted Life Years
** ICER: Incremental Cost-Effectiveness Ratio

6.1.2 Previously published mini-HTA?

- Enclose the search results from the relevant mini-HTA (can be found in the MedNytt database).

6.2 In-house cost-effectiveness analysis

- The recommendations in the table below specify a standard analysis for evaluations of the cost-effectiveness of different measures. ‘Standard analysis’ means health technologies, assumptions and unit values that are preferably to be common. The column on the right specifies the section in the Norwegian Directorate of Health’s guideline in which each of the elements in the analysis is discussed.
<table>
<thead>
<tr>
<th><strong>Element in the analysis</strong></th>
<th><strong>Standard analysis</strong></th>
<th><strong>Section in the Norwegian Directorate of Health’s guideline</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comparison alternative</strong></td>
<td>The measure or measures which the new measure will essentially replace.</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Analysis perspective</strong></td>
<td>The health service’s perspective for both health benefits and costs if applicable, the social perspective too</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Time horizon</strong></td>
<td>Sufficiently long to ensure that all important future differences in costs and consequences between the alternatives are identified</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Analysis method</strong></td>
<td>CUA*</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>Objectives for health and indicators for health benefits</strong></td>
<td>QALY and life years</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Method for measurement and personal valuation of health benefits</strong></td>
<td>Generic MAU** instruments</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Inclusion of production effects</strong></td>
<td>May be included if relevant. Method selection must be justified. The results should be shown with and without production effects.</td>
<td>2.9</td>
</tr>
<tr>
<td><strong>Discounting</strong></td>
<td>4% per year for both costs and health effects.</td>
<td>2.10</td>
</tr>
<tr>
<td><strong>Method for handling uncertainty</strong></td>
<td>PSA***, one-way sensitivity analyses (shown in tornado diagram) and scenario analyses</td>
<td>2.12</td>
</tr>
</tbody>
</table>

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* CUA: Cost-Utility Analysis
** MAU: Multi-Attribute Utility
*** PSA: Probabilistic Sensitivity Analysis

### 6.2.1 The patient group in the analysis
- Describe the patient group at which the analysis is aimed. Does it differ from the target group as defined in 4.2.1, and if so, how?

### 6.2.2 The structure of the analyses
- Describe and explain the structure of the analyses.
- Is the analysis based on modelling or based directly on costs and health effects collated as part of a comparative efficacy study (piggyback analysis)? Or a combination of these?
- If modelling is used, state how the course of the disease with the current treatment is modelled and the new treatment. State the reasons for the choices made during construction of the model.
- If the analysis is based directly on a comparative efficacy study, please describe the collation of costs and health effects in detail, such as choice of target group, determination of how the data (costs, quality of life data) is to be acquired and analysed, and choice of time interval/time frame for data acquisition.
6.2.3 Concerning the methods: the intervention(s) and comparator(s)
- In connection with the selection of comparison alternative, follow the recommendations in the Norwegian Directorate of Health’s guideline (section 2.4) and in the EUnetHTA’s guidelines on how to carry out a health technology assessment.
- Is use of the method in the analysis in accordance with the use investigated in the clinical studies? If not, explain why.

6.2.4 The perspective and time horizon of the analyses
- In STAs for health technologies, the analysis must be carried out using both the societal perspective and the health care perspective.
- The Norwegian Knowledge Centre for the Health Services refers applicants to the Directorate of Health’s guidelines and its recommendation 5, in addition to section 2.5 about perspective:
  - Societal perspective: The analyses should at the first hand be carried out using the societal perspective, and should give an overview of the consequences for all involved actors. It is recommended that the analyses should be carried out using the societal perspective where all significant costs and consequences are included, regardless who it involves, e.g. the public health service, municipality, companies, patients, relatives.
  - Health care perspective: In analyses on new efforts in the health service, the most important costs will most often be from the health and care services, and the most important health effects will be related directly to the patients. We recommend to rely on a broad perspective related to consequences.
  - The time horizon of the analysis should be sufficiently long to ensure that all important differences in costs and health effects between the comparison alternatives are identified. This will often result in a need for a life-cycle perspective.

6.2.5 Use of efficacy data in the model
- It is recommended that clinical efficacy data from the included studies, should be included in the model in the form of hazard ratios (or alternatively relative risks or odds ratios) for an event or condition applied to a background risk taken from Norwegian epidemiological data (see the section below).
- Describe all the stages in the calculation of probability for different events in the model.
- Clinical, hard endpoints (e.g. number of cases of relapse, infarction, death, etc.) are preferred in the modelling. If intermediate (surrogate) endpoints are to be used in the model instead of clinical endpoints, this must be justified (e.g. HbA1c, LDL-c, SBP, PSA, etc.). Please also give references and discuss the available evidence which supports the ratio between the chosen surrogates and the relevant clinical endpoints. See the EUnetHTA’s guidelines on the use of surrogate endpoints in health technology assessments for more details.
- For how long time period was the efficacy data applied? If this extends beyond the period for which clinical documentation is available, this must be justified and
assumptions must be described thoroughly. Show the results in diagram form, e.g. using the Kaplan-Meier curve.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
<th>95% confidence interval</th>
<th>Probability distribution (type and parameters)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome 1</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Outcome 2</td>
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<td></td>
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<tr>
<td>Etc.</td>
<td>...</td>
<td>...</td>
<td></td>
<td>...</td>
</tr>
</tbody>
</table>

6.2.6 Use of epidemiological data in models
- The analysis should preferably be based on Norwegian epidemiological data as the source for background risk. If Norwegian epidemiological data are not available, data from countries that are considered to be as similar as possible to Norway in terms of the occurrence of diseases should be chosen.
- On occasions, a balance must be struck between study quality and transferability (internal vs. external validity). In such cases, advantages and disadvantages in connection with the various choices should be discussed. The control arm from an RCT can be used as a last resort, if it is not possible to find other sources of epidemiological data.
- Please complete the following summary table of the key epidemiological parameters used in the analysis:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
<th>95% confidence interval</th>
<th>Probability distribution (type and parameters)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability of event X</td>
<td></td>
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<td></td>
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<tr>
<td>Probability of event Y</td>
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<tr>
<td>Etc.</td>
<td>...</td>
<td>...</td>
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</tbody>
</table>

6.2.7 The patient’s quality of life
- Quality-Adjusted Life Years (QALY) is the preferred objective for health. If QALY is not used in the analysis, this must be justified.
- How does the disease affect the patients’ quality of life? How is the patients’ quality of life expected to develop over time, with and without the currently established treatment? How do these developments compare with the developments for the rest of the population?
- Was quality of life data acquired in connection with the studies from which clinical data was obtained? If yes, describe in detail the method for valuing the patients’ quality of life and for acquiring this data. Include the time of measurement and the confidence intervals concerning the measurements.
- Specify the quality of life weightings which were used in the application in the following format:

<table>
<thead>
<tr>
<th>State of health/health situation</th>
<th>Quality of life weighting</th>
<th>CI (95 %)</th>
<th>Source</th>
<th>Reason for the selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of health 1</td>
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</tr>
<tr>
<td>State of health 2</td>
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<tr>
<td>Etc.</td>
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<tr>
<td>Event 1</td>
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<tr>
<td>Event 2</td>
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<tr>
<td>Etc.</td>
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</tr>
</tbody>
</table>

6.2.8 Identification, measurement and valuation of resource use in the model
- This section is based on section 2.9 of the Norwegian Directorate of Health’s guideline.
- The applicant must also report the costs linked to each of the states of health and the events in the model:

<table>
<thead>
<tr>
<th>State of health/health situation</th>
<th>Cost item</th>
<th>Unit cost</th>
<th>Quantity</th>
<th>Total cost</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of health 1</td>
<td>Cost item 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State of health 2</td>
<td>Cost item 2</td>
<td></td>
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<tr>
<td>Etc.</td>
<td>Etc.</td>
<td></td>
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</tr>
<tr>
<td>Event 1</td>
<td>Cost item 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Event 2</td>
<td>Cost item 2</td>
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<tr>
<td>Etc.</td>
<td>Etc.</td>
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</tbody>
</table>

6.2.9 Discounting
- It is recommended that both health effects and costs be discounted at the rate recommended by the Ministry of Finance for measures with a low to moderate systematic risk, currently 4% p.a. (see FIN 2005). See section 2.10 of the Norwegian Directorate of Health’s guideline for more details.
6.2.10 Base case cost-effectiveness results

- Overview of all treatments assessed in the analysis in ascending order with regard to total costs in the tables below. State the incremental cost effectiveness ratio (ICER) for each of the treatments in relation to the relevant comparator (see section 2.4 of the Norwegian Directorate of Health’s guideline for a description of the criteria for selection of the comparison alternative).

<table>
<thead>
<tr>
<th>Measure</th>
<th>Total costs (NOK)</th>
<th>Total number of life years</th>
<th>Total number of QALYs</th>
<th>Incremental costs</th>
<th>Life years gained</th>
<th>QALY gained</th>
<th>ICER vs. relevant comparator (QALYs)</th>
<th>NHB (Net Health Benefit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment alternative 1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Treatment alternative 2</td>
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<tr>
<td>Treatment alternative 3</td>
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<tr>
<td>Etc.</td>
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</tbody>
</table>

6.2.11 Sensitivity analyses

- The uncertainty concerning the results of the analysis must be investigated, described and discussed via one-way and probabilistic sensitivity analyses, as well as scenario analyses. See section 2.12 of the Norwegian Directorate of Health’s guideline for a more comprehensive discussion of these methods.

6.2.12 Sub-group analyses

- Is data available which indicates that the efficacy and/or costs associated with the health technology under consideration differ between sub-groups?
- If so and the measure has indication/CE marking for the treatment of these sub-groups, state whether the sub-groups were identified before the clinical study was conducted (a priori) or after the results of the study became available (a posteriori); describe the sub-groups’ characteristics; and finally report the model’s results for these sub-groups.

6.2.13 Interpretation of the analysis results

- What does the applicant consider to be the key strengths of the analysis? And the key weaknesses?
- Are the results of the applicant analysis in accordance with the results of previously published analyses? If not, state the possible reasons behind the differences.
7. Budgetary consequences of the new technology

The manufacturers/applicants must provide/present an analysis of their technology's budgetary consequences. The Norwegian Knowledge Centre for the Health Services will then evaluate and possibly carry out own calculations where necessary.

The applicant must calculate and provide the budget implications on program category 10:30 of the National State Budget (Specialist health care services). The budget impact/implication is hereby defined as the additional costs incurred i.e. the total costs of introducing the new technology minus the total costs of not doing so.

These calculations/analyses are intended for the national level. Budget calculations at the regional or local level should be done regionally or locally.

The time horizon in relation to budget analyses of pharmaceuticals shall be five years. This is because it is assumed that the broad usage of new pharmaceuticals is well established after five years. For other technologies, the time horizon may vary depending on the economic life and/or depreciation of the technology.

Calculation of the additional costs shall be based on the following factors:

1. Costs incurred by the specialist health service during the calculation/analysis period.
2. The estimated market share of the new technology, in relation to the patient group the technology targets, in each of the relevant years after the decision to use the technology is made.
3. Deductions of: costs of competing technologies that will be completely or partially replaced by the new technology, any increases in patient payments and increments in user fees during outpatient treatment.
4. Other costs related to the technology assessment (change in bed-days, commodity costs, personnel costs, nursing costs, depreciation, travel expenses covered by the specialist health care service, administrative expenses, etc.) should only be included if there are significant differences between the competing technologies and/or if the differences constitute a large proportion of the additional costs.

The table below shows an example of how calculation of the additional costs can be done. Costs are calculated in two scenarios - one where the technology is introduced into the specialist health service (green table) and one where this is not the case (orange table). In each of the scenarios, costs are only presented for the indication that the new technology will cover. It is possible to provide where applicable; various treatment procedures, different measures, different pharmaceuticals used for treatment of the indication i.e. the new technology and several alternatives/comparators. It is also possible to have a scenario where a certain percentage of patients receive the new technology while a certain proportion of patients receive the alternative comparison technology.
### Budget Impact

<table>
<thead>
<tr>
<th>+ Cost if the New technology is adopted</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>...</th>
<th>Year x</th>
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<tbody>
<tr>
<td>- Cost without adoption of the New Technology, i.e. Current situation</td>
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<tr>
<td>- Out-of-pocket charges during outpatient treatment</td>
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<td>- Payment by individual patients</td>
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<tr>
<td><strong>Total added cost</strong></td>
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</tbody>
</table>

Budget calculations/analysis should cover both the new technology and the competing technology(ies) if the extent of use is affected by the possible introduction of the new technology. This will in turn make it possible to calculate a total budget impact. The budget impact is the difference between the two scenarios in each of the relevant years of the analysis (tables below). Year 1 is the first full calendar year after a decision is made about introducing the new technology into the specialist health care service.

The budget impact calculations must show the following:

1. What proportion of the total additional costs is the result of an increase in patient numbers and what proportion is due to the transition to a more expensive technology
2. The basis for key assumptions in the calculations.

Additionally, the following calculations may apply in special cases:

1. Subgroup analyses such as in cases where it is prudent to prioritize giving the new technology to only a subset of the total population.
2. Analyses with added costs/impact on other patient groups not targeted by the new technology but whom none the less use the technology.
3  Sensitivity analyses where key assumptions and data are tested in order to check to what extent results and estimates used are sensitive to changes. This is particularly relevant if critical assumptions in the analyses are very uncertain.
8. References

9. Mednytt http://www.mednytt.no/