Zorginstituut Nederland

Healthcare personnel utilisation and environmental sustainability as criteria in healthcare choices

An advisory report on implementation and weighting

ay 2025

| Van goede zorg verzekerd |

Summary

The healthcare sector is facing major substantive challenges, as demand for care and healthcare costs have been increasing for some time. Other social issues have recently come into the picture, such as staff shortages, overworked healthcare personnel and the environmental damage caused by healthcare.
To respond to these challenges and thereby future-proof our healthcare, the minister and other parties concerned have agreed on moving towards appropriate care through the Integral Care Agreement (hereinafter the "IZA"). The aim is for the healthcare sector to be providing an optimum contribution by 2040 to healthy living conditions for all people in the Netherlands, with the knowledge that no more people and resources are available for this than now, and that this must be achieved with the least possible impact on the climate and the environment.

Achieving this goal requires coherent measures in several areas, including management of the insured package. This package management determines which care is reimbursed as part of the basic health insurance package. The IZA includes agreements on "Improving and broadening the assessment of the Dutch basic benefit package" (hereinafter the "VVTB"). These agreements include tightening the criteria for admission to the package ("improving") and applying those criteria to a larger proportion of care ("broadening"). The Minister of Health, Welfare and Sport asked the National Health Care Institute to develop two new package criteria: healthcare personnel utilisation and environmental sustainability. The National Health Care Institute set up a Committee to respond to this question. This advisory report is the result of the efforts of that Committee.

The Committee first considered how adding these new criteria could help solve the labour shortage in the care sector and the environmental damage caused by care. Although the direct contribution of formal package management to the goals set will be limited (after all, by no means all care is explicitly assessed for admission to the basic benefit package), the government's intention to include these criteria in (reimbursement) decisions sends a strong signal. As a result, these criteria are also expected to play a role in other areas such as in the drafting of professional guidelines and quality policy. It may also encourage (market) parties to aim for the lowest possible impact in terms of labour and on the environment when developing an intervention, even before it is considered for inclusion in the basic benefit package or a guideline. This can create momentum that provides the best support for the move towards appropriate care.

In its work, the Committee found that it was unable to draw on any extensive scientific literature or examples from abroad on the consideration about healthcare personnel utilisation or environmental sustainability in insured package decisions. It therefore carried out an initial exploration into the possibilities for defining, measuring and analysing these criteria and determining how they could be weighted in insured package management decisions. In doing so, the Committee's advisory report focuses not only on formal insured package decisions but also on other moments when a choice needs to be made between two interventions, for instance when drawing up professional guidelines.

The Committee proceeded similarly for both criteria. Although the nature of the issues and the levels at which outcomes should be analysed are quite different, the Committee also sees similarities in how weighing these criteria can help make sharper healthcare choices. After all, in both cases there are limitations within which solutions must be found. For healthcare personnel utilisation, that limit is the available capacity of healthcare professionals. For environmental sustainability, it is the ecological crises

weighing upon the health of our population and of the planet and the agreement to be climate-neutral by 2050, including the healthcare sector.

Although answering the questions formulated by the Committee has required some pioneering work, the Committee's believes that the seriousness of the issues calls for rapid action. It has therefore endeavoured to come up with initial proposals for the elaboration and weighting these criteria to give direction for further elaboration and development.

Healthcare personnel utilisation
The Committee has operationalised 'healthcare personnel utilisation' as the deployment of formal healthcare professionals, split into various disciplines such as nurses, physicians, carers, etc. The Committee considered including the utilisation of informal care as well, but due to various practical objections led to deciding that it is better to limit the new package criterion to formal healthcare personnel utilisation for the time being. However, where relevant the expected impact on informal care should be allowed to play a role in the deliberative weighting of the package criterion. The same applies to the impact of the intervention on the perception of work.
The Committee proposes using the following two parameters:

- *Incremental healthcare personnel utilisation: the difference in labour (in FTE) required per patient to implement the intervention, compared to current care;*
- *Overall impact on healthcare personnel utilisation: the difference in labour (in FTE) required to treat all patients eligible for the new intervention, compared to current care.*

When there is a difference in effectiveness between interventions, it could be informative to express the first of these parameters not only per intervention, but also as the difference in healthcare personnel utilisation required to gain one QALY. For the weighting of the second parameter, it is informative not only to work with absolute numbers but also to relate those absolute numbers to the available labour capacity and the existing shortage (if any) of labour capacity. The Committee proposes the following additional parameters for this purpose:

- *Relative impact on healthcare personnel utilisation: the overall labour impact, expressed as a fraction of the available labour capacity;*
- *Relative shortfall for the impact on healthcare personnel utilisation: the overall labour impact, expressed as a fraction of the existing shortage in labour capacity;*

To calculate these parameters, there must be data for the new and existing intervention about FTE utilisation per intervention per patient, on the effectiveness of the interventions, on the number of eligible patients, on the total available capacity per discipline and any shortage in capacity per discipline.

Elaboration of example: 'caring washing' compared to the classic washing with water

The term 'caring washing care' (also referred to as 'washing without water') refers to special, liquid-impregnated washcloths or hand towels are used so that no water required. The liquid in the washcloths or hand towels is a pH-neutral way of washing. This caring washing has benefits for both client and carer, and also saves saving time[1].

The committee used the following data to work out this example:
Average time for 'classic washing' was 23 minutes per client per wash, on average 3 times a week: Per year = 3588 minutes (23 x 3 x 52) = 59.8 hours = 0.032 FTE (full time equivalent)[2]

[1] You can read more about this on https://www.zorgvoorbeter.nl/thema-s/verzorgend-wassen
[2] The times for the interventions were taken from a 'Regio plus' business case report: add reference. Based on a 36-hour working week

Discipline: nurses or carers

Average time for caring washing: 14 minutes[3]. Average 3 times a week: Per year = 2184 minutes (14 x 3 x 52) = 36.4 hours = 0.019 FTE

Number of patients in the Netherlands (2021): 88,000 (care under the Healthcare Insurance Act)[4]
Existing capacity in the Netherlands (carers): 49,850 FTE[5]
Shortage in the number of carers in the Netherlands: 2,952 FTE[6]

Using this data the proposed parameters can be calculated:
Incremental healthcare personnel utilisation: the difference in labour (in FTE) required per patient per intervention:
Classical washing: 0.032 FTE per year
Caring washing: 0.019 FTE per year
Difference: 0.032 – 0.019 = 0.013 FTE per year

Given that comparable effectiveness can been assumed, calculating the incremental healthcare personnel utilisationper QALY is not meaningful.

Overall impact on healthcare personnel utilisation: the difference in labour per intervention per patient, times the number of patients:
Classical washing: 0.032 x 88,000 = 2,816 FTE per year
Caring washing : 0.019 x 88,000 = 1,672 FTE per year
Difference: 2,816 – 1,672 = 1,144 FTE per year

To show the impact that applying the new intervention has on the existing labour capacity and on the existing labour capacity shortage, the two additional relative parameters were calculated:

Relative impact on healthcare personnel utilisation: the difference in the overall labour impact, expressed as a fraction of the available labour capacity:
Classical washing: 2,816 ÷ 49,850 = 5.7%
Caring washing: 1,672 ÷ 49,850 = 3.4%
Difference: 1,144 ÷ 49,850 = 2.2%

Relative shortfall for the impact on workforce utilisation: the difference in overall labour impact, expressed as a fraction of the existing shortfall in labour capacity:
Classical washing: 2,816 ÷ 2,952 = 95.5%
Caring washing: 1,672 ÷ 2,952 = 56.6%
Difference: 1,144 ÷ 2,952 = 38.8%

Explanation
This numerical example shows that the time savings achieved with caring washing (approx. 9 minutes per carer each time), combined for all carers and calculated over a full year, adds up to significant savings in the healthcare personnel utilisation of nurses (equivalent to over 1,100 FTE). This is a large saving, not only in absolute terms but also in relative terms. In fact, the saving in healthcare personnel utilisation of nurses corresponds to over 2% of the overall labour capacity of nurses and covers almost 40% of the current shortage of nurses, thereby potentially making a relevant contribution to resolving this shortage.

[3] Washing care in the home situation, "Een horizon is niets ander (zonmw.nl)
[4] Regio plus
[5] Source: Forecast model for care and welfare: number of available carers converted to FTE
[6] Source: Forecast model for care and welfare: shortfall in the number of carers, converted to FTE

Box 1: Technical details of the example calculation for the proposed healthcare personnel utilisation parameters

The Committee has used an example (see box 1) to show that it is technically possible to calculate these parameters. The values obtained can then be weighed against the other criteria used in insured package management and in guideline development.

Environmental sustainability
The Committee has operationalised 'environmental sustainability' as minimising environmental impact and then focusing on climate impact specifically, measured as CO_2 equivalents. Although the Committee is well aware that healthcare also has other environmental impacts, greenhouse gas emissions are the factor on which most data has already been collected. Therefore it was decided to limit the new package criterion to climate impact for the time being. It is important furthermore to consider whether there are significant other forms of environmental impact that should be included in the deliberative weighting of the package criterion.

The Committee proposes using the following two parameters:
- *Incremental climate effect: the difference in greenhouse gas emissions (in CO_2 equivalents) required per patient to implement the intervention, compared to current care;*
- *Overall climate impact: the difference in greenhouse gas emissions (in CO_2 equivalents) required to treat all patients who are eligible for the new intervention, compared to current care.*

When there is a difference in effectiveness between, it can be informative to express the first parameter not only for each intervention, but also as the difference in greenhouse gas emissions required to gain one e QALY. Furthermore, as was the case with healthcare personnel utilisation, it is also informative for climate impact not only to work with absolute values for the second parameter but also to relate the overall climate impact to the overall greenhouse gas emissions of healthcare. Given the climate targets set for the Netherlands – targets that the healthcare sector is committed to – it is moreover informative for weighting purposes to express the overall climate impact of an intervention with respect to the remaining carbon budget. This parameter mainly serves to highlight the urgency of the issue. The Committee therefore proposes the following additional parameters:

- *Relative climate impact: the overall climate impact expressed as a fraction of the greenhouse gas emissions of the health sector as a whole;*
- *Relative shortfall for the climate impact: the overall climate impact, expressed as a fraction of the remaining carbon budget for the health sector.*

To calculate these parameters, there must be data for both the new and existing interventions about greenhouse gas emissions per intervention per patient and about the effectiveness, the numbers of patients eligible for the intervention, the overall healthcare greenhouse gas emissions and the remaining health sector carbon budget.

In the example below, the Committee uses a simple example to show how the parameters it has proposed can be calculated.

Details of an example for climate-friendly inhalation medication: comparison between aerosol inhalers and powder inhalers for patients with asthma and COPD

When prescribing inhalers, the guidance given by the Dutch College of General Practitioners (NHG) states that a form of administration that the patient is comfortable with should be chosen in consultation with the patient. Multiple aspects play a role when choosing an inhaler, including the patient's inhalation power and their coordination technique. The 2020 NHG guidance states that the highly environmentally damaging greenhouse gas that aerosol inhalers contain should also be taken into account.

The Committee used the following data to elaborate further on t this example:

Climate impact per dosing aerosol: 340 grams[7] of CO_2 equivalents
Climate impact per powder inhaler dose: 9 grams of CO_2 equivalents
Number of doses per year in the Netherlands as a whole: 364 million (2020) [8]
Number of patients per year in the Netherlands as a whole: 1.4 million[9]
Number of doses per patient per year: 364 ÷ 1.4 = 260
Total CO_2 emissions by the Dutch healthcare sector per year: 17.6 million tons of CO_2 equivalents
Remaining carbon budget for the Dutch healthcare sector: 38.5 million tons of CO_2 equivalents
The proposed parameters can be calculated using these data:

Incremental climate impact: the difference in climate impact per intervention per patient
Dosing aerosol: 340 g x 260 doses = 88.4 kg CO_2 eq per year
Powder inhaler: 9 g x 260 doses = 2.3 kg CO_2 eq per year
Difference: 88.4 – 2.3 = 86.1 kg CO_2 eq per year

Given that comparable effectiveness has been assumed, calculating the incremental emissions per QALY gained is not meaningful.

Overall climate impact: the incremental climate impact times the number of doses, as compared to current care
Dosing aerosol: 340 g x 364 million = 123,800 tons CO_2 eq per year
Powder inhaler: 9 g x 364 million = 3,300 tons CO_2 eq per year
Difference: 120,500 tons CO_2 eq per year

Additional parameters for calculating the relative impact:

Relative climate impact: the difference between the new and existing interventions in terms of their overall climate impact, as a fraction of the overall CO_2 emissions of the health service per year
Dosing aerosol: 123,800 ÷ 17.6 million = 0.70%
Powder inhaler: 3,300 ÷ 17.6 million = 0.02%
Difference: 120,500 ÷ 17.6 million = 0.68%

Relative shortfall for the climate impact: the difference between the new and existing interventions in terms of their overall climate impact, as a fraction of the remaining carbon budget
Dosing aerosol: 123,800 ÷ 38.5 million = 0.32%
Powder inhaler: 3,300 ÷ 38.5 million = 0.01%
Difference: 120,500 ÷ 38.5 million = 0.31%

Explanation
This numerical example shows that the difference in CO_2 eq emissions between a dosing aerosol and a powder inhaler is huge, exceeding 300 grams of CO_2 equivalents. If all patients were to use powder inhalers instead of dosing aerosols, this adds up to a difference of over 120 thousand tons of CO_2 eq per year for the Dutch population as a whole. This corresponds to a potential saving of 0.68% on the total CO_2 eq emissions of the Dutch healthcare sector, which is an exceptionally large effect for a single intervention. In terms of the remaining carbon budget of the Dutch healthcare sector too, this is a relatively large saving, suggesting that switching to powder inhalers could make a significant contribution to meeting the internationally agreed climate target of no more than 1.5 degrees of global warming.

[7] The Committee used an average for this. The range is however quite wide (20-697 grams), depending on the type of inhaler.
[8] A total of 364 million daily doses were issued, 49.6% of which were dosing aerosols (a.k.a. metered dose inhalers). (SOURCE: Ten Have)
[9] Ned Tijdschr Geneeskd. 2022;166:D6718

Box 2: Explanation of the calculation of the remaining carbon budget

For these parameters, the Committee used an example (see box 2) to show that it is technically possible to calculate them, although not all data used for this purpose are equally reliable or uncontroversial. The values obtained can then be weighed against the other criteria used in insured package management and guideline development.

Finally, the Committee considered how the two criteria could be weighted in relation to each other and to other criteria. In doing so, it examined whether integration into the existing criteria for effectiveness or cost-effectiveness criteria would be possible. This may be appropriate from a consistency point of view as it would avoid double counting. However, given the lack of suitable methods for doing this, it is not yet an option.

What remains is the option of weighing the new criteria in the same way as is currently done with the necessity and feasibility criteria (often referred to in professional guidelines as 'implantability'). However, this cannot yet be done with fixed cut-off points such as for example . the reference (or threshold) values used for cost-effectiveness. For that, the new criteria need further development and more experience is required.

This means that both the healthcare personnel utilisation and the climate impact need to be weighed up alongside the other criteria in a deliberative process. In this process, a systematic discussion about criteria and arguments for or against reimbursement (in the basic benefit package) or recommendation (in a guideline) is held, leading to a conclusion in which the arguments that are considered to carry the most weight prevail.

The Committee realises that defining these new package criteria will require additional effort. For healthcare personnel utilisation, much of the necessary data will already be collected as part of the costing process. In any case, the right balance will always have to be found between the extra effort and the potential return, i.e. the extent to which it may be expected to tackle the labour shortages and climate impact. The starting point are proportionality and appropriateness: what is relevant for decision-making should be measured and weighed.

Given the urgency of the problem, the Committee recommends that work should commence on the proposed methods, in a three-year development period. During that period, experience can be gained with case histories and further research can be carried out. It is important that the National Health Care Institute, healthcare sector parties, knowledge organisations and experts in measuring healthcare personnel utilisation and climate impact in healthcare work together on this. Efforts by all these parties are needed to take the proposals in this advisory report further . For such a development process to be successful, the Committee recommends that:

1. This development path should be included in the National Health Care Institute's work programme, including the financial and human resources required for this purpose and with an external supervisory committee;
2. This development path should be supported by research (collection and analysis of data on the case histories used, evaluation and adjustment of the methodology, measuring the level of support), for instance from the ZonMw's Framework Programme on Appropriate Care and the National Health Care Institute's long-term research agenda. This should ensure that new insights from ongoing and new research are quickly embedded in the development pathway;
3. Part of the development pathway is to examine what effort is needed to implement the Committee's recommendations. This must not be disproportionate in terms of the time invested and must be in balance with

what will ultimately be the added value of taking these criteria into account when making better decisions about the deployment of care.

The Committee suggests an interim review halfway through the trial period, i.e. after eighteen months.

Whether and how these new criteria will be embedded in healthcare decision-making depends not only on the methodological details but also on public support for their application. This support may differ for each criterion. Determining to what extent there is public support for applying these criteria is therefore an important part of the trial period. This will make it possible to make an informed decision on how to proceed at the end of that period. Finally, given the current problems in healthcare, the Committee questions whether it is a viable approach to always give preference to the most effective intervention when choosing between two interventions with different effectiveness , as is the current practice. Considerations should be given to introducing more nuance in this, so that a slightly lower effectiveness can be balanced against a much more favourable outcome in terms of one of the other criteria, such as healthcare personnel utilisation or climate impact.

Synthesis and proposal for implementation

In this report the Committee described how the criteria of healthcare personnel utilisation and environmental sustainability could be elaborated. In this chapter, the Committee brings together the results in order to draw some general conclusions that may also be applicable outside the context of package management. Although the two criteria differ from each other in terms of their origins, background, level of analysis and the extent to which society perceives them, the Committee sees similarities in the work that needs to be done for:

- Developing or expanding upon good methodologies to measure both criteria;
- Determining which operationalisations and methods are most useful for making choices about the utilisation of care;
- Studying the societal support for these criteria to be taken into account in decisions on the utilisation of care and studying the limits to people's willingness to do this;
- Getting an impression of when including these criteria becomes relevant;
- Developing a transparent and consistent way of weighing these criteria up against each other and against the other package criteria.

For both criteria, there is also urgency in terms of policymaking, although that may not be perceived the same way throughout society for both criteria. However, this urgency means that it is impossible to wait until the aspects mentioned above have been carried out; a start has to be made.

Previous experience teaches us that a long gap can exist between the initial intention to apply a criterion and its actual implementation. The first guidelines for pharmacoeconomics, for example, date back to 1999 but did not actually become guiding principles for all pharmaceuticals reimbursement requests until 2006. The period in between was a transitional one during which pharmacoeconomic dossiers could be submitted on a voluntary basis, allowing applicants and assessors to gain experience. It then took until 2015 for the current reference values for cost-effectiveness to be introduced and now, in 2025, the VVTB programme is investigating whether and how cost-effectiveness can be enshrined in regulatory frameworks. Another reason why it took so long for the cost-effectiveness criterion to play a greater role in package assessments is that public opinion had to move towards accepting it: the general view for a long time was that cost should not play a role in decisions about the reimbursement of healthcare interventions. There now seems to be widespread acceptance that society can no longer ignore this issue.

New challenges for society now demand additional considerations. The urgency of those challenges will also not permit it to take that long. The Committee therefore suggests starting as soon as possible on applying the healthcare personnel utilisation and environmental sustainability criteria in a development period and using that period to acquire the requisite knowledge and experience. Such experience can be gained by conducting 'pilot tests' on submitted case studies. As more experience is gained, these pilot tests can gradually take on the character of a full 'shadow assessment' that also includes social weighting. Hereby must the term 'assessment' be interpreted broadly here: it can for example include a decision to recommend an intervention in a clinical guideline. If the data about this is sufficiently high in terms of quality, it should even be possible to make a decision to reimburse or recommend care based on this shadow assessment during the development period.

For this purpose, the assessment scheme already being applied at present in insured package management can be extended with the new criteria, as shown in the figure below. The Committee recommends here that the National Health Care Institute should also consider the relationship with the new criteria of healthcare personnel utilisation and environmental sustainability when updating the assessment framework for the feasibility.

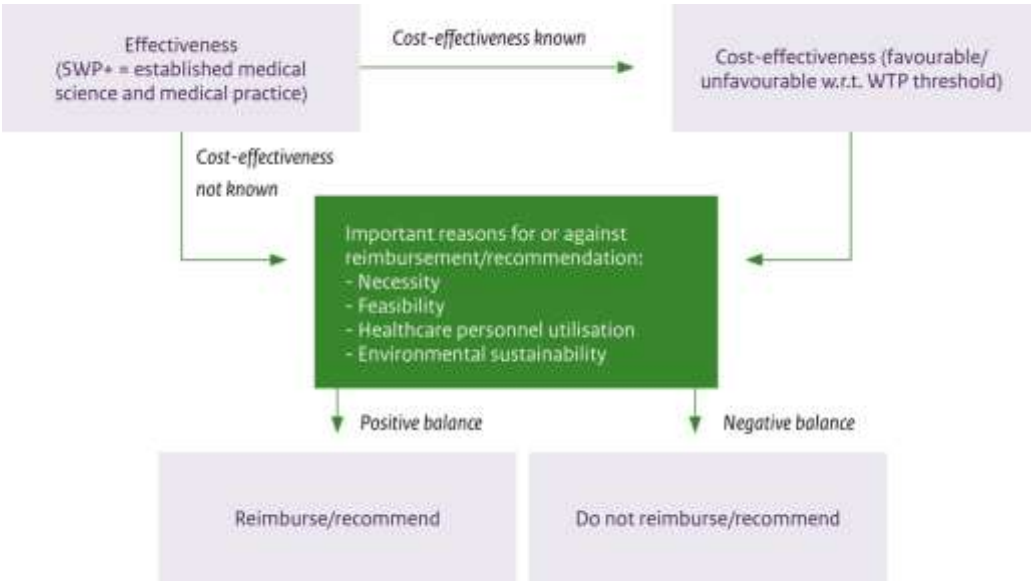

Figure 1: new criteria added to the assessment scheme

The Committee proposes a three-year trial period during which the National Health Care Institute, healthcare sector parties (healthcare professionals and healthcare organisations), knowledge organisations and experts in measuring healthcare personnel utilisation and climate impact from healthcare all work together. Efforts by all these parties are needed if the proposals in this advisory report are to be progressed. For such a development process to be successful, the Committee recommends that:

1. This development process should be included in the National Health Care Institute's work programme, including the financial and human resources required to that end, along with an external supervisory Committee;
2. There should be sufficient funding for the research needed during the pilot period (collection and analysis of data for each case, evaluation and adjustment of methodology, measuring how much support there is, etc.). This research could e.g. be done in the context of ZonMw's Appropriate Care framework programme and the National Health Care Institute's long-term research agenda, either separately or combined with one of its or other academic collaborative centres.

In terms of activities, the Committee sees a stimulating and facilitating role for the National Health Care Institute that can be fulfilled as follows.

- Encouraging and facilitating the submission of case studies e.g. by parties in the healthcare sector (such as guideline authors and their organisations) or from the research community. The National Health Care Institute can do this, for instance by making information available and by sharing resources and experiences through a website, organising seminars or other meetings, speaking at meetings and so forth;
- Determining (along with contributors and relevant experts) whether the criterion is sufficiently relevant to allow inclusion and thereby help them make the right calculations. This may apply to case studies where just one of these two criteria is relevant, or it may be that both apply;
- Submitting cases for social weighting to the Package Advisory Committee (ACP) and/or the Quality Council (KR) when the measurements and calculations made are sufficiently valid. One option is to use the collaboration process that was set up for the advisory process by the two said committees when a quality standard meets the risk criteria for potentially substantial additional costs. To determine whether measurements and calculations are sufficiently valid, the Scientific Advisory Council (WAR) may be asked for its advice. These

committees must have expert support for that task as they currently have little or no expertise in this area;
- Discussing (along with contributors) the results of the weighting and discussing what this means for any decision. This also requires ethical reflection on trade-offs that arise, such as how to deal with situations where a much more environmentally friendly alternative is a somewhat less effective than existing care. This of course includes parties involved in the 'usual' decision-making process such as patients, health insurance companies, manufacturers, healthcare professionals and the care institutions providing the care in question;
- During the trial period, incorporate the research findings into the methods and ensure that the information about them is widely available. As part of that, the Committee recommends that further research and the lessons learned should be used as a basis for drawing up a detailed manual for measuring climate impact in the context of insured package management, along the lines of the cost manual used for cost-effectiveness analyses.

The Committee proposes a review of the pilot period halfway through – after eighteen months – to see what is going well or less well, and where any acceleration or adjustment is needed. At that point, the proposed criteria can also be adjusted or refined if necessary. After three years, the final balance sheet for the development period can be drawn up. On the basis of what research has revealed plus experiences with case studies, it will be possible at that point to determine what needs to be done to take the next step in implementing these two criteria. It is also possible that the conclusion is not the same for both criteria.

Colophon

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Presented to	Board of Directors of the National Health Care Institute