Assessment framework for pandemics

Social Impact Team

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1. Why an assessment framework?

1.1 Need for assessment

It is not possible to determine the social impact of pandemic measures without understanding the context of the next pandemic, the social picture, the pandemic measures and the options for mitigating measures – just as it is not possible to determine the effectiveness of pandemic measures in advance.[1] However, a proper proportionality assessment of pandemic measures must take into account the effectiveness of the infectious disease control and the social impact of the measures. Attention must also be given to the underlying values that help determine the choice of measures and to perceptions of fairness among citizens. Balancing effectiveness, impact and values can lead to dilemmas and difficult decisions. The Social Impact Team (MIT) recommends that the assessment of the advantages and disadvantages of measures be made explicit and transparent, so that the decisions made during a pandemic are clear, comprehensible and acceptable to society. An assessment framework can contribute to structured and transparent advice and decision-making regarding pandemic measures. This in turn contributes to trust in the government.

The MIT has invested in the development of an *assessment framework* that can be used to identify, as well as effectiveness, the social impact of measures and the key dilemmas and underlying values. The assessment framework is a tool for arriving at well-considered advice and decisions within the applicable context at a specific time. In line with the decision-making plan used during the COVID-19 pandemic,[2] the assessment framework was developed with two columns: an 'OMT' column and an 'MIT' column, leading to *separate* advice and integrated decision-making by the government and by parliament. However, the MIT can certainly see potential for providing *integrated* advice in the future. Examples of this can be found abroad.[3] Integrated advice is still in its infancy in the Netherlands, but it is being explored under the coordination of the Pandemic and Disaster Preparedness Centre (PDPC).[4]

1.2 Creation of the assessment framework

The assessment framework was developed incrementally by the MIT with support from the consultancy firm Van de Bunt Adviseurs. The development was preceded by an orientation and exploration phase. The conceptual framework of well-being was one of the basic principles: for the social impact knowledge base in a general sense, but also for the assessment framework. The assessment framework is partly based on widely applicable tools that set out the consequences of policy options, such as the Policy Compass,[5] and frameworks that expose dilemmas, such as the guide from the Netherlands Scientific Council for Government Policy (WRR) and others on thinking through COVID-19 scenarios,[6] *Code rood in de zorg* (Code Red in Healthcare)[7] and the considerations associated with vaccination strategies.[8] Research was also done on the ethical principles that apply to the assessment of pandemic measures and on examples from abroad.[9] Drafts of the assessment framework were discussed internally, presented to external experts at a meeting in February 2024 and tested with relevant parties during a practice session in March 2024. The meeting with experts and the practice session were organised with assistance from the Netherlands Institute for Social Research (SCP) and the PDPC.

1. Advies over Wet publieke gezondheid [Advisory Report on the Public Health Act] | RIVM
2. *Besluitvormingsproces COVID-19-maatregelen* [Decision-making process for COVID-19 measures] | Rijksoverheid.nl
3. Ethische principes in een afwegingskader voor pandemiemaatregelen [Ethical principles in an assessment framework for pandemic measures] | Report | Rijksoverheid.nl
4. Leren van een Crisis [Learning from a Crisis] | Pandemic and Disaster Preparedness Centre
5. Beleidskompas [Policy Compass] | Netherlands Expertise Centre for Policy and Regulations
6. Coronascenario's doordacht: Handreiking voor noodzakelijke keuzes [Thinking through COVID-19 scenarios: A guide to making necessary choices] | Publication | WRR
7. *Code rood. Verkenning van morele uitgangspunten bij langdurige schaarste in de zorg* [Code red: An exploration of moral principles during prolonged healthcare shortages] | Centre for Ethics and Health;
8. Strategieën voor COVID-19-vaccinatie [COVID-19 vaccination strategies] | Health Council of the Netherlands
9. Ethische principes in een afwegingskader voor pandemiemaatregelen [Ethical principles in an assessment framework for pandemic measures] | Social Impact Team; Ethiek in tijden van Corona [Ethics during the COVID-19 pandemic] | Centre for Ethics and Health.

1. Why an assessment framework?

1.3 Ongoing development of the assessment framework

For the practice session in March 2024, a realistic context was sought. The PDPC put forward a virological scenario, and the SCP contributed a social picture. During the simulation, the social perspective became the focal point: what are the social effects of the pandemic and pandemic measures? The experts from various disciplines who attended the session found this a welcome complement to the dominant perspective of infectious disease control. We learned from the practice session that the assessment framework is a tool for producing substantiated advice under enormous time pressure, provided that relevant and up-to-date socioeconomic knowledge is available. A high level of consensus emerged in the opinions given by the three subgroups.

The expert meeting, the practice session and earlier discussions all produced improvements for the assessment framework. These were incorporated into this document. However, this does not mean that the assessment framework is now finished. It will require ongoing maintenance in the future. New insights from science and experiences from practice, preferably from performing simulation exercises, will have to be incorporated into the assessment framework.[10] The assessment framework will also have to be updated following any changes that may occur in the governance around pandemics and crises and the associated division of roles between key players. The assessment framework is a living document. It will be essential to revisit the document from time to time and to reassess and adjust it.

Well-considered advice and decision-making using the assessment framework can only be based on knowledge. The knowledge base for the social impact of pandemics and pandemic measures is still being developed, and the assessment framework exposes significant knowledge gaps. Any assessment should preferably be supported by quantitative data, model-based forecasts and explanatory research. Where this knowledge is lacking, it is possible to rely on estimates or projections based on expert consensus.

10. The PDPC is investigating integrated assessment frameworks at the international level. In connection with the research programme into the effects of the COVID-19 measures, ZonMw is considering setting up a research programme into assessment frameworks. Effecten van COVID-19 maatregelen: wat hebben we geleerd? [Effects of COVID-19 measures: what have we learned?] | ZonMw

2. Basic principles behind the assessment framework

2.1 Remit of the MIT

When developing the assessment framework, the MIT assumed that its remit would not be substantially different in future pandemics. In the Establishing Decree of 19 August 2022, the Minister of Social Affairs and Employment described its tasks as follows.[1]

Article 2 Establishment and tasks

1. *A Social Impact Team Committee will be established.*
2. *The Committee will be tasked with advising the Secretary-General of the Ministry on the social and economic consequences of the government's proposals in the context of policies to fight the coronavirus and any other infectious diseases with pandemic potential that could necessitate the imposing of collective, mandatory measures.*
   The Committee will provide advice based on up-to-date knowledge, information and insights from science and practice. At a minimum, in preparation for decision-making on the introduction of measures and advice on fighting the coronavirus, the Committee will be asked to advise on the social and economic consequences of these measures and advice. The Committee will determine on which social and economic aspects and consequences of coronavirus policy it will provide advice.
3. *The Committee has the power to provide supplementary advice, if it considers it appropriate in view of its mandate.*
4. *Based on the findings and conclusions, the Committee has the power to make recommendations.*

2.2 Role of the MIT

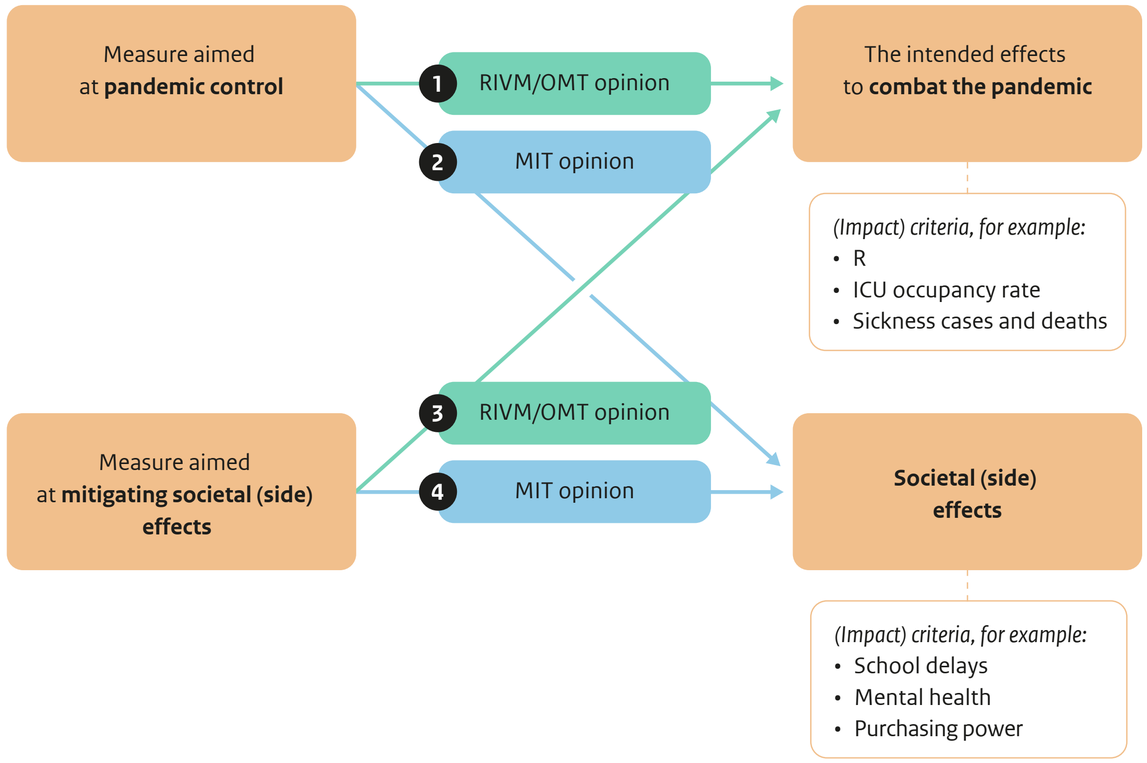
During a pandemic, two different types of pandemic measures may be taken:

- measures aimed at fighting the pandemic;
- measures aimed at mitigating the social effects.

When pandemic measures are implemented, two types of effects can occur:

- the intended effects of fighting the pandemic. This includes impact criteria such as the R number, ICU occupancy rate, disease cases and deaths;
- the social effects that occur due to the pandemic measures. Examples include students falling behind at school (learning deficits), mental health and purchasing power.

This creates four causal links, as shown in the diagram below.



[1] open.overheid.nl/documenten/ronl-aa927ed7d0808a826e81670679bde7baebabcb7b/pdf

2. Basic principles behind the assessment framework

The role of the MIT, derived from this, is twofold. Firstly, the MIT can provide solicited and unsolicited responses to proposed measures (from the OMT) aimed at fighting the pandemic. The MIT identifies and weighs the social effects of the pandemic measures. On that basis, the MIT can issue positive advice on the pandemic measures, propose mitigating measures (aimed at limiting negative effects) or suggest that the proposed measures be reconsidered.

The MIT can also advise on mitigating measures on its own initiative. This may be necessary if the current social picture gives reason to do so – for example, if the unrest in society is becoming too great or if the social consequences for certain groups are becoming unbearable. In that case, the OMT must assess the consequences of these measures for controlling the pandemic.

2.3 Definitions

The following list defines the terms used in the assessment framework.

Monitoring

- **Social picture:** the most up-to-date picture of indicators that show the well-being of society.
- **Well-being:** in the Monitor of Well-being produced by Statistics Netherlands, well-being is described as 'the quality of life here and now and the extent to which it is at the expense of the quality of life of future generations and/or of people elsewhere in the world.'[2]
- **Detection indicators:** the indicators that are the most sensitive to social developments resulting from the pandemic and pandemic measures and that are the first to reveal changes in society and the economy.
- **Social impact indicators:** variables that provide information on developments connected with the social impact of the pandemic and pandemic measures.

Effect

- **Effect on the causative agent:** the intended effect of fighting the pathogen that caused the pandemic.
- **Effect on society:** the social effects resulting from the pandemic and/or from the pandemic measures.

Measure

- **Pandemic measure:** a measure aimed at fighting the pandemic.
- **Mitigating measure:** a measure aimed at limiting the negative effects of the pandemic or pandemic measures.

MIT assessment

- **Matrix:** uncompleted overview with target groups on the x-axis and themes (impact criteria) on the y-axis. For each impact criterion, the expected change in the social picture is examined. A matrix is a heatmap that has not yet been filled in.
- **Theme (impact criterion):** a factor on which the impact of the pandemic or pandemic measures is visible.
- **Group or target group:** a segment of society that is most affected by the pandemic or pandemic measures, such as a particular age group or sector.
- **Heatmap:** completed overview with relevant target groups on the x-axis and themes and sub-themes on the y-axis. For each impact criterion, the expected change in the social picture is examined for each target group. A heatmap is a matrix that has been customised to the situation and filled in.
- **Delta:** the change compared with a baseline situation. A delta determination maps the effects that possible pandemic measures and mitigating measures could have, broken down by various reference points.
- **Degree of severity:** a degree of severity on a five-point scale is attributed to each combination of theme and target group.
- **Preference study:** a study into the preferences of the population concerning, in this case, values for assessing or choosing between possible pandemic measures. The study could be conducted via a panel or survey, for example.
- **Forecasting model:** a model that estimates expected changes in social and/or economic factors.

2. Well-being | Statistics Netherlands

3. Summary of the assessment framework

3.1 Phases and steps in the assessment framework

The assessment framework maps the entire process of preparing for, giving advice on and making decisions regarding pandemic measures and mitigating measures. The assessment framework has been refined to include the provision of advice on social impact. In a subsequent phase, the assessment framework could be adapted to enable the provision of advice on both infectious disease control (OMT) and social impact (MIT), or even integrated advice. Integrated and democratic decision-making could also be developed further.

In the assessment framework, there are currently four separate phases that are relevant to advice and ultimate decision-making regarding measures: (1) the detection phase, (2) the preparation phase, (3) the monitoring phase and finally (4) the pandemic phase, in which the pandemic strategy is implemented. The pandemic phase contains four steps leading to integrated decision-making: (a) selection of pandemic measures or packages of measures, (b) assessment of the effectiveness and impact of these measures, (c) the associated advice, including mitigating measures and weighing of values, and (d) decision-making.

During crises, there are three *administrative* phases: the acute phase, the management phase and the recovery phase. The assessment framework can be used at all of these administrative phases. In the acute phase, if swift decision-making is required, the assessment framework can be worked through more rapidly. In the event of insufficient data or knowledge, advice in the acute phase is likely to be given on the basis of expert consensus. In the management phase and recovery phase, there is more room for scientific substantiation and dialogue with experts in the field. Accordingly, in the assessment framework, the MIT has developed a versatile and flexible framework that provides a structure for giving advice and input for decision-making. The speed with which the assessment framework is worked through depends on the administrative phase.

3.2 Flowchart of phases and steps

The figure on the next page provides an overview of the phases and steps in the assessment framework. Based on this flowchart, monitoring, assessment and advice take place, leading to decision-making on pandemic measures by the government and parliament.

Assessment framework for pandemics

OMT | Central government | MIT | Advice

Detection phase

Surveillance of development of infectious diseases (*RIVM*)

Monitoring of social picture (*SCP and knowledge partners*)

Detection of risk of an outbreak

Preparation phase

Catalogue of measures – selecting measures to fight the infectious disease

Developing virus scenarios

Developing social scenarios

Catalogue of measures – selecting possible measures to mitigate the effect on society

Monitoring phase

Monitoring of relevant infectious disease indicators (*for the OMT*)

Central government (*Ministry of Health, Welfare and Sport/Social Affairs and Employment and others*)

Monitoring of relevant social picture indicators (*for the MIT*)

Key for the start of the advice process

1. The government requests intervention or advice on measures
2. RIVM/the OMT takes the initiative
3. The MIT takes the initiative

No

Should the government consider an intervention?

Yes

Advice (*sometimes accompanied by concrete measures*) is given by advisory boards, planning agencies and civil society organisations

Pandemic phase

Step 1. Selecting measure(s)

Quick scan

Consideration to recommend Measure X

Quick scan

Adding or extending a measure

Scaling up a measure

Scaling down a measure

Stopping a measure

Stap 2. Assessing the impact

Inform the other team of the measure to be investigated

Investigate the effect on the causative agent and spread of the virus:
- Theoretical effect
- Effect with expected compliance (*taking account of feasibility and support*)

Identify social effects and create a heatmap:
- Select indicators and target groups expected to experience a substantial impact
- Assess severity of impact criteria on target groups
- Estimate potential to remedy harm
- Analyse social values at stake

Scan impact of mitigating measures on the causative agent and spread of the virus.

Consider mitigating measures with intended social effect:
- Based on the social impact dashboard or as a response to identified effects
- Mitigating measures to reduce effects or as an action plan for trade-offs

Step 3. Giving advice

Advice
1. Estimate of the impact
2. Proposed actions
3. Description of the situation

Advice
1. Estimate of the impact
2. Proposed actions
3. Description of the situation

Step 4. Decision-making

Advice on feasibility from a range of partners

Decision-making process Central government

Advice from advisory boards, planning agencies and civil society organisations

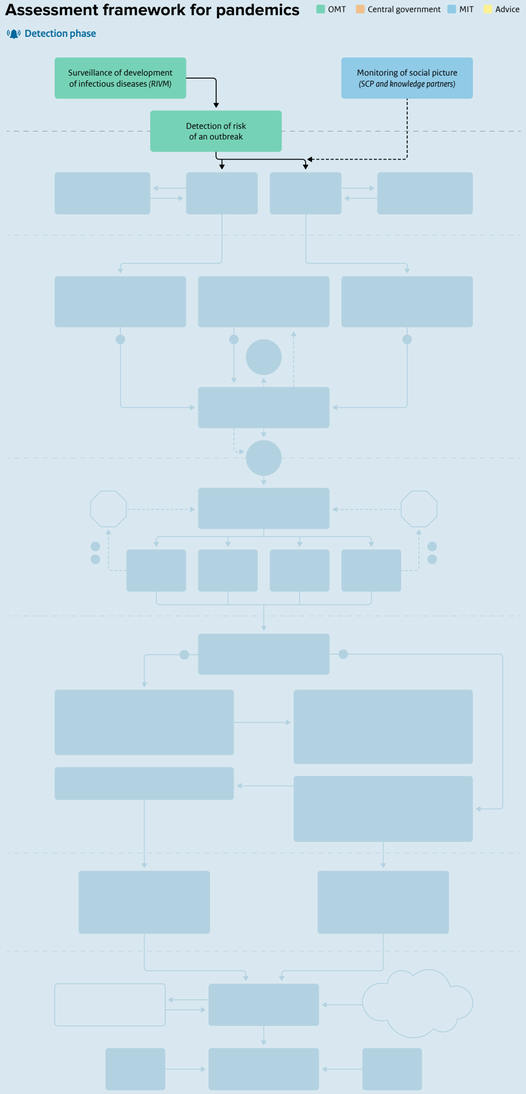
Toelichting advies in een technische **briefing**

Parliamentary decision-making process

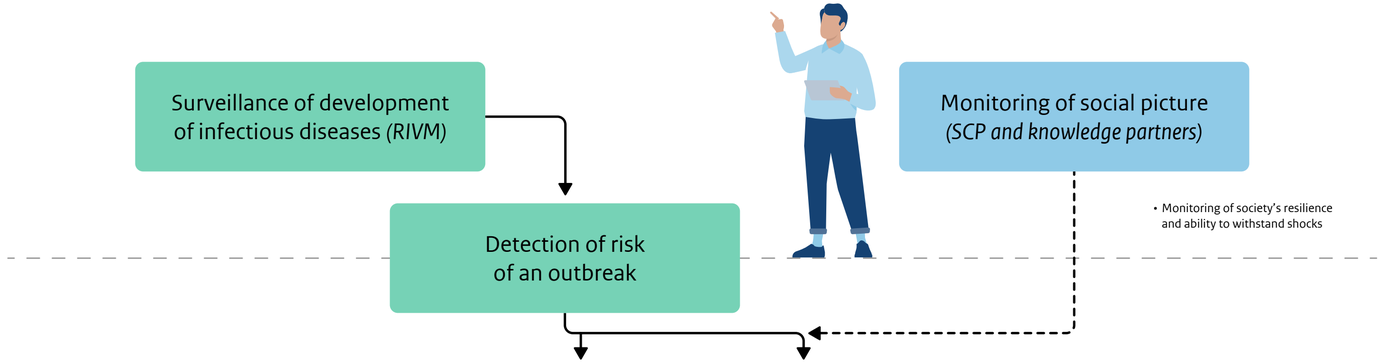
Explanation of advice in a technical **briefing**

Phases in the assessment framework

- Detection phase
- Preparation phase
- Monitoring phase
- Pandemic phase



4.1 Detection phase

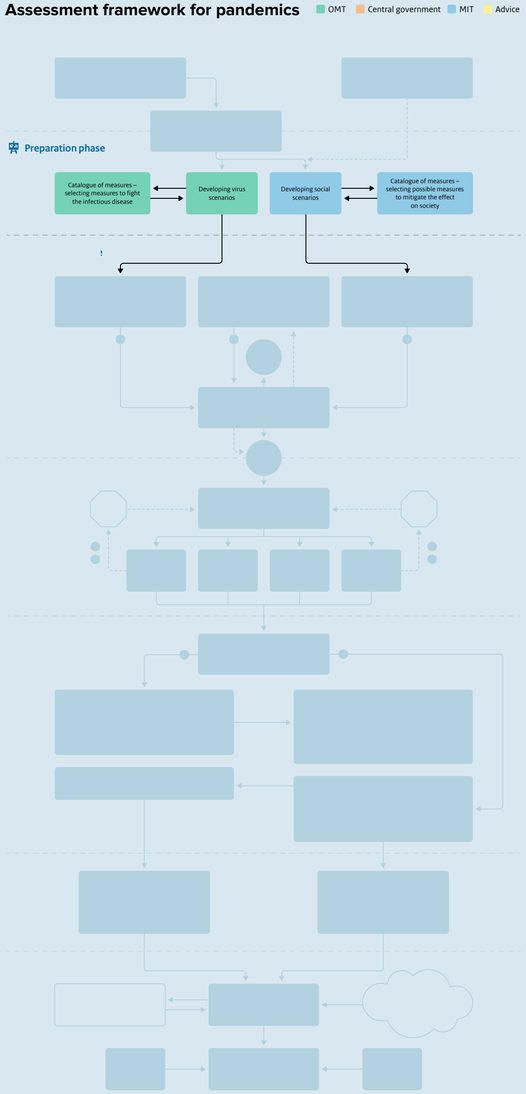


In the detection phase, there is not yet any infectious disease with pandemic potential. In this phase, RIVM monitors the epidemiological situation of infectious diseases. The SCP, in conjunction with Statistics Netherlands and other knowledge partners, monitors the social picture: how is society doing from a social and economic perspective? How resilient is society?

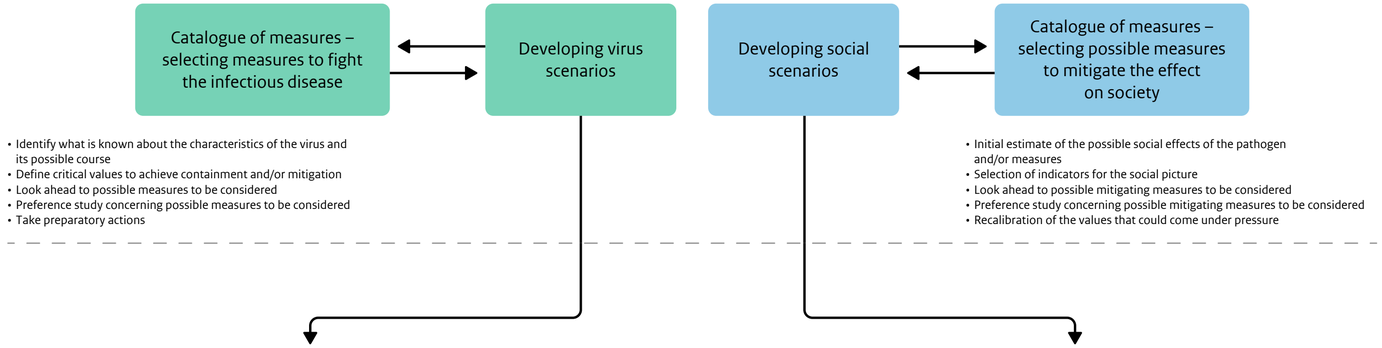
A risk assessment by RIVM may result in escalation to the preparation phase. As part of its tasks, RIVM constantly monitors the current epidemiological situation of new and existing infectious diseases. This surveillance includes continuous monitoring of the burden of disease of infectious diseases in the whole or specific parts of the population and analysing trends and risk factors. Based on this surveillance, RIVM performs risk assessments of whether an outbreak can be expected, and if so, when. A risk assessment may provide grounds for starting preparations for a possible outbreak.

In the detection phase, the MIT does not yet have an advisory role. The SCP works with its knowledge partners to ensure that the social picture is monitored frequently. Data on society in relatively calm periods can then be compared with data during the crisis. The Monitor of Well-being produced by Statistics Netherlands acts as a basis for this comparison (see 5.1).

In relatively calm periods, it is also important to maintain a good understanding of social values. We know which principles are important during a health crisis (see 5.3). The MIT recommends conducting regular surveys to gauge what value the population places on these principles, so that this can be taken into account in the event of an outbreak (or the risk of one).



4.2 Preparation phase (1/2)



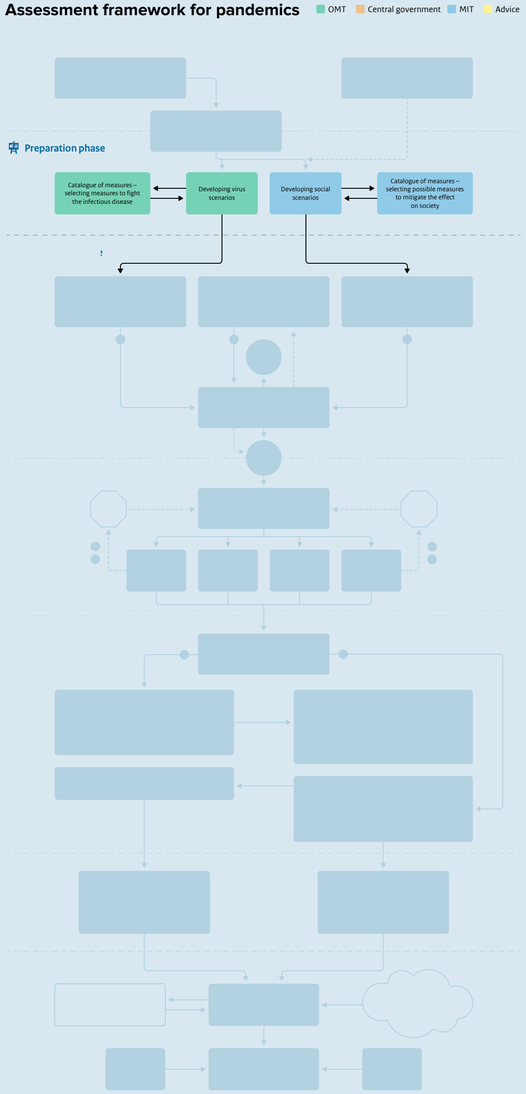
Detection by RIVM of a concerning pathogen results in preparations being made for a possible pandemic and the associated strategy. In this phase, the OMT and MIT, key advisers to government and parliament during times of crisis, are activated.

In the preparation phase, RIVM gathers and unlocks insights into specific data on the pathogen to find out more about a possible outbreak (such as the source, mode of transmission, lead time, burden of disease, mortality rate, demographics and geography). By extension, possible pandemic measures and mitigating measures can also be taken into account. The SCP works with its knowledge partners to provide an up-to-date social picture. It is crucial that the OMT, MIT, RIVM, SCP and knowledge partners share all information in this phase. The available data is used to draw up scenarios (preferably joint scenarios): not only in relation to infectious disease control, but also in relation to the social consequences.

The MIT will examine the social aspects of the scenarios. At a minimum, this will involve:

- an initial estimate of the possible social effects of the pathogen and the expected pandemic measures;
- an initial estimate of the relevant economic and social themes where social effects will occur;
- an initial estimate of the groups in society that will be affected.

In the pandemic phase, as part of the assessment of possible packages of measures, this input will be used to draw up a matrix of the most relevant themes and groups (5.4.1 and 5.4.2).

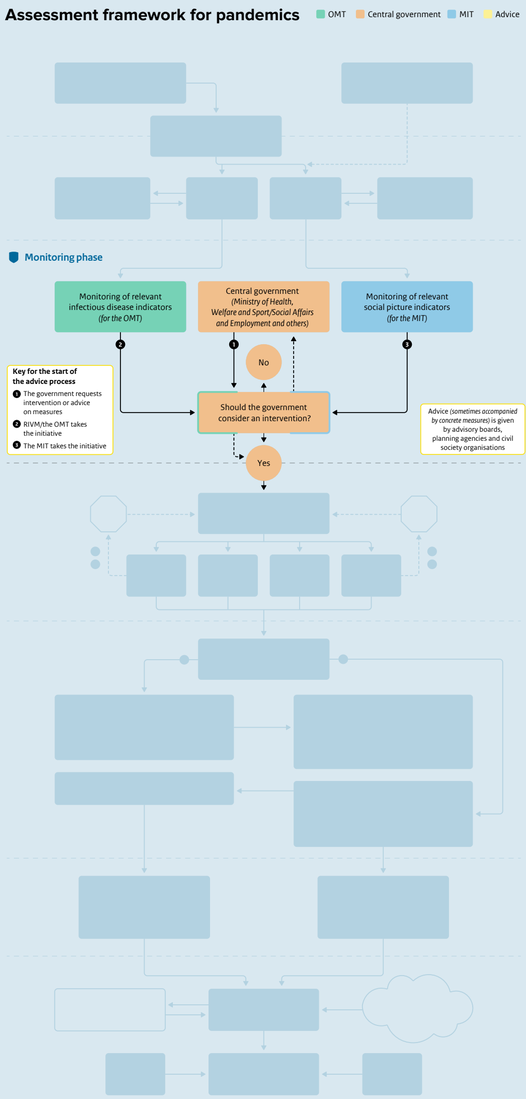


4.2 Preparation phase (2/2)

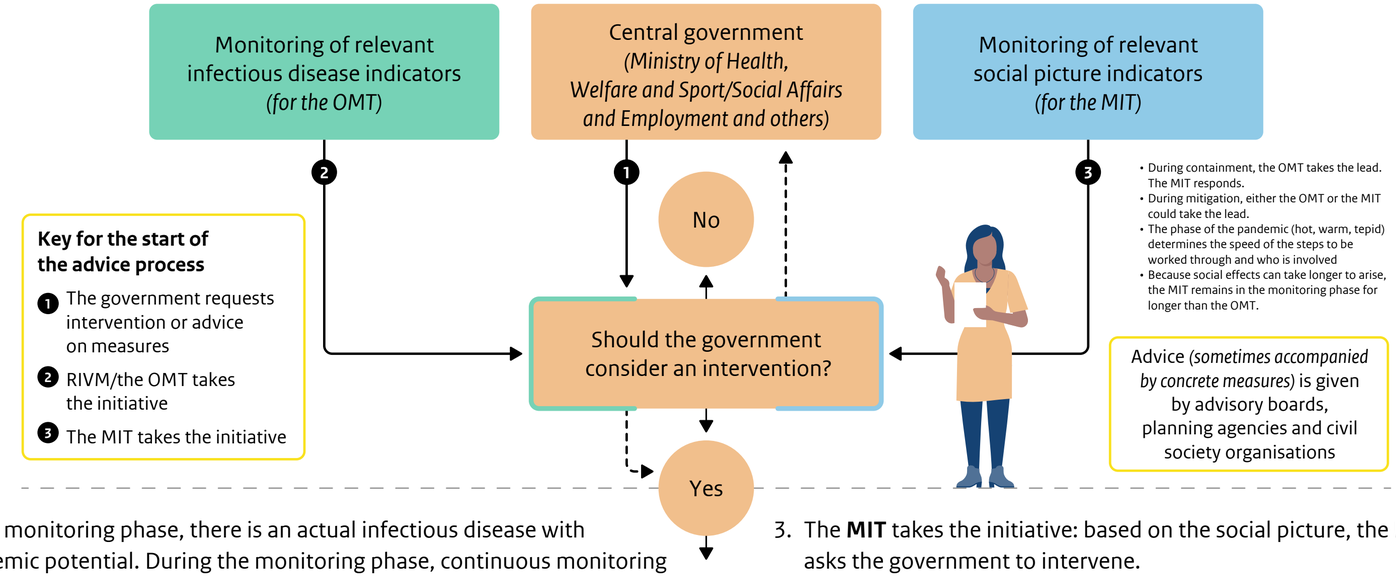
The MIT will also draw on:

- a selection of detection indicators for the social picture (5.1);
- a selection of relevant indicators for monitoring the social impact of the pandemic and pandemic measures (5.2). For this purpose, it may use a longlist of indicators (5.2.1), selection criteria to create a shortlist (5.2.2) and a list of possible target groups (5.2.3);
- a selection of social values that could come under pressure (5.3);
- possible mitigating measures, based on likely pandemic measures. A catalogue of measures may be used here (5.5);
- a preference study (5.6) on values and measures conducted among the population;
- guidance on the legal framework: The Public Health Act,[1] crisis and emergency law;
- guidance on government policies, including the National Crisis Plan for Infectious Disease Control (LCP-i)[2] and the applicable policy goals and principles for pandemics;[3]
- guidance on the governance and decision-making process,[4] with a specific focus on ensuring social effects.

1. wetten.overheid.nl/BWBR0024705/2024-04-13. In May 2024, the MIT, the Council of Public Health and Society (RVS) and the Netherlands Institute for Human Rights issued an advisory report on the Public Health Act in which they proposed procedures that would take greater account of social and human rights impacts: Advisory Report on the Public Health Act: Recht doen aan impact en waarden [Doing justice to impacts and values] | Report | Rijksoverheid.nl
2. The National Crisis Plan for Infectious Disease Control is currently in development, but it will be published at: Landelijke Crisisplannen [National Crisis Plans] | National Coordinator for Security and Counterterrorism (nctv.nl)
3. Kamerbrief over langetermijnaanpak COVID-19 [Letter to Parliament on the long-term strategy for COVID-19] | Parliamentary Papers | Rijksoverheid.nl
4. *Besluitvormingsproces COVID-19-maatregelen* [Decision-making process for COVID-19 measures] | Publication | Rijksoverheid.nl



4.3 Monitoring phase



In the monitoring phase, there is an actual infectious disease with pandemic potential. During the monitoring phase, continuous monitoring occurs. RIVM monitors the development of the infectious disease and the MIT monitors the state of the social picture. Based on this monitoring, it may be decided that an intervention should be considered.

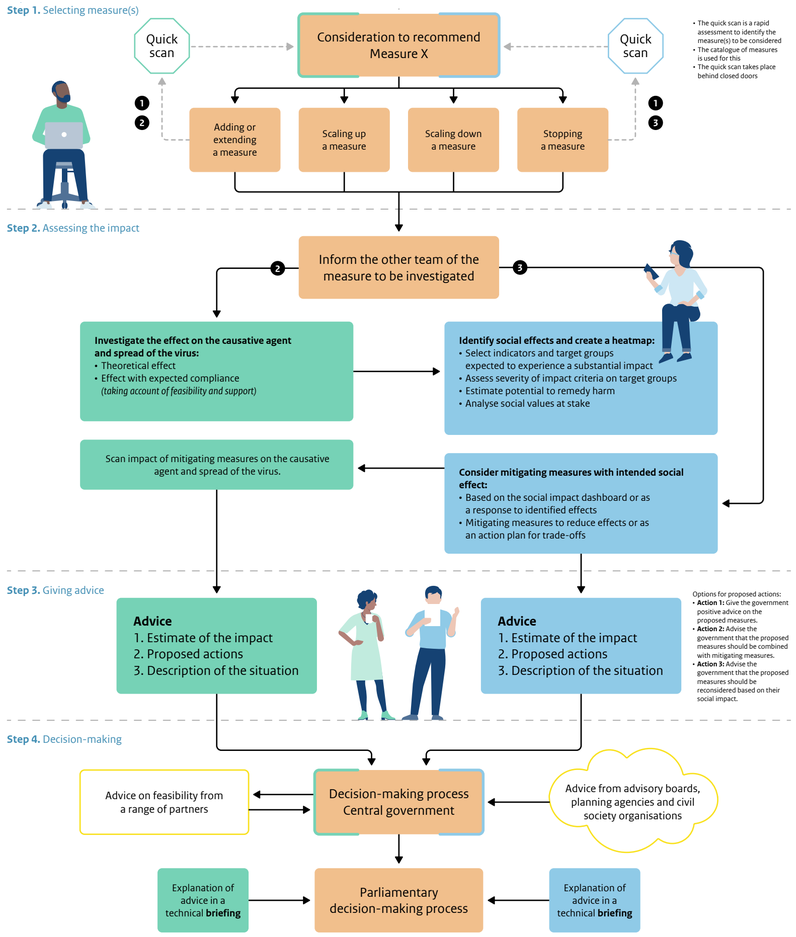
There are various ways in which the consideration of an intervention can be started. It is extremely important that the parties keep each other informed.

1. **The government** will take the initiative to intervene. Normally, the government sends this question to the OMT and MIT for advice.
2. The **OMT** takes the initiative: based on the development of the infectious disease, the OMT asks the government to intervene.
3. The **MIT** takes the initiative: based on the social picture, the MIT asks the government to intervene.

In the acute phase, the OMT will often take the lead and advise the government on whether measures should be taken. The OMT does this from the perspective of infectious disease control and preventing a pandemic. If the social picture resulting from the situation that has arisen gives it reason to do so, the MIT can also recommend intervention. In the acute phase, that could be the case in exceptional circumstances if significant unrest arises in society at the prospect of a new pandemic, or if people, institutions, sectors or regions implement (or threaten to implement) their own measures without government legitimacy or protection. In the management phase, the MIT will intervene if the social impact for society, or for specific groups in society, becomes too onerous.

4.4 Pandemic phase

In the pandemic phase, a pandemic exists and there are discussions about imposing pandemic measures and mitigating measures. Measures may be proposed at the initiative of (1) the government, (2) the OMT or (3) the MIT. When pandemic measures are proposed, the government will request advice from the OMT from an infectious disease control perspective and from the MIT from a social perspective. In this phase, there are a number of steps to be taken in the advice and decision-making process. These steps are described below.



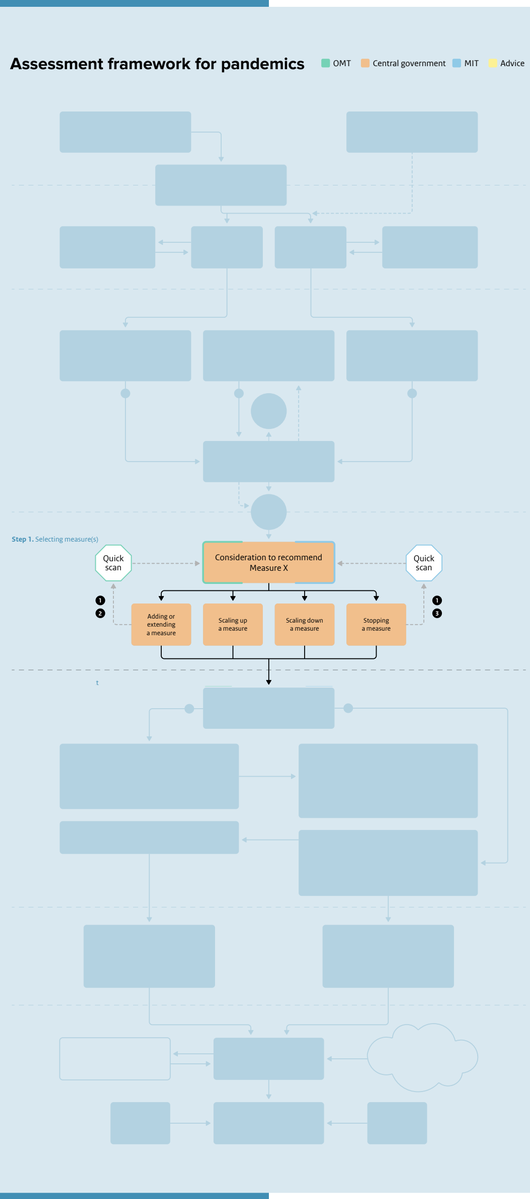
Steps in the pandemic phase

Step 1
Selecting measures

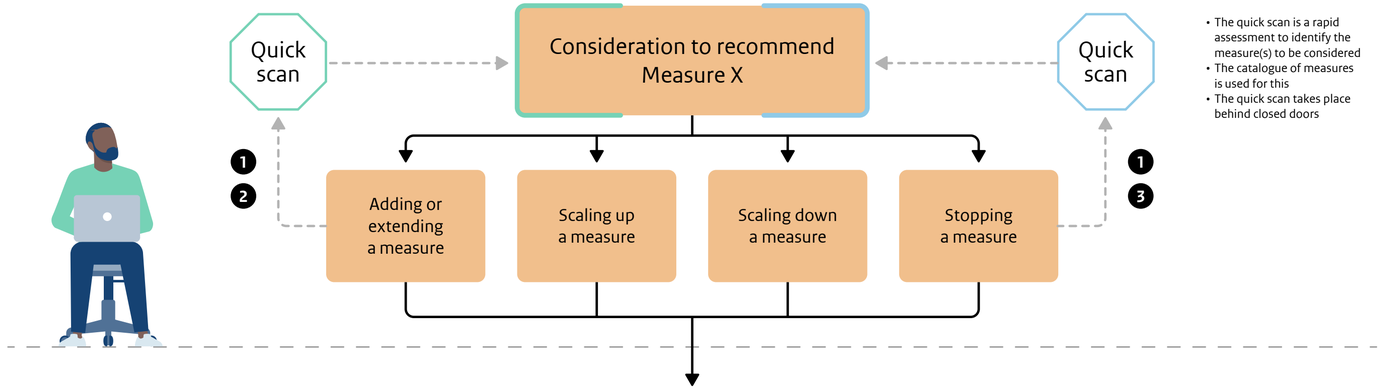
Step 2
Assessing the impact

Step 3
Giving advice

Step 4
Making a decision



Step 1: Selecting measures



As soon as it is decided that an intervention must be considered to fight the pandemic, the next question is: what pandemic measures are appropriate? Usually, a package of measures will be considered. It must be clear which of the following is being proposed:

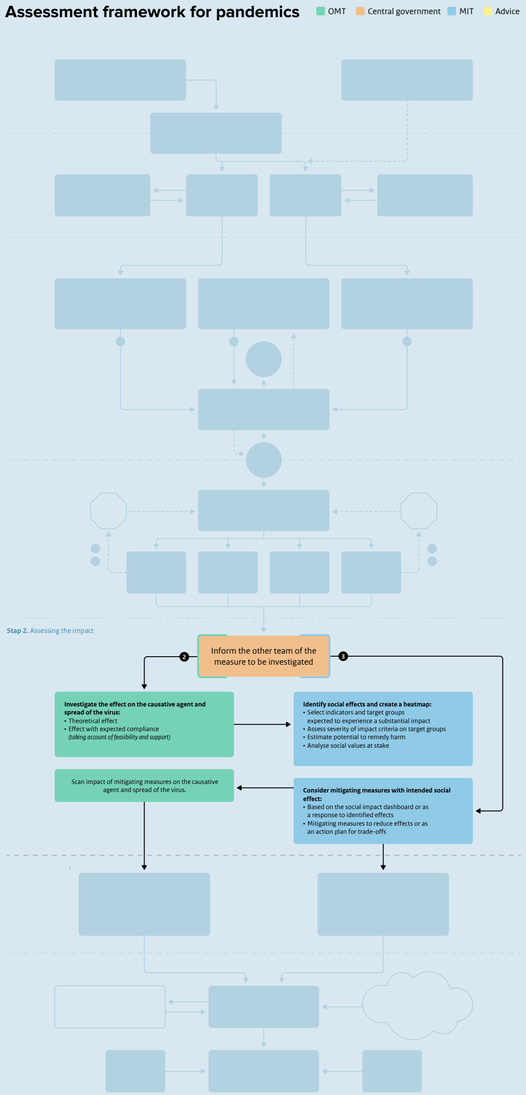
- adding new measures or extending existing measures;
- scaling up existing measures;
- scaling down existing measures;
- stopping existing measures.

When selecting measures, the OMT and MIT will perform a substantiated quick scan to determine the possible positive and negative effects from the introduction, extension or stopping of pandemic measures. RIVM has developed models that can be used to forecast the spread of an infection (R number) and the pressure on ICU capacity.[1] Forecasting models could also be developed in the economic and social spheres (5.7). Such forecasting models would show the social consequences that the pandemic and proposed pandemic measures could have, and how mitigating measures could limit these consequences.

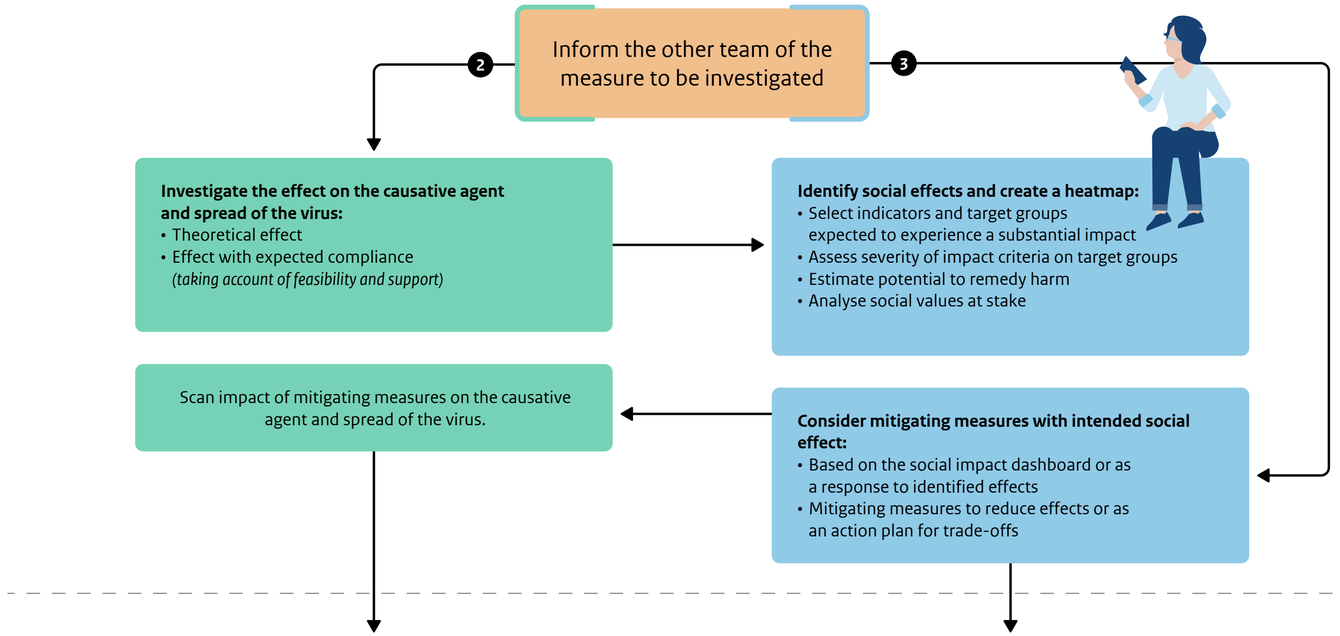
The selection of pandemic measures could draw on the categories that RIVM has recommended for inclusion in the Public Health Act.[2] For mitigating measures, it would be preferable to draw on the catalogue of measures (5.5). The catalogue of measures is a list of possible mitigating measures, including the extent to which the measures attenuate undesirable social effects and the degree to which the measures are valued by society. The latter information could also be obtained through a preference study (5.6). It is extremely important that the same package of possible measures – including both pandemic measures and mitigating measures – is presented to both the OMT and MIT for a quick scan.

1. Hoe rekenmodellen bijdragen aan de bestrijding van COVID-19 [How calculation models contribute to fighting COVID-19] | RIVM

2. Advies over Wet publieke gezondheid (Wpg) [Advisory Report on the Public Health Act] | Letter | Rijksoverheid.nl

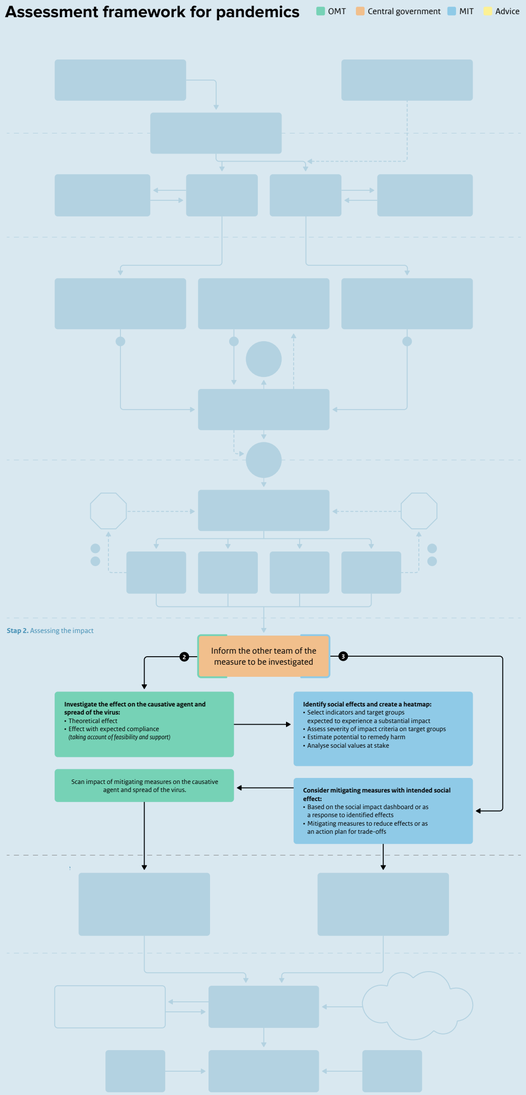


Step 2: Assessing the impact (1/4)



Based on the quick scans, the government drafts a concrete proposal for the introduction of a package of measures. Whenever it wishes to introduce, scale up, extend, scale down or stop measures, the government requests advice from the OMT in relation to the effectiveness of the infectious disease control and from the MIT in relation to the social impact. When the OMT assesses effectiveness, it takes into account the expected compliance with the pandemic measures. The MIT identifies the social impact of the pandemic measures. In doing so, the MIT determines the areas in which this impact will be felt and the sectors and groups in society that will be affected. The MIT also identifies the social values (5.3) and fundamental rights that are at stake.

The reverse situation may also apply: if the MIT requests that pandemic measures be reconsidered due to their impact or proposes mitigating measures, the OMT must give advice based on the infectious disease control. For the assessment of effectiveness and impact, it is crucial that the OMT and MIT provide each other with information about the pandemic measures and mitigating measures and their effects.



Step 2: Assessing the impact (2/4)

Step 2a
Take the current societal picture

Step 2b
Select impact criteria and target audiences

Step 2c
Set up an empty matrix

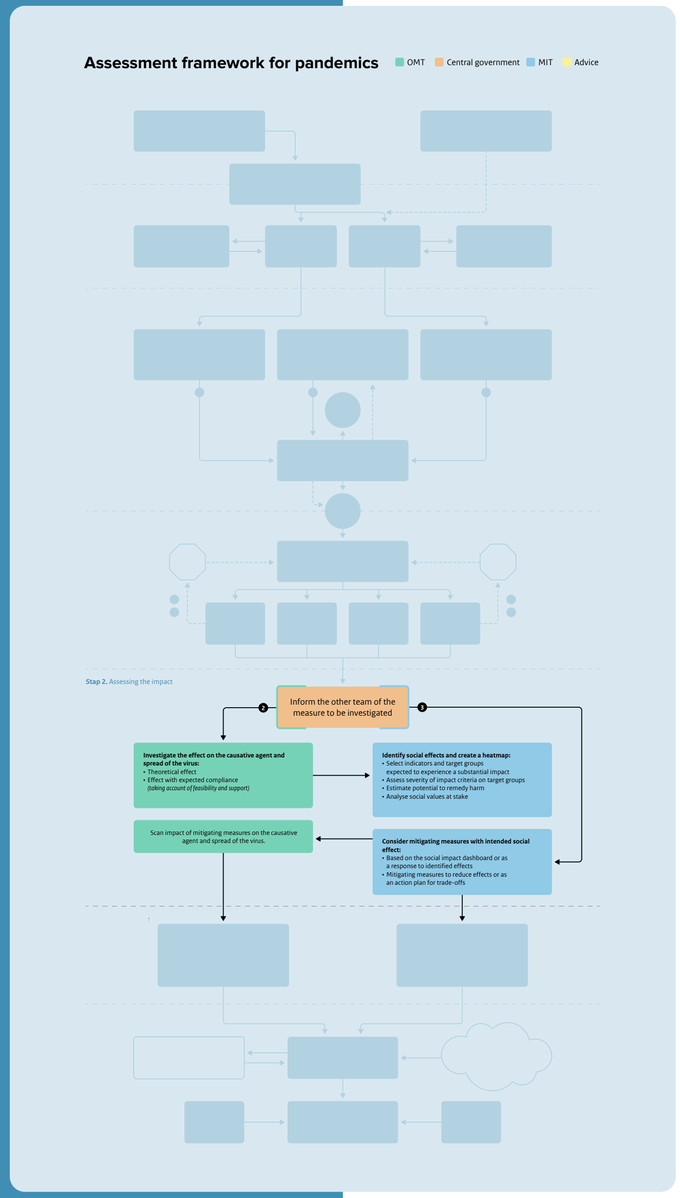
Step 2d
Assessment by degree of severity

Step 2e
Weighing and interpretation of severity

When assessing the social impact of pandemic measures, the MIT estimates the possible harm by scale and severity in the short and long term, for society as a whole and for specific (vulnerable) groups in society. The MIT also analyses options for reducing or remedying the harm. Helpful tools for doing so include a heatmap (5.4.4), which provides a visual illustration of the degree of severity in relevant areas and for relevant groups, and a delta determination (5.2.4). With a delta determination, the MIT provides insight into future changes in the social picture if (a) pandemic measures are not imposed, (b) the proposed pandemic measures are imposed and (c) the proposed pandemic measures are imposed alongside mitigating measures.

An investigation into the social effects of measures is performed as follows:

a. **Identify the current social picture (5.1)**. This is based on monitoring data from the social picture indicators, including possible forecasts.
b. **Select themes (impact criteria, 5.2.1/5.2.2) and groups (5.2.3).** Together with experts, determine whether it is likely that the measures will have a substantial impact on specific impact criteria and groups. Select from the previously established list of impact criteria and groups (see Preparation phase).
c. **Draw up an empty matrix (5.4.1) and fill it in by placing the selected themes and groups on the axes (5.4.2/5.4.3)**.
d. **Assess the matrix by degree of severity and create a heatmap (5.4.4);** use the most well-founded method possible. Assign a degree of severity on a five-point scale (5.4.5); use criteria to determine the degree of severity (5.4.6).
e. **Weigh and interpret the severity** and give appropriate advice.



Step 2: Assessing the impact (3/4)

Step 2a: Identify the current social picture

The social picture (5.1) shows the developments that arise during a pandemic. Sometimes, there is a time lag before developments appear. Sometimes, changes initially occur beneath the surface, or are only visible in certain groups. That is why it is necessary to have a rapid and refined measuring tool that can provide an up-to-date picture at all times (at least monthly, and more frequently if necessary), as well as forecasting models (5.7), which can be used to make statements about future developments.

Preferably, 'detection indicators' for the social picture will be identified (5.1.1). These are the indicators with the greatest explanatory power with respect to how society will cope with the pandemic and pandemic measures.

Step 2b: Select impact criteria and target groups

Based on the initial estimates during the preparation phase, at this point, the themes (impact criteria) (5.2.1) and groups (5.2.3) that the MIT wants to assess are selected. Experts examine the themes and groups that were selected in the preparation phase and reduce them down to a selection of themes and groups that are most relevant to the measures (5.4.2): who will experience what impact? The aim is not to be exhaustive, but to identify the most severe impact and the groups that will be most affected by it.

If multiple measures are proposed at the same time, it is necessary to examine whether it is possible to create a single matrix for the impact of the package as a whole, or whether different matrices must be used to distinguish between the impacts of the individual measures.

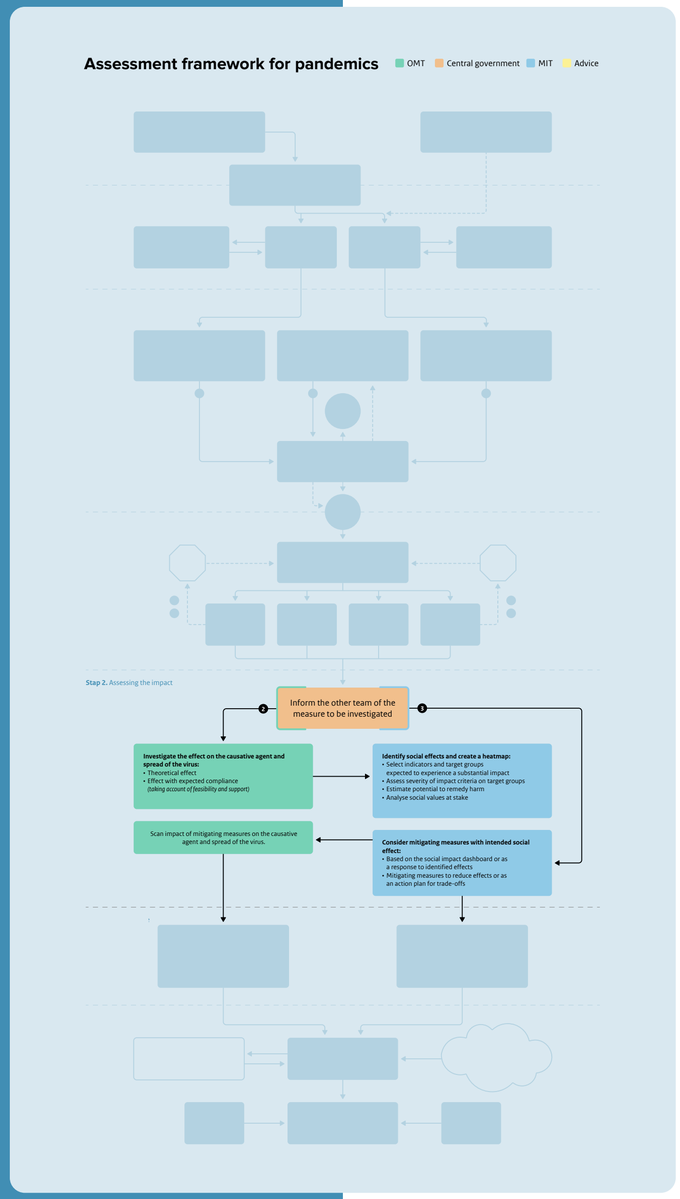
The assessment of social impact focuses on the selected relevant indicators (shortlist, 5.2.2). Nevertheless, it is also a good idea to continue to monitor the other indicators and check them for changes (longlist, 5.2.1).

For these indicators, forecasts are made of the changes expected as a result of the pandemic, pandemic measures and mitigating measures. A delta determination (5.2.4) may be helpful in this regard.

If no data and/or forecasting models (5.7) are available, estimates must be generated with the help of experts. In a scenario where pandemic measures follow each other in rapid succession and the social picture cannot always be updated, the latest available data will be used.

Step 2c: Draw up a matrix

Once the themes and groups have been selected, a matrix can be completed that focuses on the effects of the proposed measure(s) (5.4.3). The selected themes go on the y-axis and the groups on the x-axis. Where themes and groups do not affect each other, the boxes where they converge can be crossed out.



Step 2: Assessing the impact (4/4)

Step 2d: Assess the degree of severity

Assessing the severity of pandemic measures is about the extent to which the pandemic measures will have economic and/or social consequences either for society as a whole or for specific groups. When determining the degree of severity, the completed matrix (5.4.3) becomes a heatmap (5.4.4) derived using a five-point scale (5.4.5). Something that may be helpful in this regard is the criteria for the degree of severity of pandemic measures (5.4.6) identified by experts in the advisory report *Doing justice to impacts and values* published by the MIT, the Council of Public Health & Society (RVS) and the Netherlands Institute for Human Rights.[3] The severity of the social impact is often linked to the time horizon (5.4.7) of the measures.

Step 2e: Weigh and interpret the severity

The heatmap (5.4.4), current social picture (5.1) and social values (5.3) are used to answer the following question: taking all the data together, how can the estimated average impact best be interpreted?

There will be a **severe or extremely severe** socioeconomic impact or breach of human rights and values ('impact') – which will not be eliminated by mitigating measures and cannot be remedied – on the entire population and/or on extremely vulnerable groups.

There will be a **severe** impact – which will barely be eliminated or remedied – on a significant part of the population and/or on vulnerable groups.

There will be a **significant** impact – which will be difficult to eliminate or remedy – on part of the population and/or on those directly affected.

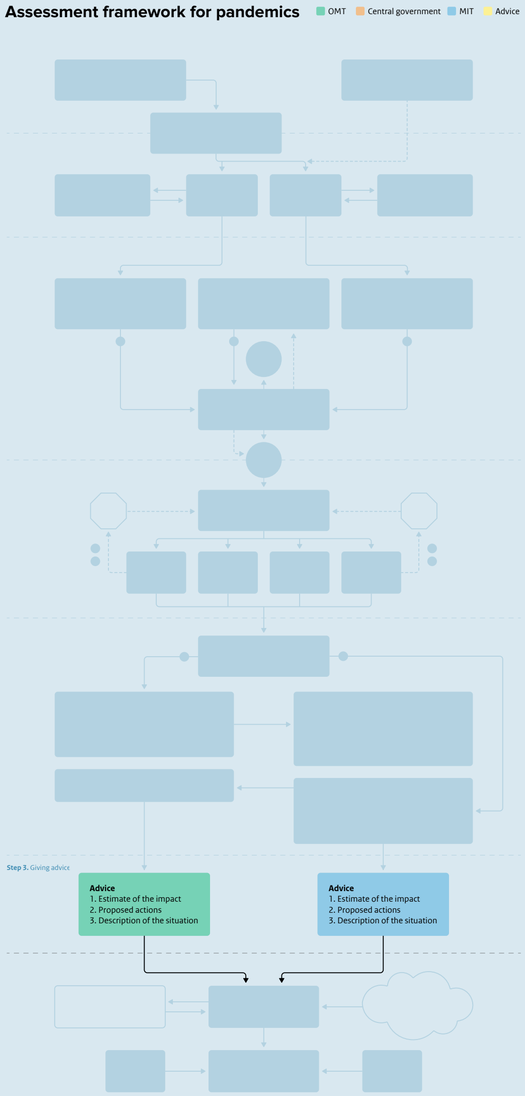
There will be a **limited** impact – which can potentially be eliminated or remedied – on part of the population and/or on those directly affected.

There will be **no** impact, or there may even be a **positive** impact, on all or part of the population.

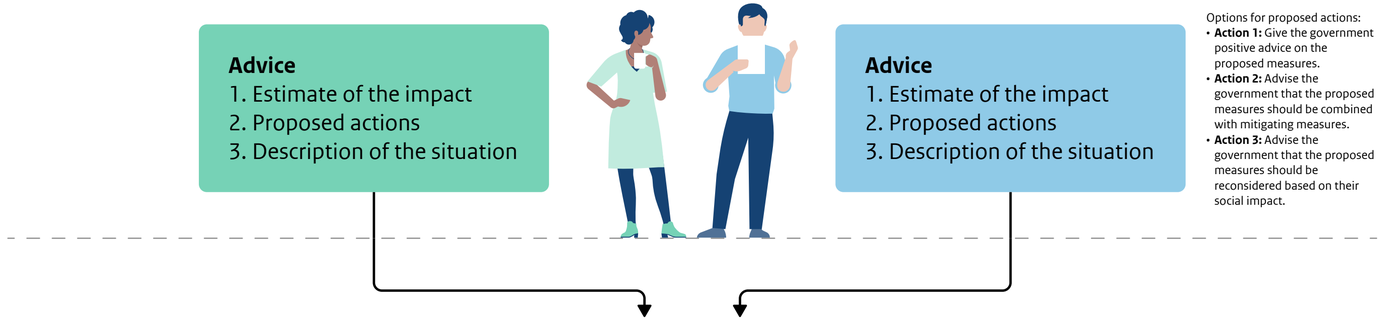
The answer to this question will lead to three different options for advice (see Step 3 for more details).

1. Green: positive advice on the proposed pandemic measures.
2. Yellow, orange and bright red: advice that the proposed pandemic measures should be combined with mitigating measures.
3. Dark red: advice that the proposed pandemic measures should be reconsidered based on the extremely severe social impact that cannot be mitigated.

3. Advisory Report on the Public Health Act: Recht doen aan impact en waarden [Doing justice to impacts and values] | Report | Rijksoverheid.nl



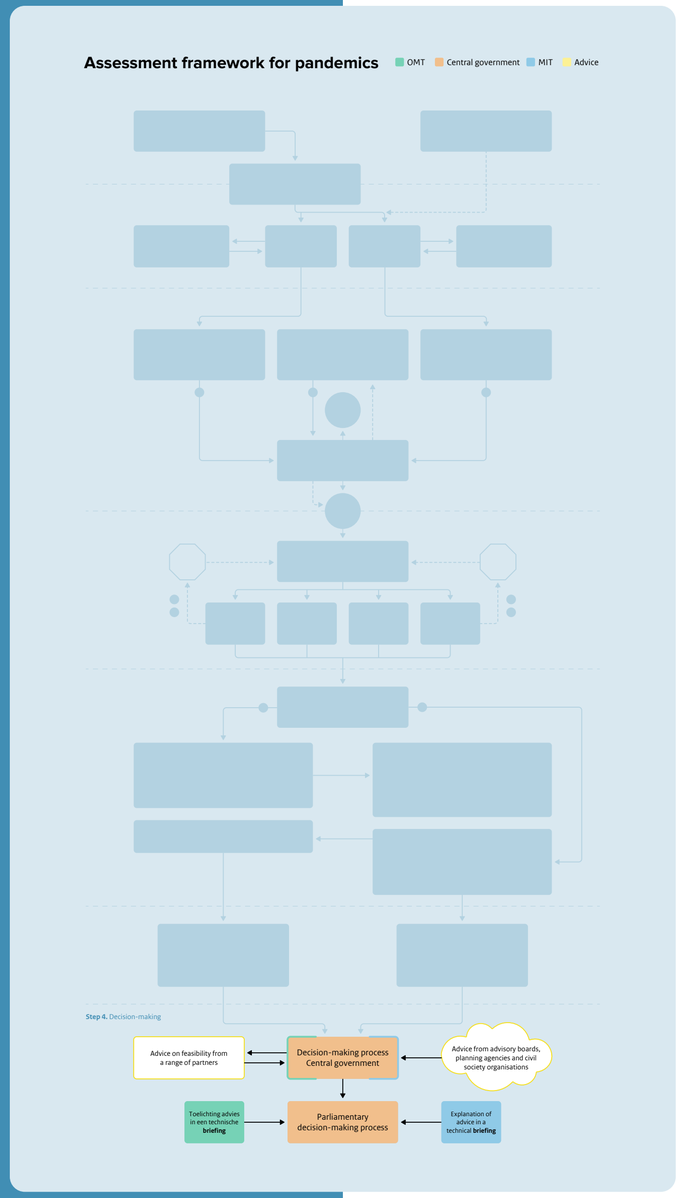
Step 3: Giving advice



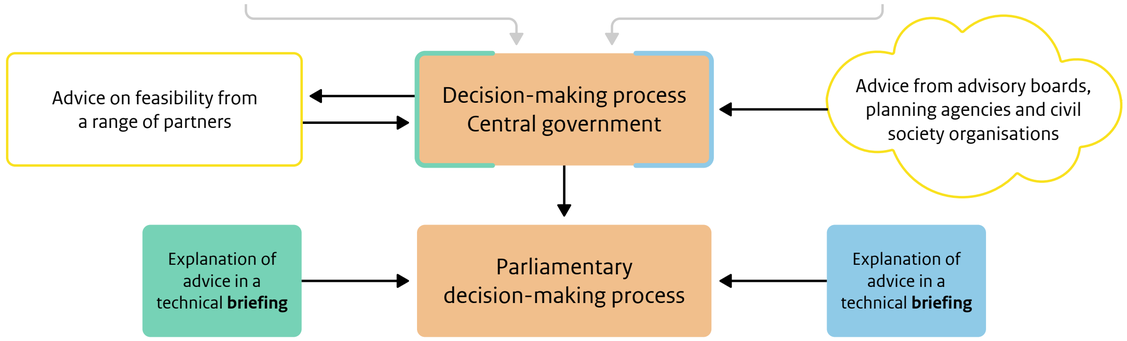
Based on the current social picture, the impact assessment and the social values, the MIT will advise that (1) the selected pandemic measures should be imposed, (2) mitigating measures should also be implemented or (3) the selected measures should be reconsidered.

The advice will depend on the scale and severity of the social impact on society as a whole or on specific groups in society, and the possibility of remedying that impact. The context is important too: how resilient is society at that moment; what is the socioeconomic resilience; how much support is there for the measures that have been imposed; and how high is people's trust in the government and each other? In addition, the MIT will separately explore the social values and fundamental rights that are at stake; these may conflict with each other, creating dilemmas. In its advice, the MIT will always make dilemmas and choices explicit, to enable transparent decision-making. An overview will be provided of the building blocks underpinning the advice (5.8).

The OMT and MIT will give advice separately, from a pandemic-fighting perspective and a social-impact perspective respectively. Coordination is necessary to ensure that – while preserving each team's perspective – advice is being given on the same package of measures based on the same data.



Step 4: Decision-making



Based on the advice of the OMT and MIT, the government can make an integrated decision about the pandemic measures and mitigating measures. Before a decision is made, officials undertake preparations, including weighing the advice and performing a feasibility test.[4] Finally, the government submits a substantiated decision to parliament. In this regard, the MIT recommends that the assessment always be transparent and that the way in which the advantages and disadvantages were weighed up be communicated. Parliament can ask the OMT and MIT to explain their advice in a technical briefing before approving the government decision.

4. At a minimum, the cabinet and subcouncil are consulted in advance through the Administrative Coordination Consultation (BAO) on infectious disease control. In addition to representatives from the Ministry of Health, Welfare and Sport and the Health and Youth Care Inspectorate (IGJ), the BAO also includes representatives from the Association of Netherlands Municipalities (VNG) and Netherlands Municipal Public Health Services and Medical Assistance in Accidents and Disasters (GGD GHOR): Decree establishing the administrative coordination consultation on infectious disease control | Overheid.nl

5. Tools

Social picture	Social impact	Social values
Matrix	Catalogue of measures	Preference study
Forecasting models	Overview of building blocks for giving advice	

5.1 Social picture (1/2)

Even during calm periods, the knowledge partners keep the social picture up to date under the coordination of the SCP. The Monitor of Well-being produced by Statistics Netherlands is the starting point for this work.[1] This monitor tracks economic, environmental and social well-being and the distribution of this well-being among various regions and groups of people. As well as looking at the 'here and now', the monitor looks at the effects that our well-being has on 'later' and on other countries ('elsewhere'). The monitor also provides a picture of how shockproof our well-being is and whether we will be able to withstand shocks in the future. This last point is extremely relevant for the outbreak of a new pandemic.

Together with the SCP and experts, the MIT carried out an exercise to create a social dashboard of detection indicators. These are the indicators that are the most sensitive to social developments resulting from the pandemic and pandemic measures and that are the first to reveal changes in society and the economy. The social dashboard of detection indicators provides insight into the social context in which pandemic measures are proposed but ideally could also be used to make forecasts.

5.1.1 Detection indicators

The purpose of detection indicators is to provide relevant but compact insights into social developments during a pandemic or when there is a risk of pandemic. The detection indicators form a social dashboard of social, health and economic indicators that are expected to change as the result of a pandemic or pandemic measures. The advantage of a social dashboard is that it can provide an indication at a glance of relevant social developments during a pandemic. If the social dashboard is kept up to date outside of pandemic periods, social developments during a pandemic can be compared with the pre-pandemic situation. This trend data can play an important role in the advice and decision-making around measures.

The purpose of detection indicators is not to present a complete picture of the social impact of packages of measures. This requires the use of additional indicators (see Social impact 5.2).

Detection indicators are relatively quick and easy to measure, and they show developments in a particular domain ('canaries in the coalmine'). Both subjective perception indicators and objective behavioural indicators can be used as detection indicators.

- Perception indicators measure how people perceive certain themes. In times of crisis, perception indicators should preferably be measured by working with a new or existing panel that is representative of the Dutch population. By asking such a panel about their perceptions of physical health or consumer confidence, for example, signs of developments in public health and the economy can be picked up.
- Behavioural indicators show objective trends in the underlying domain. If the perception indicators show breaking points in trends, behavioural indicators can be used to validate whether perception indicators are actually reflected in behaviour. For example, changes in perceived health in relation to the number of doctor visits. In certain situations, behavioural indicators can run ahead of perception indicators, such as with changes in money transactions (behaviour) that sometimes become visible sooner than changes in consumer confidence (perception).

The Social Impact Team worked with experts to investigate whether detection indicators could be identified for the three most relevant domains of well-being in relation to a pandemic: the social domain, the health domain and the economic domain. For each domain, two perception indicators were identified. In addition, various objective behavioural indicators were linked to each set of perception indicators. For both types of indicators, it is important that up-to-date and reliable data is available during a pandemic. Furthermore, it is essential to be able to differentiate among different regions and groups in society.

1. Monitor of Well-being | Statistics Netherlands

5.1 Social picture (2/2)

The table of detection indicators below, which was created on the basis of expert consensus, could serve as a starting point for developing a social dashboard.

Table 1. Detection indicators for the three domains

Domain	Detection indicators		
	Indicator on dashboard	*Subjective perception indicators*	*Objective behavioural indicators*
Social	Relationship between citizens and the government	Trust in the government	• Compliance: extent to which government measures are/are not followed • Social instability/ polarisation (e.g. protests, riots, social media posts)
	Socioeconomic security	Perceived socioeconomic security	• Employment • Debt, poverty • Housing • Access to healthcare • Education, learning efficiency
Health	Physical health	Perceived physical health	• Sickness absence • GP visits and referrals • Search behaviour relating to health • Care deferred by health authorities • Telephone calls to 113 • Telephone calls to the child helpline
	Mental health	Perceived mental health	
Economy	Consumption	Consumer confidence	• Debit card transactions • Savings • Income
	Production	Manufacturer confidence	• Production • Trade in the Netherlands • Global trade

In the context of pandemic preparedness, it is important for the social dashboard of detection indicators to be developed further. In terms of the detection indicators, the first step is to see what data is already available and look at whether additional measurements are needed to be able to provide a clear picture during times of crisis. It is also important to think about the outcome measure that should be used for each indicator and the detection values that apply: when is there cause to sound the alarm based on the social dashboard?

In addition, further research is required into the predictive value of the detection indicators. This could be done on the basis of data on these indicators from the previous pandemic. Do the selected detection indicators indeed have the expected ‘early warning’ function during a pandemic? Do the selected perception indicators have the highest predictive value? And what is the correlation between the detection indicators and the underlying indicators?

5.2 Social Impact (1/5)

5.2.1 Longlist of indicators

A preliminary selection has been made of indicators that come under the well-being themes and that show possible short and long-term effects (for a detailed explanation, see the Annex). Various aspects of social impact have been detailed based on eight themes drawn from the Monitor of Well-being produced by Statistics Netherlands[2], as described above. The eight themes are: (i) subjective well-being, (ii) health and healthcare, (iii) material well-being and the economy, (iv) labour, learning and leisure, (v) society, (vi) safety, (vii) housing and (viii) the environment. Based on these themes and additional criteria relating to data quality and the sensitivity of an indicator for measuring changes caused by a pandemic or pandemic measure, a longlist of indicators was drawn up (see the table below).

When there is a risk of a pandemic, this longlist of indicators can serve as a starting point. A further selection can then be made of the indicators that are most relevant for measuring the social impact of the pandemic and pandemic measures. In addition, it must always be checked whether, given the nature of the pandemic, additional data is necessary for an up-to-date social picture.

The social impact of a pandemic can emerge at 'various levels' in society: at the *individual level* (for example, the loss of a job, or the extent to which we can have contact with others and where) and the *society level*, such as the accessibility of healthcare or economic growth.[3] It may also be relevant to measure social impact at the group or institutional level (systems and sectors), since a pandemic can affect groups of people or sectors and systems in different ways. A pandemic puts pressure on the resilience of people, groups, sectors or society as a whole. The resilience of society depends on the extent to which people possess 'resources' (or 'capital') in the various aspects of well-being.[4] For each theme, the indicators listed below are divided into those at the individual level (people's quality of life) and those at the system/society level (forms of capital that enable well-being). Actual data, for example whether people are overweight, is combined with people's perceptions, for example how people perceive their own health.

When a risk of a subsequent pandemic emerges, the longlist of well-being indicators should be re-examined for relevance. The subsequent pandemic and the response to it will be different in nature, and the needs will also be different than in previous pandemics. During the pandemic, a further selection of indicators must be made for each request for advice and package of measures. To ensure a rapid response, streamlining the selection process as much as possible during the cold phase would add value.

2. https://www.cbs.nl/en-gb/dossier/well-being-and-the-sustainable-development-goals/monitor-of-well-being-and-the-sustainable-development-goals-2023/the-story/well-being-here-and-now
3. Karen van Oudenhoven-van der Zee. *50 years of the SCP. Op weg naar een veerkrachtige en empathische overheid* [50 years of the SCP: Towards a resilient and empathetic government]. Netherlands Institute for Social Research, 2023, The Hague. Essay 50 jaar Sociaal en Cultureel Planbureau [Essay on 50 Years of the Netherlands Institute for Social Research] | Publication | Netherlands Institute for Social Research (scp.nl)
4. Vrooman, J.C., M. Gijsberts and J. Boelhouwer (2014). *Verschil in Nederland [Disparities in the Netherlands]*. The Hague: Netherlands Institute for Social Research. Verschil in Nederland [Disparities in the Netherlands] | Publication | Netherlands Institute for Social Research (scp.nl)

5.2 Social Impact (2/5)

Table 2. Longlist of impact indicators

Theme	Indicator *(level: individual – quality of life)*	Indicator *(level: systems and society – forms of capital that enable well-being)*
Subjective well-being	General satisfaction with life	
	Perceived control over own life	
Health and healthcare	Health literacy *(including pandemic knowledge)*	Healthcare accessibility/capacity *(including ICU capacity)*
	Health behaviour *(vaccination behaviour)*	Job vacancy rate in health and welfare
	Exercise	Healthcare use
	Being overweight	Mortality
	Perceived health	Perceived accessibility of healthcare
	Mental well-being	
	Perceived loneliness	
Material well-being and the economy	Median disposable income *(household)*	Savings in Dutch banks
	Median household wealth	Net labour force participation
	Consumer spending *(individual consumption)*	Global trade
	Consumer confidence	Added value *(GDP)*
Labour, learning and leisure	Use of time *(paid work, voluntary work, informal care, education, leisure)*	Job vacancy rate in education
	Working from home	
	Unemployment	
	Learning deficits	
	Satisfaction with work, informal care and leisure	
Society	Social interactions *(frequency of contact with family, friends or neighbours)*	Change in standards and values
		Trust in other people
		Trust in institutions
		Feelings of discrimination
Safety	Being a victim of crime	Social discomfort
	Feeling unsafe in the neighbourhood	Autonomy
		Freedom of expression
		Bodily integrity
Housing	Satisfaction with housing	
The environment		Urban exposure to particulate matter
		Environmental problems

5.2 Social Impact (3/5)

5.2.2 From longlist to shortlist

In order to properly prepare to give advice in the pandemic phase, it is important during the pandemic phase to define and select indicators for determining the social impact (4.4.2) of the pandemic and pandemic measures. At a minimum, these should include social, economic and health indicators. The longlist (5.2.1) should form the basis for this selection.

The initial selection of indicators is made based on the available epidemiological data and knowledge about the pandemic (whether imminent or underway), such as:

- the spread of the pathogen;
- the infectivity of the pathogen;
- the incubation time;
- the course of the disease, its severity and the likelihood of mortality;
- the most vulnerable groups, in terms of exposure, infectivity and the course of the disease;
- the most likely scenarios for the development of the pandemic, and the best-case and worst-case scenarios;
- the most likely pandemic measures for fighting the pandemic (see 5.5).

The epidemiological information can be entered in this table:

Table 3. Template table of epidemiological information

Category		Known information?
Spread	Source of infection	
	Method of infection	
	Incubation time	
Course of the disease	Duration of the disease	
	Severity of the disease	
	Morbidity	
People vulnerable to course of the disease		

Based on this information, an initial risk analysis for social impact can be performed in the preparation phase. For each theme, the effects (both positive and negative) that might occur can be examined. The first step is to flag the indicators in the longlist for which – based on data, research or expert consensus – significant social consequences are expected. For each indicator, the following questions should be asked:

- What are the possible consequences of the imminent pandemic for this indicator in the short and long term?
- What are the possible consequences of potential pandemic measures in the catalogue of measures (5.5) for this indicator in the short and long term?
- Which groups in society (5.2.3) will be particularly affected by these consequences?

The answers to these questions can then be entered in the table below. This will produce a risk analysis: a selection of indicators and groups that are expected to be affected during the pandemic. This initial selection will form the basis for the assessment of social impact, for which the matrix (5.4) will be used. It should be noted that the selection can always be adjusted and must be adjusted due to developments in the pandemic or society.

5.2 Social Impact (4/5)

Table 4. Risk analysis table template

Theme	Indicators flagged in the longlist	What are the possible consequences of the imminent pandemic for the indicators?	What are the possible consequences of possible pandemic measures for the indicators?	Who will be particularly affected by these consequences?
Subjective well-being				
Health and healthcare				
Material well-being and the economy				
Labour, learning and leisure				
Society				
Safety				
Housing				
The environment				

5.2.3 Target groups

It is important to show the effects at the population level and for specific groups. Accordingly, room must be made to incorporate specific groups during the impact assessment, advice-giving and decision-making.

In its *Fit for autumn* advisory report (Autumn 2022), the MIT recommended that, in a pandemic, 'high-risk groups' should not be limited to those who are medically vulnerable, but should also include those who are economically or socially vulnerable and people who work on the front line (in healthcare, for example).[5] The government has adopted the following four categories:[6]

- medically vulnerable groups: in the case of COVID-19, the elderly and people with a chronic illness or disability;
- groups that have a higher chance of coming into contact with an infection: workers in healthcare, education, childcare and close-contact professions;
- groups that are sensitive to the economic consequences of measures: business owners with no reserves, self-employed people and workers on temporary contracts or zero-hour contracts;
- groups that are sensitive to the social consequences of measures: children, young people, homeworkers, elderly people, people with low literacy (particularly digital literacy), psychiatric patients and disabled people (particularly those with intellectual disabilities).

It is likely that the above groups will be affected in subsequent pandemics, but other groups in society may also be affected. It is important to adequately monitor these and other vulnerable groups through data collection.

5. MIT advisory report 'Fit voor het najaar' ['Fit for autumn'] | Parliamentary Papers | Rijksoverheid.nl
6. Letter to Parliament on the government's response to the report 'Thinking through COVID-19 scenarios: A guide to making necessary choices' and the MIT advisory report 'Fit for autumn' | Parliamentary Papers | Rijksoverheid.nl

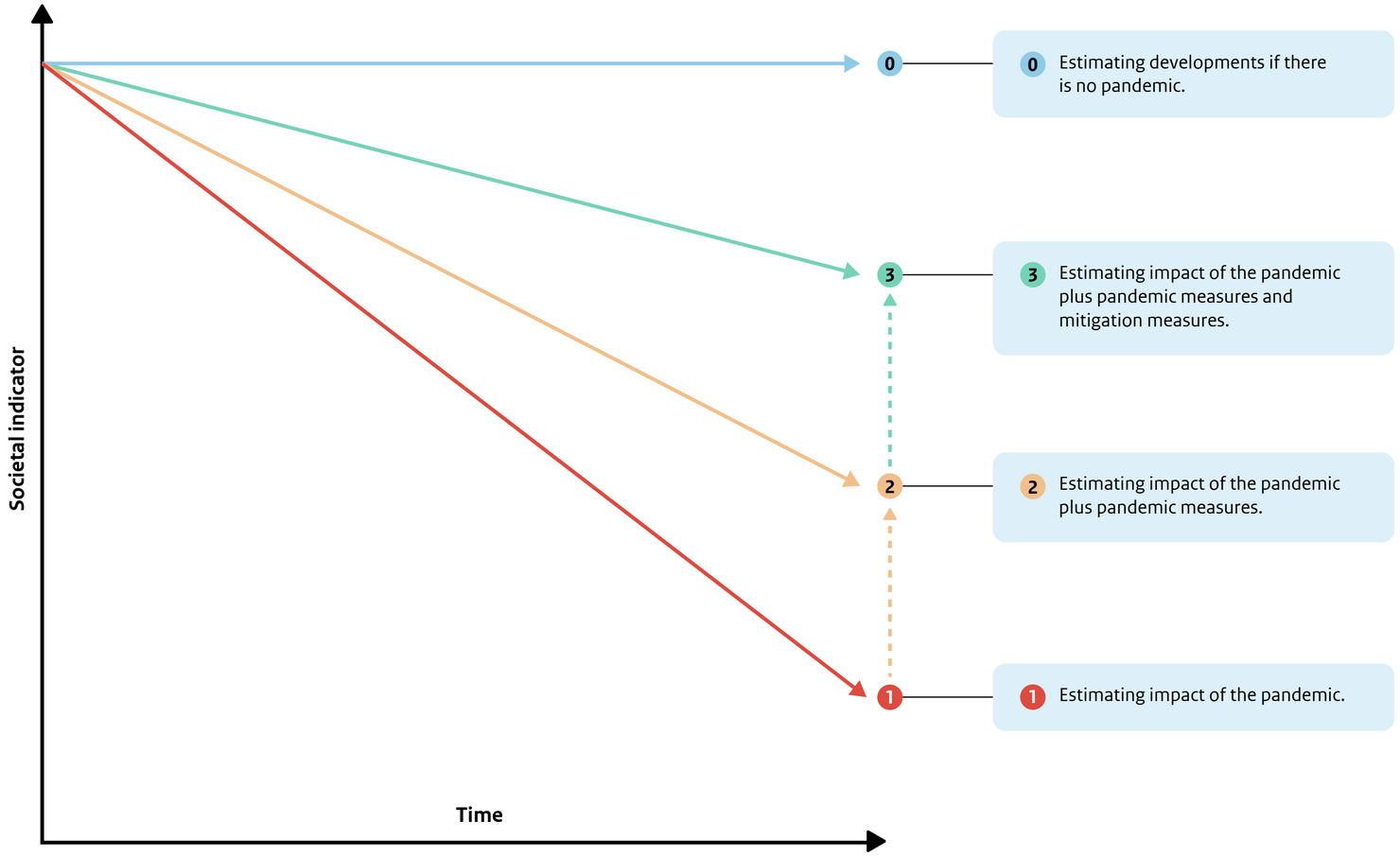
5.2 Social Impact (5/5)

5.2.4 Delta determination

In order to give advice on the social impact of measures, it is important to define exactly what change is being mapped. A delta determination can show future changes in the social picture. A delta determination maps the effects that possible pandemic measures and mitigating measures could have, broken down by various reference points.

A delta determination is shown in the figure below.

- The blue line shows the future social picture if no pandemic occurred (and no other developments arose).
- The red line shows the situation when a pandemic has occurred, but no pandemic measures have been imposed.
- The orange line shows the situation when a pandemic is underway and pandemic measures have been imposed.
- The green line shows the situation when a pandemic is underway and both pandemic measures and mitigating measures have been implemented.



5.3 Social values (1/2)

Social values play a role at each step of the process: developing a pandemic strategy; selecting impact criteria to assess the impact; selecting target groups to be included in the impact determination; and assigning points on a scale for the degree of severity of each impact criterion. When giving advice, the MIT explicitly includes values (principles) when weighing and interpreting severity.

When giving advice on and making decisions regarding pandemic measures, it is important to distinguish between *procedural* and *substantive* principles.[7] Procedural principles are about how a decision is made, while substantive principles are about the content of the decision.

Procedural principles

When complex decisions have to be made, such as during a pandemic, it is virtually impossible for the final decision to please everyone. However, people find it easier to accept a decision if they think it was reached in a fair manner.[8]

Principles such as procedural fairness contribute to broader acceptance of decisions and greater trust in the government[9] and, during pandemics, to greater support for and better compliance with the measures that are imposed.[10] Procedural fairness is also important in pandemic strategy. *Table* 5 lists six procedural principles that may be involved in giving advice and making decisions about pandemic measures.

Table 5. Procedural principles

Procedural principle	Explanation
Inclusiveness/representativeness	The perspectives of various groups in society are taken into account in decision-making.
Transparency	It is clear to citizens how and why decisions are reached, and this is communicated to society.
Reasonableness	Decisions are based on the best available information, and the decision-making procedure followed is consistent with the situation (e.g. a crisis situation). Decisions are feasible.
Responsiveness	Decisions are reconsidered if the situation changes or new information becomes available.
Accountability	The people making decisions can be held accountable for those decisions by parliament or by groups of citizens in court.
Respect for the democratic rule of law	Decisions are made in a democratic manner. Legal and constitutional rules are followed.

Substantive principles

Alongside the procedural principles, substantive principles are also important for advice and decision-making. Applying these principles does not provide a ready-made answer to what measures should be used, but it does assist with thinking through an issue from a broad perspective. Making an assessment based on substantive principles clarifies dilemmas and options. In order to reach a decision, the principles must be prioritised. This is also a *political* choice. *Table 6* lists six substantive principles that may play a role in giving advice and making decisions.

7. *Ethische principes in een afwegingskader voor pandemiemaatregelen* [Ethical principles in an assessment framework for pandemic measures] | Report | Rijksoverheid.nl
8. Leventhal, G. S. (1976). What should be done with equity theory? New approaches to the study of fairness in social relationships. In Gergen, K.J., Greenberg, M.S., Willis, R.H. (Eds.), *Social Exchange*. doi.org/10.1007/978-1-4613-3087-5_2
9. Joss, S., & Brownlea, A. (1999). Considering the concept of procedural justice for public policy and decision-making in science and technology. *Science and Public Policy*, 26(5), 321-330. doi.org/10.3152/147154399781782347
10. Stok, M., Van den Bos, K., Tiemeijer, W., Bal, M., Uiters, E., Euser, S.,... & De Bruin, M. (2021). *Draagvlak en vertrouwen, Het belang van ervaren rechtvaardigheid [Support and trust: The importance of perceived fairness]*. National Institute for Public Health and the Environment (RIVM). Draagvlak en vertrouwen, Het belang van ervaren rechtvaardigheid [Support and trust: The importance of perceived fairness] | RIVM

5.3 Social values (2/2)

Table 6. Substantive principles

Substantive principle	Explanation
Utility	Health damage and social and economic harm are minimised during the pandemic.
Distributive fairness	The positive and negative consequences of a measure are fairly distributed among groups in society.
Respect for people	The rights, fundamental rights, autonomy and freedoms of individuals are restricted as little as possible.
Solidarity	Vulnerable groups are protected, even at the expense of other groups in society.
Proportionality	The positive effects of a measure must be proportionate to the possible harm of a measure.
Sustainability	Citizens are capable of complying with a measure for a long period of time.

The above principles formed the starting point for the MIT's assessment framework. This decision was made on the basis of Dutch and international literature and expert consensus within the MIT. The extent to which the values are supported by Dutch society has not been studied. It is recommended that such a study be carried out and the results be updated through a preference study (5.6) when the next pandemic breaks out.

The application of values is already common in medical ethics, among other fields. A set of principles used in medical ethics to justify decisions (including policy decisions) comprises effectiveness, proportionality, necessity, minimal harmful effects and public justification.[11] A publication by the Scientific Council for Government Policy (WRR) and others on COVID-19 scenarios applies the principles of inclusiveness, transparency, customised communication, accountability and respect for the democratic rule of law.[12] The World Health Organisation (WHO) suggests that the principles of equality, utility, freedom, reciprocity and solidarity be applied during pandemics.[13]

In response to the COVID-19 pandemic, the Centre for Ethics and Health (CEG) has developed an assessment framework that can be used in times of healthcare shortages (Code Red).[14] Procedural and distributive fairness are two of the key principles in this framework. The CEG shows how values shift when a choice must be made between utility (health benefits), equality (equal rights to healthcare) and need (meeting the highest needs).

11. Childress, J. F., Faden, R. R., Gaare, R. D., Gostin, L. O., Kahn, J., Bonnie, R. J.,... & Nieburg, P. (2002). Public health ethics: mapping the terrain. *The Journal of Law, Medicine & Ethics*, 30(2), 170-178. Doi: doi.org/10.1111/j.1748-720X.2002.tb00384.x
12. Coronascenario's doordacht: Handreiking voor noodzakelijke keuzes [Thinking through COVID-19 scenarios: A guide to making necessary choices] | Publication | WRR
13. Ethical considerations in developing a public health response to pandemic influenza (who.int)
14. Code rood. Verkenning van morele uitgangspunten bij langdurige schaarste in de zorg [Code red: An exploration of moral principles during prolonged healthcare shortages] | Report | CEG – Centre for Ethics and Health

5.4 Matrix (1/4)

The matrix is a tool for obtaining a better understanding of the social impact of the pandemic and pandemic measures. Experts work together to assess which themes (impact criteria) and associated indicators (5.2.1 and 5.2.2) will be affected, and to which groups the effects will particularly apply.

5.4.1 Empty matrix

In the empty matrix, the relevant themes (impact criteria) go on the y-axis and the selected groups go on the x-axis, alongside the population as a whole. If the experts agree that there will be no impact for certain combinations of themes and groups, these boxes are crossed out.

5.4.2 Selection of the most relevant themes and groups

Based on the longlist (5.2.1) and shortlist (5.2.2) of indicators, the themes that are expected to be impacted can be selected, followed by the impact criteria with the most substantial impact. Check whether relevant impact criteria are reflected in the social picture and whether they are in the danger zone.

Example: school closure

By way of illustration, the 'school closure' pandemic measure is elaborated in the steps below. If closing schools is considered as a possible measure, the first step is to consider, based on scientific and practical knowledge (and, at a minimum, expert consensus), what themes and sub-themes are expected to be most impacted by the measure. In the case of school closure, for example, an effect on the sub-theme of 'learning deficits' can be expected; this comes under the theme of 'labour, learning and leisure'. The themes and sub-themes are placed on the y-axis, as shown in the example below. The example presents the direct (such as learning deficits) and indirect (such as domestic violence) effects of school closure.

	Total population	**Group**	**Group**	**Group**	**Group**
Theme					
Theme					
Theme					
Theme					
Theme					

		Total population	**Group**	**Group**	**Group**	**Group**
Health and care	Psychological well-being					
Work, learning and leisure	Learning disadvantages					
	Satisfaction with work, informal care and leisure time					
Society	Social contacts (*frequency of contacts with family, friends or neighbours*)					
Safety	Victim of crime (*domestic violence*)					

5.4 Matrix (2/4)

Next, the selected themes and sub-themes are linked to the groups that are assessed as likely to experience the greatest impact from the closing of schools. It is important to distinguish between the general population and those directly affected. Group attributes are defined for those who are directly affected. The groups are placed on the top row, as shown below. Always check the vulnerable groups described in 5.2.3 and consider whether an accumulation of effects may occur. The groups are placed on the x-axis, as shown in the example below. These may be both directly affected groups (students) and indirectly affected groups (the students' parents).

5.4.3 Completed matrix

Once the themes and sub-themes have been placed on the y-axis and the relevant groups on the x-axis, combinations where no substantial impact is expected (based on knowledge or expert consensus) can be crossed out. In the case of school closure, various combinations can be crossed out. Among other things, the impact on learning deficits for parents/caregivers and teaching staff is not applicable and need not be included when completing the matrix. In general, job satisfaction and informal care will not apply to students. The boxes for the combinations of themes/sub-themes and groups for which no impact is expected can thus be crossed out, as shown in the table below.

5.4.4 From matrix to heatmap

Now that the matrix has been completed, the next step is to show the severity of the impact for each theme/sub-theme and group. The matrix is coloured in, creating a heatmap.

- For each sub-theme, the expected change in the social picture is examined for each group. This should preferably be done using up-to-date data and forecasts, but at a minimum, it should be based on estimates and expert consensus.
- Each box in the matrix is assessed on a five-point scale (5.4.5): from positive or neutral (green) to extremely severe (dark red). The criteria used to determine the degree of severity are set out in 5.4.6.
- Applying this method creates a 'heatmap' for the impact on various sub-themes and for different target groups.

	Total population	Primary and secondary school pupils	Students living away from home	Parents/ carers	Education staff
Psychological well-being					
Learning disadvantages					
Satisfaction with work, informal care and leisure time					
Social contacts (*frequency of contacts with family, friends or neighbours*)					
Victim of crime (*domestic violence*)					

	Total population	Primary and secondary school pupils	Students living away from home	Parents/ carers	Education staff
Psychological well-being					
Learning disadvantages				×	×
Satisfaction with work, informal care and leisure time		×			
Social contacts (*frequency of contacts with family, friends or neighbours*)					
Victim of crime (*domestic violence*)			×		×

5.4 Matrix (3/4)

In the example of school closure, based on research and practical experience during the COVID-19 pandemic, severe effects on students can be expected in terms of mental well-being, learning deficits and social development, due to the reduction in social interactions. Accordingly, a score of 'D' (dark red) is given on the five-point scale. When this is done for every combination, a heatmap emerges, as shown in the example.

5.4.5 Five-point scale

The classification using a five-point scale (from A to E) was inspired by the classification from the Risk Assessment Guidelines in the Nationwide Risk Analysis of National Security,[15] with a few adjustments.

The Risk Assessment Guidelines in the Nationwide Risk Analysis
of National Security were used as the basis for developing a Nationwide Security Strategy. This means that the goal of the classification was different from the MIT's goal of classifying impact criteria. However, an important similarity is that a diverse set of impact criteria is reduced through the application of a methodology to points on the same scale, to quickly provide insight into the areas of greatest concern.

Example of a heatmap

	Total population	Primary and secondary school pupils	Students living away from home	Parents/ carers	Education staff
Psychological well-being	C	D	C	C	B
Learning disadvantages	C	D	C	×	×
Satisfaction with work, informal care and leisure time	C	×	B	C	C
Social contacts (*frequency of contacts with family, friends or neighbours*)	B	D	C	A/B	B
Victim of crime (*domestic violence*)	B	C	×	B	×

A. Positive/none
B. Limited
C. Substantial
D. Serious
E. Very serious

15. Rijksbrede Risicoanalyse Nationale Veiligheid 2022 [Nationwide Risk Analysis of National Security 2022] | Report | Rijksoverheid.nl

5.4 Matrix (4/4)

5.4.6 Criteria for the degree of severity

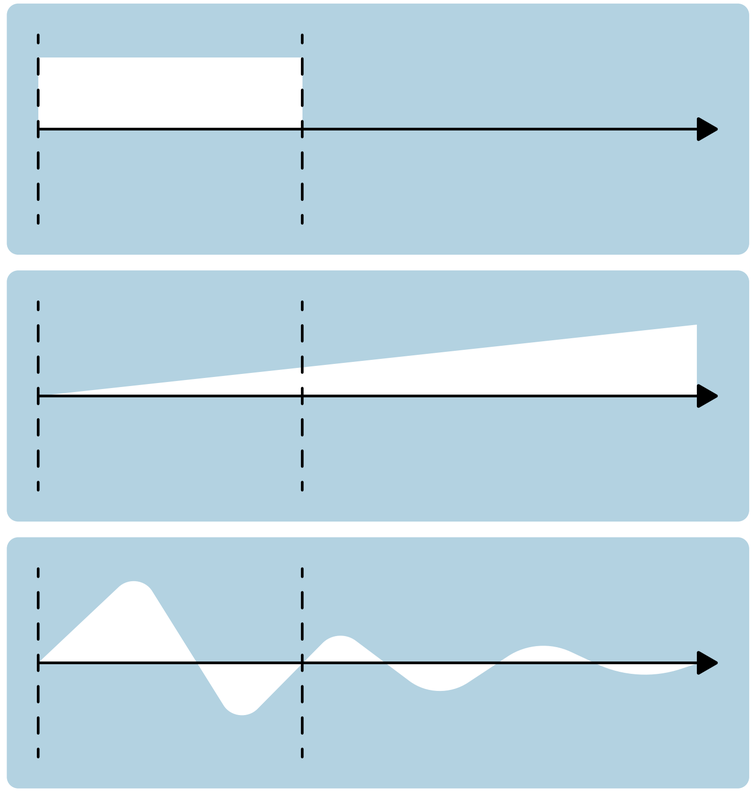
In the advisory report 'Doing justice to impacts and values', the MIT, the RVS and the Netherlands Institute for Human Rights set out criteria for determining the degree of severity of pandemic measures.[16] These criteria were developed in conjunction with a number of different experts. The degree of severity is determined on the basis of expert consensus by:

- the size of the affected groups;
- the vulnerability of the affected groups;
- the severity of the social impact;
  - the scale of the impact;
  - the irreversibility of the consequences;
  - the extent to which the harm can be remedied;
  - the duration of the measures and the extent to which the effects will linger;
  - the extent to which side effects will arise;
- the extent to which human rights will be violated;
- the perceived fairness of the measure in the eyes of citizens.

16. Advisory Report on the Public Health Act: Recht doen aan impact en waarden [Doing justice to impacts and values] | Report | Rijksoverheid.nl

5.4.7 Time horizon

The time horizon of the measures and their impact is one of the determining factors for the severity of the social impact. This relates to both the duration of the measures themselves and the extent to which the impact/effects of the measures will linger after the measure is lifted. Some examples are provided below.



An example of a pandemic measure of which the social impact lasts for as long as the measure is in place but stops when the measure is lifted.

An example of a pandemic measure with a social impact that increases over time and continues in the long term.

An example of a pandemic measure with short-term effects in a more erratic pattern and mild lingering effects.

5.5 Catalogue of measures

In its advisory report on the Public Health Act,[17] RIVM included a categorisation for potential pandemic measures:

- individual measures (to be implemented by individuals) such as hand hygiene, staying home when sick (isolation), staying home after contact with an infected person (quarantine), wearing a face mask, working from home and social distancing;
- social measures (for groups or locations) such as restrictions on events, closing bars and restaurants, limiting group sizes and imposing a curfew;
- environmental measures such as ventilation, spray shields, surface hygiene and measures to remove an infected environmental source (water, food);
- national and international travel and trade measures such as travel restrictions, entry screening, post-travel quarantine and import restrictions.

This kind of classification serves as a 'toolbox' for applying pandemic measures. The effectiveness and social impact of these pandemic measures must then be determined in the context of the pandemic.

A similar catalogue of mitigating measures does not yet exist. In the financial/economic arena, for example, there are standard measures for keeping the economy within a specific range, and there are mechanisms that can be expanded in times of crisis. This is not true for mitigating measures in the social arena, and much less research has been conducted in this area. To create a complete catalogue, a good synthesis of international knowledge will be required.

17. Advies over Wet publieke gezondheid (Wpg) [Advisory Report on the Public Health Act] | Letter | Rijksoverheid.nl

5.6 Preference study

The intention behind the preference study in the assessment framework is to find out what the population thinks about things like the applicable social values (5.3) and the measures to be imposed (5.5). The results of the preference study provide insight into the relative importance of various effects in the eyes of those who are directly or indirectly affected. The various effects can then be weighed up and a weighted score can be assigned. These insights can be used to calculate people's preferences for various collective measures, for example where it is necessary to choose between different measures.

The preferences of citizens as revealed in a preference study can be included to weigh the effects in the heatmap (Step 2e in 4.4.2 and tool 5.4), i.e. follow a utility approach. Such studies also contribute to the formulation of advice, because they provide insight into the level of support for the measures. For example, during the COVID-19 pandemic, the RIVM Behavioural Unit performed various measurements to determine how well the measures were supported.[18] Preference studies were also conducted into preferences and support for measures during the resurgence of the COVID-19 virus.[19]

A preference study can be performed during a 'cold phase' (when there is no pandemic) or during a 'hot phase' (during a pandemic). In this case, it must be considered whether a preference can be given the same weight in different circumstances.

A preference study in this context is primarily from the perspective of the general population (based on a representative population in the study), but it can also focus on specific groups, such as patients or sectors. It is therefore important when using this tool to explicitly state each time whose preferences are being included.

In the Netherlands, when health economics studies are performed into the effects of health interventions, it has been agreed that the social perspective will be applied. This means that the results collected from patients are evaluated by the general public (via a representative study population). For an explanation on weighing effects, see the Guideline for conducting economic evaluations in health care[20] and Section 2.2 of the In-depth module on QALY and quality of life.[21]

18. Results of the 21st round: Support | RIVM
19. De langetermijnaanpak van het coronabeleid: voorkeur van burgers en het maatschappelijk middenveld [The long-term approach to COVID-19 policy: preferences of citizens and civil society] en Gedrag, Welzijn, en Vertrouwen tijdens de COVID-19 pandemie: trends, verklaringen, en geleerde lessen [Behaviour, Well-being and Trust during the COVID-19 pandemic: trends, explanations and lessons learned]
20. Richtlijn voor het uitvoeren van economische evaluaties in de gezondheidszorg [Guideline for conducting economic evaluations in healthcare] (2024 version) | Publication | National Health Care Institute
21. Verdiepingsmodule+QALY+en+kwaliteit-van-leven-metingen+(versie+2024).pdf

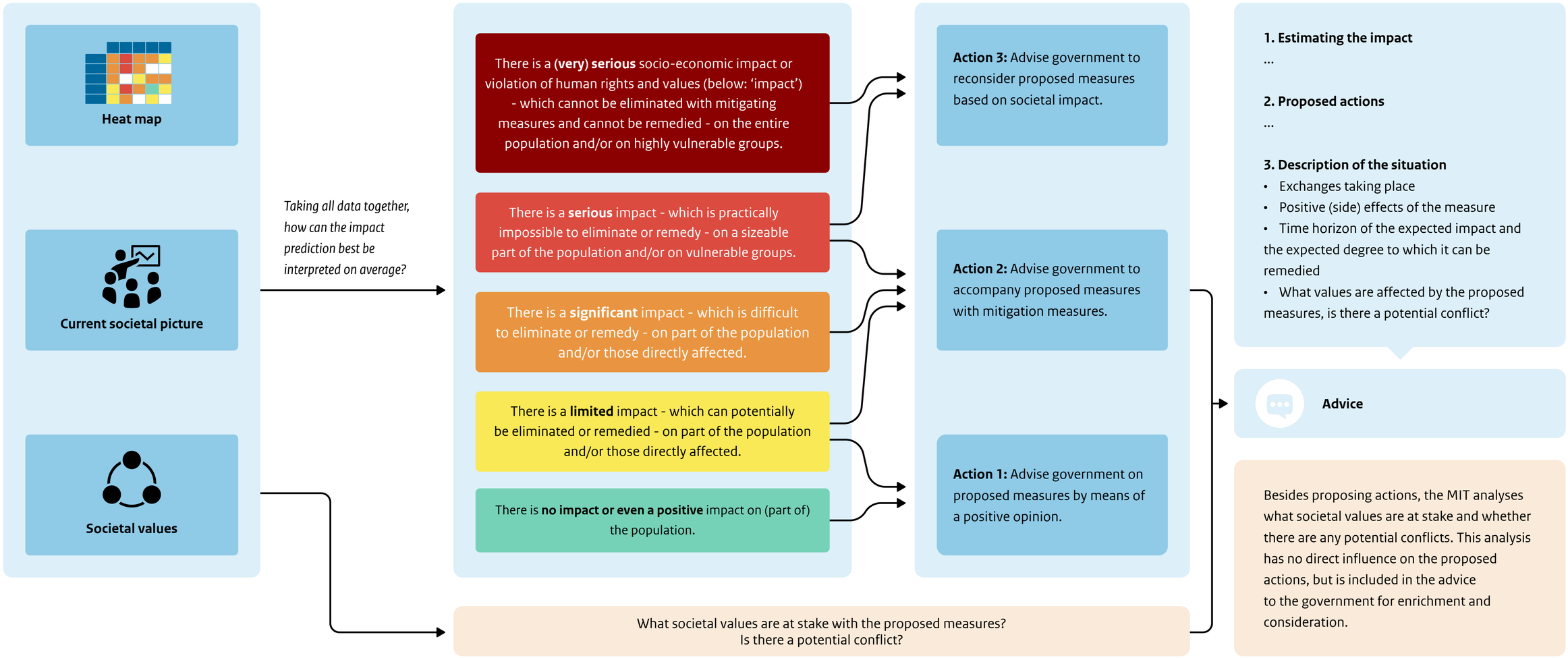
5.7 Forecasting models

During a pandemic, it is important to be able to look ahead as much as possible. Social forecasts are required to determine both changes in the social picture (5.1) and the social impact of measures (5.2). To this end, forecasting models must be developed based on explanatory research into the causal link between an event, such as a pandemic or pandemic measures, and outcome indicators. Using estimates involves limitations and uncertainties that must be taken into account in the interpretation.

RIVM has developed models that can be used to forecast the spread of an infection (R number) and the pressure on ICU capacity.[22] In a similar way, it should also be possible to produce estimates for the key economic and social themes. It would then be possible to estimate the social consequences of a pandemic and pandemic measures. Developing such models would require scientific knowledge about the explanatory mechanisms, cohesion and trade-offs of social indicators.

22. Hoe rekenmodellen bijdragen aan de bestrijding van COVID-19 [How calculation models contribute to fighting COVID-19] | RIVM

5.8 Overview of building blocks for giving advice



6. Annex: Explanation of the longlist of indicators

The following text provides a substantive definition of the concept of 'social impact' of pandemics and pandemic measures. This definition forms the basis for painting an in-depth social picture and providing insights into the social impact of pandemic measures. The social impact knowledge base is necessary for the MIT and others to be able to give substantiated advice to policymakers and politicians in the future. This text is an initial attempt to create a substantive definition of 'social impact'.

1. Background to the social impact knowledge base

The Social Impact knowledge base consists of the development and sustainable organisation of two substantive sections:

1. social information[1] for painting an up-to-date social picture of the Netherlands in a period of calm (cold phase) and during a time of crisis (hot phase); and
2. information on the impact of pandemic measures on the social situation in the Netherlands.

This information is used for:

- a **public dashboard** that provides an up-to-date social picture (5.1);
- **advice** given by the MIT or other actors.

The purpose of the dashboard is to present an up-to-date social picture to administrators, policymakers and the public. The information in the dashboard forms the basis for the advice given. The dashboard contains various indicators that provide an up-to-date social picture. In addition, we select a limited number of detection indicators (5.1.1) that can provide insight into social developments (social impact forecasts). In many cases, when formulating advice, additional social information is required. The COVID-19 pandemic showed that, in the hot phase, the dashboard needs to be expanded by adding a number of indicators that are relevant during a pandemic, such as compliance with or support for behavioural measures, or behaviour that reduces the chance of people becoming seriously ill from a virus. In addition, when formulating advice, knowing the short and long-term social impact of individual pandemic measures or packages of measures is essential.

For informed decision-making on measures to control infectious diseases that could pose a threat to public health and to mitigate the consequences of the measures for people and sectors, it is desirable for advice to be given from both a biomedical and a social perspective. Ideally, this advice would be given from an integrated perspective, with both biomedical and social knowledge being incorporated.[2] Here, we are working from a social perspective, informed by the social sciences. The resilience of people and society is central to this perspective.

We focus on social information to paint an up-to-date social picture of the Netherlands in a period of calm (cold phase) and on possible additional information to give advice from a social perspective during a time of actual or imminent crisis (hot phase). We work within the conceptual framework of well-being, which we explain in Part B.

1. 'Social information' means the information that is necessary to maintain a clear picture of the social and economic continuity/vitality of the Netherlands and the accessibility of the healthcare chain for everyone in the Netherlands.

2. Approach to COVID-19 Crisis Part 3 – Dutch Safety Board

6. Annex: Explanation of the longlist of indicators

2. Substantive definition of 'social impact' in the context of pandemic preparedness

After identifying our conceptual framework for social impact, we describe three focus areas (insight into short and long-term effects, insight into vulnerable groups and consideration of whether to expand the indicators in the hot phase). We also describe two steps (selection of themes and selection of indicators and the associated decision-making rules) to arrive at a substantive definition of a social picture. We look at social impact in terms of pandemic preparedness. A pandemic is an external shock that has an impact on society in a broad sense, not only on people's health, but also a social impact on people and systems.

Well-being as a conceptual framework

The severity of the social impact of a pandemic *and/or* pandemic measures depends on the resilience of society. Resilient people, groups of people and systems are better able to absorb the effects of a pandemic and recover after a pandemic. This resilience depends on the extent to which people and systems possess resources.[3,4]
For people or groups of people, for example, this could mean being in good health, having savings or having a social network. Resources that play a role in systems include the availability of sufficient personnel and reserves/ability to invest.

In terms of social impact and the resilience of society, the concept of 'well-being' provides an appropriate conceptual framework. Well-being includes economic *and* social aspects as well as those relating to the living environment and thus offers a broad view of social impact. In addition, the concept of well-being includes the effects of current well-being in the Netherlands on the well-being of future generations and on people in other parts of the world. For its Monitor of Well-being, Statistics Netherlands uses the following definition of well-being:

> *Well-being is the quality of life here and now and the extent to which it is at the expense of the quality of life of future generations and/or of people elsewhere in the world.*[5]

The planning agencies, which focus more on using well-being to look ahead, have identified the following characteristics:[6]

- Well-being goes beyond financial/economic well-being to encompass social, cultural and environmental aspects of well-being.
- Well-being is about sustainability. This means that well-being must also be available for future generations. Accordingly, the sources of well-being are crucial.
- Well-being has a cross-border perspective, which takes into account the effects of policies on well-being in other countries.
- Well-being includes the social distribution of well-being. This distribution can be assessed from both a normative and a functional perspective.

It is clear from the above that there is a sizeable overlap between how Statistics Netherlands and the planning agencies view well-being from a broad perspective. Statistics Netherlands and the planning agencies also largely agree in terms of their choice of well-being themes. An inventory of the themes used in studies by a partnership between Utrecht University and Rabobank, the OECD and the VNG[7] also shows a high degree of consensus on well-being themes.

A. Guiding principle: Short and long-term effects

A pandemic, and a pandemic measure, can have social impact in the short *and* long term. In the short term, for example, school closure can lead to feelings of loneliness among students due to a lack of contact with their fellow students at school. An immediate short-term effect such as this is relatively easy to measure. In the longer term, this pandemic measure may lead to learning deficits due to long-term online learning. These delayed effects cannot always be directly measured, particularly at the start of a pandemic. Statements about these effects will therefore be based on knowledge of these effects in the past.

3. Vrooman, J.C., M. Gijsberts and J. Boelhouwer (2014). *Verschil in Nederland [Disparities in the Netherlands]*. The Hague: Netherlands Institute for Social Research.
4. *Sociaal en Culturele Ontwikkelingen 2023* [Social and Cultural Developments 2023]. The Hague: Netherlands Institute for Social Research
5. cbs-monitor-brede-welvaart-de-sustainable-development-goals-2022.pdf (overheid.nl)
6. Verankering van brede welvaart in de begrotingssystematiek [Embedding well-being in the budgetary system] | Report | Netherlands Institute for Social Research (scp.nl)
7. See, among others: 1) cbs-monitor-brede-welvaart-de-sustainable-development-goals-2022.pdf (overheid.nl); 2) Verankering van brede welvaart in de begrotingssystematiek [Embedding well-being in the budgetary system] | Report | Netherlands Institute for Social Research (scp.nl); 3) Over de BWI – Brede Welvaartsindicator [About the BWI: Well-being Indicator] – Utrecht University (uu.nl); 4) Measuring Well-being and Progress: Well-being Research – OECD; 5) Landelijk dashboard sociaal-maatschappelijke impact corona [National dashboard for the social impact of COVID-19] | VNG

6. Annex: Explanation of the longlist of indicators

Information about the resilience of people and society based on available resources such as good health, a social network at the individual level and economic productivity at the society level also provides an insight into the possible social impact (and resilience) in the longer term.

B. Guiding principle: Monitoring high-risk groups[8]

During the COVID-19 pandemic, not everyone was affected with equal severity by the pandemic or the associated measures. The effect of the virus and the measures had a different impact on the quality of life of groups of citizens. Initially, the focus was on protecting the medically vulnerable, who were more susceptible to the negative consequences of an infection with the COVID-19 virus. Later in the pandemic came the realisation that other groups, such as people with less economic resilience and people with no social safety net, were also disproportionately affected.

Consequently, in the autumn of 2022, the MIT recommended that, in a pandemic, 'high-risk groups' should not be limited to those who are medically vulnerable but should also include those who are economically or socially vulnerable and people who work on the front line (in healthcare, for example). This advice was adopted by the government.[9] It is also important to be mindful of the increased risks from the consequences of a pandemic on other possible groups of citizens and sectors. This includes being alert to problems in society resulting from a pandemic and/or pandemic measures. The risks to people, groups of people and sectors can vary over time and with each pandemic. The overview of high-risk groups can be patchy, because information on certain groups is sometimes lacking. This may be because they are not represented in studies or are not well represented, as can be the case for children and young people, residents of institutions, people with low literacy and people with a mild intellectual disability who live independently. Certain groups in society may also face an accumulation of risks.

This could include the accumulation of fewer social interactions, fewer years of education, poorer health, and lower purchasing power or risk of poverty. This accumulation can not only exacerbate difficulties for the already defined high-risk groups but also create new high-risk groups. The concept of well-being provides an excellent opportunity to get a clear picture of such an accumulation of risks, since obtaining insight into the distribution of prosperity and well-being among citizens is an important element of well-being.[10]

C. Guiding principle: Constant consideration of whether to expand specifics of well-being themes

The threat of or actual outbreak of a pandemic requires consideration or – given the nature of the pandemic – fleshing out of well-being themes, using appropriate and complete indicators to paint a social picture.

8. The MIT has expanded the definition of high-risk groups. As well as those who are medically vulnerable (such as people with a chronic illness), attention is also given to three additional groups:
   - groups that have a higher chance of coming into contact with the virus (such as people who work in healthcare and other close-contact professions);
   - groups that are sensitive to the economic consequences of measures (such as self-employed people and workers on temporary or zero-hour contracts);
   - groups that are sensitive to the social consequences of measures (such as children, young people, people with low digital literacy, people with mental health problems and disabled people (particularly those with intellectual disabilities).

   This expansion of the definition of high-risk groups has been adopted by the government.
9. MIT advisory report 'Fit voor het najaar' ['Fit for autumn'] | Parliamentary Papers | Rijksoverheid.nl
10. Tunderman, Carabain and Boelhouwer (2024). *Brede welvaart en de kwaliteit van de samenleving. Kennisnotitie* [Well-being and the quality of society: Information memorandum]. The Hague: Netherlands Institute for Social Research.

6. Annex: Explanation of the longlist of indicators

3. Decision-making rules for the selection of well-being themes and indicators

To select well-being themes, we have drawn up the following decision-making rules (**Decision-making rules for T**hemes):

- **Decision-making rule T-1**: We will use the same well-being themes as are used by relevant institutions[11] for well-being.
- **Decision-making rule T-2**: The selected well-being themes must be relevant in the context of a pandemic.

After the selection of the themes comes the question of which indicators we will use for the themes. For the selection of relevant, useful indicators, three similar decision-making rules have been drawn up (**Decision-making rules for I**ndicators).

- **Decision-making rule I-1**: Where possible, we will use the same indicators for the themes as are used by relevant institutions.[12]
- **Decision-making rule I-2**: The indicators must have a certain sensitivity to be able to measure changes caused by a pandemic and/or pandemic measures.
- **Decision-making rule I-3**: Where indicators are deemed equally suitable based on Decision-making rules I-1 and I-2, the deciding factor will be data quality.

Prioritisation of the dimension(s) of data quality

Data quality has multiple dimensions, such as the timeliness and continuous availability of the data. The validity of the indicator with regard to the theme, the reliability of the available sources and completeness also plays an important role in this context. In addition, comparability between countries and accessibility of data are important considerations when determining data quality. We suggest that timeliness and availability (ideally continuous availability) should be given the most weight.

Measuring unit level

For the selection of indicators, it is important, particularly at a low measuring unit level, that wherever possible the indicator is (or can be) measured at the same and most relevant level. Thus, if an indicator will be used to make a statement about something at the level of individuals, it must not be measured at the household or address level. This is also important for obtaining insights into the accumulation of negative or other social effects for individuals.

11. Statistics Netherlands, the planning agencies, VNG, Utrecht University and the OECD
12. Statistics Netherlands, the planning agencies, VNG, Utrecht University and the OECD

4. Selection of well-being themes and indicators

In this section, we describe the proposed well-being themes and make suggestions for the corresponding indicators.

Ability to withstand shocks

We define well-being by focusing on the quality of society; see also the recent information memorandum from the SCP on the relationship between the two frameworks.[13] The quality of society includes the quality of life of citizens as well as other social aspects.

The social impact of a pandemic may manifest at two different levels in society: at the *individual level* (for example, the loss of a job, or the extent to which we can have contact with others and where) and the *level of society*, such as the accessibility of healthcare or economic growth.[14]

This corresponds to the extent to which well-being is shockproof in the 'here and now' (specifically focusing on the extent to which households are able to support themselves) and 'later' (specifically the robustness of the major systems (biosphere, society, economy) that enable well-being) in Statistics Netherlands' Monitor of Well-being. This provides insight into the extent to which people are able to cope with shocks such as a pandemic, for example because they possess financial resources. Individual resources include things like good health and having a social safety net or financial buffer in the event of the loss of a job and reduction in income.

A pandemic puts pressure on the resilience of people and systems in society.[15] At both levels, we can look at how people and systems are able to cope with the impact of a pandemic. The resilience of people and of systems in society depends on the extent to which they possess 'resources' (or 'capital') in the various aspects of well-being.[16] At an individual level, these resources could mean being in good health, having a permanent job or having a social

13. Tunderman, Carabain and Boelhouwer (2024). *Brede welvaart en de kwaliteit van de samenleving. Kennisnotitie* [Well-being and the quality of society: Information memorandum]. The Hague: Netherlands Institute for Social Research.
14. Karen van Oudenhoven-van der Zee. *50 years of the SCP. Op weg naar een veerkrachtige en empathische overheid* [50 years of the SCP: Towards a resilient and empathetic government]. Netherlands Institute for Social Research, 2023, The Hague.
15. Karen van Oudenhoven-van der Zee. *50 years of the SCP. Op weg naar een veerkrachtige en empathische overheid* [50 years of the SCP: Towards a resilient and empathetic government]. Netherlands Institute for Social Research, 2023, The Hague.
16. Vrooman, J.C., M. Gijsberts and J. Boelhouwer (2014). *Verschil in Nederland [Disparities in the Netherlands]*. The Hague: Netherlands Institute for Social Research.

6. Annex: Explanation of the longlist of indicators

network. At the level of a societal system, it is also relevant to have insight into the extent to which our organisation of the way we coexist, as well as our administration, the economy, nature and the living environment, can continue to function during a pandemic. For example, available capacity in the hospital and nursing sector or the ability of the government to function when tackling a pandemic.[17]

Distribution of effects

A pandemic can affect groups of people differently. When formulating advice on collective measures or recovery policies, it is therefore relevant to look not only at the effects on society as a whole but also at the effects on different groups in society. As already stated, the extent to which people possess resources is unevenly distributed across society. There is also a relationship between the availability to people of different types of resources: people with fewer economic resources, such as income, often also have less access to a social network.[18] This can lead to an accumulation of deficits in the possession of resources, such as income and health.[19]

During the COVID-19 pandemic, excess mortality among overweight people was higher than among people who were not overweight, and particularly among overweight people who were in poor health.[20] There were also differences in economic consequences for groups of citizens: for example, young people, low-skilled workers and people on temporary contracts were overrepresented in unemployment figures and the use of wage support (de Klerk et al. 2020; OECD 2021). People's skills and education, their labour market position, and their income and wealth have a major impact on their life opportunities (Vrooman et al. 2014). This is consistent with Statistics Netherlands' Monitor of Well-being.

Vulnerable groups are identified based on their ability to withstand shocks; in other words, which groups will be the first to experience the consequences of shocks? We identify differences between groups based on their possession of resources. Vulnerable groups may also be based on relevant background characteristics. We suggest using the same background characteristics as were used in the Monitor of Well-being for the distribution of well-being effects: gender, age, completed education and region.

We developed the various aspects of social impact based on eight well-being themes:

(i) subjective well-being;
(ii) health and healthcare;
(iii) material well-being and the economy;
(iv) labour, learning and leisure;
(v) society;
(vi) safety;
(vii) housing;
(viii) the environment.

The indicators are largely based on the fixed set of indicators in the Monitor of Well-being produced by Statistics Netherlands. In addition, it must always be checked whether, given the nature of the pandemic, additional data is necessary for an up-to-date social picture.

For each theme, we distinguish between indicators at the individual level (people's quality of life) and those at the system level (forms of capital that enable well-being). As well as a description of the actual situation, for example whether people are overweight, we also look at people's perceptions, for example how they perceive their own health.[21]

17. Statistics Netherlands. Monitor of Well-being & the Sustainable Development Goals 2022. The Hague/Heerlen/Bonaire, 2022
18. Vrooman, Boelhouwer, Iedema and Van der Torre. *Eigentijdse ongelijkheid De postindustriële klassenstructuur op basis van vier typen kapitaal Verschil in Nederland 2023* [Contemporary inequality: The post-industrial class structure based on four types of capital. Disparities in the Netherlands 2023]. Netherlands Institute for Social Research, 2023, The Hague.
19. See, for example, Engbersen 2022. *De maatschappelijke impact van Covid-19. Sociologie van een pandemie* [The social impact of COVID-19: sociology of a pandemic]. In: *De sociologie en de pandemie: Inzichten en vooruitblik na twee jaar coronacrisis* [Sociology and the pandemic: Insights and outlook after two years of the COVID-19 crisis]. Open Press Tilburg University. André, Reeskens, Völken (editors).
20. Vermeulen et al. 2023. *Leefstijl en oversterfte tijdens de COVID-19 pandemie* [Lifestyle and excess mortality during the COVID-19 pandemic]. 2023 SEO Amsterdam
21. Vermeij, De Kluizenaar, Reijnders and Coenders (ed.) (2024) *Koersen op kwaliteit van de samenleving. Sociaal en Culturele Ontwikkelingen 2024* [Focus on the quality of society: Social and Cultural Developments 2024]. The Hague: Netherlands Institute for Social Research

6. Annex: Explanation of the longlist of indicators

(i) Subjective well-being

Subjective well-being includes a wide range of attitudes to life and personal perceptions, as well as how people evaluate their lives. Adding this subjective theme is important, because the objective situation does not always align with how people perceive the situation. For example, a house may be objectively comfortable, but that does not mean that the inhabitants are satisfied with the house.[22] Once again, in choosing this theme, we took our cue from Statistics Netherlands'[23] Monitor of Well-being and the planning agencies.[24] Average satisfaction with life is fairly stable, even during the COVID-19 pandemic.[25] However, there were sizeable differences between groups in society. The effect of the pandemic and the associated measures on subjective well-being was particularly significant for young people[26] and parents with young children.[27] Although there are various ways of looking at subjective well-being, we suggest opting for people's satisfaction with their lives (or certain sub-aspects during a hot phase). We also suggest including 'control over one's own life' during a hot phase. Both a pandemic and the associated measures can affect the extent to which people feel that they have control over their own lives.

(ii) Health and healthcare

We define the theme of health broadly, encompassing physical, mental, social and behavioural aspects at the individual level.[28] This is consistent with the elaboration of the well-being theme of Health proposed by the planning agencies, Statistics Netherlands' Monitor of Well-being, and the broad view of health in RIVM's Public Health Foresight Study (VTV).

People's health is connected to a pandemic or pandemic measure in various ways. Health problems or disabilities, or the lack of them, can affect the severity of the consequences of an infection with the virus and the impact of the measures.[29] Conversely, a pandemic or pandemic measure can also have an effect on people's health.[30] For example, during the COVID-19 pandemic, excess mortality was observed.[31]

The perceived health of people in the Netherlands is fairly stable; around 77% of people felt that they were in good health in 2022 (in 2017, it was 79.3%). During the first year of the COVID-19 pandemic, this percentage rose to 81.5%. It is not clear what caused this rise. Although the general trend is that perceived health is stable, looking at the period 2017–2022, there was a slight drop among specific groups: particularly teenagers, young adults and elderly people (over 75).[32]

The COVID-19 pandemic also had an impact on the mental health of people in the Netherlands: in general, mental health declined during periods when many restrictive measures were in place and recovered when the measures were relaxed.[33] However, for some groups, this pattern of recovery following the relaxation of measures was less pronounced. For example, a much smaller recovery from the decline in mental health was seen in young people.[34,35]

22. Thissen, M. & J. Content (2022). *Brede welvaart in Nederlandse gemeenten: Het belang van regionale samenhang* [Well-being in Dutch municipalities: The importance of regional cohesion]. Netherlands Environmental Assessment Agency, The Hague.
23. CBS Monitor of Well-being & the Sustainable Development Goals 2023
24. Verankering van brede welvaart in de begrotingssystematiek [Embedding well-being in the budgetary system] | Report | Netherlands Institute for Social Research (scp.nl)
25. Vermeij, De Kluizenaar, Reijnders and Coenders (ed.) (2024) *Koersen op kwaliteit van de samenleving. Sociaal en Culturele Ontwikkelingen 2024* [Focus on the quality of society: Social and Cultural Developments 2024]. The Hague: Netherlands Institute for Social Research
26. SCP (2021). *Een jaar met Corona [Living with coronavirus]*. The Hague: Netherlands Institute for Social Research.
27. OECD (2021), COVID-19 and Well-being: Life in the Pandemic, OECD Publishing, Paris, doi.org/10.1787/1e1ecb53-en
28. See for example: Huber et al. 2011. How should we define health? *BMJ* 2011;343:d4163
29. See for example: Accessible? Not by a long shot | Publication | Netherlands Institute for Social Research (scp.nl)
30. See, for example, Gezondheid in coronatijd [Health during the COVID-19 pandemic] (cbs.nl), Naleving van en draagvlak voor de basis gedragsregels [Compliance with and support for the basic rules of behaviour] | RIVM
31. Statistics Netherlands, '*De COVID-19 pandemie. Sterfte en oversterfte in Nederland*' [The COVID-19 pandemic: Mortality and excess mortality in the Netherlands], Statistics Netherlands, 31 October 2023
32. Vermeij, De Kluizenaar, Reijnders and Coenders (ed.) (2024) *Koersen op kwaliteit van de samenleving. Sociaal en Culturele Ontwikkelingen 2024* [Focus on the quality of society: Social and Cultural Developments 2024]. The Hague: Netherlands Institute for Social Research
33. Manchia, M., Gathier, A. W., Yapici-Eser, H., Schmidt, M. V., de Quervain, D., van Amelsvoort, T., Vinkers, C. H. (2022). The impact of the prolonged COVID-19 pandemic on stress resilience and mental health: A critical review across waves. European Neuropsychopharmacology, 55, 22-83.
RIVM Inventarisatie Nederlandse COVID-19 Onderzoeken: Preventie en Zorg & Brede Maatschappelijke vraagstukken. 2022. Rapportage nr. 15: update mentaal welbevinden [RIVM Inventory of Dutch COVID-19 Studies: Prevention and Care & Broad Social Issues. 2022. Report No. 15: Mental well-being update].
34. De Klerk, Olsthoorn, Plaisier, Schaper, Wagemans (2021). *Een jaar met Corona* [Living with coronavirus]. The Hague: Netherlands Institute for Social Research.
Kleinjan, M., I. Pieper, G. Stevens, N. van de Klundert, M. Rombouts, M. Boer and J. Lammers (2020). *Geluk onder druk. Onderzoek naar het mentaal welbevinden van jongeren in Nederland* [Happiness under pressure: An investigation into the mental well-being of young people in the Netherlands]. Utrecht: Trimbos Institute, Alexander Foundation and Utrecht University.
35. Vermeij, De Kluizenaar, Reijnders and Coenders (ed.) (2024) *Koersen op kwaliteit van de samenleving. Sociaal en Culturele Ontwikkelingen 2024* [Focus on the quality of society: Social and Cultural Developments 2024]. The Hague: Netherlands Institute for Social Research

6. Annex: Explanation of the longlist of indicators

During the COVID-19 pandemic, feelings of loneliness increased in the Netherlands. This was part of a rising trend in the percentage of adults who feel lonely that was already apparent before the pandemic.[36,37]

Social health is about how we interact with our social environment. Social connection is a basic human need. During the COVID-19 pandemic, people with fewer social interactions in particular experienced more loneliness. Social health is closely related to the well-being theme of social cohesion. In this text, we discuss social cohesion under the Society theme.

Health behaviour is the behavioural patterns, actions and habits that are connected to maintaining, recovering and improving your health.[38] It is often a determining factor in how a pandemic or pandemic measure impacts a person. For example, during the COVID-19 pandemic, excess mortality was higher among people with an unhealthy lifestyle.[39] The pandemic measures often had an impact on opportunities and the extent to which people were able to exercise, such as the measure banning exercising in groups.

We suggest using 'being overweight' as the objective indicator for physical health, alongside perceived health as the subjective indicator. We can measure mental health using a tool for assessing mental well-being, such as the MHI-5. We suggest using perceived loneliness as the indicator for social health. For health behaviour, we suggest using exercise as an indicator (at a minimum). During the COVID-19 pandemic, it was important to monitor the extent to which people complied with the applicable behavioural measures (and, in conjunction with this, the support for these measures). For example, support for compliance with measures and advice is higher when people perceive that it is in the collective interests of society. We believe that this behaviour and support come under the well-being theme of 'health' because this behaviour can have direct consequences for individuals' own health and for public health. Vaccination behaviour and willingness to be vaccinated also come under this theme.[40] Health literacy is important too.

In addition to health at the individual level, the societal aspects of health are also important. At the society level of health (i.e. public health), we suggest using mortality as an indicator. This will allow us to monitor any excess mortality during a pandemic. We also suggest including accessibility of healthcare under this theme, since this is closely connected to individual and public health. This relates to the accessibility of healthcare in the short and medium term (healthcare capacity and vacancies). We also suggest including the extent to which people perceive healthcare to be accessible.

(iii) Material well-being and the economy

Material well-being includes the income that people can spend on goods and services which they can use to give substance and colour to their lives. In a broad sense, the economy focuses on the production and distribution of material well-being. We distinguish between the current functioning of the economy and determinants for the future production of material well-being. Taken together, material well-being and the economy provide a broad view of the economic impact of a pandemic, as well as insight into the resilience of people and society to cope with the potentially negative economic consequences of a pandemic.

For material well-being, we suggest using disposable income, household wealth, consumer spending and consumer confidence. For the functioning of the economy, we suggest using the global trade and added value (GDP) figures relevant to the Netherlands as indicators. To complement and support earning capacity, we suggest looking at bank savings and net labour force participation.

(iv) Labour, learning and leisure

The theme of labour, learning and leisure focuses on objective and subjective aspects of work and leisure and the relationship between them. It covers participation in society through various uses of time, such as paid work, education and informal care.

The COVID-19 pandemic had a major impact on how we worked and what we were able to do in our leisure time, and thus how we experienced the pandemic, for example by working from home and combining work with home schooling and/or the permanent presence of children in the home. During the COVID-19 pandemic, the percentage of

36. Vermeij, De Kluizenaar, Reijnders and Coenders (ed.) (2024) *Koersen op kwaliteit van de samenleving. Sociaal en Culturele Ontwikkelingen 2024* [Focus on the quality of society: Social and Cultural Developments 2024]. The Hague: Netherlands Institute for Social Research
37. De Klerk, Olsthoorn, Plaisier, Schaper, Wagemans (2021). *Een jaar met Corona* [Living with coronavirus]. The Hague: Netherlands Institute for Social Research.
38. Gochman, G.S. (Ed), (1997). *Handbook of Health Behavior Research*. New York: Plenum.
39. Vermeulen et al. 2023. *Leefstijl en oversterfte tijdens de COVID-19 pandemie* [Lifestyle and excess mortality during the COVID-19 pandemic]. 2023 SEO Amsterdam
40. See Naleving van en draagvlak voor de basis gedragsregels [Compliance with and support for the basic rules of behaviour] | RIVM

6. Annex: Explanation of the longlist of indicators

Dutch residents in paid work was fairly stable. The government provided support measures to prevent job losses.[41] People worked fewer hours during the COVID-19 pandemic, partly because they had to provide home schooling to children.[42]

The pandemic also affected unpaid work, such as informal care and voluntary work. Although the number of informal caregivers was fairly stable during the pandemic, people provided a more intensive level of care to their sick household members.[43,44] For informal caregivers whose loved ones were in an institution, such as a nursing home, providing care during periods of closure and visiting restrictions was impossible, or at least different than before.[45] Less voluntary work was performed during the pandemic, and the percentage of the Dutch population that performed voluntary work was lower in 2022 than before the COVID-19 pandemic.[46] Many organisations and associations, such as sports clubs and community centres, were closed, and the number of activities decreased.[47]

The pandemic and measures also had an impact on how we were able to spend our leisure time. Although we were unable to exercise in groups, more people than usual met the standard for healthy exercise, possibly through other forms of movement, such as walking, during the early part of the pandemic. We were also unable to eat out or go to the cinema, and there were limits on the number of people we could invite to our homes, etc.[48] All of this had an impact on how we spent our time, but it appeared to have less of an impact on our satisfaction with leisure activities. Leisure satisfaction is relatively high in the Netherlands compared with other European countries (in 2022, 74% of people were satisfied with the amount of leisure time) and has remained relatively stable over time.

Education is an important activity for young people to ensure they have opportunities in life. Education, and satisfaction with it, also affects the life satisfaction of young people.[49] Young people increasingly experience school and performance pressure in education,[50,51] and there are indications that this increased during the pandemic.[52,53,54] During the pandemic, schools were closed (fully at first, then partially) and students learned remotely (online). Online learning reduced opportunities to see other students and teachers, reducing feelings of connectedness with classmates and decreasing the motivation to learn. In addition, students reported more feelings of loneliness during periods of school closures[55,56] and learning deficits arose.[57] Although the specific impact of school closure is difficult to establish, research shows that some of these learning deficits were at least partly remedied once schools reopened, while other deficits persisted and had longer-term effects.[58,59] For example, in 2020, school recommendations (in primary schools) were lower, particularly for girls and for children from households with relatively low incomes. The number of young people leaving school prematurely (18–25 year olds with no basic

41. Vermeij, De Kluizenaar, Reijnders and Coenders (ed.) (2024) *Koersen op kwaliteit van de samenleving. Sociaal en Culturele Ontwikkelingen 2024* [Focus on the quality of society: Social and Cultural Developments 2024]. The Hague: Netherlands Institute for Social Research
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43. De Klerk, M., Oltshoorn, M., Schaper, J. & F. Wagemans (2021). *Een jaar met Corona* [Living with coronavirus]. SCP: The Hague.
44. Vermeij, De Kluizenaar, Reijnders and Coenders (ed.) (2024) *Koersen op kwaliteit van de samenleving. Sociaal en Culturele Ontwikkelingen 2024* [Focus on the quality of society: Social and Cultural Developments 2024]. The Hague: Netherlands Institute for Social Research
45. Verbakel, Raiber, De Boer 2022. *Mantelzorg tijdens de pandemie* [Informal care during the pandemic]. In: *De sociologie en de pandemie: Inzichten en vooruitblik na twee jaar coronacrisis* [Sociology and the pandemic: Insights and outlook after two years of the COVID-19 crisis]. Open Press Tilburg University. André, Reeskens, Völken (editors).
46. Vermeij, De Kluizenaar, Reijnders and Coenders (ed.) (2024) *Koersen op kwaliteit van de samenleving. Sociaal en Culturele Ontwikkelingen 2024* [Focus on the quality of society: Social and Cultural Developments 2024]. The Hague: Netherlands Institute for Social Research
47. SCO 2023 (Arends and Tummers 2022; Statistics Netherlands 2022b).
48. See, for example, Opnieuw minder bezoekers in Nederlandse musea [Visitor numbers in Dutch museums fall again] | Statistics Netherlands
49. Kloosterman, Akkermans, Tummels-van der Aa, Wingen and C. Reep (2021). *Welzijn en stress bij jongeren in coronatijd [Well-being and stress among young people during the COVID-19 pandemic]*. The Hague: Statistics Netherlands.
50. De Roos and De Boer. 2023. *Meer meedoen is niet per se goed voor jongeren* [Increased participation does not necessarily benefit young people]. The Hague: Netherlands Institute for Social Research
51. Stevens, Rombouts, Maes, Zondervan, Van Dorsselaer, Schouten and Scheffers-van Schayck (2023). *Jong na Corona* [Being young after COVID-19]. Utrecht: Utrecht University
52. Kloosterman, Akkermans, Tummels-van der Aa, Wingen and C. Reep (2021). *Welzijn en stress bij jongeren in coronatijd [Well-being and stress among young people during the COVID-19 pandemic]*. The Hague: Statistics Netherlands.
53. Dopmeijer, Nuijen, Busch and Tak (2021). *Monitor mentale gezondheid en middelengebruik studenten hoger onderwijs [Monitor on Mental Health and Substance Use among Higher Education Students]*. Bilthoven: National Institute for Public Health and the Environment, Trimbos Institute and Netherlands Municipal Public Health Services and Medical Assistance in Accidents and Disasters (GGD GHOR).
54. Vermeulen, Schwartz, Hoekstra and Kleinjan. (2021). *Druk in het voortgezet onderwijs. Onderzoek naar oorzaken van schooldruk in het voortgezet onderwijs [Pressure in secondary education: An investigation of the causes of school-related pressure in secondary education]*. Amsterdam: SEO Economic Research.
55. Van den Berg, Donker, Van Hummel, Tuenter, Branje, Finkenauer and Polderman (2023). Mental wellbeing of youth: lessons from the COVID-19 crisis. Netherlands Youth Institute. Utrecht.
56. Stevens, Rombouts, Maes, Zondervan, Van Dorsselaer, Schouten and Scheffers-van Schayck (2023). *Jong na Corona* [Being young after COVID-19]. Utrecht: Utrecht University
57. Betthäuser, B.A., Bach-Mortensen, A.M. & Engzell, P. A systematic review and meta-analysis of the evidence on learning during the COVID-19 pandemic. *Nat Hum Behav* 7, 375–385 (2023). doi.org/10.1038/s41562-022-01506-4
58. Ministry of Education, Culture and Science (OCW). *2022. Nationaal Programma Onderwijs Derde voortgangsrapportage* [National Education Programme: Third Progress Report]. The Hague.
59. Vermeij, De Kluizenaar, Reijnders and Coenders (ed.) (2024) *Koersen op kwaliteit van de samenleving. Sociaal en Culturele Ontwikkelingen 2024* [Focus on the quality of society: Social and Cultural Developments 2024]. The Hague: Netherlands Institute for Social Research

6. Annex: Explanation of the longlist of indicators

qualification and not in education) is relatively low compared with other EU countries (5.6% in 2022), but there was an increase in the number of early school leavers during the COVID-19 pandemic.[60,61]

We suggest selecting the objective indicators of time spent on paid work, voluntary work, informal care, education and participation in leisure activities, as well as the subjective assessment of use of time (paid work, informal care and leisure). We also suggest including an indicator of the number of hours worked from home. In addition, we want to include an indicator that measures learning deficits. Another indicator relates to individual unemployment. At the society level, we suggest adding capacity in the education sector (job vacancy rate in education).

(v) Society

Within the theme of society, we look at social cohesion in a broad sense. Social cohesion includes the number and quality of relationships that people have available to them at the individual level (for productive purposes[62]),[63] the degree of cohesion in society as a whole (vertical: between groups of people and horizontal: between people and institutions),[64] as well as determinants of cohesion such as trust and perceived individual freedom.

The different forms of social cohesion are related: people with greater trust in others often have access to a social network. There is also a relationship between aspects of social cohesion and other aspects of social impact such as health.[65] During the COVID-19 pandemic, for example, people with fewer social interactions had more feelings of stress and anxiety than people with more social interactions.[66] The COVID-19 pandemic showed that the pandemic itself and the associated measures had a major impact on social cohesion. The number of interactions with other people in the more immediate neighbourhood remained fairly stable during the pandemic. However, there was a slight decrease during and after the pandemic in the number of interactions with people who lived further away, such as acquaintances, compared with before the pandemic.[67]

In addition, satisfaction with interactions fell slightly, particularly during the early part of the pandemic. In acute crisis situations, such as at the start of the pandemic, trust in each other and in institutions increases.[68] The trust of citizens in the government was therefore enormously high at the start of the pandemic *(rally around the flag* effect). This trust decreased over the course of the pandemic and is now relatively low.[69,70] People's trust in each other increased slightly during the early part of the pandemic,[71] before dropping. During the later pandemic years, social trust remained fairly stable at levels comparable with the pre-pandemic period. However, there was more perceived friction between groups during the pandemic, for example around the extent to which other groups should comply with the measures. Age and health played a role here.[72]

60. Netherlands Youth Institute (NJi). 2024. Cijfers over voortijdig schoolverlaten [Figures on early school leavers] | Netherlands Youth Institute (nji.nl). Last accessed on 28 February 2024.
61. Vermeij, De Kluizenaar, Reijnders and Coenders (ed.) (2024) *Koersen op kwaliteit van de samenleving. Sociaal en Culturele Ontwikkelingen 2024* [Focus on the quality of society: Social and Cultural Developments 2024]. The Hague: Netherlands Institute for Social Research
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65. Vrooman, Boelhouwer, Iedema and Van der Torre. *Eigentijdse ongelijkheid De postindustriële klassenstructuur op basis van vier typen kapitaal Verschil in Nederland 2023* [Contemporary inequality: The post-industrial class structure based on four types of capital. Disparities in the Netherlands 2023]. Netherlands Institute for Social Research, 2023, The Hague.
66. Engbersen 2022. *De maatschappelijke impact van Covid-19. Sociologie van een pandemie* [The social impact of COVID-19: sociology of a pandemic]. In: *De sociologie en de pandemie: Inzichten en vooruitblik na twee jaar coronacrisis* [Sociology and the pandemic: Insights and outlook after two years of the COVID-19 crisis]. Open Press Tilburg University. André, Reeskens, Völken (editors).
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De sociologie en de pandemie: Inzichten en vooruitblik na twee jaar coronacrisis [Sociology and the pandemic: Insights and outlook after two years of the COVID-19 crisis]. Open Press Tilburg University. André, Reeskens, Völken (editors).
68. Geys & Qari (2017). Renske, please add.
69. Engbersen 2022. *De maatschappelijke impact van Covid-19. Sociologie van een pandemie* [The social impact of COVID-19: sociology of a pandemic]. In: *De sociologie en de pandemie: Inzichten en vooruitblik na twee jaar coronacrisis* [Sociology and the pandemic: Insights and outlook after two years of the COVID-19 crisis]. Open Press Tilburg University. André, Reeskens, Völken (editors).
70. Continu onderzoek burgerperspectieven [Continuing research into citizens' perspectives] | Research Programme | Netherlands Institute for Social Research (scp.nl)
71. Dekker, P., J. den Ridder, P. van Houwelingen and E. Miltenburg (2020), *Continu Onderzoek Burgerperspectieven 2020* [Continuing research into citizens' perspectives 2020] | 2. The Hague: Netherlands Institute for Social Research.
Ridder, J. den, E. Josten, J. Boelhouwer and C. van Campen (2020). *De sociale staat van Nederland 2020* [Social state of the Netherlands 2020]. The Hague: Netherlands Institute for Social Research.
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6. Annex: Explanation of the longlist of indicators

Due to the emphasis on standards, social cohesion is important for compliance with measures[73] and the feeling of being part of the community.[74] In addition, monitoring social cohesion is important due to possible social unrest between groups or changes in the perceived inclusiveness of society.[75] A pandemic can lead to conflicting interests, for example between the medically and non-medically vulnerable. Tensions can also arise between these groups. For example, people in a more vulnerable state of health had less social trust in other people than people who were at less risk of becoming seriously ill with COVID-19.[76]

At the individual level, we suggest indicators that focus on the frequency of social interactions. At the society level, we suggest selecting indicators that focus on trust (social and institutional), an indicator of the change that people perceive in standards and values and an indicator for perceived feelings of discrimination.

(vi) Safety

During a pandemic, it is relevant to have insight into citizens' perceptions of safety, such as the perceived threat to health or well-being posed by a virus[77] or perceived restrictions of autonomy, freedom of expression or bodily integrity due to the pandemic or pandemic measures.

At the individual level, we would like to measure safety with the indicators 'being a victim of crime' and 'perceived safety in one's own neighbourhood'. At the society level, we suggest including feelings of social discomfort, perceived autonomy, freedom of expression and bodily integrity.

(vii) Housing

During a pandemic, as well as general satisfaction with life, it may be relevant, depending on the nature of the pandemic, to include additional sub-aspects of life in the social picture.[78] We suggest including satisfaction with housing.

(viii) The environment

Through changes in people's mobility and companies' economic activities, a pandemic and the associated measures can have an impact on road transport, aviation and shipping.[79,80] This can affect fuel use (including fossil fuels) and thus emissions of environmentally harmful substances. We suggest including indicators at the society level that measure urban exposure to particulate matter and people's perceptions of environmental problems.

73. Verbeek-Oudijk, D., Hardus, S., Broek, van den, A. & M. Reijnders (ed.) (2023). *Sociale en Culturele Ontwikkelingen. Stand van Nederland 2023* [Social and Cultural Developments: The state of the Netherlands in 2023]. The Hague: Netherlands Institute for Social Research
74. (Amdaoud et al. 2021; Barrios et al. 2021; Charron et al. 2022). (Anja Machielse in Van den Beld 2020; see also André et al. 2022).
75. *Verankering van brede welvaart in de begrotingssystematiek. Voortgangsrapportage van de drie gezamenlijke planbureaus* [Embedding well-being in the budgetary system: Progress report from the three joint planning agencies]. CPB/PBL/SCP. The Hague: 2022.
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6. Annex: Explanation of the longlist of indicators

5. Summary of themes and indicators

Theme	Indicator *(level: individual – quality of life)*	Indicator *(level: systems and society – forms of capital that enable well-being)*
Subjective well-being	General satisfaction with life	
	Perceived control over own life	
Health and healthcare	Health literacy *(including pandemic knowledge)*	Healthcare accessibility/capacity *(including ICU capacity)*
	Health behaviour *(vaccination behaviour)*	Job vacancy rate in health and welfare
	Exercise	Healthcare use
	Being overweight	Mortality
	Perceived health	Perceived accessibility of healthcare
	Mental well-being	
	Perceived loneliness	
Material well-being and the economy	Median disposable income *(household)*	Savings in Dutch banks
	Median household wealth	Net labour force participation
	Consumer spending *(individual consumption)*	Global trade
	Consumer confidence	Added value *(GDP)*
Labour, learning and leisure	Use of time *(paid work, voluntary work, informal care, education, leisure)*	Job vacancy rate in education
	Working from home	
	Unemployment	
	Learning deficits	
	Satisfaction with work, informal care and leisure	
Society	Social interactions *(frequency of contact with family, friends or neighbours)*	Change in standards and values
		Trust in other people
		Trust in institutions
		Feelings of discrimination
Safety	Being a victim of crime	Social discomfort
	Feeling unsafe in the neighbourhood	Autonomy
		Freedom of expression
		Bodily integrity
Housing	Satisfaction with housing	
The environment		Urban exposure to particulate matter
		Environmental problems

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