



# PHIRI

Population Health Information  
Research Infrastructure

## D8.1 Needs Assessment

1<sup>st</sup> Needs assessment results, 31.05.2021

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## Executive summary

This deliverable 8.1 of the PHIRI project provides an **overview of the current and future priorities of European countries regarding the management of the COVID-19 pandemic**. It is one of the first activities in Work Package 8 of the project, the so-called Rapid Exchange Forum (REF).

The REF assesses countries' national pandemic management in specific predefined areas, collects potential good practices and lessons learned and offers room for quick exchange between countries, research networks and stakeholders like ECDC.

To use the available resources in the best possible way, the project team planned to customise the topics covered in the bi-weekly REF meetings to the needs and expectations of the countries. Thus, a large-scale needs assessment was conducted via an online survey among project partners between mid-December 2020 and end of February 2021. Participants were asked to indicate their current and future priority topics for pandemic management and for an evaluation of the pandemic management in their country so far and for important lessons learned. **Overall, 42 responses from 24 European countries were received.**

The project team of GÖG and the Polish MoH analysed the overall aggregated replies, as well as replies grouped by **country and type of institution** with the following key results:

The current main priority topic across countries was **vaccination strategies**. In contrast to current priorities, indicated future priorities are more diverse among countries and include the areas of **testing, health data, monitoring and vaccination**. Country responses on the rating of national pandemic management and good practices/lessons learned show consistency.

The results of this needs assessment are fed into the **'pipeline' of questions addressed in the bi-weekly Rapid Exchange Forum (REF) meetings**, which are constantly revised. Selected questions are put into voting prior to each REF and the question with most votes is covered in the meeting. Results and findings are uploaded to the PHIRI SharePoint shortly after the meeting. Once the EU Health information portal is launched, selected results of non-confidential nature will be published there.

Also, these topics **guide the work in Task 8.4. and 8.5. where evidence, guidelines, research networks and policy measures** regarding the identified priority topics are searched using different scientific methods and shared among countries and EC services.

## Key points

- 24 participating countries: Albania, Austria, Belgium, Bosnia and Herzegovina, Croatia, Estonia, Finland, Germany, Hungary, Ireland, Italy, Lithuania, Malta, The Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, United Kingdom
- Country profiles of each country including the number of responses, type of participating institutions, top 10 current and future priority topics, additional priority topics and rating of national pandemic management
- Overview of good practices and lessons learned during the COVID-19 pandemic
- Transnational analysis of responses grouped by type of institution

# PHIRI: 1<sup>st</sup> Needs Assessment results

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## I. Introduction

The Needs Assessment is an accompanying process to *task 8.2 One-stop-shop* and also guides *tasks 8.4. and 8.5.* of PHIRI's work package 8 'Rapid Exchange Forum' (REF). The task is led by the WP 8 lead GÖG, which is the Austrian national public health institute and as such heavily involved in the Austrian pandemic management.

It includes a ranking of current and future top 10 priority topics on COVID-19, a retrospective rating of countries' national pandemic management during the COVID-19 pandemic in specific predefined areas during the first wave, summer period and second wave, and the collection of good practices and lessons learned that REF participants would like to share with their peers.

## II. Aim

The main purpose of the need assessment is to identify priority topics of the public health community - both researchers and national decision support experts - in Europe to facilitate COVID-19 pandemic management at European and national level. Additionally, the rating of national pandemic management aims at providing a subjective overview of countries' approaches (e.g., measures taken) in specific predefined categories including their development throughout the pandemic.

Furthermore, the exercise aims to identify good practices and lessons learned during the COVID-19 pandemic that countries want to share with others to provide insights that could help other countries to improve their performance in the management of the current or future pandemics.

## III. Methodologic approach

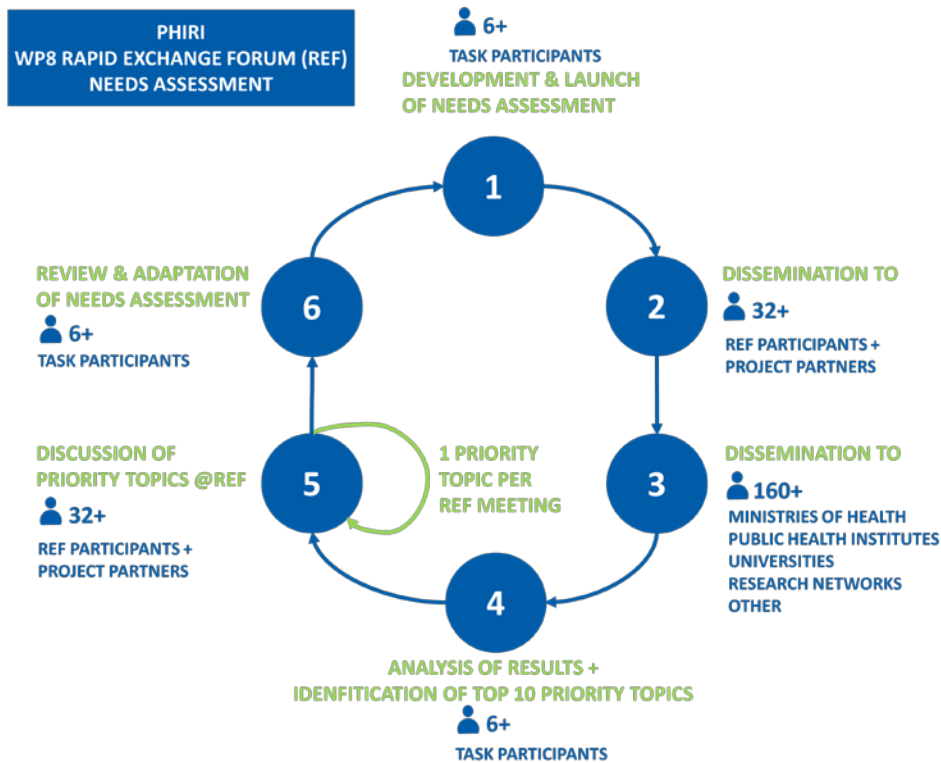
The initial needs assessment was conducted via an online survey and has been repeated on an irregular basis. Target groups are government authorities, national decision support experts/advisors, public health institutes, universities, non-university research organisations, scientific/medical associations and research networks.

The survey was conducted between mid-December 2020 and end of February 2021. Results were analysed by country, type of institution and aggregated at the European level. Multiple responses by countries and institutions were aggregated.

Results are available in addition to the report via [Microsoft Power BI](#).

The process of the needs assessment is depicted in Figure 1.

Figure 1: Needs assessment process



Overall, 36 current and future priority topics were defined based on literature (e.g., Haug, N. et al., Ranking the effectiveness of worldwide COVID-19 government interventions, <https://doi.org/10.1101/2020.07.06.20147199>) and a structured brainstorming of the members of GÖG's COVID-19 taskforce:

- National continuous COVID-19 testing strategies
- Mass testing approaches
- Surveillance of seroprevalence and associated immunity
- Accuracy and usability of different test methods
- Protection of care facilities
- Protection of hospitals
- Protection of vulnerable groups
- Protection of schools and kindergardens
- Protection of essential infrastructures
- Changes in lifestyle due to the pandemic
- Impact of voluntary (partial) self-isolation on society and individuals (e.g. transmission, social contacts, effect on economy)
- Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
- Impact of pandemic on education
- Changes in availability of medications and medical equipment (COVID and non-COVID)
- Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)
- Monitoring of effectiveness and harms of policy/containment measures
- Centralised vs. de-centralised pandemic management
- Collaboration between institutions/authorities
- Refine/strengthen the role of the EU in pandemic management
- Participation/empowerment on community/organisation/citizen level
- Communication between actors/players
- Communication towards population
- Infodemic

- Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)
- Treatments for COVID-19 patients
- Use of telemedicine
- Vaccination strategies (availability, distribution, implementation, documentation)
- Effectiveness and safety of vaccines
- Foresight/forecast, preparedness, implementation of modelling
- Case definitions (number of cases, deaths, recovered)
- Management of (COVID-19) health data
- COVID-19 training provided for specific target groups
- Strengthen skills and address potential shortage of health professionals
- Mitigation of economic and social consequences
- Relaxing/ease of containment measures
- Public Health concepts for balancing between protection from virus and protection of personal freedom

Respondents were given the opportunity to rank a maximum of ten current and ten future priority topics. The timeframe of current priorities yielded from December 2020 until 3-6 months into the future and for future priorities beyond 3-6 months into the future. In addition to the predefined topics, respondents could indicate additional priority topics that were not included in the list of predefined priority topics of the ranking exercise.

Regarding the rating of national pandemic management, 14 areas were defined that respondents could rate (0 = 'did not work well' to 10 = 'worked very well') for three different periods (first wave, summer period and second wave). The categories are as follows:

- International networking, exchange
- Health data management/quality
- Communication (of risks, developments, measures, recommendations, ...) by politicians, experts and media
- Launching telemedicine and digital tools
- Transparency
- Collaboration of national and regional authorities
- Solidarity across parties, groups, ministries, sections of the population, etc.
- Forecasting, modelling
- Involvement of experts in decision-making
- Experts/PH institutes supply decision makers with best available evidence
- National policy response: containment measures
- National policy response: legal framework and conditions
- Clinical response: health care and services for COVID-19 patients
- Clinical response: health care and services for non-COVID-19 patients

Furthermore, countries had the opportunity to indicate specific good practices and lessons learned (i.e. potential for improvement), that they want to actively share with other countries.

## IV. Results

### A. Countries

In total, 24 European countries participated in the first needs assessment and 42 responses were received. The following countries participated, sorted by number of responses per country:

- Belgium, The Netherlands, Slovakia (4 responses)
- Austria, Bosnia and Herzegovina, Croatia, Serbia (3 responses)
- United Kingdom (2 responses)



- Albania, Estonia, Finland, Germany, Hungary, Ireland, Italy, Lithuania, Malta, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden (1 response)

Figure 2 provides a geographical overview of country participation.

Figure 2: Map of countries participated in first PHIRI Needs Assessment



Source: GÖG 2021

## 1. Country profiles

### a) Albania

Number of responses: 1  
 Participating organization: University

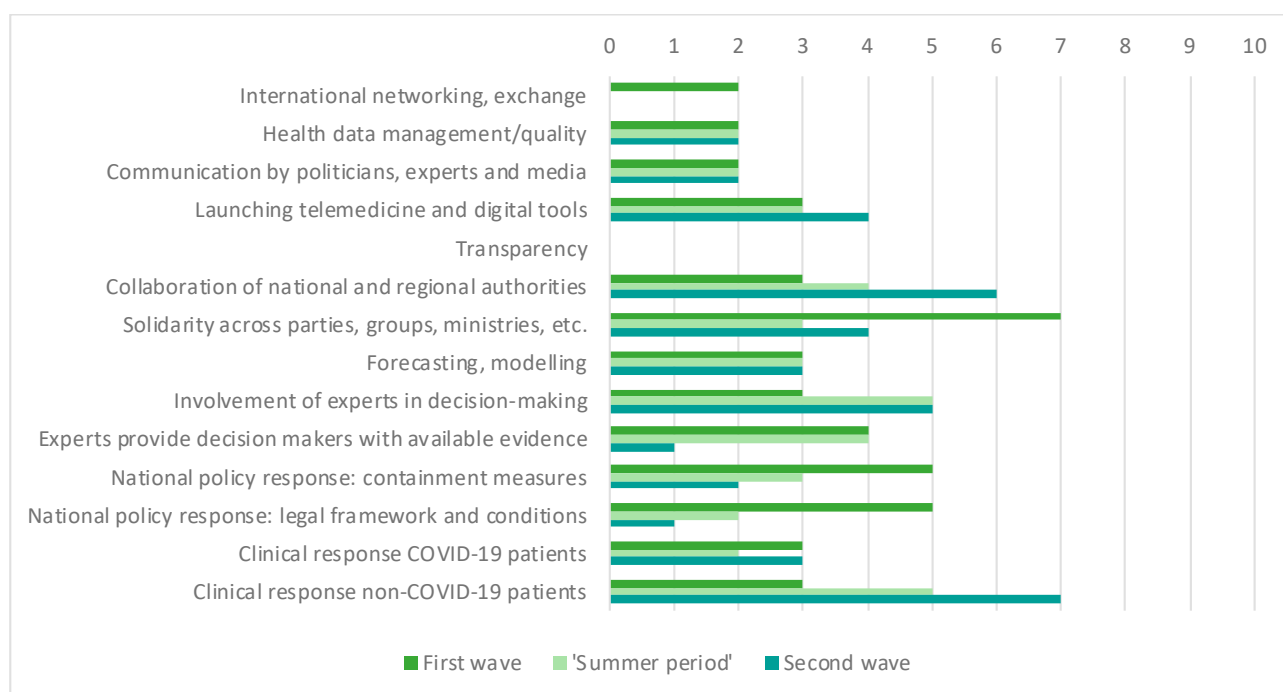
### Top 10 current and future priority topics

Table 1: Priority topics - Albania

Rank	Top 10 current priority topics AL	Top 10 future priority topics AL
1	Mass testing approaches	Mass testing approaches
2	Protection of vulnerable groups	Protection of vulnerable groups
3	Changes in lifestyle due to the pandemic	Changes in lifestyle due to the pandemic
4	Impact of pandemic on education	Centralized vs. de-centralized pandemic management
5	Centralized vs. de-centralized pandemic management	Infodemic
6	Communication between actors/players	Effectiveness and safety of vaccines
7	Infodemic	Relaxing/ease of containment measures
8	Treatments for COVID-19 patients	-
9	Mitigation of economic and social consequences	-
10	-	-

### Rating - first wave, summer period and second wave

Figure 3: Rating - Albania



Two periods, summer period and second wave in the category "International networking, exchange", as well as all three time periods in the category "Transparency" were rated by Albania with zero points. Therefore, none of these bars are displayed in the chart for the respective category.

## b) Austria

**Number of responses:** 3  
**Participating organizations:** Public Health Institute (1)  
 Government authorities (2)

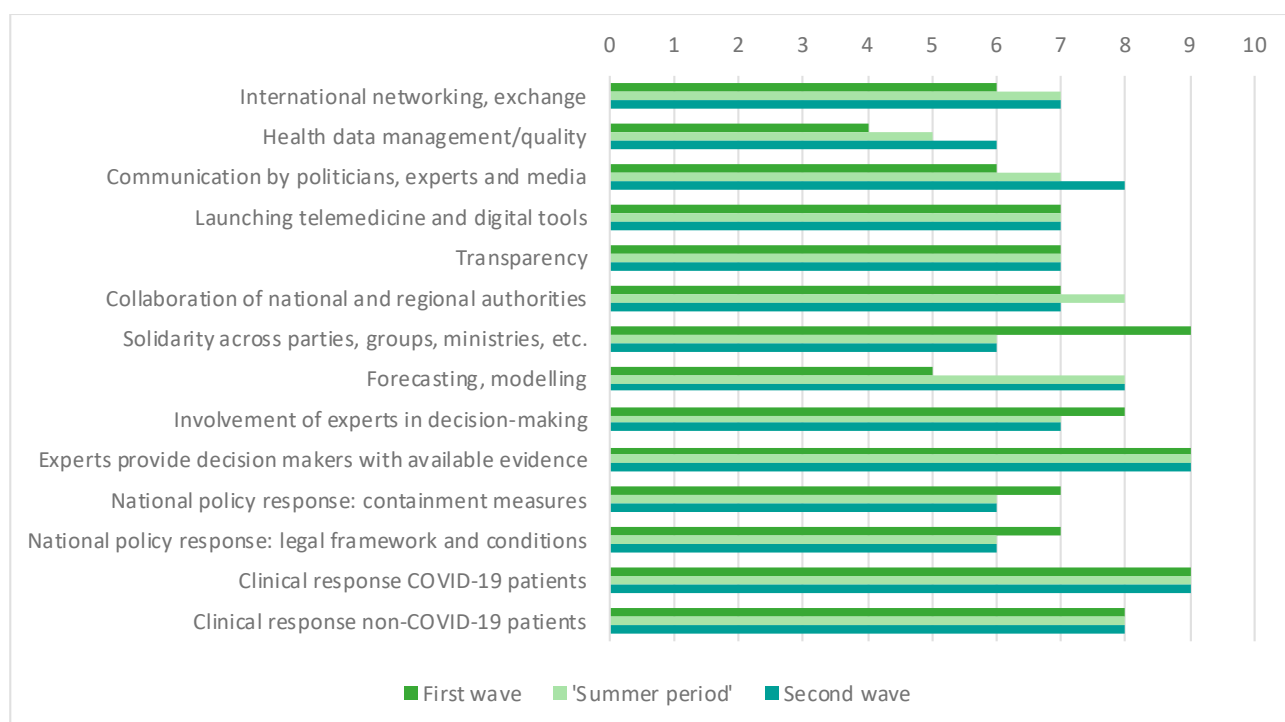
### Top 10 current and future priority topics

Table 2: Priority topics - Austria

Rank	Top 10 current priority topics AT	Top 10 future priority topics AT
1	Vaccination strategies (availability, distribution, implementation, documentation)	Vaccination strategies (availability, distribution, implementation, documentation)
2	Protection of care facilities	National continuous COVID-19 testing strategies
3	Protection of vulnerable groups	Monitoring of effectiveness and harms of policy/containment measures
4	National continuous COVID-19 testing strategies	Protection of care facilities
5	Public Health concepts for balancing between protection from virus and protection of personal freedom	Protection of vulnerable groups
6	Management of (COVID-19) health data	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)
7	Protection of schools and kindergardens	Public health concepts for balancing between protection from virus and protection of personal freedom
8	Mass testing approaches	Surveillance of seroprevalence and associated immunity
9	Protection of hospitals	Management of (COVID-19) health data
10	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)	Relaxing/ease of containment measures

### Rating - first wave, summer period and second wave

Figure 4: Rating - Austria



### c) Belgium

**Number of responses:** 4  
**Participating organizations:** Public Health Institute (1)  
 Government authority (2)  
 Other (1, Administration of Regional Public Health)

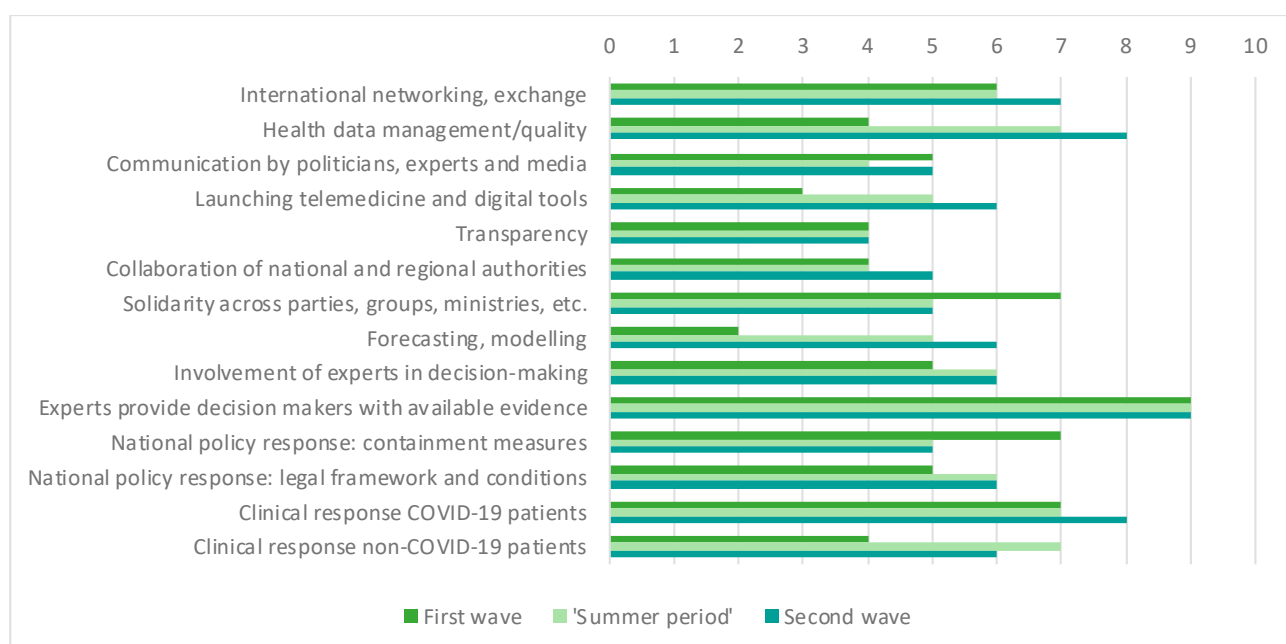
#### Top 10 current and future priority topics

Table 3: Priority topics - Belgium

Rank	Top 10 current priority topics BE	Top 10 future priority topics BE
1	Vaccination strategies (availability, distribution, implementation, documentation)	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
2	Communication towards population	Surveillance of seroprevalence and associated immunity
3	Protection of vulnerable groups	Treatments for COVID-19 patients
4	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Mitigation of economic and social consequences
5	National continuous COVID-19 testing strategies	Impact of pandemic on education
6	Protection of care facilities	Mass testing approaches
7	Mitigation of economic and social consequences	Refine/strengthen the role of the EU in pandemic management
8	Communication between actors/players	Relaxing/ease of containment measures
9	Impact of pandemic on education	Vaccination strategies (availability, distribution, implementation, documentation)
10	Surveillance of seroprevalence and associated immunity	Accuracy and usability of different test methods

#### Rating - first wave, summer period and second wave

Figure 5: Rating - Belgium



### d) Bosnia and Herzegovina

Number of responses: 3  
 Participating organizations: Public Health Institute

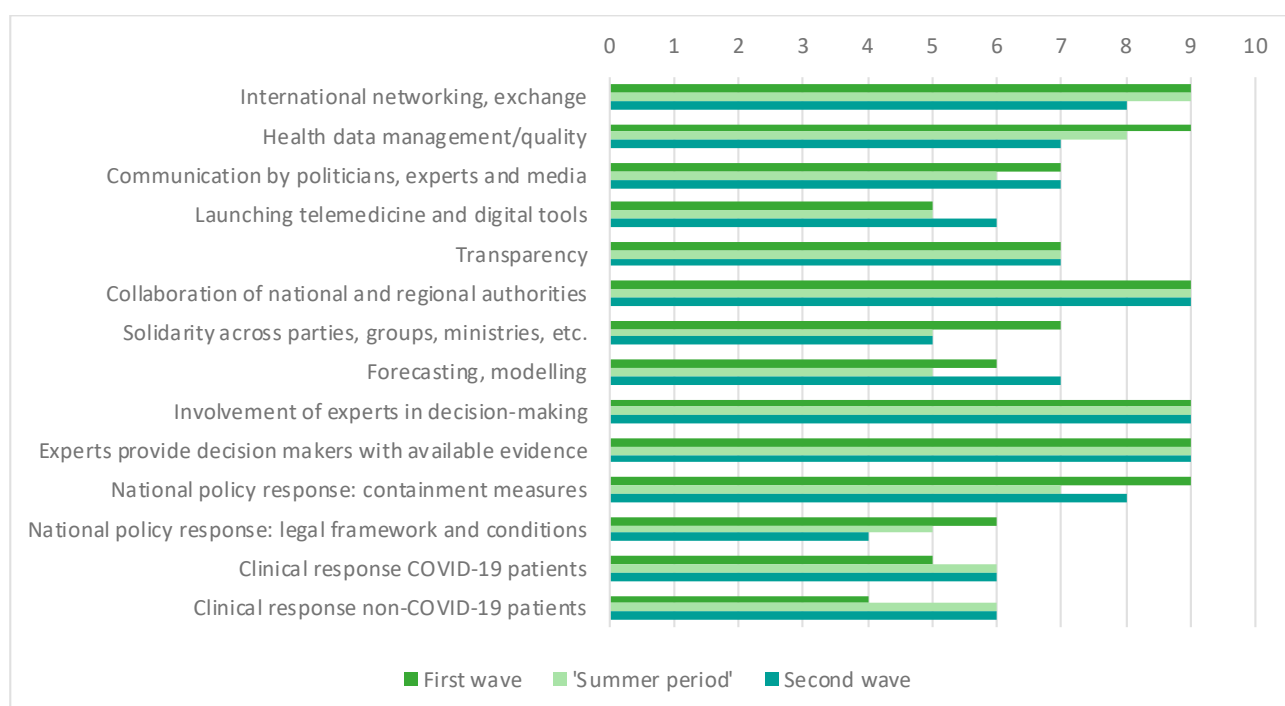
#### Top 10 current and future priority topics

Table 4: Priority topics – Bosnia and Herzegovina

Rank	Top 10 current priority topics BA	Top 10 future priority topics BA
1	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Protection of vulnerable groups
2	Vaccination strategies (availability, distribution, implementation, documentation)	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)
3	Effectiveness and safety of vaccines	National continuous COVID-19 testing strategies
4	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	Centralized vs. de-centralized pandemic management
5	Centralized vs. de-centralized pandemic management	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)
6	Changes in lifestyle due to the pandemic	Vaccination strategies (availability, distribution, implementation, documentation)
7	Foresight/forecast, preparedness, implementation of modelling	Treatments for COVID-19 patients
8	Surveillance of seroprevalence and associated immunity	Infodemic
9	Communication towards population	Management of (COVID-19) health data
10	Public Health concepts for balancing between protection from virus and protection of personal freedom	Strengthen skills and address potential shortage of health professionals

#### Rating - first wave, summer period and second wave

Figure 6: Rating – Bosnia and Herzegovina



### e) Croatia

Number of responses: 3

Participating organizations: Public Health Institute

### Top 10 current and future priority topics

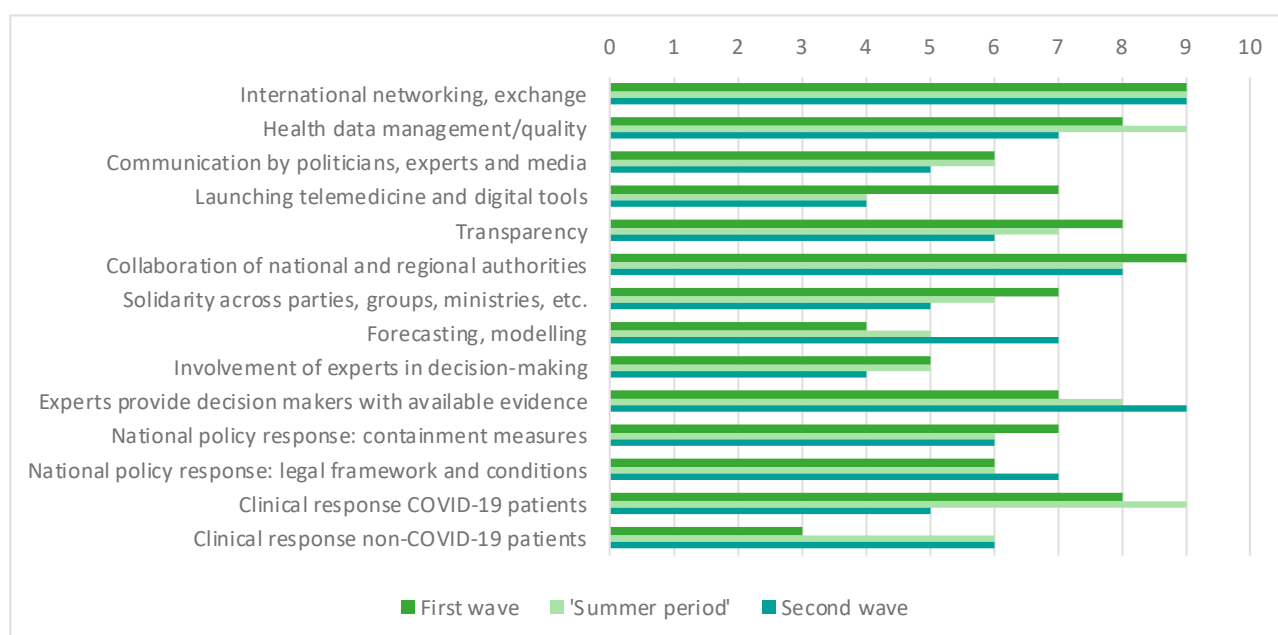
Table 5: Priority topics - Croatia

Rank	Top 10 current priority topics HR	Top 10 future priority topics HR
1	Communication towards population	Effectiveness and safety of vaccines
2	Vaccination strategies (availability, distribution, implementation, documentation)	Communication towards population
3	Monitoring of effectiveness and harms of policy/containment measures	Protection of schools and kindergardens
4	National continuous COVID-19 testing strategies	Vaccination strategies (availability, distribution, implementation, documentation)
5	Protection of vulnerable groups	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)
6	Treatments for COVID-19 patients	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)
7	Refine/strengthen the role of the EU in pandemic management	Surveillance of seroprevalence and associated immunity
8	Protection of care facilities	Accuracy and usability of different test methods
9	Mass testing approaches	Mitigation of economic and social consequences
10	Accuracy and usability of different test methods	Public health concepts for balancing between protection from virus and protection of personal freedom

Additional current priority topics: Vaccination coverage and vaccination availability

### Rating - first wave, summer period and second wave

Figure 7: Rating - Croatia



## f) Estonia

**Number of responses:** 1  
**Participating organization:** Public Health Institute

### Top 10 current and future priority topics

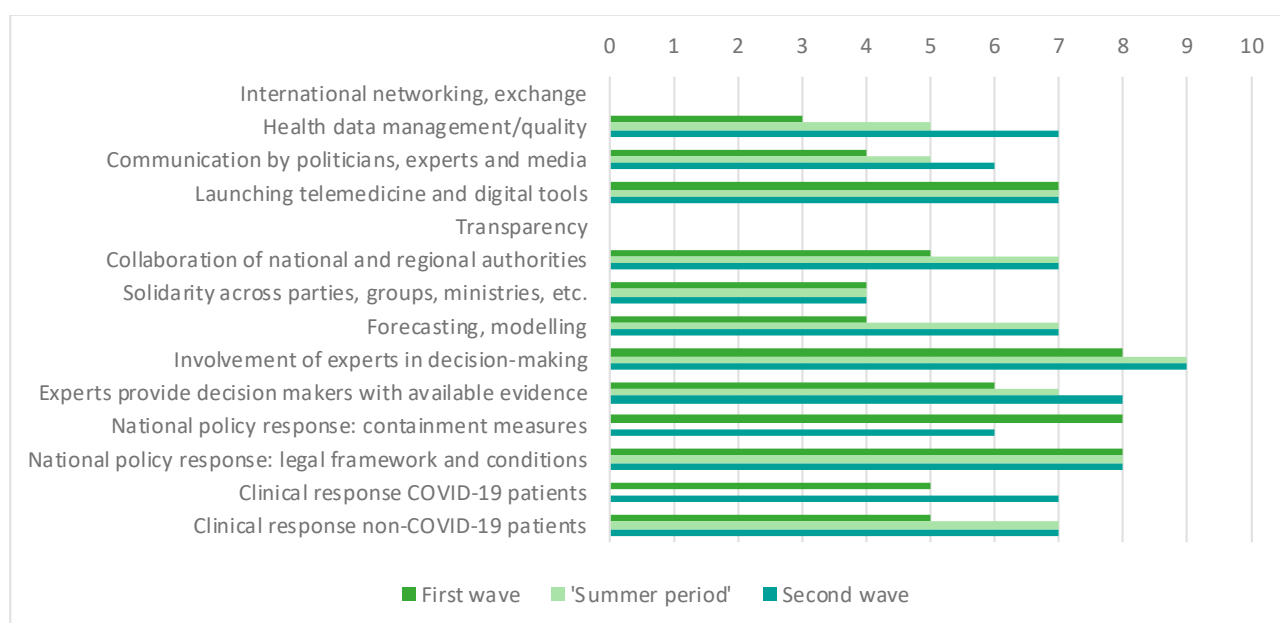
Table 6: Priority topics - Estonia

Rank	Top 10 current priority topics EE	Top 10 future priority topics EE
1	National continuous COVID-19 testing strategies	National continuous COVID-19 testing strategies
2	Protection of hospitals	Protection of vulnerable groups
3	Protection of vulnerable groups	Impact of pandemic on education
4	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)
5	Vaccination strategies (availability, distribution, implementation, documentation)	Management of (COVID-19) health data
6	Management of (COVID-19) health data	Mitigation of economic and social consequences
7	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	Impact of voluntary (partial) self-isolation on society and individuals (e.g. transmission, social contacts, effect on economy)
8	Mitigation of economic and social consequences	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
9	Collaboration between institutions/authorities	Collaboration between institutions/authorities
10	Case definitions (number of cases, deaths, recovered)	Case definitions (number of cases, deaths, recovered)

**Additional current priority topic:** Impact on mental health

### Rating - first wave, summer period and second wave

Figure 8: Rating - Estonia



The categories "international networking, exchange" and "transparency" were not assessed by Estonia, therefore no data is available. Further, no data were provided for the categories "National policy response: containment measures" and "Clinical response: health care and services for COVID-19 patients" for the Summer period.

### g) Finland

Number of responses: 1

Participating organization: Public Health Institute

#### Top 10 current and future priority topics

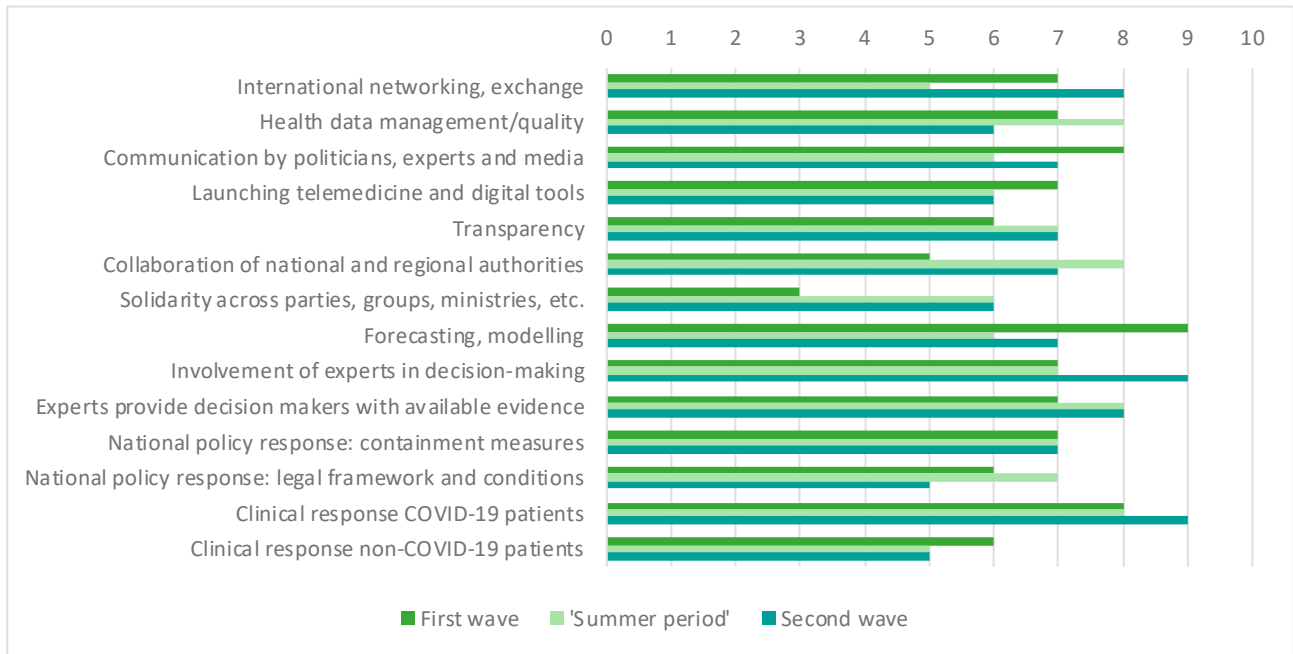
Table 7: Priority topics - Finland

Rank	Top 10 current priority topics FI	Top 10 future priority topics FI
1	Vaccination strategies (availability, distribution, implementation, documentation)	Strengthen skills and address potential shortage of health professionals
2	Effectiveness and safety of vaccines	Foresight/forecast, preparedness, implementation of modelling
3	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	Vaccination strategies (availability, distribution, implementation, documentation)
4	Changes in availability of medications and medical equipment (COVID and non-COVID)	Effectiveness and safety of vaccines
5	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)	Centralized vs. de-centralized pandemic management
6	Monitoring of effectiveness and harms of policy/containment measures	Collaboration between institutions/authorities
7	Collaboration between institutions/authorities	Monitoring of effectiveness and harms of policy/containment measures
8	Centralized vs. de-centralized pandemic management	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
9	Refine/strengthen the role of the EU in pandemic management	Refine/strengthen the role of the EU in pandemic management
10	-	-

#### Rating - first wave, summer period and second wave



Figure 9: Rating - Finland



## h) Germany

Number of responses: 1

Participating organization: Public Health Institute

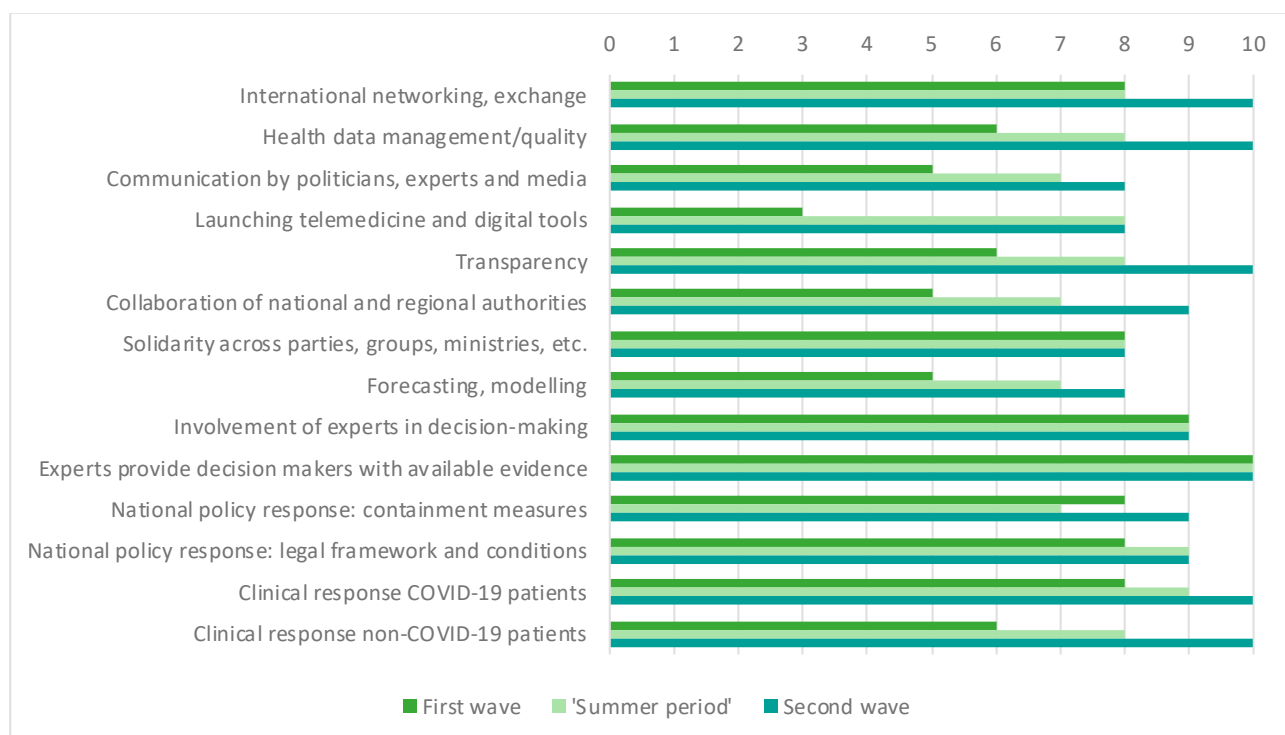
### Top 10 current and future priority topics

Table 8: Priority topics - Germany

Rank	Top 10 current priority topics DE	Top 10 future priority topics DE
1	Vaccination strategies (availability, distribution, implementation, documentation)	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
2	Effectiveness and safety of vaccines	Changes in lifestyle due to the pandemic
3	Surveillance of seroprevalence and associated immunity	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)
4	Communication between actors/players	-
5	Management of (COVID-19) health data	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-

### Rating - first wave, summer period and second wave

Figure 10: Rating - Germany



### i) Hungary

Number of responses: 1

Participating organization: Government authority

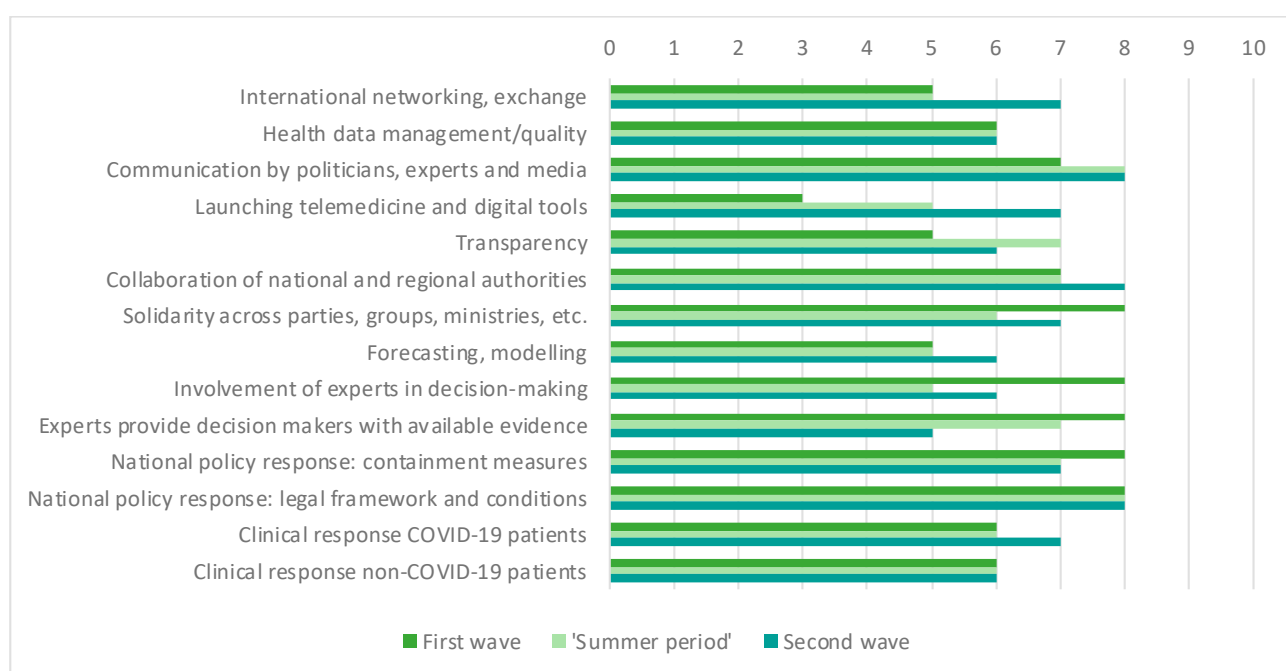
### Top 10 current and future priority topics

Table 9: Priority topics - Hungary

Rank	Top 10 current priority topics HU	Top 10 future priority topics HU
1	Treatments for COVID-19 patients	Vaccination strategies (availability, distribution, implementation, documentation)
2	Changes in availability of medications and medical equipment (COVID and non-COVID)	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
3	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Mitigation of economic and social consequences
4	National continuous COVID-19 testing strategies	Use of telemedicine
5	Vaccination strategies (availability, distribution, implementation, documentation)	Relaxing/ease of containment measures
6	Communication towards population	Surveillance of seroprevalence and associated immunity
7	Monitoring of effectiveness and harms of policy/containment measures	
8	Mitigation of economic and social consequences	
9	Impact of pandemic on education	
10	-	

### Rating - first wave, summer period and second wave

Figure 11: Rating- Hungary



## j) Ireland

Number of responses: 1

Participating organization: Government authority

### Top 10 current and future priority topics:

Table 10: Priority topics - Ireland

Rank	Top 10 current priority topics IE	Top 10 future priority topics IE
1	Vaccination strategies (availability, distribution, implementation, documentation)	Changes in lifestyle due to the pandemic
2	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Monitoring of effectiveness and harms of policy/containment measures
3	Protection of vulnerable groups	Use of telemedicine
4	Protection of care facilities	Relaxing/ease of containment measures
5	Protection of hospitals	-
6	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	-
7	Impact of pandemic on education	-
8	Communication towards population	-
9	Management of (COVID-19) health data	-
10	-	-

### Rating - first wave, summer period and second wave

No response was received from Ireland for the rating of activities during the first wave, summer period and second wave.

### k) Italy

**Number of responses:** 1  
**Participating organization:** Public Health Institute

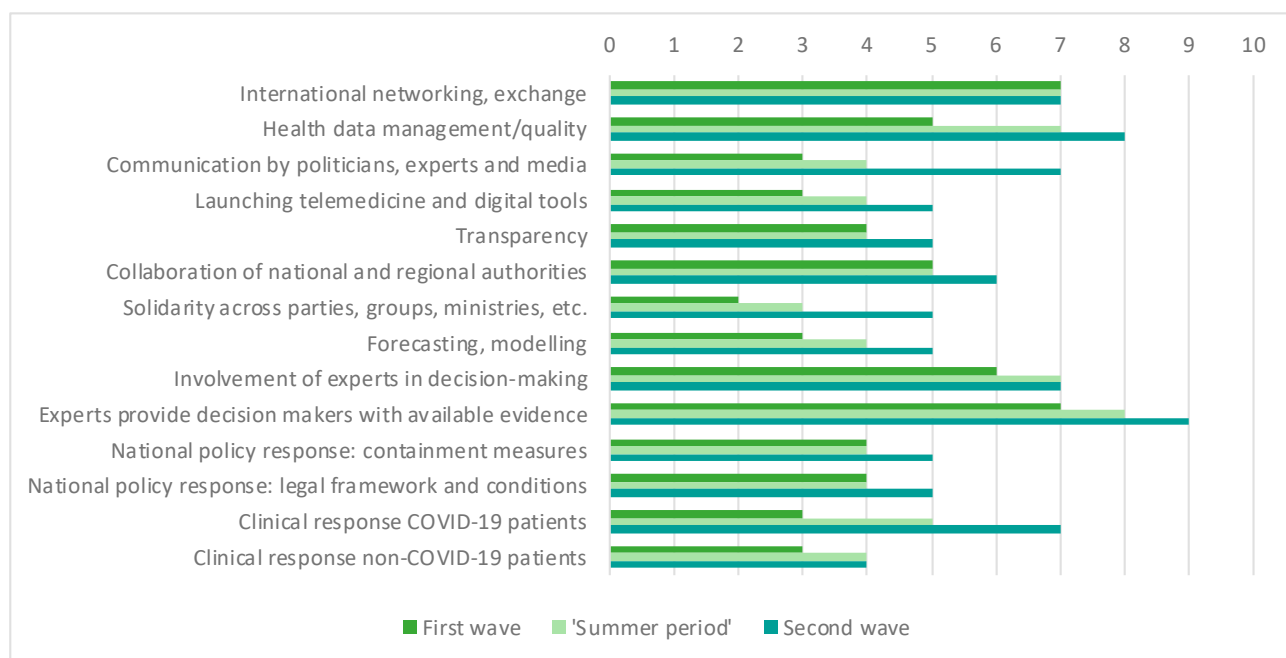
#### Top 10 current and future priority topics:

Table 11: Priority topics - Italy

Rank	Top 10 current priority topics IT	Top 10 future priority topics IT
1	Vaccination strategies (availability, distribution, implementation, documentation)	National continuous COVID-19 testing strategies
2	Effectiveness and safety of vaccines	Surveillance of seroprevalence and associated immunity
3	Mitigation of economic and social consequences	Accuracy and usability of different test methods
4	Public Health concepts for balancing between protection from virus and protection of personal freedom	Communication towards population
5	Changes in lifestyle due to the pandemic	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)
6	Impact of voluntary (partial) self-isolation on society and individuals (e.g. transmission, social contacts, effect on economy)	Mitigation of economic and social consequences
7	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	Public health concepts for balancing between protection from virus and protection of personal freedom
8	Impact of pandemic on education	-
9	-	-
10	-	-

#### Rating - first wave, summer period and second wave

Figure 12: Rating - Italy



## I) Lithuania

**Number of responses:** 1  
**Participating organization:** Government authority

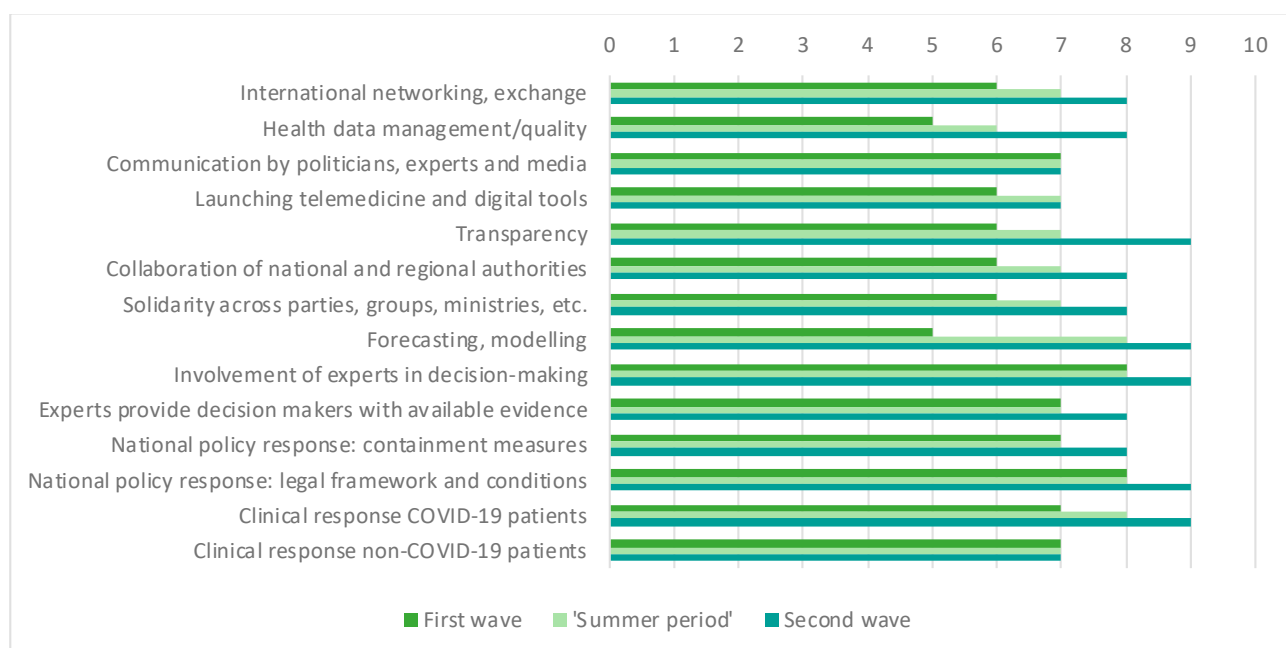
### Top 10 current and future priority topics:

Table 12: Priority topics - Lithuania

Rank	Top 10 current priority topics LT	Top 10 future priority topics LT
1	Vaccination strategies (availability, distribution, implementation, documentation)	Mitigation of economic and social consequences
2	National continuous COVID-19 testing strategies	Strengthen skills and address potential shortage of health professionals
3	Protection of schools and kindergardens	Management of (COVID-19) health data
4	Mitigation of economic and social consequences	Use of telemedicine
5	Management of (COVID-19) health data	Centralized vs. de-centralized pandemic management
6	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
7	Protection of hospitals	Surveillance of seroprevalence and associated immunity
8	Protection of care facilities	-
9	-	-
10	-	-

### Rating - first wave, summer period and second wave

Figure 13: Rating - Lithuania



### m) Malta

**Number of responses:** 1  
**Participating organization:** Government authority

### Top 10 current and future priority topics

Table 13: Priority topics - Malta

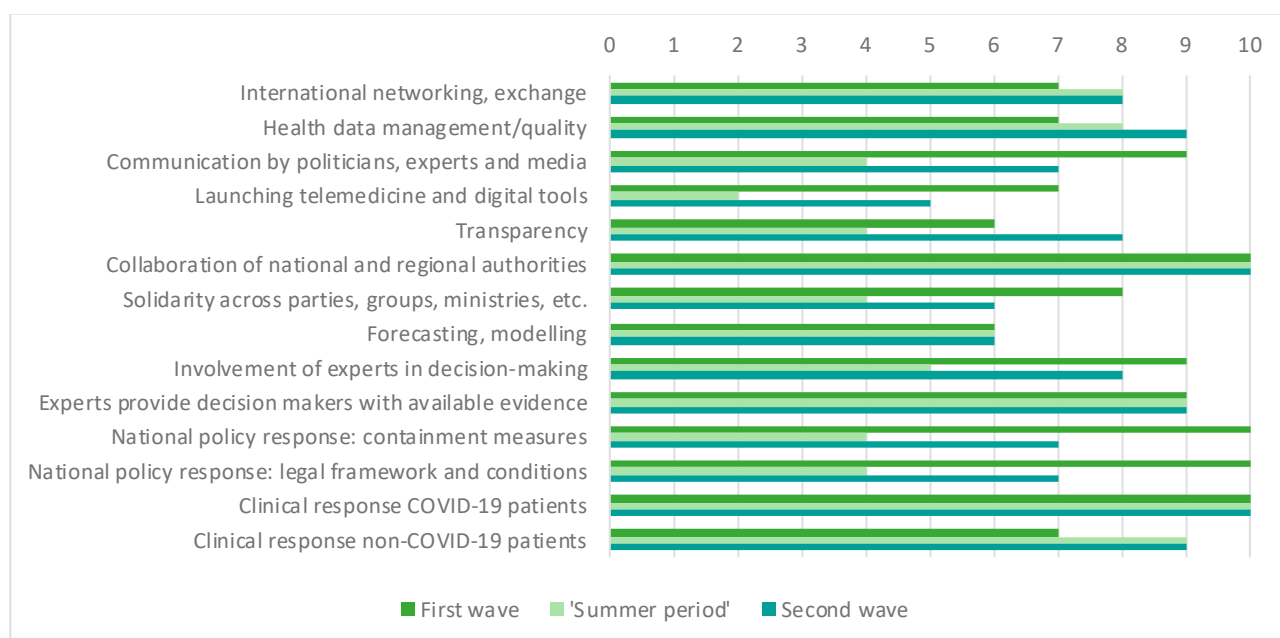
Rank	Top 10 current priority topics MT	Top 10 future priority topics MT
1	Effectiveness and safety of vaccines	Foresight/forecast, preparedness, implementation of modelling
2	Infodemic	Public health concepts for balancing between protection from virus and protection of personal freedom
3	Accuracy and usability of different test methods	National continuous COVID-19 testing strategies
4	Relaxing/ease of containment measures	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
5	Mitigation of economic and social consequences	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)
6	Foresight/forecast, preparedness, implementation of modelling	Refine/strengthen the role of the EU in pandemic management
7	Management of (COVID-19) health data	Vaccination strategies (availability, distribution, implementation, documentation)
8	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)	-
9	-	-
10	-	-

Additional current priority topics: Pandemic control mechanism and (de-)escalation strategies in Australia and vaccination certification – health information needs.

Additional future priority topic: Vaccination strategies in the longer term – boosters, etc.

### Rating - first wave, summer period and second wave

Figure 14: Rating - Malta



## n) The Netherlands

**Number of responses:** 4  
**Participating organizations:** Government authority (2)  
 Public Health Institute (2)

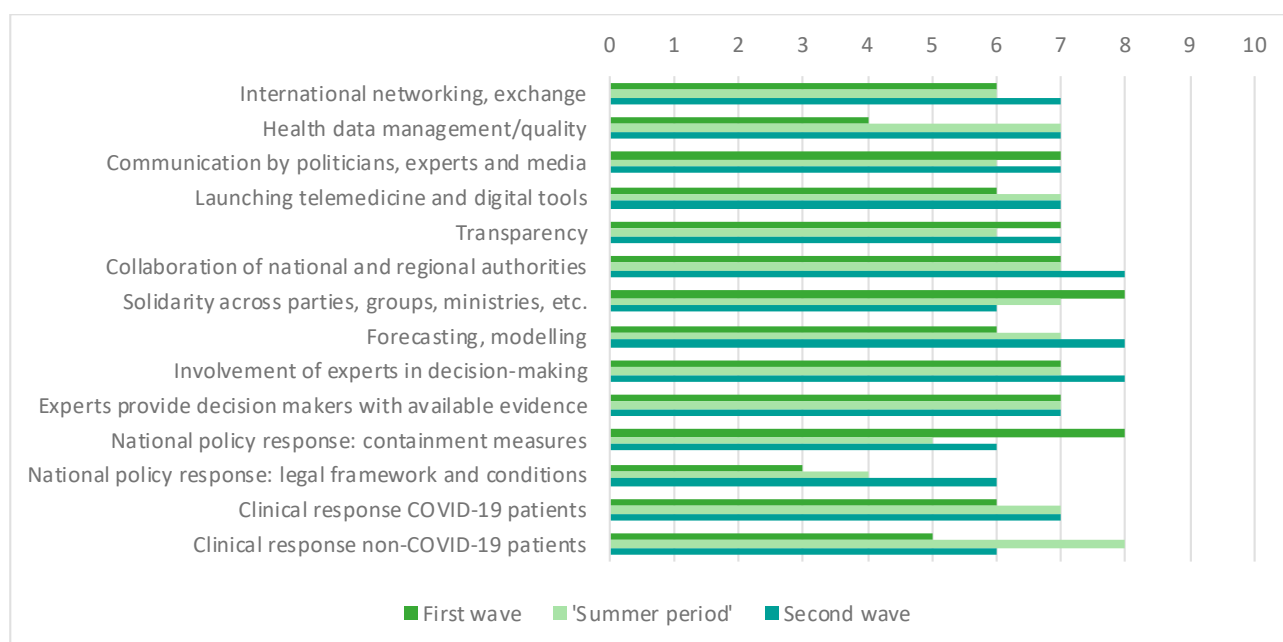
### Top 10 current and future priority topics

Table 14: Priority topics -The Netherlands

Rank	Top 10 current priority topics NL	Top 10 future priority topics NL
1	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Relaxing/ease of containment measures
2	Vaccination strategies (availability, distribution, implementation, documentation)	Effectiveness and safety of vaccines
3	Protection of vulnerable groups	Surveillance of seroprevalence and associated immunity
4	Communication towards population	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)
5	Impact of pandemic on education	Mitigation of economic and social consequences
6	National continuous COVID-19 testing strategies	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)
7	Effectiveness and safety of vaccines	Vaccination strategies (availability, distribution, implementation, documentation)
8	Mass testing approaches	Protection of vulnerable groups
9	Treatments for COVID-19 patients	Treatments for COVID-19 patients
10	Collaboration between institutions/authorities	Foresight/forecast, preparedness, implementation of modelling

### Rating - first wave, summer period and second wave

Figure 15: Rating – The Netherlands





## o) Norway

**Number of responses:** 1  
**Participating organization:** Public Health Institute

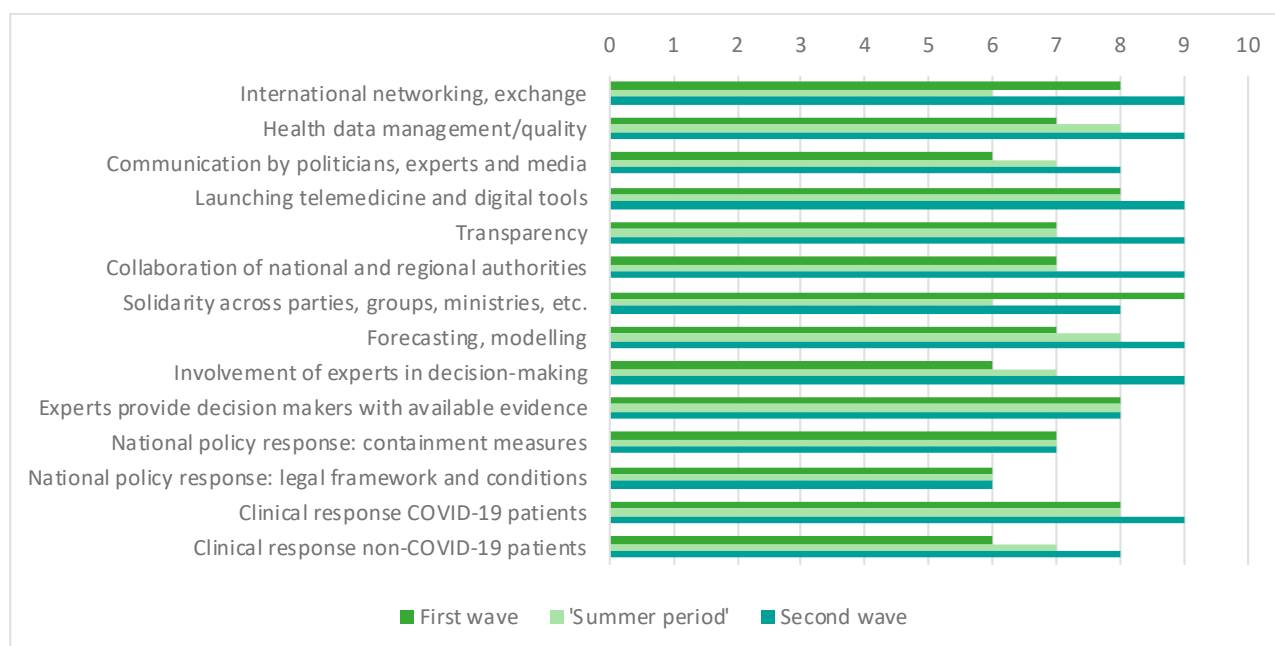
### Top 10 current and future priority topics:

Table 15: Priority topics - Norway

Rank	Top 10 current priority topics NO	Top 10 future priority topics NO
1	Protection of vulnerable groups	National continuous COVID-19 testing strategies
2	Protection of care facilities	Protection of care facilities
3	Protection of hospitals	Protection of hospitals
4	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	Protection of vulnerable groups
5	Impact of voluntary (partial) self-isolation on society and individuals (e.g. transmission, social contacts, effect on economy)	Impact of voluntary (partial) self-isolation on society and individuals (e.g. transmission, social contacts, effect on economy)
6	Monitoring of effectiveness and harms of policy/containment measures	Monitoring of effectiveness and harms of policy/containment measures
7	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)
8	Use of telemedicine	Vaccination strategies (availability, distribution, implementation, documentation)
9	Vaccination strategies (availability, distribution, implementation, documentation)	Effectiveness and safety of vaccines
10	Foresight/forecast, preparedness, implementation of modelling	Foresight/forecast, preparedness, implementation of modelling

### Rating - first wave, summer period and second wave

Figure 16: Rating - Norway



**p) Poland**

**Number of responses:** 1  
**Participating organization:** Government authority

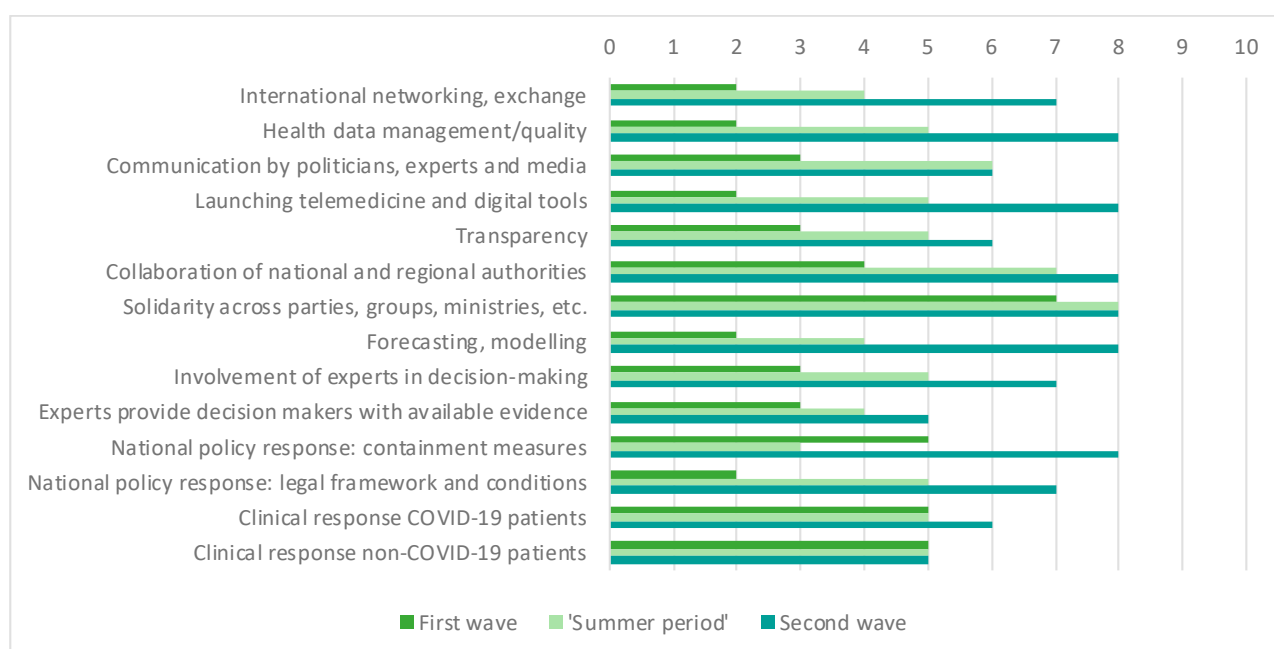
**Top 10 current and future priority topics**

Table 16: Priority topics - Poland

Rank	Top 10 current priority topics PL	Top 10 future priority topics PL
1	Vaccination strategies (availability, distribution, implementation, documentation)	Effectiveness and safety of vaccines
2	Impact of pandemic on education	Vaccination strategies (availability, distribution, implementation, documentation)
3	Infodemic	Impact of pandemic on education
4	Use of telemedicine	Infodemic
5	Protection of hospitals	Changes in lifestyle due to the pandemic
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-

**Rating - first wave, summer period and second wave**

Figure 17: Rating - Poland



### q) Portugal

Number of responses: 1  
 Participating organization: University

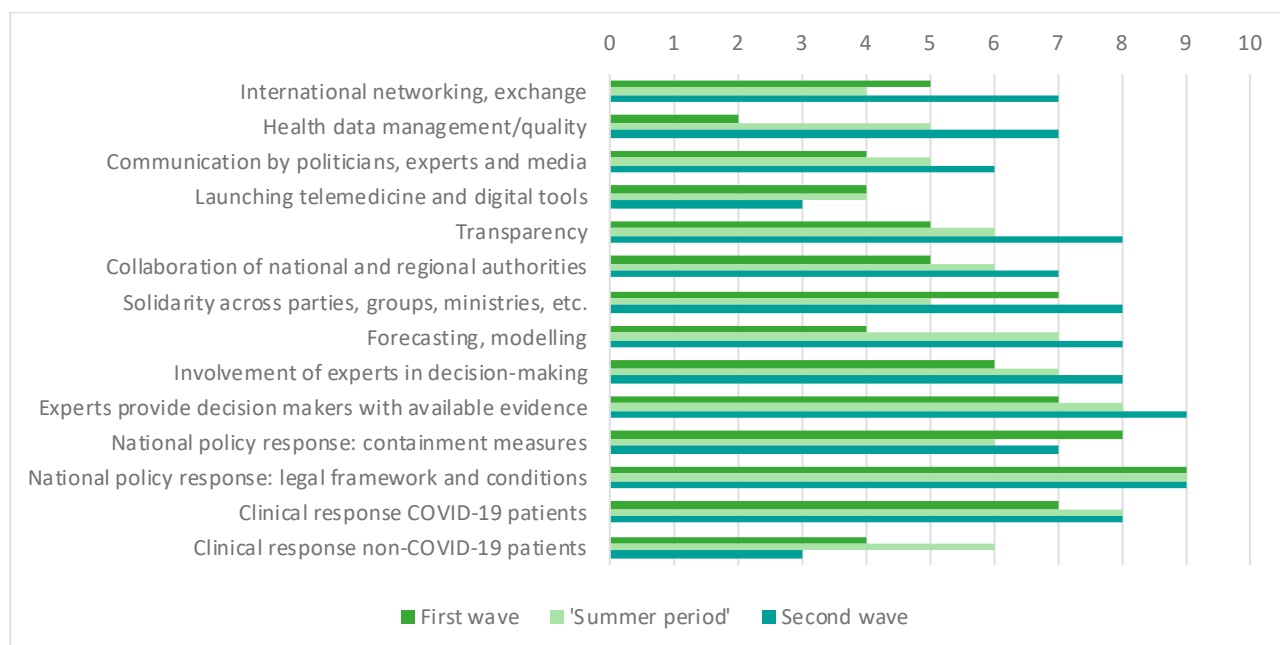
#### Top 10 current and future priority topics

Table 17: Priority topics - Portugal

Rank	Top 10 current priority topics PT	Top 10 future priority topics PT
1	Protection of vulnerable groups	Surveillance of seroprevalence and associated immunity
2	National continuous COVID-19 testing strategies	Changes in lifestyle due to the pandemic
3	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
4	Monitoring of effectiveness and harms of policy/containment measures	Collaboration between institutions/authorities
5	Communication towards population	Use of telemedicine
6	Strengthen skills and address potential shortage of health professionals	Mitigation of economic and social consequences
7	Use of telemedicine	Management of (COVID-19) health data
8	Foresight/forecast, preparedness, implementation of modelling	Refine/strengthen the role of the EU in pandemic management
9	Changes in availability of medications and medical equipment (COVID and non-COVID)	Foresight/forecast, preparedness, implementation of modelling
10	Vaccination strategies (availability, distribution, implementation, documentation)	Impact of pandemic on education

#### Rating - first wave, summer period and second wave

Figure 18: Rating - Portugal



## r) Romania

**Number of responses:** 1  
**Participating organization:** Public Health Institute

### Top 10 current and future priority topics

Table 18: Priority topics - Romania

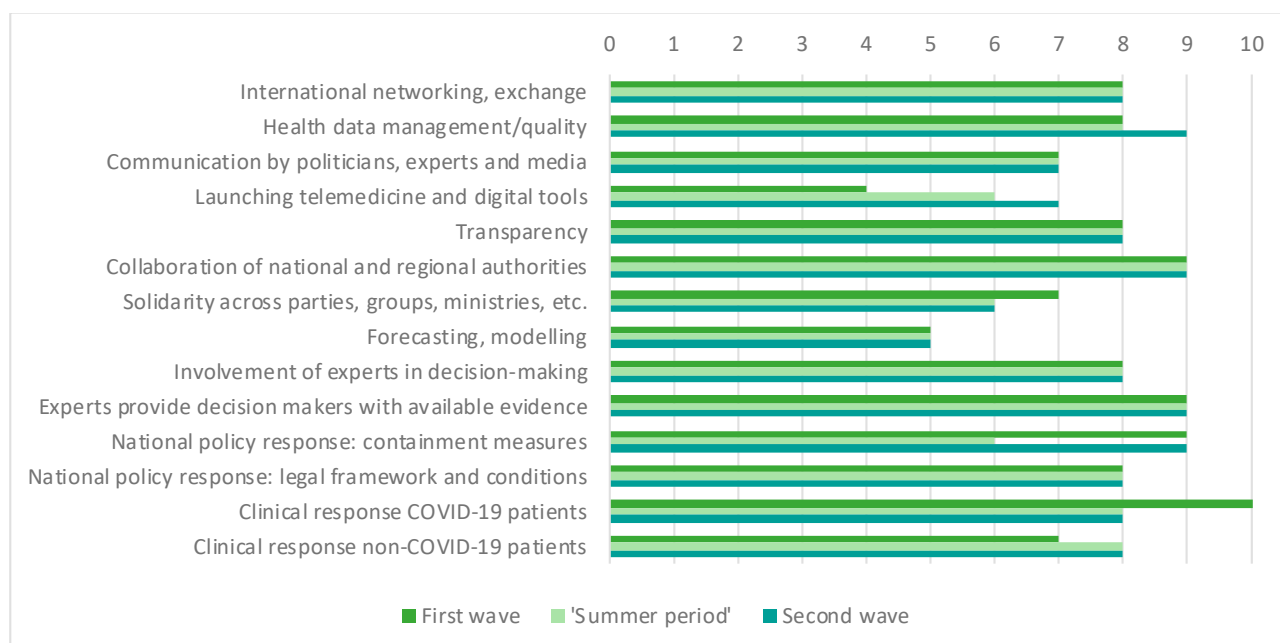
Rank	Top 10 current priority topics RO	Top 10 future priority topics RO
1	National continuous COVID-19 testing strategies	Surveillance of seroprevalence and associated immunity
2	Surveillance of seroprevalence and associated immunity	Impact of voluntary (partial) self-isolation on society and individuals (e.g. transmission, social contacts, effect on economy)
3	Strengthen skills and address potential shortage of health professionals	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
4	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Changes in availability of medications and medical equipment (COVID and non-COVID)
5	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	Treatments for COVID-19 patients
6	Changes in availability of medications and medical equipment (COVID and non-COVID)	Effectiveness and safety of vaccines
7	Management of (COVID-19) health data	Relaxing/ease of containment measures
8	Vaccination strategies (availability, distribution, implementation, documentation)	Protection of vulnerable groups
9	Relaxing/ease of containment measures	Monitoring of effectiveness and harms of policy/containment measures
10	Mitigation of economic and social consequences	Participation/empowerment on community/ organization/citizen level

Additional current priority topic: Population compliance with vaccination

Additional future priority topics: Continuous monitoring of medium-term vaccination effects (immunity or adverse events, if any)

### Rating - first wave, summer period and second wave

Figure 19: Rating - Romania



### s) Serbia

**Number of responses:** 3  
**Participating organizations:** Public Health Institute (3)

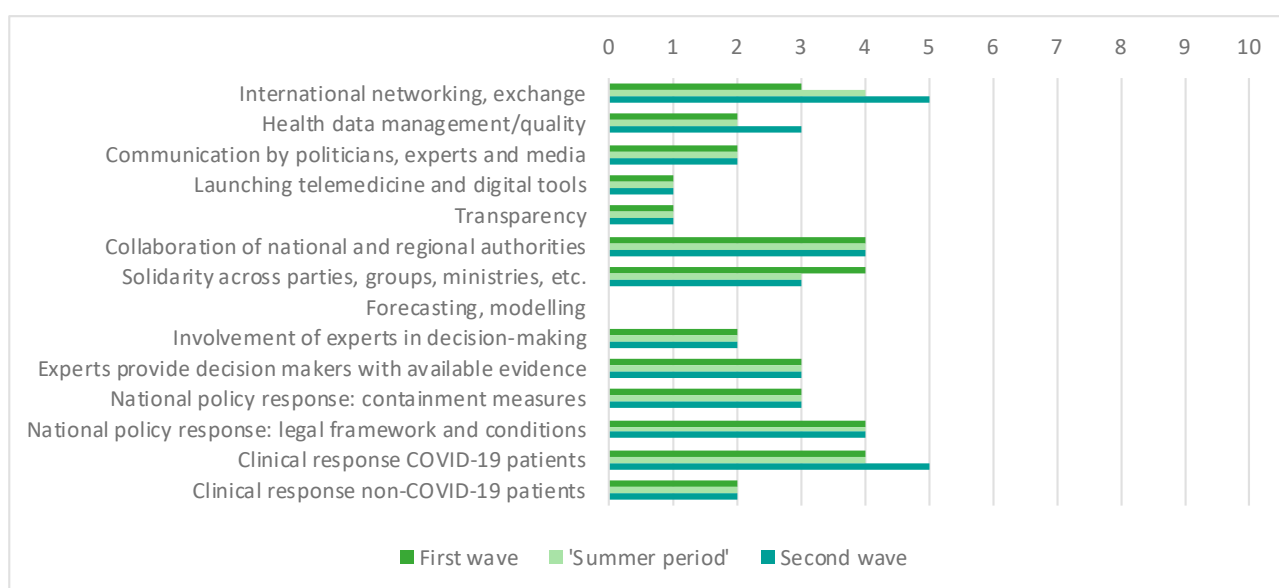
#### Top 10 current and future priority topics

Table 19: Priority topics - Serbia

Rank	Top 10 current priority topics RS	Top 10 future priority topics RS
1	Vaccination strategies (availability, distribution, implementation, documentation)	Monitoring of effectiveness and harms of policy/containment measures
2	Protection of vulnerable groups	Public health concepts for balancing between protection from virus and protection of personal freedom
3	Effectiveness and safety of vaccines	Impact of pandemic on education
4	Management of (COVID-19) health data	Mitigation of economic and social consequences
5	Public Health concepts for balancing between protection from virus and protection of personal freedom	Protection of vulnerable groups
6	Case definitions (number of cases, deaths, recovered)	Strengthen skills and address potential shortage of health professionals
7	Protection of care facilities	Use of telemedicine
8	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Changes in lifestyle due to the pandemic
9	Protection of hospitals	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
10	Foresight/forecast, preparedness, implementation of modelling	Vaccination strategies (availability, distribution, implementation, documentation)

#### Rating - first wave, summer period and second wave

Figure 20: Rating - Serbia



All three time periods in the category "Forecasting, modelling" were rated by Serbia with zero points. Therefore, no bars are displayed for this category.

### t) Slovakia

**Number of responses:** 4  
**Participating organizations:** Government authority (3)  
 Other (1, E-health and health statistical governance)

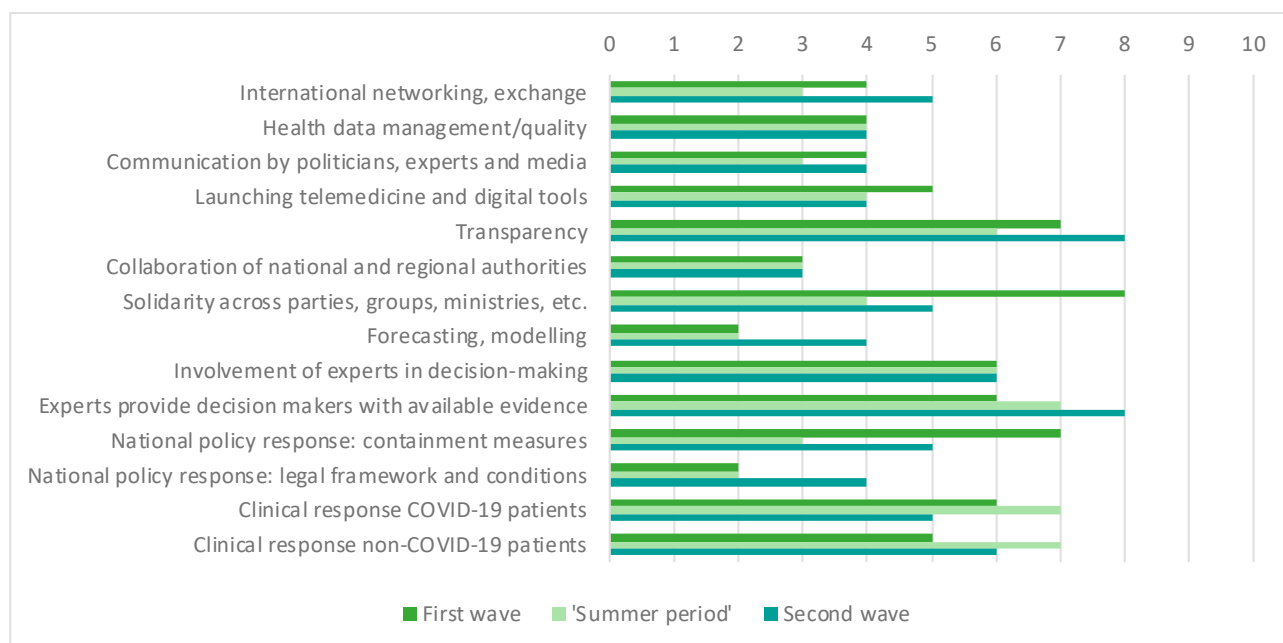
### Top 10 current and future priority topics

Table 20: Priority topics - Slovakia

Rank	Top 10 current priority topics SK	Top 10 future priority topics SK
1	National continuous COVID-19 testing strategies	Protection of vulnerable groups
2	Mass testing approaches	Vaccination strategies (availability, distribution, implementation, documentation)
3	Protection of hospitals	Mass testing approaches
4	Vaccination strategies (availability, distribution, implementation, documentation)	Mitigation of economic and social consequences
5	Protection of care facilities	National continuous COVID-19 strategies
6	Protection of essential infrastructures	Management of (COVID-19) health data
7	Protection of vulnerable groups	Relaxing/ease of containment measures
8	Relaxing/ease of containment measures	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
9	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Foresight/forecast, preparedness, implementation of modelling
10	Impact of pandemic on education	Protection of hospitals

### Rating - first wave, summer period and second wave

Figure 21: Rating - Slovakia



## u) Slovenia

**Number of responses:** 1  
**Participating organization:** Public Health Institute

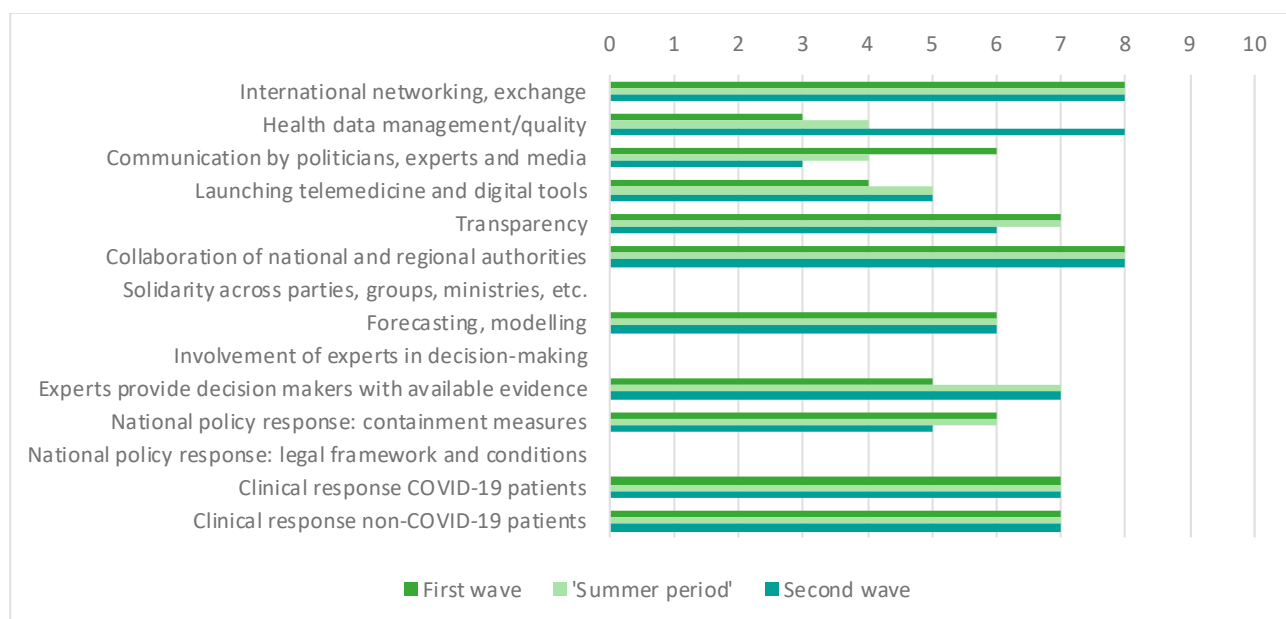
### Top 10 current and future priority topics

Table 21: Priority topics - Slovenia

Rank	Top 10 current priority topics SI	Top 10 future priority topics SI
1	National continuous COVID-19 testing strategies	Protection of care facilities
2	Mass testing approaches	Protection of vulnerable groups
3	Protection of care facilities	Changes in lifestyle due to the pandemic
4	Refine/strengthen the role of the EU in pandemic management	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
5	Communication towards population	Monitoring of effectiveness and harms of policy/containment measures
6	Infodemic	Vaccination strategies (availability, distribution, implementation, documentation)
7	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Effectiveness and safety of vaccines
8	Vaccination strategies (availability, distribution, implementation, documentation)	Foresight/forecast, preparedness, implementation of modelling
9	Public Health concepts for balancing between protection from virus and protection of personal freedom	Relaxing/ease of containment measures
10	-	

### Rating - first wave, summer period and second wave

Figure 22: Rating - Slovenia



No rating was received on the following categories: "Solidarity across parties, groups, ministries, sections of the population, ...", "Involvement of experts in decision-making", "National policy response: legal framework and conditions". Therefore, no bar is displayed for all three time periods in the respective categories.

## v) Spain

**Number of responses:** 1  
**Participating organization:** Regional authority

### Top 10 current and future priority topics

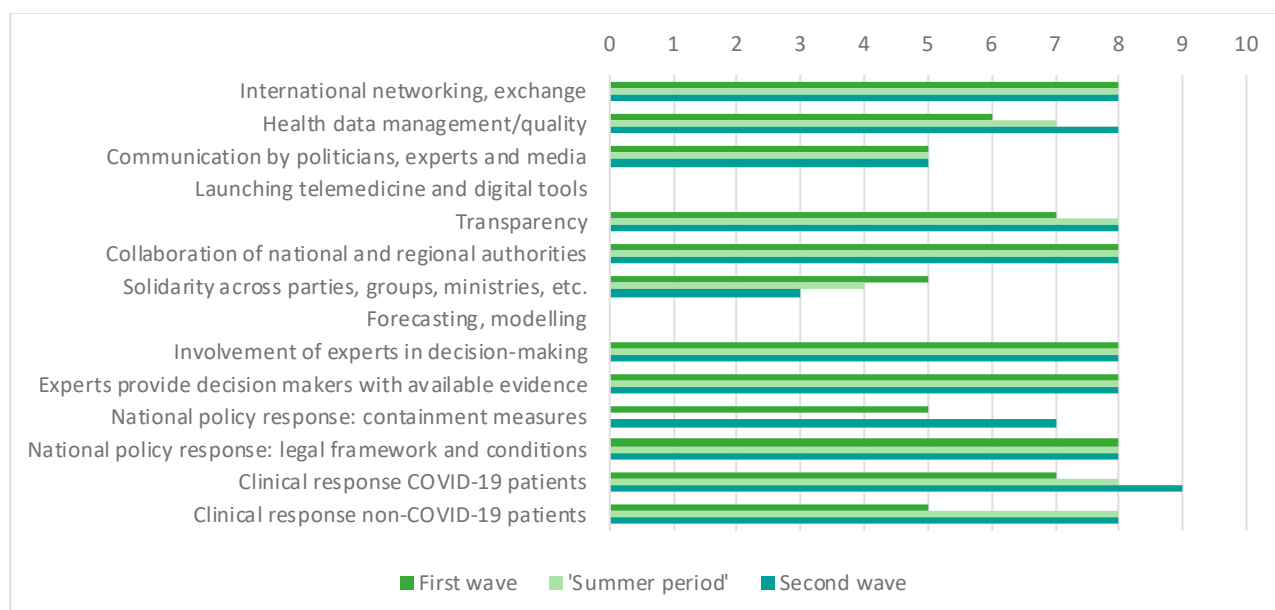
Table 22: Priority topics - Spain

Rank	Top 10 current priority topics ES	Top 10 future priority topics ES
1	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	Foresight/forecast, preparedness, implementation of modelling
2	Monitoring of effectiveness and harms of policy/containment measures	Collaboration between institutions/authorities
3	Vaccination strategies (availability, distribution, implementation, documentation)	Mitigation of economic and social consequences
4	Protection of vulnerable groups	Impact of pandemic on education
5	Effectiveness and safety of vaccines	Relaxing/ease of containment measures
6	Communication between actors/players	Refine/strengthen the role of the EU in pandemic management
7	Communication towards population	Infodemic
8	Use of telemedicine	Monitoring of effectiveness and harms of policy/containment measures
9	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)	National continuous COVID-19 testing strategies
10	Strengthen skills and address potential shortage of health professionals	Surveillance of seroprevalence and associated immunity

Additional future priority topic: Populism and pandemics

### Rating - first wave, summer period and second wave

Figure 23: Rating - Spain



There was response on the three time periods in the categories "Launching telemedicine and digital tools" and "Forecasting, modelling" and for the Summer period in the category "National policy response: containment measures", therefore no bars are displayed for the respective time periods/categories.



### w) Sweden

**Number of responses:** 1  
**Participating organization:** Government authority

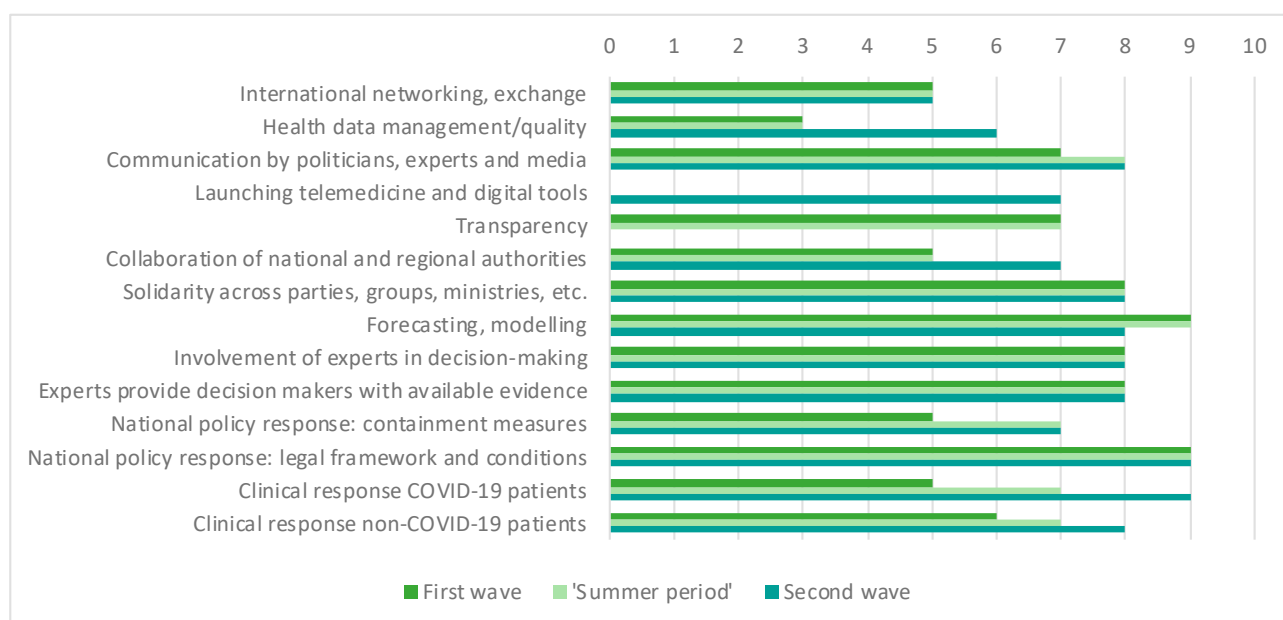
### Top 10 current and future priority topics

Table 23: Priority topics – Sweden

Rank	Top 10 current priority topics SE	Top 10 future priority topics SE
1	Vaccination strategies (availability, distribution, implementation, documentation)	Foresight/forecast, preparedness, implementation of modelling
2	Effectiveness and safety of vaccines	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)
3	Foresight/forecast, preparedness, implementation of modelling	Surveillance of seroprevalence and associated immunity
4		
5		
6		
7		
8		
9		
10		

### Rating - first wave, summer period and second wave

Figure 24: Rating - Sweden



Sweden did not rate the periods "First wave" and "Summer period" in the category "Launching telemedicine and digital tools" nor the period "Second wave" in the category "Transparency", therefore no bars are displayed for the respective time periods/categories.

### x) United Kingdom

**Number of responses:** 2  
**Participating organizations:** Public Health Institute  
 University

#### Top 10 current and future priority topics

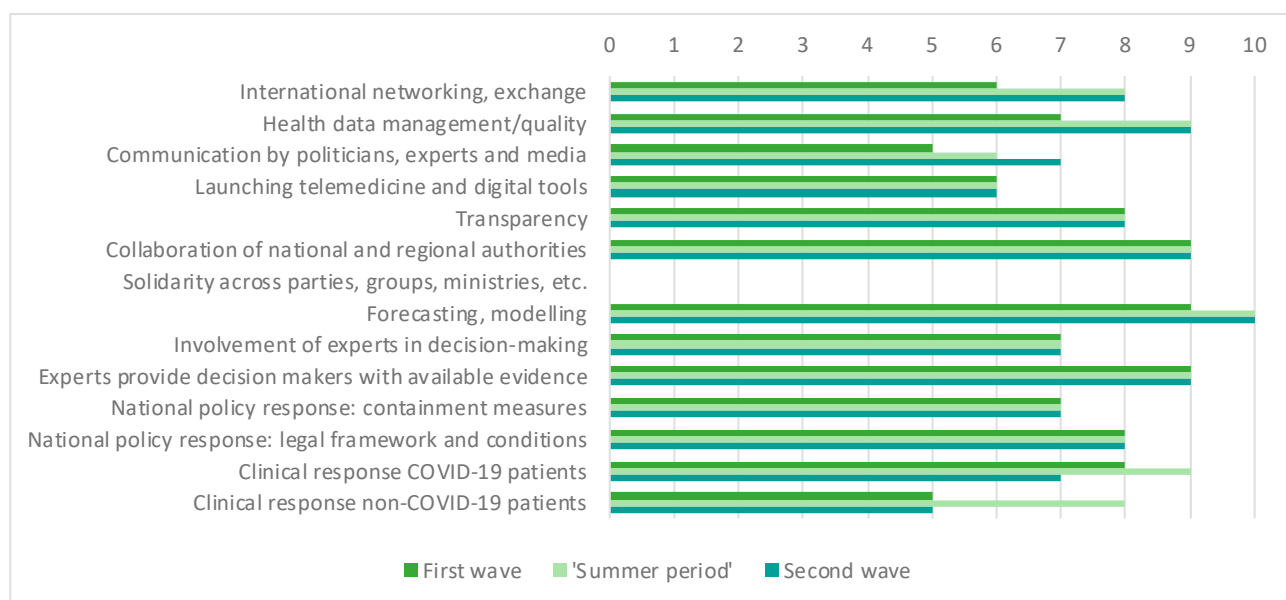
Table 24: Priority topics – United Kingdom

Rank	Top 10 current priority topics UK	Top 10 future priority topics UK
1	Protection of vulnerable groups	Monitoring of effectiveness and harms of policy/containment measures
2	Vaccination strategies (availability, distribution, implementation, documentation)	Effectiveness and safety of vaccines
3	Effectiveness and safety of vaccines	Protection of care facilities
4	Protection of care facilities	Impact of voluntary (partial) self-isolation on society and individuals (e.g. transmission, social contacts, effect on economy)
5	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)
6	Management of (COVID-19) health data	Collaboration between institutions/authorities
7	Collaboration between institutions/authorities	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
8	Monitoring of effectiveness and harms of policy/containment measures	Foresight/forecast, preparedness, implementation of modelling
9	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	Vaccination strategies (availability, distribution, implementation, documentation)
10	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Strengthen skills and address potential shortage of health professionals

Additional future priority topic: Analysis of COVID-19 cases and deaths by persons educational level, profession, country of origin, etc.

#### Rating - first wave, summer period and second wave

Figure 25: Rating – United Kingdom



Of the two participating institutions from the United Kingdom, only one assessed the specified categories, with no assessment for all three time periods in the category "Solidarity across parties, groups, ministries, sections of the population, ...". Therefore, the mentioned bars are missing in the chart above.

## 2. Good practices

Regarding good practices and lessons learned that countries would like to share with other countries, Table 25 provides an overview of responses received.

Table 25: Good practices of participating countries

Country	What kind of activities/approaches/strategies of your national COVID-19 emergency response worked well in your country that you would like to share with others as good practice?
<b>Albania</b>	Involvement of family doctors in pandemic management
<b>Austria</b>	Communication (of risks, developments, measures, recommendations, ...) by politicians worked well in Austria; The secretary of health held regular press conferences informing the public about activities, risks and measures related to COVID-10 pandemic, and also involved renown experts to the respective topic; However, with the duration of the crisis we observed that diverging opinions evolved among those experts.
<b>Belgium</b>	Health data management which is managed first by public health professionals and not first by IT professional: very difficult to save the quality of data results when first by IT professionals Inter-hospital transport and specific COVID transport
<b>Croatia</b>	Surveillance system: <a href="http://www.cmj.hr/default.aspx?id=13245&amp;issue=yes">http://www.cmj.hr/default.aspx?id=13245&amp;issue=yes</a>
<b>Estonia</b>	Management of infodemic- change of spokesperson. Increasing credibility of COVID-19 politics among population.
<b>Finland</b>	Quick action, collaboration at national and regional level
<b>Germany</b>	Raising awareness among the population; infection prevention and control, e.g. by consistently observing rules of distance and hygiene - also outdoors -, by ventilating indoor spaces and, where indicated, by wearing a community mask correctly and use the Corona Warn App.
<b>Hungary</b>	Lockdown and curfew implementation was quite effective.
<b>Malta</b>	Shielding of the vulnerable and nursing care homes in the first wave
<b>Netherlands</b>	We started a Behavioural Insights Unit Collaboration between health care sectors and beyond
<b>Norway</b>	Transparency and full confidence in advice from public health experts
<b>Poland</b>	School lockdown and switching to online work (where it was possible) have reduced the mobility of society and the spread of the virus SARS-CoV-2. Another way to reduce the spread of the virus was to standardize the dates of winter holidays for each region and to close down ski resorts and hotels.
<b>Portugal</b>	The engagement of public health experts The response by the scientific community The response by Universities and School to adapt to online classes The response by the National Primary Healthcare Centers Network
<b>Spain</b>	As a quasi-federal country, health authorities constant exchange and agreement within the Interterritorial Council of the National Health Services; Health services quick adaptation and rapid response to tackle new surges of cases rather transparent management of the crisis
<b>United Kingdom</b>	Linked data across many different datasets

### 3. Lessons learned - potential for improvement

Besides good practices, countries indicated lessons learned and, hence, potential for improvement of national COVID-19 emergency response and pandemic management. Table 26 provides an overview of responses received.

Table 26: Lessons learned - potential for improvement of national COVID-19 emergency response

Country	In which areas do you see the biggest potential for improvement of the national COVID-19 emergency response in your country?
<b>Albania</b>	Data transparency
<b>Austria</b>	Central and decentral pandemic management because of the federal structure of the state; These structural aspects required regular alignment meetings with the local health authorities and also posed challenges to collection of harmonized data.
<b>Belgium</b>	The new government who seems to give more solidarity between all parties than the first one and who seems to pay more attention on public health advices.
	Clear definition of role, more centralized management
	Surveillance of seroprevalence and associated immunity; management of anti-vaxxers
	Collaboration between institutions/authorities
	Collaboration between communities and federal government
<b>Croatia</b>	Communication strategy, informed decisions and equal distribution of resources
<b>Finland</b>	Slow action in some areas due to complex multi-layer administration, especially in local and regional level
	Unclear mandates between different authorities
<b>Hungary</b>	Test methods (accelerate process and use digital solutions to implement better coordination)
	Healthcare services for non-COVID 19 patients
<b>Italy</b>	Vaccination, restriction measures
<b>Malta</b>	Escalation and de-escalation plans
<b>Netherlands</b>	Capacity of health care personnel
	Consideration of broader impacts
<b>Norway</b>	Better communication towards citizens
<b>Poland</b>	The greatest potential is probably in vaccinating the public
<b>Portugal</b>	Communication with the population
	Response to non-covid-19 health situations/organization of the National Health Service
	Preparedness
<b>Romania</b>	Solving the problem of health personnel shortage, both for surveillance and for healthcare
<b>Serbia</b>	Transparency of data
	Improving data quality
	Delivering health care to non-COVID patient
	Transparency in spending related to COVID
	Data management
	Communication of risks, developments, measures, recommendations between all actors
<b>Slovakia</b>	Registering COVID cases, registering testing, registering vaccination
	Collaboration with domestic & foreign experts
	non-political management of the crisis
	Risk communication
	Data digitalization
<b>Spain</b>	Communications of risks
	Political divide
	Telemedicine

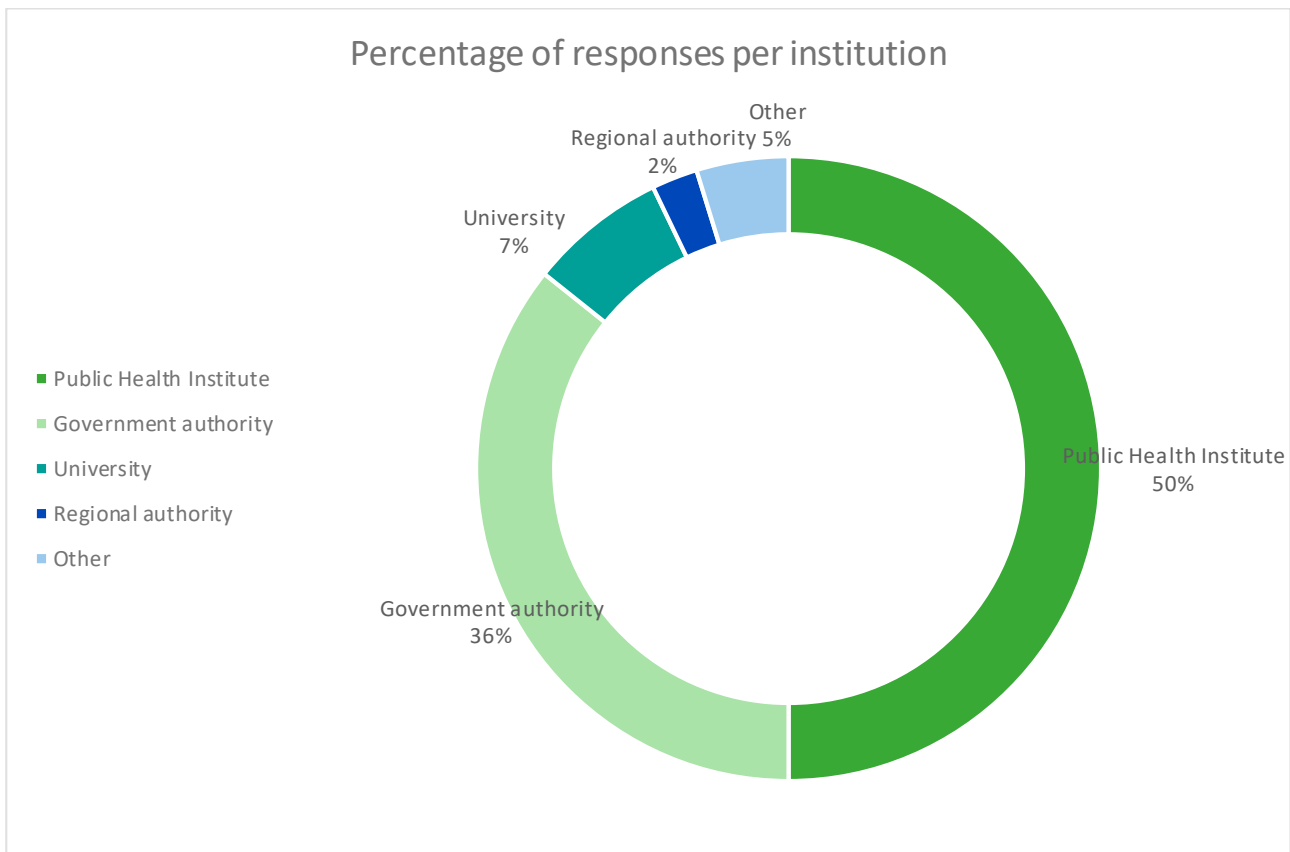
## B. Institutions

Based on the 42 responses received, 5 different types of institutions participated in the first needs assessment. As illustrated in Table 27 and Figure 26, 86% of participants represent public health institutes (21, 50%) and government authorities (14, 36%). Other types of institutions included Administration of Regional Public Health (1) and E-health and health statistical governance institution (1).

Table 27: Type of institutions participated

Type of institution participated	Number of responses per institution
Public Health Institute	21
Government authority	15
University	3
Regional authority	1
Other	2

Figure 26: Pie chart of institutions participated



Responses were aggregated by the type of institution. An overview of the top 10 current and future priority topics by the type of institution is available in Table 28 to Table 32.

## 1. Government authority

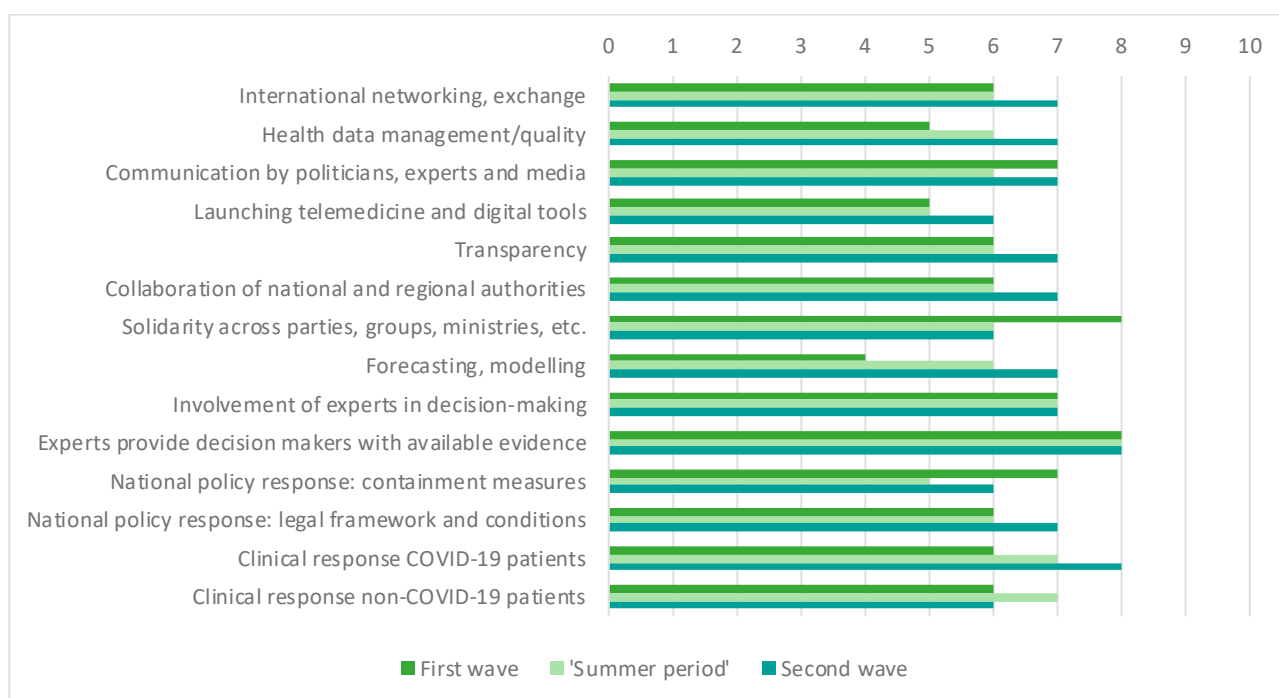
### Top 10 current and future priority topics

Table 28: Priority topics – Government authorities

Government authority		
Rank	Current	Future
1	Vaccination strategies (availability, distribution, implementation, documentation)	Vaccination strategies (availability, distribution, implementation, documentation)
2	Protection of vulnerable groups	Mitigation of economic and social consequences
3	National continuous COVID-19 testing strategies	Surveillance of seroprevalence and associated immunity
4	Protection of hospitals	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
5	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Management of (COVID-19) health data
6	Mass testing approaches	Protection of vulnerable groups
7	Protection of care facilities	National continuous COVID-19 testing strategies
8	Communication towards population	Relaxing/ease of containment measures
9	Impact of pandemic on education	Monitoring of effectiveness and harms of policy/containment measures
10	Mitigation of economic and social consequences	Foresight/forecast, preparedness, implementation of modelling

### Rating - first wave, summer period and second wave

Figure 27: Rating - Government authorities



## 2. Public Health Institute

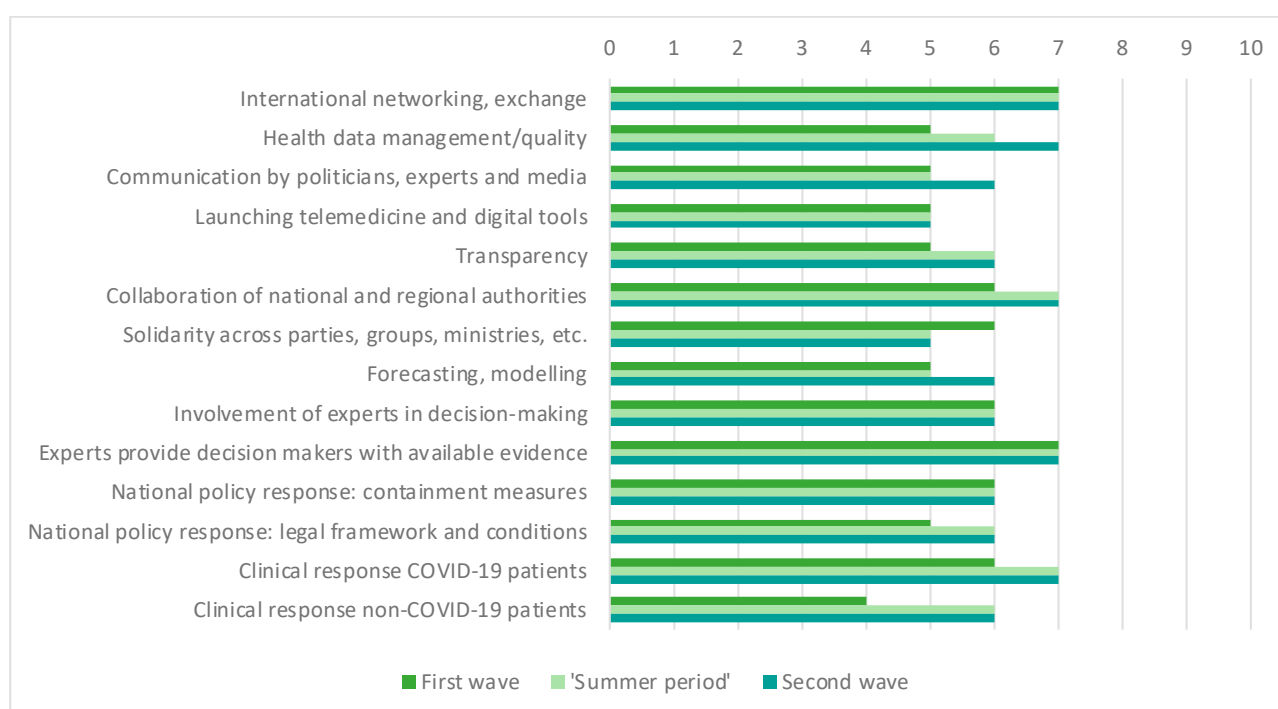
### Top 10 current and future priority topics

Table 29: Priority topics – Public health institutes

Public Health Institute		
Rank	Current	Future
1	Vaccination strategies (availability, distribution, implementation, documentation)	Effectiveness and safety of vaccines
2	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)
3	National continuous COVID-19 testing strategies	Monitoring of effectiveness and harms of policy/containment measures
4	Protection of vulnerable groups	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
5	Effectiveness and safety of vaccines	Vaccination strategies (availability, distribution, implementation, documentation)
6	Protection of care facilities	Protection of vulnerable groups
7	Communication towards population	National continuous COVID-19 testing strategies
8	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	Relaxing/ease of containment measures
9	Public Health concepts for balancing between protection from virus and protection of personal freedom	Public health concepts for balancing between protection from virus and protection of personal freedom
10	Monitoring of effectiveness and harms of policy/containment measures	Changes in lifestyle due to the pandemic

### Rating - first wave, summer period and second wave

Figure 28: Rating – Public health institutes



### 3. University

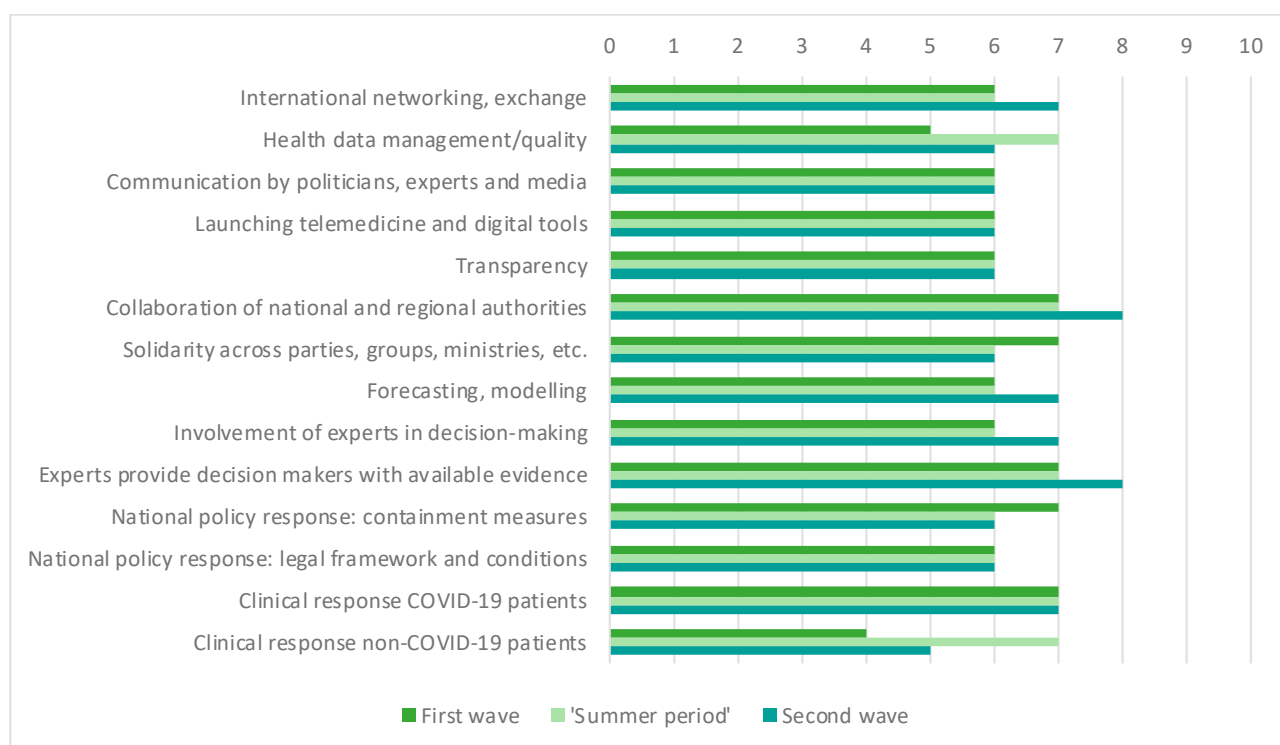
#### Top 10 current and future priority topics

Table 30: Priority topics – Universities

University		
Rank	Current	Future
1	Protection of vulnerable groups	Changes in lifestyle due to the pandemic
2	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	Effectiveness and safety of vaccines
3	Monitoring of effectiveness and harms of policy/containment measures	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
4	Effectiveness and safety of vaccines	Mass testing approaches
5	Mass testing approaches	Surveillance of seroprevalence and associated immunity
6	Vaccination strategies (availability, distribution, implementation, documentation)	Monitoring of effectiveness and harms of policy/containment measures
7	National continuous COVID-19 testing strategies	Protection of vulnerable groups
8	Changes in lifestyle due to the pandemic	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)
9	Management of (COVID-19) health data	Centralised vs. de-centralised pandemic management
10	Impact of pandemic on education	Collaboration between institutions/authorities

#### Rating - first wave, summer period and second wave

Figure 29: Rating - Universities





## 4. Regional authority

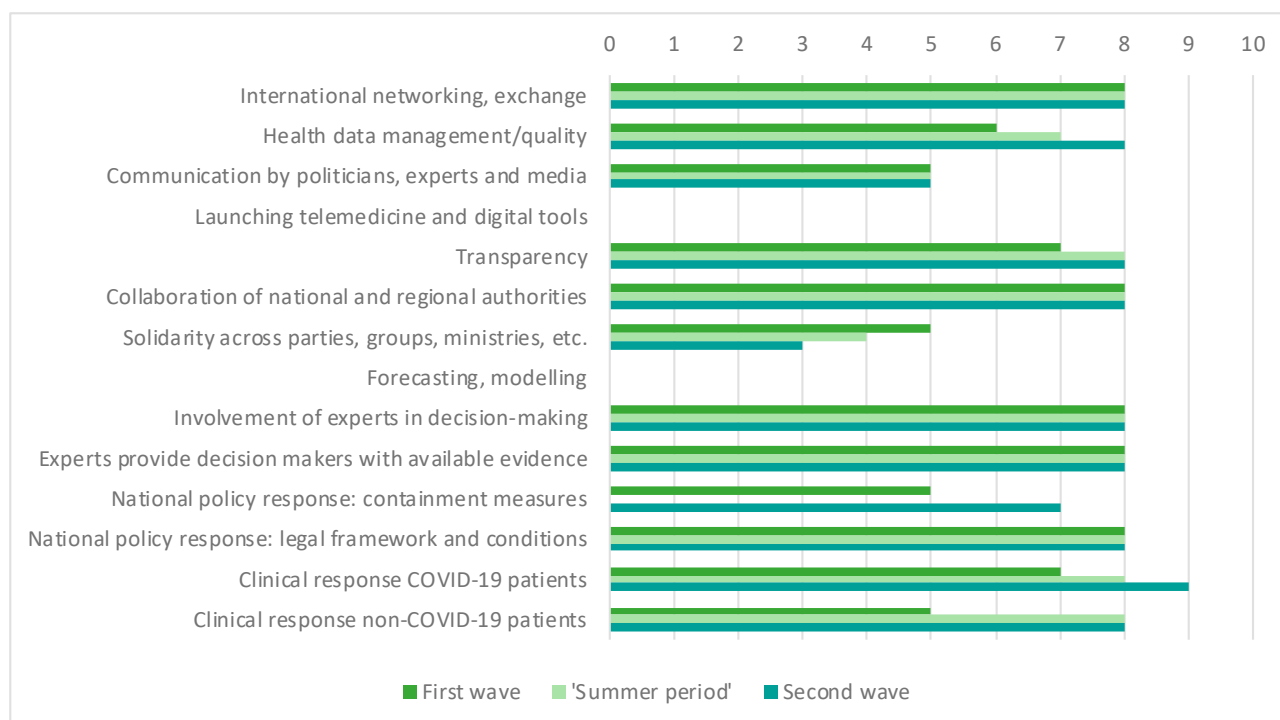
### Top 10 current and future priority topics

Table 31: Priority topics – Regional authority

Regional authority		
Rank	Current	Future
1	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	Foresight/forecast, preparedness, implementation of modelling
2	Monitoring of effectiveness and harms of policy/containment measures	Collaboration between institutions/authorities
3	Vaccination strategies (availability, distribution, implementation, documentation)	Mitigation of economic and social consequences
4	Protection of vulnerable groups	Impact of pandemic on education
5	Effectiveness and safety of vaccines	Relaxing/ease of containment measures
6	Communication between actors/players	Refine/strengthen the role of the EU in pandemic management
7	Communication towards population	Infodemic
8	Use of telemedicine	Monitoring of effectiveness and harms of policy/containment measures
9	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)	National continuous COVID-19 testing strategies
10	Strengthen skills and address potential shortage of health professionals	Surveillance of seroprevalence and associated immunity

### Rating - first wave, summer period and second wave

Figure 30: Rating - Regional authority



## 5. Other

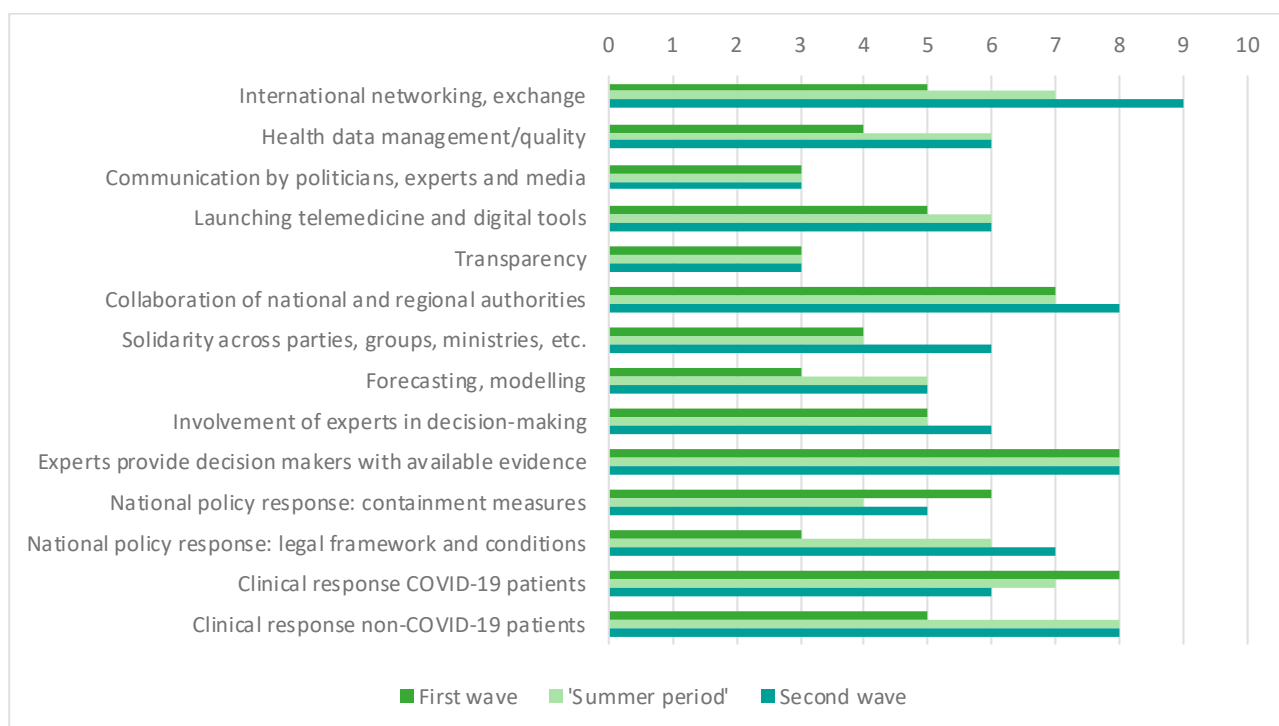
### Top 10 current and future priority topics

Table 32: Priority topics – Other institutions

Other: Administration of Regional Public Health and ehealth and health statistical governance		
Rank	Current	Future
1	National continuous COVID-19 testing strategies	National continuous COVID-19 testing strategies
2	Vaccination strategies (availability, distribution, implementation, documentation)	Surveillance of seroprevalence and associated immunity
3	Communication between actors/players	Accuracy and usability of different test methods
4	Mass testing approaches	Mass testing approaches
5	Communication towards population	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
6	Protection of hospitals	Protection of hospitals
7	Protection of care facilities	Changes in lifestyle due to the pandemic
8	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Protection of care facilities
9	Protection of essential infrastructures	Mitigation of economic and social consequences
10	COVID-19 training provided for specific target groups	Protection of vulnerable groups

### Rating - first wave, summer period and second wave

Figure 31: Rating - Other institutions



## C. European level

Additional to an analysis at institutional level, survey responses were analyzed at EU level. An overview of the top 10 current and future priority topics at EU level can be found in Table 33 and an overview of the rating regarding the first wave, summer period and second wave in Figure 1.

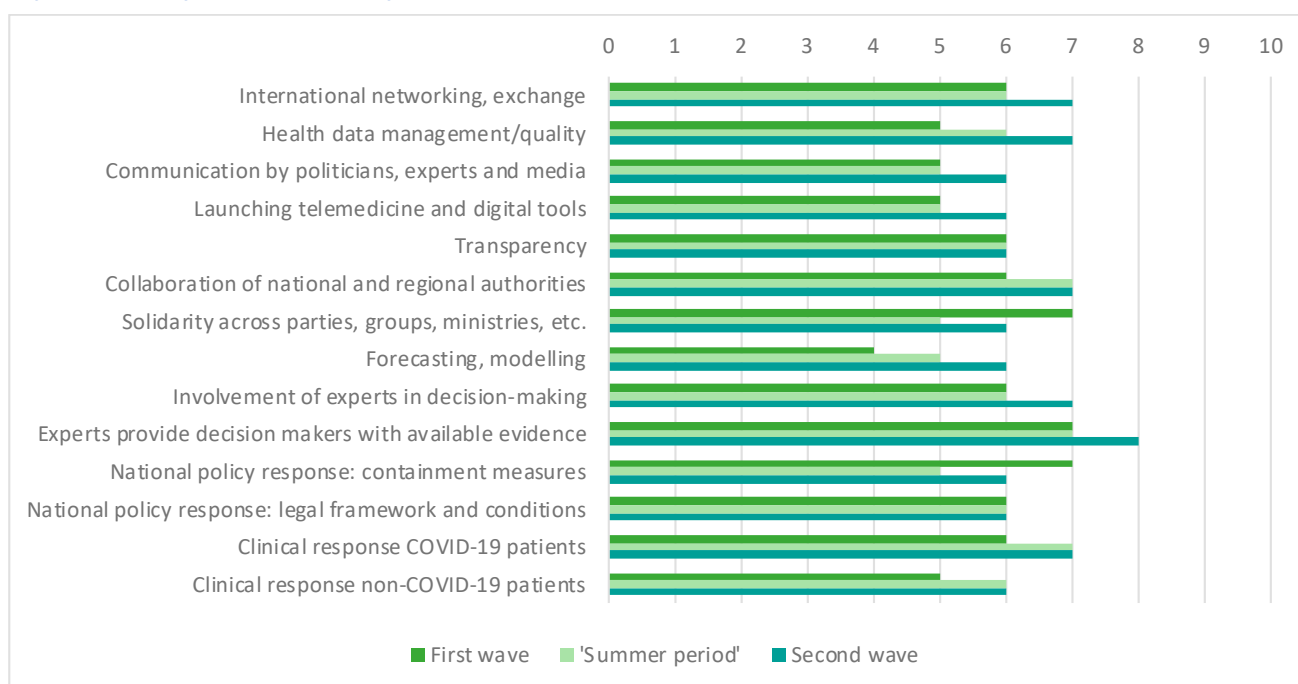
### Top 10 current and future priority topics at EU level

Table 33: Priority topics – EU level

Rank	Current	Future
1	Vaccination strategies (availability, distribution, implementation, documentation)	Vaccination strategies (availability, distribution, implementation, documentation)
2	Protection of vulnerable groups	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health; routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)
3	National continuous COVID-19 testing strategies	Mitigation of economic and social consequences
4	Hospital capacities (ICU and non-ICU) and primary care capacities (non-COVID-19)	Surveillance of seroprevalence and associated immunity
5	Effectiveness and safety of vaccines	Protection of vulnerable groups
6	Protection of care facilities	Monitoring of effectiveness and harms of policy/containment measures
7	Communication towards population	National continuous COVID-19 testing strategies
8	Protection of hospitals	Long COVID (long-term clinical effects; health monitoring of individuals who recovered from infection)
9	Monitoring of effectiveness and harms of policy/containment measures	Relaxing/ease of containment measures
10	Impacts of pandemic on (non-COVID) health (e.g. medication use, chronic care, mental health, routine care, conditions like heart attacks, strokes, cancer, childhood vaccination)	Effectiveness and safety of vaccines

### Rating – first wave, summer period and second wave

Figure 32: Rating – EU level (average of all participants)



## V. Implications and limitations

The major limitation of the needs assessment is that the input of participating countries is subjective and represents the personal/institutional opinion of one or more participating institute/s and expert/s per country.

Furthermore, it must be taken into account that the responses on some of the specific predefined categories of the rating of national pandemic management and the ranking of current and future priorities depend on the structure of national health care systems, i.e. centralised vs. decentralised.

Another limitation is that in most cases (16 out of 24), only one response was received per country (AL, EE, FI, DE, HU, IE, IT, LT, MT, NO, PL, PT, RO, SI, ES, SE). However, up to 4 responses of different institutions in other countries (BE, NL, SK, AT, BA, HR, RS, UK) were received. As a result, the comparability and generalizability of country responses, and hence of the priorities could be biased. The comparability of country responses is also limited due to the diverging epidemiological situation in European countries and, thus, the chronological sequence of different phases of the pandemic ('waves') in each country.

Considering the results grouped by type of institution, it should be noticed that the combined share of responses from government authorities and public health institutes (in total 86 percent of all responses) is higher than those from universities, regional authorities and other institutions together. Potential reasons are that governmental authorities are more likely to be directly involved in pandemic management than other target groups and that the snowball effect, i.e. the dissemination of the survey at national level to relevant target groups, was limited due to the challenging epidemiological situation. The remaining participating institutions (universities, regional authorities and other institutions) account for 14 percent of responses.

A general limitation of the needs assessment is the timeframe. It was conducted between mid-December 2020 and the end of February 2021. The period for responding had to be extended due to a low country response rate. It can be assumed, that the responses were low in general due to the especially demanding times for the health sector in the given period.

## VI. Conclusions and recommendations

The primary aim of the needs assessment was to receive a comprehensive overview of the most relevant current and future priority topics and a retrospective rating of aspects of national pandemic management of each participating country (see section IV.A). The intention is to provide an orientation and guidance for countries, institutions, and experts to seek cross-country exchange on good practices and lessons learned and to show differences and similarities between national current and future priority topics.

Most likely due to the period of the first needs assessment and the corresponding development of the COVID-19 pandemic, one of the main current priorities across countries was 'vaccination strategies'. This priority topic was one of the highest ranked priority topics at that time at country, institutional and EU level. In contrast to current priorities, indicated future priorities were more mixed among the countries and include priorities in the areas of testing, data, monitoring, and vaccination.

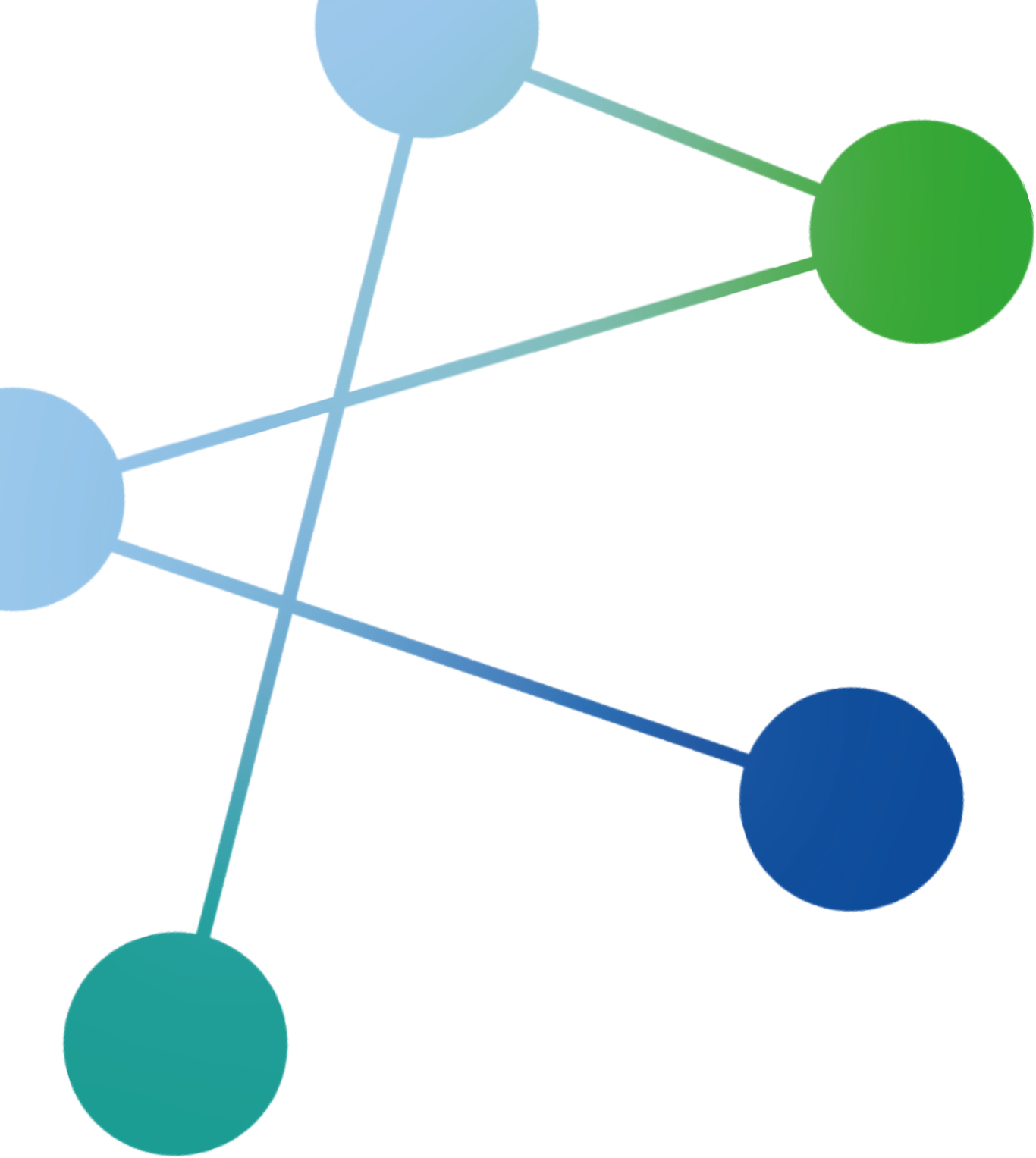
Overall, there seems to be a relatively homogenous response in some predefined areas of the rating of national pandemic management. The rating for three defined periods (first wave, summer period, second wave) shows mainly positive developments in the countries, especially in the categories 'health data management' and 'forecasting and modelling'. However, there seem to be wider overall

disparities between the countries in some selective categories, such as 'transparency' and 'solidarity', as well as 'national policy response: containment measures', which could indicate potential needs for improvement.

Based on the good practices and lessons learned, cross-country exchange will be fostered by actively integrating countries' practices in the REF meetings.

When comparing the participating institutions, it is interesting that in general vaccination strategies were rather stated as priority topic from government authorities and public health institutes. The current priority focus of universities and regional authorities rather focused on specific settings (e.g. vulnerable groups) and monitoring.

In the meantime, the results of the needs assessment have been fed into the "pipeline" of questions that are addressed in the bi-weekly REF and have been covered to some extent. Concrete questions are drafted one week before a meeting and made available for selection by majority vote from the participants.



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