



**TECHNICAL** REPORT

# The Swedish advice-making process for distance learning in schools, November 2020 – April 2021

An after-action review

**ECDC TECHNICAL REPORT**

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This report was commissioned by the European Centre for Disease Prevention and Control (ECDC). The report was produced by Erik Baekkeskov, Danny de Vries, Olivier Rubin and Wesal Zaman in collaboration with the Public Health Agency of Sweden under contract ECD.12898.

### *Acknowledgements*

The group at the Public Health Agency of Sweden organising the after-action review: Karin Ljung Björklund, Anette Hulth and Sara Wall. We acknowledge the invaluable contribution by all participants during the workshop as well as by the representatives of key organisations who were interviewed as part of this work.

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Suggested citation: European Centre for Disease Prevention and Control. The Swedish advice-making process for distance learning in schools, November 2020–April 2021. An after-action review. Stockholm: ECDC; 2023.

Stockholm, September 2023

ISBN 978-92-9498-654-2

doi: 10.2900/925882

Catalogue number TQ-04-23-895-EN-N

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# Abbreviations

AAR	After-action review
AIGHD	Amsterdam Institute for Global Health and Development
CoMO	County Medical Officer – Smittskyddsläkare
ECDC	European Centre for Disease Prevention and Control
EEA	European Economic Area
EU	European Union
NPI	Non-Pharmaceutical Intervention
PHAS	Public Health Agency of Sweden – Folkhälsomyndigheten
SKR	Sveriges Kommuner och Regioner – Swedish Association of Local Authorities and Regions
WHO	World Health Organization

# Executive summary

This after-action review (AAR) investigates the use of evidence in Sweden's advice-making process for distance learning during the period November 2020 to April 2021 (the focus period) in response to the SARS-CoV-2 (COVID-19) pandemic. The case-study approach of this AAR allowed for in-depth explorations of how key advice travels through and across relevant organisations, as well as how it changes over time in light of new evidence. Inspired by ECDC's best practice for AARs, the findings of this AAR are structured around three main questions:

- What happened and who was involved?
- What influenced the advice-making process and why did it turn out as it did?
- What should change and how can it be implemented?

In addition to identifying the technical aspects of how evidence was produced, it is also important to recognise any external pressures, informal practices and networks (both within and across agencies) that affect the advice-making process. Data gathered for the AAR consisted of a two-day consultative process with key stakeholders (identified by the Public Health Agency of Sweden (PHAS)) and semi-structured interviews during the week of the workshop and the subsequent week.

The advice-making process for distance learning during the selected period was based on national epidemiological evidence and other types of evidence. This included holistic consideration of the impact of school interventions on health outcomes and the broader impact on society and well-being for students, schools and school organisations, teachers, families and socio-economic continuity. When developing school-related advice, PHAS established a dedicated school group, including staff members with different types of expertise. The school group collaborated with many stakeholders, and particularly closely with Skolverket – the Swedish National Agency for Education.

Through the workshop and interviews with the AAR team, review participants identified specific good practices used in the process, and developed several lessons learned, based on what went well and not so well during the advice-making process.

Key good practices identified by participants included:

- having one comprehensive national public health agency, with different types of expertise;
- creating horizontal and 'diagonal' relationships between health and educational agencies and ministries;
- articulating and consistently making use of guiding principles for analyses and advice;
- creating an accessible and continually-updated comprehensive technical report on evidence for school interventions and their consequences.

Examples of lessons learned when preparing advice-making for the future, as identified by participants, included:

- clearly communicating the reasons, logic and evidence for recommended actions, based on a holistic health perspective;
- communicating on why a particular action cannot be taken;
- coordinating across agencies;
- collecting data when most needed, and sharing it to avoid duplicated effort;
- performing broad public health research, taking into account multiple perspectives;
- listening to affected stakeholders, including children.

# 1. Introduction

## 1.1 Definitions

This focused AAR makes use of two key concepts that are defined below: (i) the advice-making process and (ii) the extent to which advice-making is evidence-based.

### 1.1.1 Advice-making process

Providing advice entails taking decisions on the best course of action and communicating them to the right stakeholders. Advice can be guided by individual experience and intuition, or it can be the result of a deliberative decision-making process, with the purpose of gathering and analysing information about different potential responses before recommending and communicating a subset of those responses to policy decision-makers. The advice-making process referred to in this AAR concerns the latter. Formalised advice-making processes build on organisational structures and practices that shape deliberations and influence what advice is considered and how it is addressed [1-3]. Advice-making also encompasses decisions relating to internal resource allocations, staff management, communication, implementation considerations, etc. During the COVID-19 pandemic, experts from national and international public health agencies were typically involved in the deliberative advice-making processes that inform policy. However, advice-making is different to policymaking in that it only constitutes the first stage of the decision-making process that ultimately results in policy.

### 1.1.2 Evidence-based advice-making

One of the key properties of advice-making is that it is evidence-based or -informed [4]. Evidence in this context refers to scientific evidence that adheres to a set of academic standards. These standards may vary depending on the field of inquiry, but will usually encompass the collection and testing of empirical data according to scientific methods and models that have been validated by peers [5]. Therefore, the body of scientific evidence will mostly consist of systematically gathered data, reports produced and validated by expert-agencies and peer-reviewed scholarly publications, both nationally and internationally. There is always an elusive element to scientific evidence because it is constantly evolving and being reinterpreted, as scientists continuously work to affirm or expound existing evidence. This was clearly observed during the COVID-19 pandemic [6,7].

In addition to scientific evidence, the advice-making process can also draw on experience-based evidence [8], sometimes referred to as 'implementation-based evidence' [9] or 'ecological evidence' [10]. Experience-based evidence can be subject to scientific inquiries and interpretations but is not necessarily subject to the scientific process of setting up a specific research design and submitting it for peer review. Experience-based evidence could come from implementing agencies that would be able to provide an assessment of the current situation and give feedback on how advice given works in practice. The advantage of making decisions using experience-based evidence during health emergencies is the pace at which the evidence can be collected and interpreted.

What constitutes pertinent scientific evidence changes and shifts over time and is shaped by relationships between experts and their social, economic, organisational, and political environments. Experts are faced with a host of cognitive and institutional factors that influence interpretations of scientific evidence [3,11-13]. The interpretation of evidence is not only inherent to the scientific process, but also to the advice-making process, and identical pieces of scientific evidence in similar contexts can result in very different advice [3,14]. Underlying theoretical and bureaucratic differences created variations in how health experts produced advice during the COVID-19 pandemic [1,15-17]. It is therefore important to note that even the best evidence can produce sub-optimal advice if the advice-making processes are flawed.

## 1.2 After-action reviews

After-action reviews (AARs) serve as means for identifying best practices and areas for improvement for future health emergencies. An AAR is a country-led and country-owned initiative, introduced by ECDC, to conduct a qualitative review of actions taken to respond to an emergency, with the purpose of identifying best practices, gaps and lessons learned [18,19]. Following an emergency response to a public health event, an AAR can help identify what worked well and how these practices can be maintained, improved, institutionalised and shared with relevant stakeholders. AARs typically encompass a broad number of response dimensions which are investigated in a series of facilitated meetings with the key stakeholders involved. It is important to note that AARs are not evaluations and do not seek to assign blame for sub-optimal responses. Nor are they intended to assess individual performance or competency. Instead, they seek to identify learning opportunities and contribute to the cycle of continuous quality improvement in emergency preparedness and response planning.

The World Health Organization (WHO) and the European Centre for Disease Prevention and Control (ECDC) have developed guidance and methods for AARs covering many different aspects of health emergencies [18-20]. The learning opportunities developed and the lessons learned in the context of responses to COVID-19 appear to be particularly

pertinent. As COVID-19 has developed into a long-running (or even endemic) health emergency, ECDC and WHO have developed Intra-Action Reviews [21] and In-Action Reviews [22] to ensure that important lessons can be learnt and reflections made while the emergency is still ongoing. An alternative approach to these interim AARs is to conduct an AAR on a particular aspect of the pandemic that is limited, both temporally and thematically. ECDC refers to such an AAR as a focused AAR [22].

### 1.3 A focused AAR on evidence-based advice-making

One important area for self-reflection and lessons learned is the role of evidence in advice-making processes during COVID-19 [23]. Within the scope of this report, advice-making refers to public health advice generated by the Public Health Agency of Sweden for policy-makers (decision-making level of government), public health stakeholders responsible for the implementation of public health measures and the general public. Advice-making was challenging, in terms of interpreting evidence and integrating it into the process, primarily due to uncertainty, time-pressure and the fact that guidelines and/or organisational structures were sub-optimal [24,25]. Scientific evidence pertaining to the pandemic had also gone from being scarce during the initial phase to becoming so abundant a year later that it risked overburdening agencies with contradictory, non-contextual evidence of varying scientific quality. Some of the evidence even had little relevance to the context for which advice was being sought (non-contextual) [26,27]. An investigation into the intricacies of advice-making processes during such a long and complex pandemic demands a focused approach. Consequently, in 2021, ECDC commissioned and published a protocol for focused AARs, to better understand advice-making during the COVID-19 pandemic [22].

Focused AARs can shed light on the advice-making processes underlying a particular decision (or group of decisions). The decision should ideally concern a non-pharmaceutical intervention (NPI) that is delimited both temporally (e.g. during a particular phase of the pandemic) and along sectoral lines (e.g. pertaining to schools, long-term care-facilities, hospitals, or businesses). This type of delimited case-study approach allows for in-depth exploration of a specific advice-making process and provides lessons for future health emergencies, both in-country and between countries. It is important to note that the specific case functions as an entry-point into the review process and as an anchor for subsequent discussions, rather than a constraining factor in conversations with the stakeholders. Participants in the AAR will often reflect on processes leading up to the specific decision, going back several months. The core methodology is to trace how key advice travels through and between relevant organisations, as well as how it changes over time due to new evidence. This involves identifying important external pressures (e.g. media, public, political, international, etc.) on the advice-making process and gaining insight into any informal practices and networks (both within and between agencies) that may affect the process.

The central question of the focused AAR is to determine the role of scientific evidence, such as the sources, use and impact of scientific evidence in the deliberations and decisions made by public health authorities while developing policy advice. What types of evidence were available to public health experts when advising policymakers? What value and weight did public health experts place on different pieces of evidence? How did they adapt evidence to their own context and, what happened when there was no conclusive scientific evidence available? Inspired by ECDC's best practice for AARs, the findings of this focused AAR on evidence-based decision-making are structured around three main sections:

- What happened and who was involved?
- What influenced the advice-making process and why did it turn out as it did?
- What should change and how can it be implemented?

To facilitate the use of AARs in the European Union/European Economic Area (EU/EEA) countries, ECDC entered into a specific contract (2021–2022) to conduct focused AARs on school interventions in Finland, Norway and Sweden (work which was complemented by similar focused AARs on long-term care facilities in Norway and Georgia). Finland, Norway, and Sweden focused on the advice-making process for school interventions during the periods after the initial stage of the pandemic (March-July 2020). Finland focused on the period from December 2021 to March 2022, Norway on August 2021 to February 2022, and Sweden on November 2020 to April 2021, respectively.

A more detailed description of the methodology used for this AAR is presented in Annex 3.

### 1.4 Sweden's focused AAR on advice-making related to distance learning

In consultation with the Public Health Agency of Sweden (PHAS) it was decided that the AAR summarised in this report should focus on use of scientific evidence in the advice-making process for distance learning in schools during the period November 2020 to April 2021. Distance learning refers to the provision of education via remote schooling using online communication tools rather than in-person schooling. Although education continued, distance learning meant that students had to learn from elsewhere (usually their home) using an online interface, such as a personal computer connected to the internet. The PHAS, supported by Sweden's Government, recommended modifications to in-person instruction in upper secondary schools (gymnasieskolor, for those aged



approximately 16–18 years) while retaining its recommendation that primary school education should continue in-person, except in the event of local outbreaks. These recommendations on distance learning included two primary periods of nationwide advice: (1) a period of measures limiting in-person schooling (mid-November 2020 to late January 2021), and (2) a period of measures encouraging a return to in-person schooling (late January to April 2021). (See 'Timeline of events' sub-section below).

The authority to decide on specific pandemic response initiatives lies with school management and consequently there was considerable variation in uses of distance learning at the local level. Local outbreaks pushed individual schools and school owners to react by moving to and maintaining distance learning during the period from November 2020 to April 2021. Therefore much of the national advice during this period related to offering clear guidance to school management and urging local post-outbreak returns to in-person instruction.

The initial consultation meetings between PHAS and the AAR team showed the merits of focusing the AAR on the decisions to recommend secondary schooling modifications up to and after the Christmas break 2020. Analysing the advice-making process in relation to schools during the selected period was particularly interesting because it showed how the situation changed after the initial rush to respond to the pandemic in early 2020. By that time, experienced and collaborative preparedness and response systems were dealing with new uncertainties and translating emerging evidence into advice to support keeping schools open as far as possible. Investigating the use of evidence in this advice-making process was therefore likely to produce useful lessons for future pandemic preparedness and response in educational settings and beyond.

## 1.5 Sweden's health emergency management structure in the context of COVID-19

Folkhälsomyndigheten – the Public Health Agency of Sweden (PHAS) develops and supports activities to promote health, prevent illness and improve preparedness for health threats. This includes supporting nationwide pandemic preparedness and response. PHAS is a knowledge-based national advisory agency that produces guidelines and policies for regions and municipalities as well as the general population, to promote public health. In the area of communicable diseases, the agency also has the mandate to coordinate national, regional and local communicable disease control. Other parts of government and society are not obliged to follow the agency recommendations regarding measures in schools. Instead, the advice-making process, and whether people and organizations follow PHAS advice, is based on trust. PHAS publishes and actively communicates its advice, which made it easily accessible for affected stakeholders such as schools, families, staff and students during the COVID-19 pandemic.

PHAS was established as the result of a merger in 2014 of responsibilities relating to public health and communicable disease control from three national agencies. One important result of this merger is that PHAS encompasses most of the Swedish government's public health-related knowledge and analytical and research capabilities. This comprehensive responsibility enables the government to comprehensively assess public health threats and interventions. In addition, Swedish national governmental agencies have constitutionally defined independence and are not under the direct control of ministers in their day-to-day decision-making and operations. This gives the PHAS the autonomy to generate and disseminate pandemic-related analyses and recommendations based on the best available knowledge. Similarly, PHAS and other relevant agencies are able to forge collaborative relationships to achieve their general mandates.

Sweden's 21 regions (formerly counties) are responsible for the prevention and mitigation of communicable diseases. There are 21 County Medical Officers (Smittskyddsläkarna – CoMOs) who offer advice for policy-making and these CoMOs may develop specific recommendations on non-pharmaceutical and pharmaceutical interventions for schools within their regions. CoMOs adapted national advice from PHAS to the regional situation, and could determine regional- and local recommended measures based on their situation. For instance, in the case of the December 2020 to January 2021 upper secondary school closures discussed in this AAR, the Stockholm CoMO recommended that these schools move entirely to distance learning and added mandatory distance learning for lower secondary schools (Grades 7–9, students aged approximately 13–15) for part of this period.

As noted above, decisions on specific measures were mostly at the discretion of school management (see next sub-section). This included use of distance learning and suspension of in-person schooling, if warranted by local COVID-19 outbreaks, unless these were specifically mandated by CoMOs.

## 1.6 Sweden's educational management structure

Sweden's Ministry for Education and Research is responsible for educational laws and policy. Sweden's schools are regulated nationally by the National Agency for Education (Skolverket), the Schools Inspectorate (Skolinspektionen) and the National Agency for Special Needs Education and Schools (Specialpedagogiska skolmyndigheten – SPSM).

Primary and secondary schools in Sweden are owned and operated by public or private organisations. Each owner-operator has a school management (huvudman). For instance, municipal schools are led by municipalities, and private school groups are led by boards of directors. Sweden has 290 municipalities and more than 700 private school organisations (as of October 2022 there were 1 095 school huvudmän [28]). School owner-operators range from stand-alone independent schools to private school groups, municipal public-school systems and some county and nationally-run special-purpose schools.

During the pandemic the national legislation that regulated whether a school could be open or closed, or offer distance teaching/other measures to meet the challenges, changed in Sweden. The aim of the new legislation was to meet the requirements of the epidemiological situation while complying with the Convention on the Rights of the Child. A central part of this legislation was the focus on preventive measures in schools. There was a clear message from the legislators that school authorities should do what was in their power to stop transmission using 'softer' instruments. Balancing an infection control perspective with the interests of children is an example of the proportionality incorporated into Swedish legislation regulating infection control measures.

During the COVID-19 pandemic, each school management was responsible for decisions about moving between in-person or distance schooling for the schools they operated, and for other pandemic related interventions, as warranted by the specific health situation at their schools. National education authorities placed limits on this by requiring that schools exhaust all other measures before opting for distance learning (see 'Timeline of event' subsection). Management also took such decisions under advice from national and county health authorities. As described, in some situations (response to local outbreaks) CoMOs also recommended that schools moved to distance learning. In general, however, school organisations had to decide for themselves whether distance learning and/or other public health measures were warranted. In practice, many sought and followed recommendations from PHAS and the CoMO for their region.

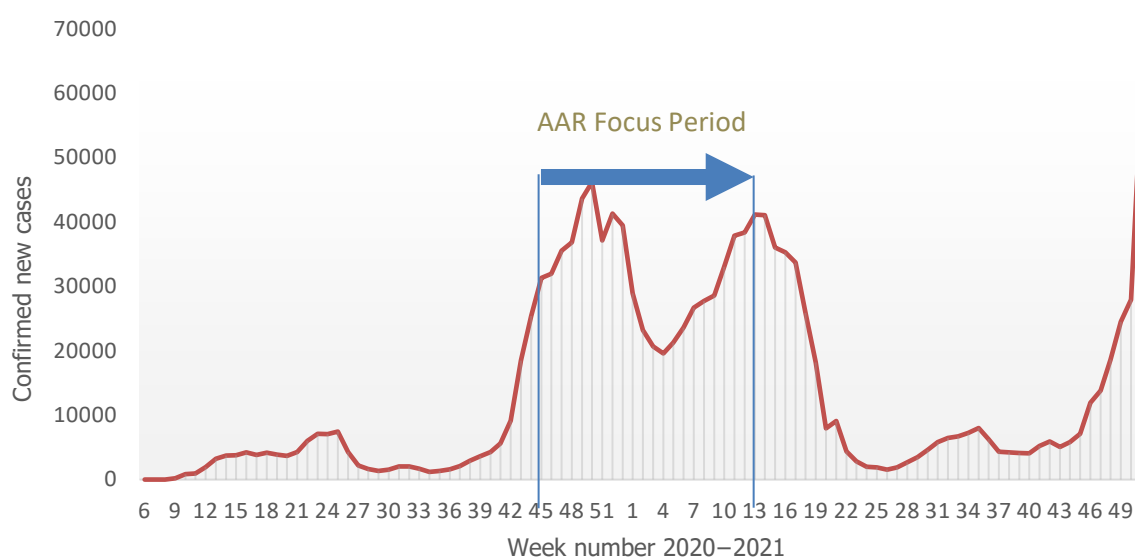
### 1.6.1 What happened in Sweden during the focus period of the AAR?

This section contains an account of events in terms of advice-making related to distance learning from November 2020 to April 2021.

### 1.6.2 Timeline of events

By early November, new weekly SARS-CoV-2 infections in Sweden were beginning to significantly exceed those of the initial wave (Figure 1). A new wave had begun which would last until the spring of 2021. From around Christmas 2020, the mix of variants increasingly included the emerging B.1.1.7 (Alpha) variant of SARS-CoV-2. Therefore, advice-making during late 2020 was mainly a response to the increased case numbers, while advice-making in early 2021 was a response to the new and increasingly prominent Alpha variant.

**Figure 1. Confirmed new COVID-19 cases in Sweden, by week, 2020 and 2021**



Source: PHAS data [29]; AAR team analysis.

Note: case numbers for spring 2020 cannot be compared with those for autumn 2020 and 2021 due to different testing schemes.

From an advice-making perspective, as related to school closures, there are two interesting stages of the AAR focus period. The first stage included measures recommended to limit in-person schooling. This lasted from mid-November 2020 to 24 January 2021 (weeks 47–53, 2020 and 1–4 2021), and culminated in the national move to distance learning at upper secondary schools (gymnasieskolor) between 7 December and 24 January (weeks 50–53, 2020 and weeks 1–4, 2021). The second stage included measures recommended to ensure at least a minimum level of in-person learning at schools. This lasted from 25 January to 1 April 2021 (weeks 5–13, 2021). The core of this set of recommendations from PHAS was an '80–20' rule for upper secondary schools, meaning that students would have a maximum of 80 percent of their time online or distance learning (i.e. no more than four days per week), and a minimum of 20 percent in classrooms (i.e. no less than one day per week). As of 1 April 2021, PHAS recommended the full return to in-person instruction for all students, with the exception of local outbreaks or other special circumstances.

### 1.6.3 Period of measures limiting in-person schooling (November 2020–January 2021)

On 12 November 2020, PHAS published two school-related reports. The first reviewed new studies on COVID-19 among children in schools. This concluded that schools were not high-risk environments for COVID-19 infection among school-aged children and that the children were not driving the pandemic. The second reported on a PHAS study focusing on the risk of infection among professionals employed in schools [30]. This concluded that teachers generally did not face a higher risk of COVID-19 infection than other professions. Based on these reports, PHAS' State Epidemiologist stated in the PHAS' press release that 'the results show that schools and contact with children are not particular risk environments for disease spread' [translation from Swedish by report authors].

On 18 November 2020, the Swedish Government announced that from 23 November onwards, upper secondary schools would be permitted to opt for partial distance learning [31]. The rationale was to reduce crowding in schools and complement in-person learning. The announcement also emphasised that in-person instruction should be the rule, and that school management should exhaust all other COVID-19 preventive measures before moving to distance learning.

On 1 December 2020, PHAS published a recommendation that children living with someone diagnosed with COVID-19 should stay home from school even if they themselves were without symptoms [32]. The rationale for this was 'to create calm and order in the [school] workplace [arbetsro]', rather than to control disease spread.

On 3 December 2020, the Swedish Government and PHAS jointly announced that upper secondary school students would be taught at distance between 7 December 2020 and 6 January 2021 [33]. The purpose of this measure was to 'further reduce crowding in society and on public transportation'. Recommendations for primary and lower secondary schools were unaffected.

On 7 December 2020, full distance learning for upper secondary schools came into effect on a national basis.

On 15 December 2020, the Swedish National Agency for Education decided to cancel national school tests for Grades 6 and 9 in the spring of 2021 [34]. The rationale was that due to the pandemic, schools were unable to provide all students with equivalent education and equal opportunities for students to perform the test.

On 5 January 2021, a group of 30 university and other independent researchers outside of government published a joint commentary in the leading national broadsheet newspaper 'Dagens Nyheter' calling for school closures to be prolonged after the Christmas holiday for an additional two to four weeks [35]. The rationale was to dampen the spread of COVID-19, based on doubts about the certainty of findings that children constituted a low infection risk.

On 7 January 2021, PHAS recommended prolonging the previous month's full distance learning at all upper secondary schools until 24 January 2021 [36].

In addition, on 7 January 2021, the Swedish Government announced that as of 11 January, primary schools could opt to move their oldest cohorts – Grades 7 to 9 – to distance learning [37]. Similar to the November 2020 announcement for upper secondary schools, the rationale was to prevent crowding, both in schools and on public transportation. As before, distance learning was to be the last resort after all other measures had been exhausted. The validity period for measures encouraging in-person schooling was from January to April 2021.

On 20 January 2021, PHAS recommended a gradual return to in-person schooling in upper secondary schools as of 25 January [38]. This specifically meant that schools were asked to comply with an 80–20 rule: a maximum of 80 percent of secondary school learning should be distance learning, and a minimum of 20 percent in-person. The planned date for ending mixed distance and in-person schooling was 1 April.

On 25 January 2021, the 80–20 rule for upper secondary schools came into effect.

On 11 February 2021, PHAS published a new report on COVID-19 risk by profession [39]. Although the report's primary focus was the heightened risk for those working in health and care professions, it did highlight the fact that staff in schools faced no greater infection risk than those working in other professions.

On 19 February 2021, the Swedish Government announced that it would add another year to temporary rules allowing school management to make use of distance learning and other COVID-19-related interventions [40]. The new expiration date was 31 July 2022.

On 25 March 2021, PHAS recommended following the plan to terminate the mixed model of distance and in-person schooling – i.e. the previously recommended 80–20 rule in favour of in-person learning – on 1 April [41]. The recommendations also highlighted that school management would still be able to organise teaching as was befitting to their local COVID-19 situation, including the use of distance learning and other measures.

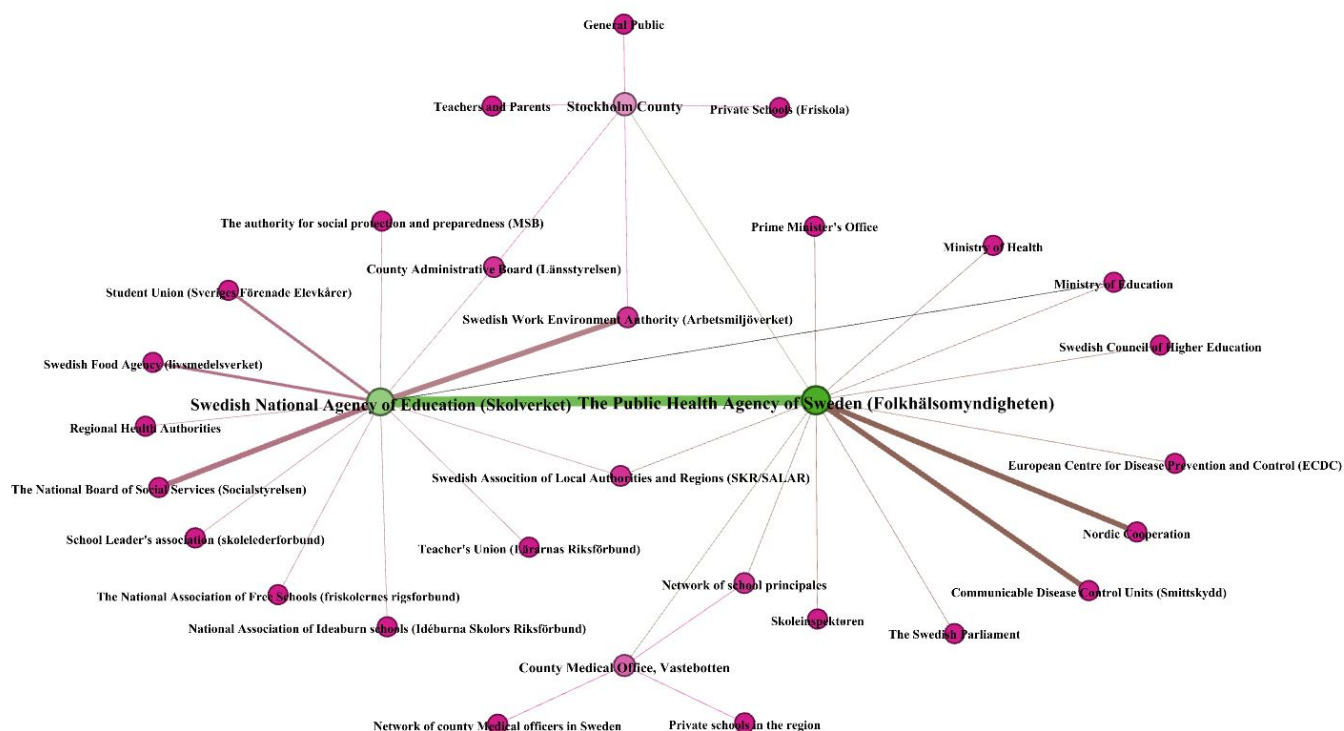
On 1 April 2021, in-person instruction once more became the nationally recommended mode of schooling for all Sweden’s schools.

### 1.6.4 Stakeholder mapping – who was involved?

Identifying the key participants and stakeholders in the advice-making process related to schools during the focus period involved two steps. Firstly, PHAS identified important individuals and organisations as it developed the list of review participants, as previously described. Secondly, during the workshop the AAR team invited all workshop participants to map their own key organisational contacts and interlocutors in the advice-making process. This section describes the results of this second step.

To map their contacts, each workshop participant drew an ego-network map of organisations that they had interacted with during the focus period for the advice-making process related to school interventions. The ego-network map that participants were asked to draw places the person at the centre and related organisations in the periphery, connecting the person to the organisations using direct lines. The exercise yielded 12 individual ego-network maps.

**Figure 2. Visual representation of the advice-making network. Contacts reported by 12 individual workshop participants**



*Node sizes represent their importance in the network (degree centrality), as indicated by the number of mentions of nodes by workshop participants (i.e. one mention is a workshop participant having had significant contact with that organisation). The colours of nodes represent whether they were mentioned often (green) or rarely (purple). The colour and thickness of ties represent the number of connections between two nodes. Thick and green = high number of connections; thin and green = moderate number of connections; thin and purple = one connection between the nodes.*

To analyse these data, the Gephi analytical programme was used to create a combined stakeholder social network visualisation based on all the individually-drawn ego-networks of those participating in workshop. The undirected network visualisation represents an approximation of the interactions among different actors. Names of organisations or specific departments that the individuals belong to have been used in the visualisation instead of the names or titles of individuals. In the visualisation the different departments within PHAS have all been integrated into the organisation. Degree centrality measurements were taken to identify the importance of nodes in the network.

Degree centrality measurements show the importance of each node in relation to the number of connections it has in the network. Both the Swedish National Agency for Education (Skolverket) and PHAS are identified as equally important nodes in the network analysis above. They share an almost similar number of connections in the network. The mapping indicates a strong connection between Skolverket and PHAS in the reviewed advice-making process because they share the strongest link in the network. The strong connection between the two named agencies reflects the fact that 10 out of 12 workshop participants – from different organisations and PHAS departments – identified this connection in the ego-network exercise.

In addition, the 12 workshop participants identified more than 30 organisations or other entities that they recalled as important in the advice-making process, with few overlaps. This suggests that the process engaged a large number of stakeholders in some capacity (the exercise did not ask for details about what the connections involved). More qualitative details from the workshop on these connections are available in Section 2.2.7 Communication. It should be noted that the network map is unlikely to be exhaustive. It makes use of what workshop participants were able to recall on the spot and in a limited amount of time, more than 18 months after the fact. Hence, some actors who were involved in the advice-making process during the focus period may not be included.

## 2. The advice-making process

This section discusses the major factors that shaped the advice-making processes, and is structured around four main categories. Development of the process description began with the evidence-based public health framework introduced to workshop participants to inspire their discussion (Figure 3).

**Figure 3. Evidence-based public health framework**



*Inspired by Satterfield et al. (2009) [42]*

Through the discussion and review of the available materials, the AAR team was able to identify four categories of influential factors. As anticipated in the evidence-based public health framework, the first category relates to the collection and interpretation of evidence. Here, the focus is on what evidence was used (and what was lacking), and how the evidence was integrated into the advice-making process. The second category is guiding principles. This category emerged during the workshop because participants repeatedly and frequently emphasised how certain clear principles persistently shaped their advice-making. The third category, also anticipated in the evidence-based public health framework, is communication: how the advice was communicated to the public at large, school practitioners, associations and regional health authorities, and inside and between agencies and ministries. The fourth category, identifying factors shaping advice-making combines capabilities, resources, pressures and tensions. It also includes work to fulfil PHAS' mandate and other factors structuring how advice was developed. These factors were significant at all levels of the advice-making process and had consequences for how advice could be developed and implemented.

### 2.1 Evidence used in the advice-making process

**Figure 4. Evidence perceived to be used (green) and missing (red) during the advice-making process**



As indicated in the timeline, the growth in cases during late 2020, and the spread of the Alpha variant in early 2021 generated new uncertainties and stresses in the advice-making process during a rather condensed period. PHAS was able to draw on many different types of relevant evidence. This allowed the Agency to develop evidence-informed advice, limiting distance learning to upper secondary schools while keeping other schools open. From the workshop discussions and interviews it was possible to identify two distinct types of evidence in use, with several sub-types of each, and three categories of missing evidence that could have improved advice-making. These are shown in Figure 4 above.

PHAS used the broad array of social determinants of health-related knowledge and analytical capability at its disposal. This was framed by the Agency's dual or joint mandate to monitor and govern both public health and communicable diseases. PHAS was also concerned about fulfilling the Convention of the Rights of the Child, and following other guiding principles, described later in this report. The PHAS school group consisted of experts drawn from several specialisations. This group engaged repeatedly in rapid reviews of new academic literature and emerging evidence developed both in Sweden, and abroad. For evidence beyond epidemiological and health impact analyses, the advice-making process included ongoing consultations between PHAS and other stakeholders. Primary collaborators for the school group were experts at Skolverket, but the School Inspectorate and the Ministry of Education and Research were also regularly included.

### 2.1.1 Epidemiological evidence

During the early stages of the pandemic, advice about schools was primarily based on influenza pandemic literature. Participants reported that while school closing was a long-standing non-pharmaceutical intervention and an integral part of pandemic preparedness and planning, actual evidence was limited as to its efficacy for controlling influenza spread or severity. Therefore, even at the beginning of the COVID-19 pandemic in early 2020 when pandemic influenza remained the primary model for how to respond, PHAS experts were unconvinced that closing schools and moving to distance learning would be effective. In addition, participants reported that they had also known from prior social and educational research that the social and educational impact of closing schools would be severe and negative, particularly for younger cohorts and vulnerable children (see also Section 2.1.2 Non-epidemiological evidence). Finally, the agency focused on recommending interventions that would last for as long as they might be needed. Therefore, although there was uncertainty about COVID-19, PHAS still concluded that distance learning should be used sparingly, and primarily to control local outbreaks.

Participants also reported that they had received and analysed early epidemiological evidence on COVID-19 from China and Italy during the first months of the pandemic. While emerging evidence remained preliminary, it supported the PHAS stance against complete closure of schools for in-person instruction (in practice, closing schools in Sweden meant moving to distance learning, as described; some form of education continued to be offered, irrespective of the situation). In other words, emerging evidence appeared to confirm rather than challenge the operating assumptions developed from interpretations of the literature on school closures and influenza.

As the pandemic evolved during 2020, PHAS was able to collect and analyse other relevant epidemiological data. One important source was data from a Swedish register on professionals and workplaces matched with records on COVID-19 morbidity, mortality, hospitalisations, etc. This data allowed successive analyses of the disease risks faced by different professions and staff in various workplaces, including schools, during late 2020 and early 2021 [43-45]. This enabled the Agency to show that schools were not high-risk workplaces, and that school staff were generally not at greater risk than other professional groups. This helped to allay fears about in-person schooling among parents, teachers, and others (although, as discussed later, some teachers and parents did still call for general rather than local distance learning).

Another important source of epidemiological data was contact tracing and analyses performed by CoMOs. Workshop participants recalled that contact tracing analyses enabled them to determine that social gatherings and after-school activities were the primary cause of most infections detected among students, rather than scheduled teaching in schools. The same pattern was found for teachers, with the addition that some infection cases could be traced to interactions among teachers, during meetings or breaks. As these findings were valid for the whole country during 2020, they further supported PHAS' advice to limit distance learning.

Another third crucial source was Swedish data on hospitalisation, required for children diagnosed with COVID-19. Participants characterised these rates as very low compared to other age groups. In addition to not infecting children as much as other age groups at that point in time, COVID-19 was also a less severe disease for children than for other age groups.

In the middle of 2020, the PHAS school group published the first of several technical reports on school closures and other interventions [46-48]. These reports addressed a broad audience of specialists and non-specialists, ranging from national agencies, CoMOs and municipal and private school organisations, to media and the public. The reports assembled and summarised epidemiological and related health analyses and literature on COVID-19 in schools and children. They synthesised knowledge on the social determinants of health as well as the Convention on the Rights of the Child in relation to epidemiological data and register-based data. They explicitly focused on children's interests (see also Section 2.1.2 Non-epidemiological evidence) rather than those of stakeholders, such as parents or teachers. In turn, the school group continually updated the collection of data, analyses and new

literature for their technical reports. The intention of these collections and reports was to gather and analyse the latest evidence to base decisions on, however they also demonstrated PHAS' evidence-based stance on schools in a coherent and transparent manner. The head of the school group reported that each new wave made them consider whether more general school closures were necessary, leading to a new report in order to collect the latest evidence. Each time, the (updated) technical report enabled PHAS to effectively disseminate its advice and the evidence and arguments behind it.

### 2.1.2 Non-epidemiological evidence

A crucial source of evidence beyond epidemiology was knowledge and literature on the social determinants of health.

In addition, knowledge and analyses of student equality were important evidence. Student equality is a legal obligation and one of the main principles in the advice-making process (see section 'Relevant evidence missing from the advice-making process' below). Therefore participants mentioned that evidence about equal student opportunities for learning and achieving learning outcomes was crucial as school-related advice was developed. For instance, some students had parents working from home who could take care of them, while others had to be alone without food or social relations during the daytime (it should be noted that many schools made efforts to provide daily lunches for students undertaking distance learning). Some had large houses with reliable digital access while others lived in crowded conditions with fewer digital devices or little privacy for distance-learning sessions. Participants also mentioned that schools could be safe environments for children, especially those in socio-economically challenged situations. Consequently, there was a risk that distance learning could jeopardise student equality.

As previously mentioned, a key component beyond the epidemiological and health evidence was knowledge on the social and educational impacts of students being physically away from school on a routine basis. Skolverket and PHAS experts participating in the workshop agreed that they had achieved ongoing and close collaboration throughout the pandemic. This also meant that expert knowledge of impacts beyond the epidemiology of COVID-19 was continually integrated into PHAS' advice-making on school interventions. Participants also pointed out that better student well-being and mental and physical health are known to be linked to attending school in person. For instance, being at home alone meant that children could potentially experience feelings of loneliness due to their isolation. This kind of knowledge was central to how participants described assessing distance learning during the AAR's focus period and before.

Data and analysis of educational attainment during COVID-19 was included in considerations concerning school closures and other interventions. Participants mentioned that a key issue in developing advice to move upper secondary schools to distance learning in December 2020 and January 2021, while keeping other schools open, was how well different age groups were able to learn through distance learning. While this was just one of several components that were combined in the advice, better distance learning attainment at higher levels of schooling was important to make upper secondary distance learning feasible.

As case numbers increased during the focus period, there were regional and municipal variations in outbreak-driven distance learning. Individual schools made adjustments 'reactively' as children or teachers fell ill and stayed at home. At the time, PHAS recommended that teachers and students should stay at home and be tested even with very mild symptoms, such as a runny nose or a headache, and should return to school if they felt well enough and their tests were negative. The frequency of such reactive distance learning increased significantly during the new phase compared with the levels seen during the first wave of the pandemic in early 2020. Workshop participants recalled the situation as 'chaotic', and no-one had a clear overview of where or how many schools were closed at any given time. Participants mentioned that some schools experienced student absences of up to 40 percent, and many were reportedly unable offer classroom teaching because no teachers were available. As a result, many schools that had moved to distance learning were slow to re-open for in-person schooling, and often too slow, given the local epidemiological situation. In addition, some schools sent more students home than was justified by their situation. The aggregate of burgeoning and varied reactive distance learning had itself become important evidence. Participants said that this signalled a need for explicit national guidance on distance learning, or rather, paths for re-establishing in-person learning. Participants saw the previously described 80–20 rule for upper secondary schools that PHAS had recommended in early 2021 as a primary example of their agencies' national push to re-open schools which had been moved to distance learning by local decisions.

A final kind of non-epidemiological evidence discussed by workshop participants was their agencies' knowledge of the broader social effects of school closures, and particularly contexts for children of different ages and their families. This included prior knowledge (in the form of expertise at Skolverket and PHAS) and prior studies read and applied within PHAS' successive deliberations on distance learning and other school measures. The expertise included ranged from epidemiology and social determinants of health to law and some behavioural sciences. While the effects of COVID-19 on children's health were proving to be limited, adults were at greater risk. Older teenagers and young adults were rarely very ill, but they were generally understood to play a larger role in the spread of the disease than younger cohorts. Participants recalled that it had become important to find a practical 'cut-off between children and adults'. Socially, unlike younger children, upper secondary school students were generally independent of parents and other carers. Therefore, asking them to stay at home and undertake distance learning was much less disruptive for workplaces, or carers, than



general distance learning across all age groups would have been. In addition, crowding on public transportation was an explicit concern, both before and during the AAR focus period. Older children were more likely to use public transportation and, consequently, moving them to distance learning would reduce crowding in buses and trains. Together, these and previously described lines of evidence and reasoning in December 2020 supported the PHAS recommendation to move to distance learning in upper secondary schools.

### 2.1.3 Relevant evidence missing from the advice-making process

During the participatory consultations, key experts involved in the advice-making process pointed to three additional types of evidence that would have been beneficial during the process. While survey data and other sources were collected and analysed in relation to well-being among parents and teachers and disease spread and impact on different age and professional groups, participants agreed that direct data was missing on children's perspectives, including how they experienced distance learning and other measures. Little information was systematically recorded about how children felt and experienced the pandemic and pandemic interventions, such as distance learning. The PHAS school group, its collaborators in Skolverket and other stakeholders focused on having a children's perspective as a core consideration. However, they had to do this by inference from existing indirect evidence and by adopting clear principles, rather than through a direct dialogue with children.

Another specific collection of data that participants felt was largely missing during the focus period in 2020–2021 was detailed and current data on student absenteeism in schools. Collecting frequently updated and comprehensive data proved supremely difficult because of Sweden's myriad of large and small school organisations (see section above entitled 'Sweden's educational management structure'). Each school used their own systems and data reporting formats, and they were not obliged to report student absentee data at any frequency. As a workshop participant from Skolverket explained, until later in the pandemic, the only systematic information about how many students were staying home from school came through bi-weekly surveys. This gave a delayed and potentially erroneous understanding among the national agencies developing policy advice of how COVID-19 was affecting school operations. As the Alpha wave took off in late 2020, many school absences and closures were reactive to outbreaks locally, rather than proactively initiated to prevent spread or disruption. Closures were at the discretion of school management, based on their local situation. Student absences were crucial to these decisions because having many students absent would affect teaching. Firstly, student attendance numbers had an impact on the feasibility of in-person schooling. Secondly, calculations of whether distance or in-person instruction would be more effective for educating the student body also depended on attendance. Children staying at home would only have access to schooling if distance learning was available to them. Therefore with high levels of student absence, distance learning offered a better opportunity for helping the student body than in-person schooling. Without a coherent national picture, PHAS, Skolverket, and other agencies were not able to assess whether such developments were justified or should be pro-actively recommended for regions or the whole country.

Finally, workshop participants also mentioned that other data that could offer insights into schools' experience was difficult to assemble from private and municipal school organisations and other local actors. While the student absentee data would have been particularly pertinent, the separate data and systems of so many organisations also meant that PHAS, Skolverket and CoMOs in larger regions had great difficulty accessing local evidence. This meant that they could not know what was most pertinent for schools' decisions to conduct in-person schooling or distance learning. (CoMOs in some smaller regions were able to keep abreast of interventions through weekly network meetings with school leaders and principals in municipalities).

## 2.2 Guiding principles of the advice-making process

One insight emerging from workshop participants and interviews conducted by the AAR team was that certain principles were important for advice-making on schools. These were not always explicit, put in writing, or referenced during the advice-making process. Some were common priorities and shared understandings that the AAR has helped to surface. This section summarises the key guiding principles expressed by participants. Often, a number of participants mentioned the importance of specific principles, and some of these were repeatedly evoked during the workshop and in interviews. These principles were used to shape interpretations of evidence and reasoning on how school closures should be used to combat the waves of COVID-19 variants, such as Alpha.

### 2.2.1 Focus on children's interests

The first guiding principle in developing advice affecting schools and children was to focus on what was best for children, in line with the UN Convention on the Rights of the Child, as adopted into Swedish law on 1 January 2020. This focus helped create a balance with adult stakeholder interests that were more strongly represented in discourse, such as those of school staff or parents. As previously described, one manifestation was the focus on children's interests in the technical reports produced by the PHAS school group during each wave of COVID-19 from mid-2020 onwards. Participants pointed out that following this principle involved repeatedly raising the question of children's interests in deliberations on what should be done in schools, both in discussions at the agencies, between stakeholders, or in published analyses.

## 2.2.2 Adults are responsible for stopping disease spread, not children

Review participants emphasised the accountability and responsibility for carrying response burdens, noting that children's perspectives should be taken into account when developing COVID-19 measures for schools. Therefore, an important guiding principle appears to have become the fact that adults, rather than children, were responsible for stopping the spread of COVID-19. In other words, intervention options primarily inconveniencing or affecting adults were to be preferred over those that altered children's lives.

## 2.2.3 Keeping schools open

Keeping schools open was a guiding principle from the onset of the pandemic. As a senior PHAS official participating in the workshop explained: 'The precautionary principle should be to keep schools open' (rather than closing them as a precautionary measure). This principle continued to be important and gained new salience in the first part of 2021 when participants recalled that many schools were slow to transition back from distance to in-person learning, as previously described. In addition to the educational benefits of in-person learning, schools are an arena for more than education. They also help children generate and maintain social networks, and establish contacts with adults outside their families. Some review participants also pointed out that the Ministry of Education and Research had prioritised open schools - the principle that schools should be the last public venue to close and the first to open. As described in the timeline section above, a similar principle was expressed in several sets of government guidance, giving schools the discretion to use distance learning as the final resort after all other measures had been exhausted. Finally, the legal change to incorporate the UN Convention on the Rights of the Child into Swedish law on 1 January 2020 meant that education for children was defined as a vital societal function during the pandemic.

## 2.2.4 Equality

Equal access to schooling and opportunities for learning for all students is a legal obligation of Sweden's educational system, and working towards equality was also mentioned by several review participants as an important guiding principle of their work. Therefore, as previously described, although in-school education was preferred, confining schooling to in-person learning due to the spread of COVID-19 jeopardised the equality of education, due to the many absences among teachers and students. Under such circumstances, equality was better served by transitioning fully to distance learning, as was the case in certain parts of Sweden during the focus period. Similarly, equality was a primary motive for Skolverket's decision in December 2020 to suspend the spring 2021 national examinations for Grades 6 and 9 (see timeline above). Finally, participants agreed that equality was also a major concern in the drive to keep schools open, in the sense that educational conditions provided by schools at their own facilities were more equal for all.

## 2.2.5 Long-term perspective on the COVID-19 pandemic

The accumulation in March 2020 of catastrophic experiences with COVID-19 in Italy caused PHAS experts to move from viewing COVID-19 as a short-term outbreak to a longer-term challenge. This meant that longer-term interventions and broader consequences became more relevant for schools in Sweden. For instance, the effects on mental health and well-being might be relatively limited if schools were closed for a week or two, but they would increase in severity with a longer period of distance learning.

## 2.2.6 Education contributes to health – and health is necessary for education

Participants in the review shared a common understanding that health and education are interdependent. Educational experts participating from Skolverket focused on understanding the drivers of good education, emphasising how good health is crucial for good education. Health experts participating from PHAS focused on understanding the drivers of strong health, emphasising how strong education promotes strong health. Together, this showed a shared understanding that successful outcomes in health and education are interdependent.

## 2.2.7 Proportionality

Some workshop participants emphasised how important it had been for interventions affecting schooling to be proportional to the COVID-19 risks faced by students, teachers, parents and society in general. In literature, proportionality is often contrasted with precaution, where proportional responses mean that the degree of intervention to mitigate a threat is matched to the most probable threat. Meanwhile precautionary responses mean that interventions are made assuming the worst-case threat. Consequently, the review participants indicated that their priority during the focus period had been to determine interventions for schools in accordance with probable, rather than worst-case scenario health threats from COVID-19.

## 2.2.8 Communication

Being able to effectively communicate advice to relevant stakeholders is an important dimension of advice-making. Review participants emphasised the importance of multi-dimensional communication between national agencies and the public, with educational stakeholders, including schools, parents, teachers, students and related associations, with CoMOs and within and between national health and educational agencies and ministries. The review included discussion with participants about how communication was made effective. Participants also pointed out that all communication was based on the best available knowledge.

### *Clear communication with the public*

Most of Sweden's pandemic measures were based on voluntary commitments, including those related to schooling. Some parents feared sending their children to school for in-person teaching and some teachers were strongly in favour of closing schools due to the risks of COVID-19. Therefore, it was important for PHAS and other agencies involved to clearly communicate why and how measures were introduced and should be followed.

**Daily press conferences.** One method for communicating clearly with the public was joint press conferences which PHAS and other agencies conducted for a substantial period of the pandemic. During the first phase these took place on a daily basis, and during the focus period they were held twice per week. A workshop participant described the conferences as having become a public 'campfire', meaning that many people tuned in to the broadcast briefings every day to hear the latest update.

**Web-based Q&A pages for different stakeholders.** PHAS developed several question-and-answer pages and other web-based materials for specific stakeholders, such as school organisations and management, teachers, parents and children. These pages were continually updated and expanded as more was learned and new advice was developed. A private school principal who participated in the review emphasised that these pages and information published by Skolverket had been crucial for decisions on measures to take, suggesting that web-based information was a particularly valuable form of communication.

### *Communication between authorities*

**Coordination with County Medical Officers.** The focus period included intense communication between PHAS and CoMOs about how to manage schools. Review participants noted that PHAS-CoMO conversations and coordination were ongoing throughout the pandemic for many issues. CoMOs are responsible for disease control in their respective regions, but focus more closely on disease control than PHAS and have fewer resources for data gathering and analysis. As previously described, the PHAS mandate encompasses both communicable disease control and wider public health. As an example of information flows between authorities, communication and coordination were particularly relevant for advice-making related to Grades 7 to 9 (lower secondary school — högstadiet). A review participant with a senior role in the development of advice recalled that several CoMOs considered whether to recommend distance learning for lower secondary schools once they received the news that the Stockholm CoMO had made such a recommendation as of mid-December. In addition, as previously described, national advice in December 2020 and January 2021 related to upper secondary schools, and many local school organisations communicated with their region's CoMO about what to do to suit their specific circumstances and in response to local outbreaks.

**Routine and frequent horizontal and 'diagonal' meetings.** Participants repeatedly described the frequent meetings between different organisations as being crucial for communication and the development of advice. Having many short meetings developed into a routine practice between the PHAS school group and its collaborators. PHAS and Skolverket had regular weekly meetings along the lines of an inter-agency 'working group'. Although they had different mandates, the two agencies were able to develop an understanding of each other's viewpoints and needs. PHAS also had meetings with other Nordic health authorities, and participated in WHO and EU-level consultations.

Several workshop participants remarked on the unusual 'diagonal' link between the PHAS school group and the Ministry of Education and Research. This included direct conversations between PHAS and Ministry staff, and participants agreed that the diagonal link was crucial for quick and efficient communication on distance learning and other interventions.

## 2.2.9 Capabilities and resources

While resource scarcity and stress are common in crisis management, review participants offered a more nuanced picture of the situation for Swedish agencies and schools during the focus period. At the national level, many agencies had to put other internal work aside. For PHAS, other public health work was de-prioritised to enable staff to focus on COVID-19 measures. In addition, many employees frequently worked overtime. At the regional and school level, capabilities and resources were limited. Furthermore, staff at all levels experienced pressure and tensions with other actors that may have had an impact on their efficiency.

### *Strong national capabilities, but strained resources*

Participants tended to agree that national agencies' capabilities were adequate, but that there were not always sufficient resources available. Although the Swedish Government significantly boosted PHAS' resources during the pandemic, many staff worked long hours under great pressure. Several other agencies volunteered and seconded staff to PHAS. Similarly, Skolverket was able to call on staff from other education-related agencies in situations where they were short of staff.

**Availability of many types of expertise for the development of advice on school measures.** PHAS has a broad range of public health-related expertise readily available in-house to service its broad mandate. For the PHAS school group, formed in mid-2020 and focusing on COVID-19, this specifically meant that several kinds of epidemiological, public health and general analytical expertise were combined in the team. In addition, as described, the group collaborated closely with Skolverket and other partners able to provide non-epidemiological evidence. These extensive capabilities meant that PHAS and its partners could analyse a wide range of evidence related to public health measures for schools, and the use of distance learning in particular, rather than looking solely at epidemiological evidence.

**Coping with information requests and emails.** High volumes of information requests and emails were reported by participants. Meeting these requests required significant work from staff members. New COVID-19 variants, such as Alpha, also brought new waves of emails and information requests. Early in the pandemic, the PHAS communication office established routines for managing these flows by standardising responses and references and expanding the use of web-based information. Despite having this support for efficient processing, workshop participants reported significant backlogs in replying to requests.

**Coping with fatigue and stress.** PHAS leaders recognised early on during the COVID-19 pandemic that they were proverbially running a marathon rather than a sprint. Review participants recalled that by the focus period and later stages of the pandemic, they were dealing with a great deal of stress which had to be managed. As described above, national agencies were able to boost staffing and collaborate horizontally to try to cope with such pressure. PHAS participants recalled significant stress and fatigue, although this was (partly) mitigated as PHAS developed a culture of mutual internal support and informal de-briefings.

## 2.2.10 Local and regional limitations

Expansion of resources and capabilities, such as those at PHAS and Skolverket, were less available at regional and school level. As further described below, managing the pandemic in schools meant teaching-as-usual while implementing new measures to combat COVID-19, involving a significant increase in workload.

**Access to advice at school level.** While the primary focus of the review is the national level, the AAR team did have the opportunity to interview a private primary school principal, and representatives of a teachers' union and an upper secondary school student association. A principal from an upper secondary school also contributed a written testimonial. Review participants recalled significant pressure on schools to manage the pandemic. School leaders and organisations are educational rather than health experts, but nevertheless had to make decisions about how to protect student and staff health. The overall message from review participants, particularly those from Skolverket and individual schools, was that schools were generally able to cope. They collected information and recommendations, and absorbed these when making decisions.

However, it is also interesting that many participants agreed that the focus period presented problems which had to be counteracted by national agencies:

- school management lacked sufficient guidance from CoMOs and PHAS about whether and how to apply distance learning as cases increased and the new Alpha variant took off in late 2020;
- many 'reactive' school closures lasted too long, causing PHAS and Skolverket to have to encourage them to re-open, particularly after January 2021 (i.e. the second stage of the focus period described in the 'Timeline of events' sub-section).

Interviewees recalled that it was difficult to access advice and guidance specific to each local situation. The primary school principal recalled several related pressures and changes made to cope. COVID-19 caused significant additional work for all staff who had to keep teaching while implementing pandemic intervention measures. The teachers' union representative confirmed that teachers were asked to take on many non-teaching tasks, such as cleaning tables in classrooms.

To make decisions about implementing measures, schools sometimes had to improvise. For the school principal, normal lines of communication with the local municipality became unreliable in the pandemic because the municipality was dealing with an unusually large work burden of its own. The school came to depend strongly on a nationwide COVID-19 reference group, established within the Association of Independent Schools, for deliberations and analysis.

An association of this type was also possible because of trust in the national agencies. The principal recalled that information published by Skolverket and PHAS and press briefings were crucial inputs for the reference group and the school. The principal was able to create regular summaries of Skolverket and PHAS information for parents and teachers in their school.

When schools and related stakeholders sought specific advice for their own situations, it was less forthcoming. PHAS was relatively unresponsive to specific requests from the principal interviewed. The teacher's union representative said that Skolverket had been very responsive to its concerns throughout, but PHAS less so. Both experiences reflect the formal responsibilities of different agencies, where Skolverket advises schools while PHAS advises health actors such as CoMOs. From the onset of the pandemic, the teacher's union had pressed for a meeting to raise its concerns with PHAS, but that the agency only agreed to meet in November 2020. However, once that meeting took place, the agency was accommodating and responsive, particularly in support of the union's drive to protect teachers' health by advising that teachers should be able to prepare at home rather than at their workplace.

With regard to school closures during the focus period, the school principal had relied on advice from a local nurse practitioner to decide to move one class to distance learning for one day. This was the school's only instance of distance learning throughout the pandemic. The teacher's union representative reported more generally that teachers had become scarce in many locations, due to illness and lack of replacement or temporary teachers. The union surveyed its members in 2021, and found that a majority favoured keeping schools physically open for in-person learning. However, illness and staff shortages forced several schools to move to distance learning and close their physical facilities.

For upper secondary school students, the student association representative reported that distance learning had been a mixed experience. The association performed three online surveys to gauge its members' reactions to distance learning. These indicated that some students suffered from social isolation and poorer access to school-based services, while many were satisfied with and some potentially benefitted from distance learning. Hence, the student association reportedly had no strong stance on upper secondary distance learning.

Regional CoMOs' were limited in terms of access to expertise. For them, staff availability was an important constraint. CoMO representatives participating in the review described having to work with small numbers of expert staff to develop advice specific to their own region across a broad range of policy areas. These CoMO participants also reported that they had relied heavily on PHAS for information and recommendations. This significantly limited their ability to address the specific local situations faced by schools. Participants reported that it could also create excessive work burdens for CoMO staff. For instance, during the spread of the Alpha variant in early 2021, a significant proportion of the Stockholm CoMO's staff – Sweden's largest – was away on sick leave due to burn-out related to the continuous workload from the pandemic.

### 2.2.11 Tensions and pressures

Review participants recalled pressures and tensions generated by other actors during their work in producing advice. While specific effects on actual advice were not analysed at this workshop, external forces can certainly influence how the providers of advice experience their work, and how they think advice might be received by key audiences and others.

There was tension between different national agencies in terms of their risk assessments of schools as work environments. Review participants also recalled that there was tension during the focus period. While PHAS reported that schools were relatively safe places to work and study, the Swedish Work Environment Authority concluded that COVID-19 infection risks made schools high-risk workplaces. Review participants recalled that this created tensions between the two governmental agencies, and confusion in schools. This disagreement was flagged by participants but not explored in detail in the review because the Swedish Work Environment Authority did not participate. However, participants did note that the root of the tension was a difference between the agencies' risk focus. PHAS focuses on managing population-level health risk. The Swedish Work Environment Authority focuses on managing individual health risk. Therefore the agencies look at different kinds of risk in their assessments. Participants suggested that this difference probably had implications for how schools and teachers understood the risks of COVID-19 as it was not explicitly communicated by the agencies (the implications of this are beyond the scope of this AAR).

Regional CoMOs were under pressure from both pro- and anti-school closure groups. Review participants from the CoMOs recalled significant pressure during the focus period from parent and teacher groups supporting or opposing distance learning. While pro-distancing groups were reportedly in the minority, and sometimes only small in numbers, participants recalled that they were active and vocal in calling for prolonged or indefinite use of distance learning. Similarly, opponents of distance learning were vociferous and questioned recommendations on full or partial distance learning for upper secondary schools. The exact impact of this upon CoMO advice was unclear in the discussions with review participants. However, this kind of pressure presumably placed an additional burden on CoMO organisations to defend school-related public health recommendations and to balance between the demands of opposing school stakeholder groups (detailing such burdens and balances is beyond the scope of this AAR).

**Public harassment and expressions of support.** Members of staff at PHAS, including some review participants, received threatening or critical messages from members of the public by email and on social media. Review participants recalled that such harassment added to their feelings of fatigue and stress, and negatively affected staff capability and resources for advice-making. However, participants also recalled spontaneous acts of public support. Many flower arrangements arrived at PHAS, particularly after the agency's Director-General publicly admonished incidences of staff harassment. A senior participant in the workshop also recalled people in the street coming up to offer praise for the agency's management of the pandemic. Therefore PHAS participants suggested that the stress induced by harassment was to at least some degree counteracted or outweighed by expressions of support, adding to PHAS' ability to cope during the crisis.

## 2.3 Summarising the advice-making process during the focus period

### 2.3.1 Generating advice to limit distance learning through clear principles and broadly scoped analysis

The advice-making process in Sweden concerning distance learning during the focus period was based on broadly scoped analysis, coupled with clear principles. The PHAS school group was at the centre of this work, and drew on close collaboration with the management at PHAS, key staff at Skolverket and other stakeholders. The efforts involved focusing attention on analysis of both the epidemiological and the social impacts. Those providing advice had overt and persistent commitments to guiding principles, such as focusing on the interests of children and retaining in-person learning. They also drew on information communicated from regions, schools and related associations, such as contact tracing data, signals concerning reactive school closures and surveys of schools that Skolverket and others conducted and supplied.

There were significant pressures on the staff and organisations involved, from the national agencies and ministries through to schools and families. Nevertheless, timely national guidance was developed, and had a strong impact on how schools responded to increased case numbers and the emergence of the Alpha variant. From the analysis presented in this AAR, effective advice-making was made possible by four factors:

- The advice was framed by PHAS' broad mandate, enabling the available relevant epidemiological evidence to be combined with wider impact evidence on children at different ages, their families, and school employees.
- A set of strong existing principles linking children, education and health, and prior knowledge of school closures, applied to distance learning.
- Newly-forged horizontal and diagonal channels had been set up to exchange information and advice between the national health and educational agencies, student and teacher organisations, counties, and municipal and private school managers.
- The fact that CoMOs and schools, along with their students, parents and teachers generally followed the public health advice given by the PHAS.

The specific national-level advice relating to upper secondary schools from December 2020 until April 2021 balanced the drive to follow evidence and apply guiding principles that retained in-person instruction, with a push to reduce spread through less crowding in public transportation, and limit the adverse impacts of distance learning on older students and their families. Therefore the advice to close upper secondary schools for in-person teaching in the weeks surrounding the 2020 Christmas holiday, and replace full closures with the 80–20 rule from 25 January until 1 April 2021 were designed to offer clear and uniform national guidance during a period of uncertainty and unprecedented disease spread. During this period there were also widespread reactive school closures due to local outbreaks, coupled with a reluctance to re-open schools for in-person learning. Moving upper secondary schools to distance learning while keeping other schools open reduced pressure on public spaces. This had less of an impact than alternatives would have had on families' and children's well-being, social services and business continuity. Providing guidance for upper secondary schools to gradually re-open by applying the 80–20 rule helped schools overcome resistance to or fears concerning the return to in-person schooling. Setting and confirming 1 April 2021 as the national deadline for full re-opening further encouraged schools to normalise upper secondary education.

## 2.4 Lessons learned and good practices – what should and should not change?

On the basis of questions about what had gone well/not so well in the advice-making process, review participants generated several lessons learned and good practices. Participants suggested lessons both from what worked well and could be generalised, and from what worked less well and should be avoided. In turn, good practices suggested by participants included specific mechanisms or initiatives developed during the process that they considered exemplary. The AAR team gathered all participants' suggestions and categorised them according to their functions in the advice-making process.

For the lessons listed by review participants, the AAR team identified three functional categories: (i) Organization, (ii) Communication, and (iii) Research or advice. Table 1 summarises the 19 lessons identified in this focused AAR. This section describes each lesson. The numbering is only for ease of reference and does not reflect any order of significance or rank.

**Table 1. Lessons from the advice-making process related to distance learning during the focus period**

Organization	Communication	Research/advice
1. Maintain clear understanding of agency's mandate and goals.	10. Identify stakeholders early and during peacetime.	15. Standardise data and formats to enable data collection across regions, municipalities, and school organisations.
2. Risk of losing useful networks and connections post-crisis.	11. Communicate reasons and evidence for actions.	16. Create an international repository for national technical analyses.
3. Clarify crisis versus normal roles.	12. Communicate why you cannot do a particular thing.	17. Retain complexity in analyses of what must be done.
4. Have a 'can-do' attitude – take responsibility.	13. Collect the viewpoints of children and other stakeholders.	18. Perform broad public health research, including multiple perspectives.
5. Be transparent and flexible.	14. Communicate with vulnerable populations.	19. Prepare to carry out rapid research (research preparedness).
6. Coordinate across agencies.		
7. Collect data at the time it is most needed, and share it to avoid duplicated effort.		
8. Draw on diverse expertise and resources.		
9. Short and frequent meetings.		

### 2.4.1 Organisational lessons

- Maintain a clear understanding of the agency's mandate and goals. In the fluid situation when COVID-19 guidance was being developed, when many actors could be involved, agencies could find themselves acting beyond the scope of their mandate. A key lesson is to ensure that agencies are responding to issues within their own areas of responsibility.
- Risk of losing networks and connections after the crisis. Many review participants described useful connections forged during the pandemic between 'silos' (individual agencies and ministries) and hierarchies, such as the health policy and educational policy areas. Yet, at the time of the review, several participants noted that horizontal ties were lessening and a clear sense was developing that silos could be fully re-established. The lesson from the provision of school-related advice was that organisations and staff should make efforts to preserve and strengthen horizontal and diagonal connections, particularly where these would help work in peacetime and during future crises.
- Clarify crisis versus normal roles. Several review participants felt that crisis work modes were maintained, with no clear point of return to normality. Therefore, identifying when or how to terminate the crisis work mode, and balancing business-as-usual against crisis-related responsibilities were key concerns among participants. One danger is high stress levels among staff. Another is that normal checks and accountability mechanisms may be suspended during crises, incurring risks to work integrity. While the focus period and other stages of the COVID-19 pandemic were external and therefore their impact was uncontrollable, crisis work mode termination is also an issue for management. Even if a public health event continues, organisations need to determine when normal procedures can and must be re-asserted. Similarly, maintaining or re-establishing business continuity is a key issue.
- Have a 'can-do' attitude – take responsibility. Several review participants noted that there was a strong can-do spirit among the PHAS staff and their collaborators. Many recalled a strong willingness among staff to take responsibility for tasks and trust-based leadership helped create an agile response during the focus period and other stages of the pandemic. Review participants also recalled that the successful development of advice was linked to a persistent solution-oriented focus. Therefore one lesson learned is that response is helped by staff who take responsibility and adopt a 'can-do' attitude.
- Be transparent and flexible. Review participants recalled that the advice-making process for school interventions worked best when contributors were transparent about their evidence and reasoning, and flexible in developing recommendations. This encouraged deliberations towards commonly agreed advice for each new situation that the PHAS school group and its collaborators at Skolverket needed to respond to, and prevented intractable disagreements. Therefore transparency and flexibility are likely to be important in future efforts.
- Coordinate across agencies. Review participants agreed that collaboration and coordination between the health and educational agencies was highly effective. For instance, experts from both discussed advice, and the agencies coordinated messaging to stakeholders. Therefore, another key lesson learned is the importance of interagency coordination in developing future school-related pandemic interventions.
- Collect data when needed, and share it to avoid duplicated effort. Data are crucial for evidence-based advice-making. However, collecting data requires significant organisational resources and expense, and may involve significant time and effort from other parts of society (e.g. surveys are expensive and time consuming, and impose upon respondents). Participants noted that efficiency in future responses would be increased by establishing and maintaining ways in which to identify and share new data. This would include efforts to develop new data as it is required, to pool it, and ensure common awareness of and access to it.

- Draw on diverse expertise and resources. Review participants recalled that broad-based teams comprising health and educational experts, with several types of analytical capability were useful when discussing and developing workable schools intervention advice. Therefore diverse expertise and resources are likely to be important in future efforts.
- Short and frequent meetings. Many participants emphasised that meeting formats were important for collaboration and discussions on advice. Short and frequent meetings were particularly helpful because they ensured up-to-date information for all those contributing to the advice, and that relevant participants and resources could be assembled when required, without wasting time.

## 2.4.2 Communication lessons

- Identify stakeholders early on and in peacetime. As previously described, Sweden's education sector includes a multitude of organisations, particularly at the level of schools and school owners. Some of the review participants had had difficulty identifying relevant information that they could apply to their specific situations during the focus period or other stages of the pandemic and they recalled being left to fend for themselves or struggling to gain attention from public agencies. One difficulty during the COVID-19 pandemic (and in many other crises) is that government agencies have no time or resources to comprehensively identify all stakeholders and establish new relationships. While PHAS and Skolverket by all accounts enjoyed high levels of trust across Sweden's society during the COVID-19 pandemic, and many stakeholders depended on the agencies for advice, it is less clear whether the agencies were as well connected to relevant stakeholders as they could have been. Review participants agreed that such understanding and connectedness is practically unachievable when crises demand the full commitment of organisational resources. Therefore, a key lesson is to map possible response stakeholders and keep them in the loop during peacetime operations in order to enhance preparedness, while taking into account each stakeholder's roles and responsibilities in different circumstances (for Swedish government agencies, these are the same in peacetime and during crises).
- Communicate reasons and evidence for actions. Many review participants mentioned that public communication from PHAS was highly effective. Some also emphasised that explicit presentations of the rationales for the agency's recommendations were crucial to persuading and guiding schools, teachers, parents, and students. A key reason for this is that Sweden's approach during public health events is voluntarist, relying on organisations and individuals to decide the best action for themselves. Therefore, a key lesson is that recommendations should continue to be accompanied by explicitly communicated reasoning for any action.
- Communicate why something cannot be done. As previously described, vocal groups among teachers, parents, and independent academic experts advocated for comprehensive school closures. In addition, the high level of new cases across Sweden during the focus period meant that many schools moved to full distance learning in reaction to widespread illness among their teachers and students, and some were reportedly hesitant to resume in-person instruction. Therefore review participants emphasised that a key lesson was to clearly communicate the rationale against ineffectual actions, such as distance learning.
- Collect viewpoints of children and other stakeholders. As previously described, some review participants recalled having difficulties in obtaining specific guidance from local or national agencies. In addition, many participants emphasised that they had consistently sought to focus on children's interests and the consequences of pandemic responses for children. However, they had difficulty gaining actual insights into how children felt or were experiencing distance learning and other school interventions. Therefore, a key lesson for future response efforts is that mechanisms need to be put in place to systematically listen to children and other stakeholders.
- Communicate with marginalised populations. Similarly, review participants emphasised that vulnerable groups in Sweden could be difficult to reach and hear when developing advice related to schools. Participants agreed that vulnerable groups in society may be disadvantaged by distance learning because they have relatively few resources and less access to public information (for example, because parents may have poor comprehension of Swedish). Such potential disadvantages have implications for the ability of PHAS and its collaborators to secure equality of educational opportunities and outcomes when schools move to distance learning. Special attention should be given to vulnerable groups to ensure that they have the information and resources they need. Therefore a key lesson for future response efforts is that it is important to find ways to systematically communicate with vulnerable population groups.



### 2.4.3 Lessons relating to research or advice

- Standardise data and formats to enable data collection across regions, municipalities and school organisations. Sweden has relatively comprehensive data available through its registries and routine health surveillance and these were important in the response effort. However, the pandemic also revealed important gaps, particularly in the area of schools. An important example quoted by review participants was data on student absenteeism from schools, which proved impossible to collect from Sweden's more than 1 000 school owners. Therefore a key lesson is that crucial data reporting types, frequencies and formats should be standardised in the educational area and beyond.
- Create an international repository for national technical analyses. Review participants discussed their interactions with and reliance upon evidence from other contexts. As previously described, international evidence was crucial at particular stages, such as Chinese and Italian data in early 2020 for a preliminary understanding of the effects of COVID-19 on children. However, in other situations, such as the Swedish agencies' discussions with their Nordic counterparts on school interventions, the evidence base for (sometimes different) advice developed in other countries was not always clear and available for consideration. Therefore an international repository for national technical analyses would be useful for future pandemic response efforts.
- Maintain breadth in analysis in order to consider the full complexity of issues. As described, the PHAS and its interlocutors at Skolverket and elsewhere sought to take broad views of distance learning and other interventions, combining epidemiological and non-epidemiological evidence. Review participants emphasised that analytical breadth is crucial for the development of good advice, and therefore this breadth should be maintained for future response efforts in the educational area.
- Conduct broad public health research, including multiple perspectives. A complement to breadth of analyses is taking a broad view of public health, as encouraged by the PHAS mandate to monitor communicable diseases and other aspects of public health. This includes breadth in the types of health outcome considered, and the perspectives and interests included. Review participants pointed out that researching multiple outcomes and viewpoints would be important for future response efforts.
- Prepare to do rapid research. Review participants recalled the urgent need for research findings that characterised several episodes in the pandemic – e.g. to overcome uncertainties about whether schools should move to distance learning during the focus period. Such rapid research results were not always easy to achieve during the pandemic. Therefore research for pandemic preparedness should be strengthened by developing better procedures for rapid research.

### Good practices

After examining the good practices in schools-related advice-making processes highlighted by the review participants, the AAR team identified two functional categories: (i) Managerial practices and (ii) Research and advice practices. Table 2 summarizes the 12 good practices identified. This section describes each good practice. The numbering is only for ease of reference and does not reflect any order of significance or rank.

**Table 2. Good practices in the advice-making process related to distance learning during the focus period**

Managerial	Research and advice
1. Unified public health agency.	8. Technical reports on schools – comprehensive, updated, easy-to-read, distribution list.
2. Horizontal collaboration, including formal and informal interaction, and short, frequent meetings.	9. Consistency between recommended measures.
3. Using guiding principles that are shared.	10. Continual re-evaluation of policies and practices.
4. Working groups with combined skills – focused group combinations (region).	11. Broad-based research, including epidemiology, social determinants of health, behavioural sciences, and law.
5. Check-lists and daily to-do lists as part of the pandemic response, priorities and responsibilities.	12. Publish research reports and correct information about the pandemic and measures advised.
6. Deliberative work group on schools combining multiple specialties.	
7. Trust-based leadership.	

## 2.4.4 Good managerial practices

- Unified public health agency. PHAS combines multiple and broad communicable disease and public health analytical specialisations in support of its mandate. Review participants believed that this helped the agency look at distance learning and other school interventions from a broad health perspective. While many countries have multiple national health agencies that can have difficulty combining and coordinating analyses, PHAS' unified structure enabled evidence-based analyses of school interventions and their consequences across many relevant health outcomes and stakeholder interests.
- Horizontal collaborations, including formal/informal interaction, and short, frequent meetings. The PHAS school group and its collaborators in Skolverket and elsewhere interacted formally and informally, enabling rapid and effective communication between the entities. Formal ties were established between the agencies for the sake of developing school-related pandemic response guidance. Staff members also took initiatives to form informal bonds, creating a dense network of connections that removed barriers to communication and transparency. Finally, the network established a practice of short, frequent meetings which made meetings less burdensome and easier to convene, ensuring that relevant staff were continually updated and involved in deliberations.
- Using shared guiding principles. Guiding principles were important common ground for PHAS and its network in developing advice for schools. Review participants agreed that the use of these principles was important as it made the reasoning behind recommended actions easier to present. Moreover, following the same principles ensured greater consistency across recommendations.
- Working groups with combined skills, and focused group combinations. CoMOs faced significant constraints on expert staff. Participants in the review representing CoMOs said that they coped by creating work groups focused on specific problems. The CoMO would then mix and recombine its groups when skills present in one group were needed in another. Work focus areas were retained but staff switched between them as necessary.
- Check-lists and daily to-do lists should be part of the pandemic response, priorities and responsibilities. PHAS school group participants described a good practice of comprehensively using check-lists and daily to-do lists with staff names attached, to collectively keep track of tasks and progress.
- Deliberative work group on schools combining multiple specialties. The PHAS school group had members from several different divisions and analytical specialisations within the agency. They also collaborated closely with Skolverket and other partners to obtain the relevant expertise beyond health. Participants agreed that this multi-disciplinary practice was important to be able to consider a broad range of consequences for children and other affected groups resulting from education-related measures.
- Trust-based leadership. Review participants emphasised that trust between the levels of the PHAS organisation (rather than a regime of intrusive command and control) was important for the development of sound and nimble advice. This trust went both ways: agency leaders trusted their staff and task forces, such as the school group, to be highly competent and responsible. Staff trusted agency leaders to take them in the best direction and represent them in public and stakeholder venues.

## 2.4.5 Good research and advice-making practices

- **Technical reports on schools.** The PHAS school group developed a comprehensive technical report in mid-2020, including literature reviews, data and analyses upon which it based its recommendations concerning school closures and other measures. The report was updated and re-issued during each subsequent wave of COVID-19. In turn, PHAS distributed the report and made it publicly available. Review participants noted that the report ensured the transparency of their advice and made it easier to respond to freedom of information requests and critical inquiries.
- **Consistency between recommended measures.** Review participants emphasised the importance of consistency between recommendations. This was partly for the sake of integrity (that measures were consistent with principles and evidence) and partly because decisions on what action to take against COVID-19 were at the discretion of schools and school owners. Therefore, advice from PHAS and other national agencies depended on persuading schools, parents and teachers. Consistency helped the public to understand and avoided confusion.
- **Continual re-evaluation of policies and practices.** Review participants from the PHAS school group recalled that they had reconsidered the issue of distance learning repeatedly, at least once during every new wave of COVID-19. A senior expert explained that each wave presented a new situation, and potential interventions needed to be re-assessed for their health efficacy and broader consequences.
- **Broad-based, multidisciplinary research.** Review participants emphasised that their ability to take a broader perspective on consequences and affected groups depended on diverse established capabilities within PHAS and its broader network of collaborating agencies. These established capabilities included research and analytical expertise in epidemiology, social determinants of health, behavioural sciences and law.
- **Publish research reports and correct information about the pandemic and measures advised.** PHAS published several research reports related to schools during the focus period, with implications for the appropriateness of moving to distance learning. Review participants stressed that continually publishing relevant new research and correct information about the development of the pandemic was a good practice in the COVID-19 response. Such transparency can make the reasoning and evidence for recommendations clear (or at least available) to stakeholders, media and the general public.

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48. Public Health Agency of Sweden (PHAS). Har COVID-19-pandemin och smittskyddsåtgärderna påverkat gymnasieungdomars och universitets- och högskolestudenters hälsa och levnadsvanor? Solna: PHAS; 2021. Available at: <https://www.folkhalsomyndigheten.se/publikationer-och-material/publikationsarkiv/h/har-covid-19-pandemin-och-smittskyddsatgarderna-paverkat-gymnasieungdomars-och-universitets-och-hogskolestudenters-halsa-och-levnadsvanor/?pub=91462>

# Annex 1. Informed consent form

## After-action review of evidence-based decision-making relating to school closures during COVID-19

The goal of this project is to conduct an after-action review (AAR) on evidence-based decision making (EBDM) during COVID-19. This AAR looks at the advice-giving process in Sweden for the continued operation of schools during COVID-19 with particular emphasis on the focus period (November 2020 until April 2021). The central question is how evidence has been used to inform recommendations.

You have been identified as a stakeholder who was part of the advice-making process, and this is why you are asked to participate in this exercise.

- Your participation in the interview/workshop is entirely voluntary, and if you agree to take part, you are free to change your mind or withdraw at any time without consequences.
- If you agree to take part in the interview/workshop, any processing of your personal data will comply with Regulation (EU) 2018/1725 and Swedish national law. ECDC is the data controller of this processing operation, and the data is being collected and stored by the Amsterdam Institute for Global Health and Development on its behalf, in its role as processor of the data.
- With your agreement, we may want to quote some of what you say in a country and/or aggregated report, but we will do so in a way that ensures that it cannot be ascribed to you.
- With your agreement, we may want to include your name and institutional affiliation in an annex that lists those who have contributed to this case study project.
- With your agreement, we may want to record the conversation which will only be used for our notes and will be deleted after the project finishes.

As a data subject, you have the right of access and rectification of your personal data. Feel free to ask any questions you may have about the interview or the processing of your personal data. If you have questions after the interview/workshop is over, please contact Jonathan Suk at ECDC: [Jonathan.Suk@ecdc.europa.eu](mailto:Jonathan.Suk@ecdc.europa.eu)

Please check 'yes' or 'no' by each of the following statements, and then sign and date the document in the space provided below.

	Yes	No
1. I agree for this conversation to be audio recorded and understand that the recording will be used for notetaking only and deleted after the project.		
2. I agree to having my words used as quotes in the final report, and I understand that my words will be anonymised so that it will not be possible to ascribe any of my comments to me.		
3. I agree to having my name and institution included in an annex at the end of the final report that lists those who have contributed to this case study project.		

Signature: \_\_\_\_\_

Name (in CAPITALS): \_\_\_\_\_

Place & Date: \_\_\_\_\_

## Annex 2. Workshop programme overview

### Evidence-based decision-making – After-action review- Sweden 2022

#### Programme overview

Date	Activities
<b>October 12 – Workshop ‘The use of evidence’</b>	
<b>9:00 – 10:00</b>	<p><b>Session 1: Introduction of project</b></p> <p>The goal of the AAR is to foster opportunities for discussion and dialogue on the role of evidence in decision-making regarding technical advice for the re-opening of secondary schools for physical attendance during the period December 2020 to June 2021. Participants are invited to reflect on the advice-making process and help identify best practice suggestions for improvement.</p> <ul style="list-style-type: none"> <li>• Welcome (5 min.) – Agneta Falk Filipsson, Public Health Agency of Sweden</li> <li>• Brief round of introductions (15 min.)</li> <li>• Introduction of project (10 min.) – Jonathan Suk, ECDC</li> <li>• Review of AAR activities (20 min.) – Olivier Rubin, Professor Department of Social Sciences and Business, Roskilde University &amp; Erik Bækkeskov, Senior Lecturer, Melbourne University.</li> </ul>
<b>10:00 – 10:30</b>	Coffee break
<b>10:30 – 12:00</b>	<p><b>Session 2: What happened and who was involved?</b></p> <p>In this session we plan to discuss a preliminary timeline of key decision/advice giving events and trace the processes (formal and informal) related to technical decisions regarding formal advice relevant to the reopening of secondary schools during the period. This also entails mapping out the various stakeholders that participants had contact with during the response, including agency roles.</p>
<b>12:00 – 13:00</b>	Lunch break
<b>13:00 – 16:00</b>	<p><b>Session 3: Why did the decision develop the way it did? How was evidence used?</b></p> <p>Here we will discuss how evidence influenced the advice-giving decision-making process, as well as what evidence was available and how it was used (or not used). The purpose of the session is not to uncover ‘mistakes’ or ‘good decisions’ (with the benefit of hindsight), but to understand why the decision-making dynamics unfolded as they did and what role evidence played in these dynamics. Participants will be asked to identify how and when evidence was brought into the decision-making process, and how it was responded to.</p>
<b>14:30 – 15:00</b>	Coffee break
<b>October 13 – workshop ‘Learnings’</b>	
<b>09:00 – 10:30</b>	<p><b>Session 4: How did decision makers make sense of the situation?</b></p> <p>In this session, participants’ opinions will be collected to get a variety of perspectives on why the decision-making process for formal advice unfolded as it did. Participants should also reflect on how various professional backgrounds and experiences; institutional practices and procedures, and the type and availability of evidence defined the advice-making process.</p>
<b>10:30 – 11:00</b>	Coffee break
<b>11:00 – 12:00</b>	<p><b>Session 5: What can be learned? Any need for change? How can new initiatives be implemented and monitored?</b></p> <p>Identify and discuss major lessons learned about the use of evidence during key decision-making processes regarding advice related to the re-opening of secondary schools for physical attendance. What can be done to improve gaps or challenges and to sustain best practice?</p>
<b>12:00 – 13:00</b>	Lunch break
<b>13:00 – 14:00</b>	<b>Session 5 (continued).</b>

## Annex 3. Methodology

### Methodology of the AAR

This section describes each step in the AAR process in question. The primary component of this AAR was an in-country visit. It consisted of a two-day consultative workshop and seven semi-structured interviews. The workshop involved twelve participants, from PHAS, Skolverket and the CoMOs of the Stockholm and Västerbotten regions (some participants were present for one day only). Seven supplementary interviews were conducted with key stakeholders. The text refers to all respondents as 'review participants'.

All review participants were informed of the purpose of the AAR and signed informed consent forms (see 'Ethical considerations'). The AAR team recorded and transcribed workshop conversations and interviews. For the sake of eliciting candour, the participants joined on condition of anonymity, meaning that quotes, paraphrasing and summaries of their recollections and viewpoints were not attributed to named individuals.

### Preparation

#### Ongoing consultations with PHAS staff

In preparation for the workshop, key representatives from PHAS met online with ECDC staff and the Amsterdam Institute for Global Health and Development (AIGHD) consultants on 4 May, 16 May, 13 June, and 19 September 2022. The meetings included discussion of the purpose and focus of the AAR, scheduling for the country visit, agreement on the format and scope of the workshop, and exchange of key documents of relevance to the advice-making process concerning school closures during the focus period.

#### Primary and secondary literature

The following documents were consulted in preparation for the country visit:

##### *Primary documents*

1. PHAS 2020-2021 timeline of measures recommended in area of children and young people ('Tidslinje: åtgärder som påverkar barn och unga').
2. Olofsson T and Vilhelmson A. (2022). 'Dataset: COVID-19 Epidemic Policy and Events Timeline (Sweden)', Data in Brief, vol. 40, no. 2, Article ID 107698 <https://doi.org/10.1016/j.dib.2021.107698>
3. Summaries from meetings during late 2020 and early 2021 between representatives of the Ministry of Education and PHAS (10 documents).
4. PHAS and Swedish Government media releases and supporting documents about specific school-related recommendations from November 2020 to April 2021 (12 documents – see References).
5. Legal bases for school-related pandemic measures, including acts on schooling and communicable diseases, ordinances and rules for education during the COVID-19 pandemic, the legal mandate of PHAS, current directions from the Swedish Government ('Regleringsbrev budgetåret 2022') and the list of notifiable diseases (seven documents).

##### *Secondary documents*

6. PHAS 2020–2021 research reports and documents related to children and young people and schools as workplaces (11 documents – see References).
7. Coronakommissionen (2022). 'Sverige under pandemin' [Sweden during the pandemic]. SOU 2022:10.
8. Skolinspektionen (2020). Utbildning under påverkan av coronapandemin: Sammanställning av centrala iakttagelser från en förenklad granskning av 260 grundskolor och grundsärskolor. [The effect of the COVID-19 pandemic on education: an overview of the main observations from a simplified inspection of 260 primary schools and special primary schools].
9. Askim J, Bergström T. (2021). Between lockdown and calm down. Comparing the COVID-19 responses of Norway and Sweden. *Local Government Studies*, 1-21.
10. Cronert A. (2022). Precaution and proportionality in pandemic politics: democracy, state capacity, and COVID-19-related school closures around the world. *Journal of Public Policy*, 42, 705-729.
11. Laage-Thomsen J, Frandsen SL. (2022). Pandemic preparedness systems and diverging COVID-19 responses within similar public health regimes: a comparative study of expert perceptions of pandemic response in Denmark, Norway, and Sweden. *Globalization and Health*, 18(1), 1-18.
12. Lindblad S, et al (2021). School lockdown? Comparative analyses of responses to the COVID-19 pandemic in European countries. *European Educational Research Journal*, 20(5), 564-583.
13. Loima J, (2020). Socio-educational policies and COVID-19 – A Case Study of Finland and Sweden in the Spring 2020. *International Journal of Education and Literacy Studies*. Available at: <https://eric.ed.gov/?id=EJ1264598>

14. Olofsson T, et al. (2022). The making of a Swedish strategy: How organizational culture shaped the Public Health Agency's pandemic response. *SSM – Qualitative Research in Health*, 2(Dec): 100082. Available at: <https://doi.org/10.1016/j.ssmqr.2022.100082>
15. Petridou E. (2022). Following the Public Health Agency's Guidelines: The Swedish Approach to the COVID-19 Pandemic. In Zahariadis, N. et al (eds.) *Policy Styles and Trust in the Age of Pandemics*, Routledge, 211-228.

## In-country visit

### *Consultative workshop*

Participatory consultation is the core activity of the AAR. This involves a two-day workshop to discuss the use of evidence in the advice-making process with key staff from the organizations involved in the recommendations relevant for schools during the focus period. PHAS was the primary national actor providing public health information and advice for the schools, in close collaboration with Skolverket. As described above, CoMOs also had the authority to adjust and amend PHAS advice in order to adapt it to regional circumstances.

PHAS was the main organiser of this AAR, handling all the logistics such as sending out invitations and hosting the workshop. The two-day consultative workshop took place on 12–13 October 2022 and involved key PHAS staff (eight participants), key Skolverket staff (two participants), and selected CoMO representatives (two participants). Most participants were present for both days, but a few only attended for one day. The workshop was facilitated by two consultants from AIGHD and attended by two ECDC staff. A third consultant from AIGHD took notes. The AIGHD consultants and ECDC staff are referred to as the 'AAR team'. The workshop took place at PHAS' premises in Solna, Sweden.

The agenda for the consultative workshop is attached in Annex 2. The first day of the workshop focused on agreeing on a timeline of events; mapping out who was involved in the advice-making process and in what capacity; as well as discussing why the advice-making processes developed as they did, with a focus on use of evidence. The purpose was to reflect on how evidence influenced the advice-making decision-making process, as well as to determine what evidence was available and how it was used (or not used). The second day focused on how people made sense of the situation, identifying and discussing major lessons learned about the use of evidence during key advice-making processes relevant for schools. The consultative workshop was run using specific theoretical tools and methods, most notably the evidence-based public health framework and the bounded rationality/sense-making literature (see 'Analytical approach'). On 14 October 2022, the consultants presented a hot debrief with broad-based participation from relevant stakeholders invited by PHAS.

## Interviews

The AAR team conducted a total of seven interviews with stakeholder representatives. Interviewees were identified and scheduled by PHAS. The interviews were semi-structured and open-ended, allowing them to cover comparable themes while also leaving room to pursue specific issues raised during the conversations (see 'Interview guide' Annex 3.) Four interviews were conducted face-to-face at the PHAS offices in Solna. Three interviews were conducted online in real time. Each interview took about one hour.

The seven interviewees included a former senior PHAS expert, the current PHAS Director-General, a private primary school principal and representatives from the Ministry of Education and Research, an association of upper secondary school students, a teachers' union, and the Swedish Association of Local Authorities and Regions (SKR). In addition to the interviews, an upper secondary school principal who was unavailable for an interview added input through a written testimonial describing pandemic response experiences at their school.

## Analytical approach

The data collected through the consultative workshop and interviews seeks to inform the advice-making process surrounding distance learning during the focus period and to determine lessons learned. Key theoretical and methodological tools and techniques were used to gather and interpret the data. The interviews were semi-structured and based on an interview guide (Annex 3). To facilitate discussions, the consultative workshop made use of a combination of written questions and selected statements from academic papers, guidelines and risk assessments. The AAR team presented a tentative timeline that was subsequently discussed and augmented. Although this established a common understanding of key events, it also revealed that key events had been experienced differently. Participants were also asked to draw egocentric stakeholder maps illustrating the most important actors in the advice-making process for school closures. This included reflecting on actors that they thought had been missing in the process. This exercise helped to visualise important inter-relationships and was also used for a more thorough aggregate mapping exercise presented in this report (see Stakeholder Mapping).



The discussion of evidence was guided using a simplified version of the evidence-based public health framework illustrated in Figure 1 [42]. This framework focuses on a broad range of factors that can shape advice-making, including (i) the availability of the best scientific evidence (what type of evidence is used and how it is interpreted); (ii) the state of crisis communication, both internally in the emergency management system and also externally to the public, and (iii) the organisational capabilities and resources of the advice-making and implementing bodies. The framework was useful for encouraging review participants to think through their advice-making process and to realise that it is dependent not only on evidence but also other important external factors. In short, the framework embeds the advice-making process in a larger socio-political environment. The framework, with its three overlapping factors, is used to structure Section 2 on the advice-making process.

## Reporting

Reporting on key preliminary findings was carried out continuously during the visit, especially through the hot debriefing on 14 October. This report was subject to feedback and approval internally by ECDC and PHAS. Stakeholders participating in the AAR workshop were also given the opportunity to read the report and provide feedback.

## Ethical considerations

Written informed consent was obtained from all respondents. The consent form is included in Annex 1. The objective of the AAR was explained to the interviewees and workshop participants, and they were assured of their right to withdraw from the interview/workshop discussion at any time. Unless respondents explicitly confirmed in writing that they were willing to go on record, they remained anonymous in the reporting. Anonymity was respected for all interviewees, and where this was impossible (due to easily identifying traits) the interviewees were explicitly made aware of this fact. All interview and field note materials were stored securely at AIGHD in compliance with Regulation (EC) No 45/2001 on the storage of personal data and ensuring of citizens' privacy. Only the AAR team had access to these materials and any recordings were deleted prior to the publication of this report.

## Annex 4. Interview instrument

### Part 1: What happened, who was involved and how did they make sense of the situation?

#### Involvement

1. What does your institution do? What is your role?
2. What was the role of your institution in the advice giving process? How were you included?
  - a. If not included: Did you want to be? Why were you not involved in the advice-making process?
3. *If you played a role in advice-making: can you map out the various stakeholders or groups that you were involved in during the advice-making process?*
  - a. If you were to rate each of these stakeholders by the amount of influence they had on the decision-making process, who would have had the most influence (1=low, 2=medium, 3=high)?
  - b. If you were to rate each of these stakeholders by the level of interest they had in the decision, who would have had the highest level of interest (1=low, 2=medium, 3=high)?

#### Sense-making analysis

4. When you first heard about the Alpha variant, to what extent could you apply your previous experience with similar events?
5. Using the Cynefin framework, which of the following descriptions fits best with the way that you experienced the event: complex, complicated, chaotic or obvious/simple?

### Part 2: Why did it happen? How did evidence contribute? Why did the decision develop in the way it did?

**For reference and probing: major themes of the evidence-based public health framework, by category**

Research evidence	Resources	Population characteristics	Environment and organisational context
Objectivity	Human resources and institutional memory	Socio-political factors (populism, economic interests, etc.)	Intersectoral
Uncertainty	Capacity for knowledge translation	Cross-border issues	Economic
Time pressure	Situational awareness	Media influence and citizen participation	Institutional and legal

#### Evidence in advice-making

6. What struck you as the most influential aspect of the way in which the advice-making process developed? Why?
  - a. Think beyond research evidence, also think about resources, population characteristics or environmental and organisational contexts.
7. To what extent do you feel that the advice developed was 'evidence-based'? Why/why not?
  - a. What value and weight did experts and decision-makers place on different pieces of evidence?
  - b. What happened when there was no conclusive scientific evidence available?
  - c. What types of scientific evidence were looked at? How was this evidence gathered? How was it interpreted?
  - d. What other factors were looked at alongside the evidence and how were these balanced against each other when decisions were made?
8. How has evidence been used to inform decisions made during this period? How did decision-makers adapt evidence to apply it in their own context?
  - a. How does it compare to earlier waves?
9. Could you give an example of when evidence was used well / not used well?
  - a. How did you determine if evidence was used well or not well?
  - b. What monitoring mechanisms do you use?
10. Who assessed the impact of the advice and how did they do so?

## Implementation

11. How did you understand and implement the advice? Were there aspects that were unclear?
12. Were you able to provide feedback about implementation?
13. How did the advice change the epidemiological situation?

## Part 3: What can be learned? What should change? How can change be implemented and monitored?

14. What were the main lessons learned from this event, with respect to evidence-based decision-making?
15. What should change, with respect to the evidence-based decision-making process?
16. Have you seen any changes in the decision-making process since the event? To what extent have these changes benefitted the use of evidence in the process?

### Closing

17. Is there anything else you would like to add?

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