

An Analysis of a Swedish Medical Command and Control System's Situation Reports from the COVID-19 Pandemic

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ABSTRACT

This paper presents an analysis of situation reports used and created by a crisis management team within the Swedish healthcare sector during the early phase of the COVID-19 pandemic. The analysis was conducted through a deductive content analysis, where categories were identified based on the concepts of common operational pictures, sensemaking, and situation awareness. In the analysis, support for all identified categories was found. Based on the analysis and the concepts, future recommendations regarding what type of information that ought to be included in situation reports were created. These recommendations include, amongst others, the categories of consequences, how it is perceived by the public, objectives, status and implications of information, future scenarios, actions, resources, and work procedures.

Keywords

Information sharing, crisis management, situation reports, COVID-19, command and control

INTRODUCTION

Information sharing between members of crisis management teams has been recognised as one of the key aspects of sufficient crisis management efforts (King, 2002; Reddy et al., 2009). This is because a satisfactory sharing of information contributes to a shared understanding of the crisis and a more adequate decision making based on available information (Uitdewilligen & Waller, 2018). For the past two years, information sharing within crisis

management teams has been an increasingly relevant issue due to the COVID-19 pandemic.

In Sweden, COVID-19 became a public health issue on the 10th of March 2020 when the Public Health Agency of Sweden announced that the disease was being spread within the Swedish society rather than being limited to separate imported cases from abroad (The Public Health Agency of Sweden, 2020). This marks the beginning of the increasingly heavy flow of patients that would need to be hospitalised. Something which severely affected the twenty-one regional public healthcare systems (RPHS) of Sweden, which are the public organisations responsible for providing healthcare within their respective catchment areas. During the pandemic, most of the RPHS chose to declare the pandemic a Major Incident (The Corona Commission, 2021). When declaring a Major Incident a special crisis management team named the regional medical command and control system for disaster response (RMC2) is established, responsible for making relevant decisions and re-allocating the RPHS's resources (The National Board of Health and Welfare, 2020).

In this paper, a selected Swedish RPHS's RMC2 during the beginning of the pandemic has been chosen to analyse a part of their information sharing. The part which has been chosen is the situation reports which were created daily by the RMC2 and shared with the hospitals of the RPHS and internally within the units of the RMC2. The situation reports contained information about the current state of the pandemic, how the pandemic affected the RPHS, actions taken by the RMC2, and the desired objectives. The situation reports were two to three pages. The purpose of this study is to analyse the selected RMC2's situation reports created during the COVID-19 pandemic, and grounded in this analysis develop recommendations for how situation reports can be designed.

THEORETICAL BACKGROUND

The situation reports will be analysed using three concepts related to information sharing and situational understanding. The three chosen concepts are *Sensemaking* as described by Weick (1995), *Situation Awareness* as described by Endsley (1995) and *Common Operational Pictures* as described by the Swedish Civil Contingencies Agency (2018). Sensemaking and situation awareness are theoretically grounded concepts, whereas the common operational pictures concept as described by the Swedish Civil Contingencies Agency is a suggested standard for creating common operational pictures.

Sensemaking

Sensemaking has been described as the process of creating an understanding of what is occurring and has occurred in social contexts. Importantly, it has also been described as a retrospective and ongoing process driven by various forms of communication (Weick et al., 2005). To explain sensemaking more elaborately, Weick (1995) outlined seven prominent properties of the sensemaking process. The first property, *Grounded in Identity Construction*, emphasises that sensemaking is dependent on, and affected by, the identity an individual has, or takes, in a certain context. This implies that different understandings can arise depending on an individual's identity and that individuals can have different identities in different contexts. The second property, *Retrospective*, describes that sensemaking is a retrospective process, indicating that current events will be applied a meaning retrospectively and that current events are understood through past experiences. The third property, *Enactive of Sensible Environments*, emphasises that sensemaking is a process affected by the environment, an environment which individuals are a part of creating through interactions. The fourth property, *Social*, describes that sensemaking is an inherently social process affected by all social interactions. The fifth property, *Ongoing*, emphasises that sensemaking is a constant process with no defined beginning or end. The sixth property, *Focused on and by Extracted Cues*, describes that an individual's understanding of a situation is mainly constructed through specific parts of the environment due to most individuals explicitly focusing on parts that are deemed relevant. The seventh property, *Driven by Plausibility Rather than Accuracy*, emphasises that the understanding constructed by individuals is not necessarily an accurate understanding but rather an understanding which seems plausible.

Situation Awareness

Situation awareness describes how individuals understand and create an understanding of what is occurring in a given situation. There are plenty of different models describing how situation awareness is acquired and what it is, but the most cited model is the three-level model created by Endsley (O'Brien et al., 2020). Endsley (1995) describes situation awareness as a process divided into three distinct levels involved in creating an understanding of the current situation. The first level is *Perception of Elements in the Environment*. During this level, a first understanding of the environment is constructed. This is done through simple identification of relevant elements in the environment, something which also includes identifying the elements' attributes and status. The second level is *Comprehension of the Current Situation*. This level is strongly connected to the first level, but rather than simply identifying elements in the environment it is during this level that the meaning of the identified elements

is constructed. The third level is *Projection of Future States*. During this level, the understanding of the situation is developed beyond apprehending what is happening at the moment. Instead, during this level a calculation of future possible developments of the situation is created based on the two previous levels. Furthermore, this level is also connected to decision making since decisions ought to be made based on what is believed to occur in the future. Additionally, all of the three levels are influenced by the objectives of the individual. This since the objectives will influence what is identified, how the identified elements are understood, and what is believed to occur in the future.

Common Operational Pictures

Common operational pictures, as described and used by the Swedish Civil Contingencies Agency (2018), is a concept describing the type of information that should be shared in crisis management. In their guidelines describing the type of information that should be included in common operational pictures, the Swedish Civil Contingencies Agency emphasises five general categories. These categories are *incident*, *consequences*, *actions*, *resources*, and *involved actors*. The category *incident* describes that information regarding the nature of the incident should be included. This includes information about what has occurred, what type of incident it is, the number of affected, how the incident can develop, and how it is portrayed and perceived by the media and the public. The category *consequences* emphasise that information of the incident's consequences should be included. This includes immediate consequences, possible future consequences, and eventual spill-over effects. The category *actions* describe that information of actions taken and decisions made should be included. This includes actions and decisions that have already been taken or made and planned actions and decisions. The category *resources* emphasise that needed resources should be included, including both immediate and future resources. The category *involved actors* describe that all actors involved in the crisis management effort should be named in the common operational picture. It also states that information regarding any ongoing, or future needed, co-operation should be included. This way of using common operational pictures is the approach recommended by the Swedish Civil Contingencies Agency. The Swedish Civil Contingencies Agency also emphasise that common operational pictures can be expressed through different media, for example in written reports or orally at staff briefings.

METHOD

The analysis of the situation reports was conducted using a deductive content analysis approach as described by Kyngäs and Kaakinen (2020). Situation reports from March 2020 were chosen for the analysis. In March the first situation report was created on the 14th and the last on the 31st, adding up to a total of sixteen created, and therefore analysed, situation reports. Situation reports from March were chosen due to them being created during the beginning of the pandemic, a period characterised by uncertainties and a sudden inflow of patients, which made the demand for information high.

In the analysis, following the procedure described by Kyngäs and Kaakinen (2020), the situation reports were first read to acquire an understanding of their contents. Next, categories, and sub-categories, that would be used for the analysis were identified. The categories were identified based on the concepts of common operational pictures, sensemaking, and situation awareness. The categories are described in the results section. After the identification of the categories, the situation reports were read once again to find support for the identified categories. During this step, all words, paragraphs, and sentences that correlated with any of the identified categories were highlighted. Notes were also taken for the frequency of each category across the situation reports.

The content analysis will be presented both quantitatively and qualitatively. For the quantitative part, the frequency of each category will be presented. For the qualitative part, excerpts from the situation reports will be presented and explained to demonstrate how the different categories were expressed in the situation reports. Since the situation reports were written in Swedish, all presented excerpts have been translated by one of the authors to English.

RESULTS

Common operational pictures, sensemaking, and situation awareness were identified as the three general categories for the deductive content analysis. For each of the three general categories, subcategories were identified. The subcategories were identified based on the three concepts as described in the theoretical background. Only subcategories that were deemed possible to find support for in the situation reports were used, i.e., some parts of the three concepts were not used in the content analysis. Each subcategory will be further explained beneath separate headings in the presentation of the results.

The identified subcategories are shown in table 1, which also includes the frequency of the subcategories across

the sixteen analysed situation reports.

Table 1. The identified subcategories and their respective frequency

Category	Frequency
<i>Common operational pictures</i>	
Expected development	16/16
How it is portrayed and perceived by the media and the public	5/16
Immediate consequences	16/16
Actions taken	16/16
Planned actions	16/16
Future consequences	8/16
Involved actors and co-operation	15/16
Needed resources	7/16
<i>Sensemaking</i>	
Identities	16/16
Retrospective	12/16
Internal communication routes	16/16
Information of special relevance to some individuals	16/16
<i>Situation awareness</i>	
Implication of information	14/16
Status of information	16/16
Potential future scenarios given the information	6/16
Objectives	16/16

Common Operational Pictures

The general category of common operational pictures contains eight subcategories. These subcategories are all derived from the different parts of the common operational pictures concept as described in the theoretical background. Each subcategory will be presented and explained separately, supported by excerpts from the analysed situation reports.

Expected Development

This subcategory emphasises that information of how the incident is believed to develop, based on what is currently known, should be included.

In the situation reports, information categorised into this subcategory took different forms, but it was often expressed with the presented objectives. One recurrent example of this was information regarding the expected future temporary absence of personnel due to sick leave. An example of this is shown in the excerpt below from the situation report from the 14th of March.

Week 13 ... 20 % absence of personnel.

The excerpt above shows that already during the early stages of the pandemic information related to the expected development was emphasised, and in this case how the pandemic was expected to affect the RPHS and its personnel.

Information categorised into this subcategory was also expressed in other contexts. One such example is shown in the excerpt below from the situation report from the 19th of March.

The Unit for Communicable Disease and Infection Control estimates that we are now starting to see the peak number of cases. We can expect a slight increase of patients at intensive care units by the end of the week.

The excerpt above was categorised into this subcategory because of its two constituent parts. The first part explains that the peak number of cases almost had been reached, something which indicates a decrease or plateau of cases as an expected development. The second part emphasises that partly because of this peak an increase in the number of patients at the intensive care units was expected.

How it is Portrayed and Perceived by the Media and the Public

This subcategory emphasises that information related to how the incident is portrayed and perceived by the media and the public should be included.

Information that was categorised into this subcategory rarely explicitly referred to how the pandemic was portrayed and perceived by the media and the public. Instead, most of the information included in this subcategory emphasised that there was a large interest in the pandemic, and not how this interest was expressed. One such example is shown in the excerpt below from the situation report from the 14th of March.

One press conference per week is considered enough in addition to daily updates of external information on the intranet.

As can be seen, the excerpt above does not state how the pandemic was portrayed or perceived. However, it is possible to interpret the excerpt as a way of communicating that there was an interest in the pandemic from the media and the public. Furthermore, it also states how information was communicated to the media and the public.

There are, however, other examples from the situation reports more clearly stating how the pandemic was perceived by the public. One such example is shown below from the situation report from the 20th of March.

There are plenty of people taking photos at the hospital.

The excerpt above partly emphasises how the pandemic was perceived by the public since it states that it caused curiosity which in turn caused some people to start taking photos of the provisional tents which had been set up outside one of the hospitals.

Immediate Consequences

This subcategory emphasises that information related to the immediate consequences of the incident and immediate consequences of actions taken should be included.

Information categorised into this subcategory was presented in different contexts, but one prominent type of information within this subcategory included in most of the situation reports was information regarding the number of infected. One such example is shown below from the situation report from the 24th of March.

A total of 176 individuals within the geographical region have tested positive for COVID-19. Two deceased during the weekend, a total of three deceased.

The excerpt above states two immediate consequences as a result of the pandemic, the number of infected and deceased. This information, with updates, was presented in all of the analysed situation reports, something which also highlighted the development of the pandemic.

Immediate consequences were also stated in other contexts. One such example is shown in the excerpt below from the situation report from the 17th of March.

Elective surgery for individuals above the age of 70 ought to be considered to be cancelled.

The excerpt above shows an example of an immediate consequence of the pandemic affecting both the public and the RPHS. Regarding its effect on the public, it states that those above the age of 70 risked having their planned surgery cancelled as a result of the pandemic. Regarding its effect on the RPHS, it shows that one of the immediate consequences was that the RPHS had to re-allocate its resources by repositioning personnel, resulting in some types of healthcare being postponed.

Actions Taken

This subcategory emphasises that situation reports should include information about actions taken, which also includes decisions that have been made.

Information categorised into this subcategory was often information about decisions made by the RMC2. One such example is shown in the excerpt below, from the situation report from the 17th of March.

Active contact tracing has been stopped due to the disease spreading within the community.

The excerpt above emphasises that the decision of stopping active contact tracing had been made. It also states the reasoning behind why the decision was made, namely that the disease at this point was widespread.

Another example from this subcategory is shown in the excerpt below from the situation report from the 26th of March, where information regarding a new type of face mask was communicated.

To save face masks a type that can be used multiple times will be introduced. It is important to emphasise the purpose of this mask to the employees.

Just like the previous excerpt, the excerpt above states that a decision had been made and why it was made. Furthermore, it also states that further information of the mask's purpose had to be communicated to the end users.

Planned Actions

This subcategory emphasises that rather than only including information about actions taken, planned actions should also be included.

Information that was categorised into this subcategory was often found together with information about the objectives. One such example is shown in the excerpt below, from the situation report from the 17th of March.

Create the capacity during week 14 to care for patients according to the predefined pandemic preparedness plan.

The excerpt above states that a planned action was to create a capacity to care for patients according to the predefined pandemic preparedness plan. However, this can also be interpreted as an objective, where the capacity is the objective and the actions necessary to reach the objective are the planned actions. The excerpt can also be interpreted as expressing a future possible development, where it was expected that during week 14 the number of patients would require the pandemic preparedness plan to be fully activated.

Information categorised into this subcategory was also found in other contexts. One such example is shown in the excerpt below, taken from the situation report from the 24th of March.

Routine and communication regarding employees that have recovered from COVID-19 will be developed and communicated shortly.

The excerpt above shows two planned actions. First, to develop the routines for communication, and second, to communicate these routines to those it concerned. It is quite different from the earlier excerpt, something which emphasises the extent of the pandemic.

Future Consequences

This subcategory emphasises that future potential consequences should be included in situation reports. This

includes future consequences as a result of the incident and consequences due to actions taken.

Most of the information categorised into this subcategory was related to potential future consequences associated with the use and consumption of personal protective equipment. One such example is shown in the excerpt below from the situation report from the 22nd of March.

It is of the utmost importance that all employees understand why it is important to follow the hygiene routines (that the right equipment is used based on the type of work that is conducted). The routines are created for the safety of the employees and the patients BUT they are also connected to the current equipment situation. Everybody has to be aware that there is no unlimited supply of equipment.

The excerpt above was categorised into this subcategory because it emphasised potential future consequences if the hygiene routines were not followed, namely that it could harm the patients and the employees, and result in a potential shortage of equipment.

Other examples from this subcategory include potential positive consequences of actions taken. One such example is shown in the excerpt below from the situation report from the 26th of March.

The introduction of the face mask that can be used multiple times can cover up to 80 % of the consumption of personal protective equipment.

The excerpt above emphasises that a future consequence of introducing a new face mask was that it could cover a substantial amount of the total consumption of personal protective equipment.

Involved Actors and Co-operation

This subcategory emphasises that involved actors and co-operation should be included in situation reports. This includes both ongoing and future co-operation.

In the situation reports, information of involved actors and co-operation was often stated in the same paragraphs or sentences. One such example is shown in the excerpt below from the situation report from the 16th of March.

A national review of resources has been requested to the National Board of Health and Welfare.

The excerpt above emphasises that the National Board of Health and Welfare, a government agency, was an involved actor. Furthermore, it also emphasises that a request for future co-operation had been sent to the agency in form of reviewing the availability of resources nationally.

Besides co-operation with government agencies, co-operation with municipalities, who are responsible for the elderly care, was also included in the situation reports. One example from the situation reports of how co-operation with the municipalities was portrayed is shown in the excerpt below from the situation report from the 30th of March.

Prioritised tasks: ... co-operation between the regional public healthcare system and the municipalities.

The excerpt above emphasises that the municipalities were involved actors and that the co-operation with them was seen as a prioritised task.

Needed Resources

This subcategory emphasises that information about needed resources should be included in situation reports, which refers to both immediate and future resources.

Information that was categorised into this subcategory mostly included statements regarding needed personal protective equipment and personnel. One example of the latter is shown in the excerpt below from the situation report from the 15th of March.

The Unit for Communicable Disease and Infection Control has to be strengthened with additional competencies.

The excerpt above emphasises that a particular unit, in this case the Unit for Communicable Disease and Infection Control, had to be strengthened with additional personnel with the right competencies due to the increased workload.

Sensemaking

Similar to how subcategories were identified for the general category of common operational pictures, subcategories were also identified for the general category of sensemaking. Compared to common operational pictures, a concept specifically created to be used when sharing information in crisis management teams, sensemaking is a more theoretical concept. This created the need of interpreting which parts of sensemaking that would be meaningful and possible to apply to the contents of the situation reports. This interpretation resulted in four identified subcategories, all relating to the different properties of sensemaking as described in the theoretical background. The identified subcategories will be further explained beneath their separate subheadings.

Identities

This subcategory derives from the property of sensemaking emphasising that the identity an individual has, or takes, will influence how a situation is understood. Related to the situation reports, this subcategory was evident through information that in some ways emphasised eventual identities amongst those working within the RMC2 or the RPHS, for example by providing information of how work was conducted. One such example is shown in the excerpt below from the situation report from the 19th of March.

The creation of a common operational picture regarding critical material that is not related to the current hygiene routine and an analysis of the needs in the short- and long-term perspective is an ongoing process.

The excerpt above was categorised into this subcategory since it emphasises how work was conducted by stating that the creation of common operational pictures and analyses of both the short- and long-term perspective was a part of how the RMC2 worked. By stating how work was conducted it is possible that the readers were able to form identities matching the way of work.

Another, and quite different, example from this subcategory is shown in the excerpt below from the situation report from the 25th of March.

The HR department recommends that no vacations should be granted currently. Information will be sent to affected supervisors but the information will also be published on the intranet.

The excerpt above was categorised into this subcategory since it was thought that it could have been interpreted in a manner affecting the readers' identities. This is because it, to some degree, emphasises that the work related to the pandemic was of such importance that all personnel were needed and therefore were important.

Retrospective

This subcategory derives from the property of sensemaking stating that it is a retrospective process. Related to the situation reports, information categorised into this subcategory were often sentences or paragraphs where it was stated that interpretations of the situation had changed, or stayed the same, compared to previous situation reports.

A concrete example of this subcategory is shown in the excerpt below from the situation report from the 19th of March, where the context is that elective surgery for those above the age of 70 can be cancelled.

Otherwise, no major decisions have been made regarding what should/could be cancelled. The aim is to have as much as possible up and running given the available resources. We need to make daily decisions together based on strategic considerations.

The excerpt above was categorised into this subcategory because it emphasises that daily decisions were made based on available resources, something which indicates that all decisions also could be changed retrospectively if the development of the situation so required.

Two other examples showing how the situation reports included retrospective reinterpretations are shown in the excerpts below from the situation reports from the 17th and 18th of March.

Personnel with symptoms should be tested within 6 hours and be prioritised for analysis and given an answer within 24 hours.

Current recommendation: Prioritised healthcare staff showing symptoms should be tested. (new routine).

These two excerpts, and in particular the second one, were included since they show that reinterpretations and new decisions were made retrospectively. In this case, since the first excerpt states that all personnel should be tested, something which was changed retrospectively in the second excerpt which states that only prioritised healthcare staff should be tested.

Internal Communication Routes

This subcategory derives from the property of sensemaking stating that it is a social process, predominantly occurring through communication. For this study it was modified into the subcategory internal communication routes, meaning that information regarding internal communication routes should be included in the situation reports. This is because one way of making it possible for individuals to create an understanding through social processes ought to be by stating how they can further communicate with each other besides the situation reports.

One example of how the situation reports emphasised internal communication routes is shown in the excerpt below from the situation report from the 20th of March, where it is stated how the RMC2 communicated with the hospitals of the RPHS.

Report of the number of hospitalised patients should be delivered daily at the 11.20 meetings.

The excerpt above states how the RMC2 and the hospitals communicated, and what was expected during these meetings.

Another example of this subcategory is shown in the excerpt below from the situation report from the 23rd of March.

Questions regarding material should be asked by calling [phone number].

This excerpt was categorised into this subcategory since it emphasised how internal communication related to material should be conducted, where the phone number refers to a specific unit of the RMC2.

Information of Special Relevance to Some Individuals

This subcategory derives from the property of sensemaking stating that it is a process focused on and extracted by cues. To make it applicable to the situation reports it was modified into information of special relevance to some individuals, which means that information categorised into this subcategory, for example, stated that some parts of the situation reports were of special relevance to some of the readers. Something which would make it possible for those affected to focus on cues relevant to their creation of an understanding.

One example of information categorised into this subcategory is shown below, taken from the situation report from the 24th of March.

Mobile testing station testing residents of the municipalities' retirement homes have been established. Back in operation weekdays from Monday 23/3 8.00-16.00.

This excerpt was categorised into this subcategory since it was of particular relevance for those who worked with testing and co-operation with the municipalities, while it offers little information of the pandemic in large.

Situation Awareness

Similar to how subcategories were identified for the general categories of common operational pictures and sensemaking, subcategories were also identified for the general category of situation awareness. These

subcategories derive from the different aspects of situation awareness as described in the theoretical background. Just like sensemaking, situation awareness is more of a theoretical concept compared to common operational pictures, something which required interpretations of how, and which of, the different aspects that could be applied to the contents of the situation reports. This resulted in four subcategories which will be presented and described separately.

Implication of Information

This subcategory derives from the second level of situation awareness stating that elements of the environment also have to be understood rather than simply identified. Related to the situation reports, information was categorised into this subcategory if implications of information were stated.

One example of this subcategory is shown in the excerpt below from the situation report from the 24th of March.

Priorities: Support has been sent to the hospitals regarding how to prioritise. Support can also be given by the analysis group in the RMC2. Support for which type of care that can be cancelled.

The excerpt above does, as it stands, not state any implications regarding the care that could be cancelled. However, it does state where implications of this could be found, namely through the support documents that had been sent to the hospitals, or through contacting the analysis group, something which makes it suitable in this subcategory.

There are, however, other examples from the situation reports more clearly stating the implication of information. One such example is shown in the excerpt below from the situation report from the 27th of March.

Intermediate care is another priority, i.e., care of patients who do not require hospitalisation.

This excerpt was categorised into this subcategory since it emphasises the implication of the information. In this case that intermediate care refers to patients who do not need hospitalisation.

Status of Information

This subcategory derives from the first level of situation awareness stating that elements in the environment have to be identified, including their status. Related to the situation reports, information was categorised into this subcategory if the status of information was included, for example by stating what characterised the information.

One such example is shown in the excerpt below from the situation report from the 20th of March.

Ensure the availability of material: (prioritised issue).

This excerpt was categorised into this subcategory since it emphasises the status of the information, namely that ensuring the availability of material was a prioritised issue.

Another example of this subcategory is shown in the excerpt below from the situation report from the 19th of March.

A total of 80 (around 40 new) (preliminary information) individuals within the geographical region have tested positive for COVID-19.

This excerpt was categorised into this subcategory since it emphasises what characterised the information, in this case referring to that it was preliminary information that could be changed waiting for confirmation.

Potential Future Scenarios Given the Information

This subcategory derives from the third level of situation awareness stating that rather than only identifying and comprehending objects in the environment, a future potential scenario should also be calculated based on the two previous levels. Related to the situation reports, information was categorised into this subcategory if potential future scenarios were presented in close relation to other information.

One example of this subcategory is shown in the excerpt below from the situation report from the 26th of March.

A premise at the intensive care unit has been identified for cohort care, which would increase the capacity.

The excerpt above was categorised into this subcategory since it states a potential future scenario, the increase of capacity, given the information that a premise for cohort care had been identified at the intensive care unit.

Objectives

Unlike the other subcategories, this subcategory does not derive from a specific level of situation awareness. Instead, it is derived from the concept in large since it is stated that objectives will affect situation awareness across all three levels.

In the situation reports, the objectives of the crisis management effort were included repeatedly with small adjustments as time progressed. Two examples of how the objectives were stated are shown in the excerpts below from the situation report from the 18th of March.

Week 15. 110 + 30 patients at intensive care units.

A minimal number of infected personnel and patients within the hospitals and the primary care.

The two excerpts above state two separate objectives. The first excerpt states the objective to during week 15 increase the capacity of the hospitals. The second excerpt states the general objective of limiting the spread of COVID-19.

DISCUSSION

Support was found for all of the identified subcategories in the analysed situation reports, while some subcategories were more frequent. This indicates that the chosen concepts of common operational pictures, sensemaking, and situation awareness are suitable when analysing situation reports, and therefore can be used when deciding what type of information that should be included in situation reports. The fact that some subcategories were less frequent than others does not necessarily indicate that the situation reports were of bad quality since it is possible that the type of information correlating with those subcategories was deemed to not be necessary to communicate when the reports were written.

Since common operational pictures, as described by the Swedish Civil Contingencies Agency, is a concept specifically developed to guide which kind of information that ought to be shared in crisis management teams, it was uncomplicated to use its different parts in the analysis. This indicates that the concept is suitable when analysing or evaluating situation reports and other forms of information sharing within crisis management teams. The fact that support for all of the subcategories of common operational pictures were found in the situation reports also indicates that the RMC2 were aware of the concept and, to some degree, used it when creating the situation reports.

Sensemaking and situation awareness, however, are two theoretical concepts, not naturally linked to information sharing within crisis management teams or situation reports. This made it necessary to choose some parts of those concepts that were thought to be applicable to the contents of the situation reports, as well as interpretations of how those parts could be expressed in text. The choice of these two concepts for this study could therefore be questioned. However, as previously mentioned, all of the identified subcategories were possible to find support for in the analysed situation reports. Something which indicates that even though sensemaking and situation awareness usually are applied in other contexts, they might be helpful when developing and analysing information sharing. It should also be noted that it is not possible, based on this study, to make any conclusions of how those working within the RMC2 made sense of their surroundings or developed understandings based on the situation reports, since that would require different methodological approaches. The methodological choice of a deductive content analysis did, however, serve well given the purpose of this study. However, it is possible that other researchers would have interpreted the subcategories differently, and even identified other subcategories, something which would have affected the results.

Future Recommendations

Based on the analysis it is possible to offer a set of recommendations regarding what type of information that ought to be included in, situation reports. The recommendations are divided into the subcategories from the analysis and will be explained based on the theoretical concepts they are derived from and on how they were expressed in the situation reports as shown in the presented excerpts in the results section. The recommendations

will naturally overlap to a large degree with the concept of common operational pictures as described by the Swedish Civil Contingencies Agency (2018). This is because the concept clearly states information that is of value to communicate within crisis management teams, a communication that can take the form of situation reports. All of the presented recommendations will not be relevant for all incidents, but the recommendations ought to be used when deemed relevant. However, the situation reports analysed in this study indicates that all recommendations ought to be used during long duration crises such as the COVID-19 pandemic. Some of the recommendations specify what kind of information that should be included in situation reports, while some specifies how information should be expressed. The recommendations specifying what kind of information that should be included can be seen as a suggested structure for situation reports, where the category can be stated in one column and the corresponding information in another column — similar to the structure in table 2, where all of the recommendations are shown. Not included in the table, but obviously important to include in situation reports is information related to what type of incident it is that has occurred.

Table 2. Future recommendations for situation reports

Category	Explanation	Origin
<i>Expected development</i>	Information about how the incident is expected to develop given what is currently known. Potential consequences of the expected development should also be stated. It is advantageous if it is stated why the incident is expected to develop as described.	Common Operational Picture, expected development subcategory
<i>How it is portrayed and perceived by the media and the public</i>	If it is of relevance to the crisis management efforts, information about how the incident is portrayed and perceived by the media should be included. Information on how to communicate with the media and the public should also be included.	Common Operational Picture, how it is portrayed and perceived by the media and the public subcategory
<i>Immediate consequences</i>	Information about the immediate consequences of the incident and actions taken. Includes immediate consequences affecting the own organisation, the public, and society.	Common Operational Picture, immediate consequences subcategory
<i>Actions taken</i>	Information about actions taken due to the incident, which also includes decisions that have been made. It should also be stated why the actions have been taken.	Common Operational Picture, actions taken subcategory
<i>Planned actions</i>	Information about actions that are planned to be taken in the future, and why they are planned.	Common Operational Picture, planned actions subcategory
<i>Future consequences</i>	Information about potential future consequences of the incident, including both long and short term. Can also be linked to several of the other categories, where potential future consequences, for example, can be stated with actions taken.	Common Operational Picture, future consequences subcategory
<i>Involved actors and co-operation</i>	Information about the actors involved in the crisis management efforts should be included. Ongoing, and possible future needed, co-operation with other involved actors should also be included.	Common Operational Picture, involved actors and co-operation subcategory
<i>Needed resources</i>	Information about resources that might be needed as a result of the incident. Can be linked to several of the other categories, where needed resources, for example, can be stated with expected developments.	Common Operational Picture, needed resources subcategory
<i>Internal communication routes</i>	Information of internal communication routes should be included in the situation reports. Can, for example, be stated with other information where it is declared where further questions should be directed.	Sensemaking, internal communication routes subcategory
<i>Objectives</i>	Information about the objectives of the crisis management effort should always be included.	Situation Awareness, objectives subcategory
<i>Retrospective reinterpretation</i>	If possible, every situation report should clearly state if any retrospective reinterpretations have been made.	Sensemaking, retrospective subcategory
<i>Work procedures</i>	When it is deemed appropriate, information about how work is conducted within the crisis management team ought to be included. This is to further create an understanding amongst the readers of how the crisis is managed. Can be linked to several other categories, where work procedures can be mentioned with, for example, how future consequences were calculated.	Sensemaking, identities subcategory
<i>Information of special relevance to some individuals</i>	If deemed appropriate it should be stated if some information is of special relevance to some individuals based on their roles. Can be linked to other categories, where it, for example, is mentioned that a future consequence is of special relevance to some roles.	Sensemaking, information of special relevance to some individuals subcategory
<i>Implication of information</i>	Mostly related to the other categories and refers to that when information is stated in the situation reports, the implication of that information should also be stated.	Situation Awareness, implication of information subcategory
<i>Status of information</i>	Mostly related to other categories and refers to that when information is stated in the situation reports, the status of the information should also be stated. Can for example be manifested by stating that something is prioritised or preliminary.	Situation Awareness, status of information subcategory
<i>Potential future scenarios given the information</i>	All information that is stated may also include potential future scenarios given the information. This should be done to avoid different interpretations of future scenarios amongst the readers.	Situation Awareness, potential future scenarios given the information subcategory

CONCLUSIONS

In March 2020 when COVID-19 created a large inflow of patients to the hospitals, plenty of Swedish RPHS declared the pandemic a Major Incident, resulting in the establishment of RMC2. In this study, the situation reports from one selected RMC2 during March 2020 were analysed. The analysis was conducted through a deductive content analysis with categories identified from the concepts of common operational pictures, sensemaking and situation awareness. The content analysis showed that support for all categories was evident in the analysed situation reports. Based on the concepts and the results from the content analysis, future recommendations regarding what situation reports should include were created. These recommendations can be used as guidelines during future incidents. Future studies should aim to further develop and test the usability of the recommendations. To test the usability of the recommendations, and to determine the relevance of each category, future studies should focus on interviewing crisis management practitioners used to creating and utilizing situation reports, where they are given the opportunity of expressing their views on the matter. Future studies should also study the role situation reports have amongst members of crisis management teams when creating an understanding of crises.

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