

We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,900

Open access books available

186,000

International authors and editors

200M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com



Trust and Organization: Integrating Responses to Freshwater Contamination within the Everyday Work of a Care Organization

Jörgen Sparf

Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.75532>

Abstract

In order to cut the word count I rewrote the entire abstract. Please replace with: Crisis management literature regularly focuses on large-scale incidents, crisis management organizations, and a managerial top-down approach. In reality, many crisis situations are small scale and local, involve non-emergency organizations, and often affect the entire organization. This chapter addresses this lacuna by fleshing out the empirical case of the outbreak of a waterborne parasite in a small municipality in Northern Sweden. The analysis showed that the outbreak affected the whole organization and was managed by the active agency of operative personnel and central experts. Additionally, findings suggest that spheres of action and different time-spatial framings were decisive elements in managing the crisis. The study concludes that issues of trust and the organizational setting influenced the framing and handling of the outbreak. In particular, the level of vertically directed trust established before the outbreak, along with the relatively high independence of the different units at operational level, played a decisive role in the integration of the outbreak in the everyday work of the organization. The paper calls for the development of organization theory addressing non-emergency organizations, small-scale events, and the integration of adverse events in the formal and social structures of everyday work.

Keywords: crisis management literature, organization theory, open systems, social structures, active agency

1. Introduction

Studies in crisis management usually analyze how single cases occur in specific organizations and how they are sealed off ('siloed') from ordinary production by top-level management or

technical experts [1]. Much less attention has focused on how incidents are addressed through organizations, how ordinary personnel at different levels deal with the incident, and how they relate the incidents to their ordinary work. In addition, most research seems to primarily examine incidents within production or directly stemming from production. Apart from disasters and dramatic incidents, studies of external events are rare. This paper takes a different approach in examining precisely this kind of organizational addressing in a non-emergency organization, during an external and small kind of incident.

In reviewing the literature on crisis management for this paper, three major problems were identified. Firstly, Smith [2] states that existing studies mainly focus on large-scale hazards such as natural or technical disasters, big accidents and major emergencies. The theoretical development of crisis management “has been based upon the processes that surround severe cases or extreme events rather than more ‘normal’ forms of adverse events that can result in crises for organizations” ([2], p. 101). The preponderance of large-scale hazards has not only limited the theoretical development but has also led to a lack of practical knowledge applicable to local incidents and small-scale emergencies.

Secondly, there is a conspicuous lack of common organizations as objects of study. The object of study in existing studies is either clear-cut or ‘manifest’ [3], crisis organizations such as emergency organizations and rescue services, or High Reliability Organizations [4–7] and more recently, integrated operations [8]. The staffs in these organizations regularly deal with a range of uncertainties and disturbances. Almost all of their work consists of monitoring and avoiding risks, and dealing with emergencies. They therefore have the professional knowledge, equipment, training and skills to resolve incidents [9]. However, what is missing are studies on latent crisis organizations [3, 10], i.e. organizations in which emergency or rescue responses are not part of the work, and where the staff are not explicitly trained to deal with uncertainties and disruptions—in other words, any other common organization.

Thirdly, the literature does not describe how crises are handled concretely at different organizational levels. The majority of crisis management studies focus on managerial aspects of crises, rather than on theoretical exploration [11]. However, the managerial aspects are presented in an abstract way, most often from a top-down perspective and with no actual actions of the staff described. Also, they are often limited to focusing response and recovery activities [12]. The number of managerial and strategic tools is huge [11, 13–15] but they fail to provide knowledge on how crises materialize and are dealt with from an organizational perspective, i.e. how changes and adaptations are actually carried out by the staff as active agents, and how the changes are integrated within the formal and social structures of the organization.

The aim of this paper is to examine how the interplay between trust and the organizational setting might influence the framing and management of an uncertain, adverse event at different organizational levels. The case study for this is a local outbreak of the water-borne parasite *Cryptosporidium* in Östersund, Sweden. Empirically the study investigates how the personnel at the local healthcare administration normalized the outbreak by assessing, managing, and integrating the disturbance within the formal and social structures of everyday

work. Knowledge from the study could help building knowledge on how different levels in non-emergency organizations can react and respond to adverse events. This knowledge could then be applied for developing methods and procedures in professional work.

2. Case and context

On Friday, November 26, 2010, the local authorities in the municipality of Östersund, Sweden, sent out a message via the emergency alert system urging all people within the city's freshwater system to boil the tap-water before drinking or when washing dishes by hand. For a couple of weeks several people became ill with upset stomachs supposedly caused by a parasite in the fresh water. Three days later, the Swedish Institute for Communicable Disease Control verified that the samples of fresh water contained the parasite *Cryptosporidium Hominis*.

The emergency alert was communicated locally via television and radio, and published on the municipality's web page as well as the national website for emergency information (www.krisinformation.se). For the following weeks, local news media (radio, television and two newspapers) followed the case closely.

Fresh water in Sweden is normally of a very high quality. Good natural resources and strong regulation provide a secure delivery of water, drinkable straight from the tap. Östersund is no exception, and the local freshwater system, run by the local council, delivers water to approximately 50,000 users. Cleaning equipment with ultraviolet light was installed a few days before Christmas and all water pipes were flushed. As from February 18, 2011, the fresh water was free from *Cryptosporidium*. The case lasted for 85 days.

Including an estimate of visitors, the parasite caused about 27,000 cases of illness, of which 51 individuals were hospitalized [16]. This means that almost 50% of the people living or working within the water supply system became ill. No casualties were reported. The highest rate of contagion occurred at the beginning of the period. From mid-December onwards, only a few new cases were reported. In addition to the health issues, the outbreak had some adverse economic effects; people lost income, organizations suffered from interruptions in production, and hotels and the tourist industry had a severe drop in visitors, etc. The total estimate of cost to society was around €190 million [16]. Thus, the outbreak was apparently the biggest in Europe in modern times.

Two people work regularly at the municipal administration with risk and crisis management duties. This work entails compliance assessments, risk and vulnerability analyses, emergency planning, exercises, etc. However, these experts are not responsible for managing occurring crises. The different department and a top-level crisis management team should instead do that. The top-level team is only activated for large-scale emergencies and severe crises. As the outbreak was not formally defined a crisis the team in Östersund was not activated.

The healthcare administration is responsible for providing care, support and help to the elderly, disabled people and other members of the community who are in need of various forms of

support. The administration employs approximately 1400 people. In addition, 25% of care services are outsourced to private enterprises. In total, the administration serves about 2500 caretakers.

The healthcare administration is organized in three levels: an institutional level entailing the head of department and a deputy head (strategic issues); a managerial level where the division executives are located (executive and administrative issues); and an operative level where the care services are concretely delivered (operative issues). The department has five geographical divisions, each comprising several units such as housing and residential centers, as well as a variety of services. A number of experts, e.g. on information, epidemiology, and crisis management work in the central administration supporting all departments.

The main problems that the cryptosporidium outbreak caused for the healthcare administration was a high amount of sick leave among staff, placing a heightened work burden on the staff left and with a lot of temporary staff-partly untrained-called in. A range of practical problems concerning water handling was added to the regular work.

3. Theory

To raise the theoretical understanding of this study the analytical framework is developed from two bodies of theories. As the healthcare department is organized as an open system with loosely coupled units, firstly organization theory on open systems is applied. Secondly, the study concerns relational aspects and decision-making within the loosely coupled organization during the outbreak, hence issues of trust become important. To this end concepts from theories of trust are applied in the analysis. The theories are presented in the same order as above.

The perspective of open system views organizations as dynamic, adaptive, open systems that need to match the complexity of their environments [17]. Organizational adaption to the environment means preparing for and dealing with uncertainties and contingencies, something which Lawrence and Lorsch stressed back in 1967 when launching their contingency theory [18]. Their model assumes that there is no best way for corporations to organize, lead, or make decisions. Instead, organizations have to strike a balance between internal needs and external circumstances [19]. This is achieved by structural and cultural differentiation and integration [18]: “the more dynamic the environment, the more differentiated the organization needs to be; the more differentiated the organization, the more integrative mechanisms there need to be” ([20], p. 495).

One way of adapting to the environment is by ‘uncertainty absorption’ [21]. Whenever an organization cannot avoid or transfer an uncertainty, for example through insurance, decision-making needs to be made with bounded rationality. This means that full knowledge of the future is either impossible or that the cost permitted of acquiring information in the present is limited. When the level of knowledge is believed to be satisfactory (acceptable, though not optimal), or when resources are tightened, the uncertainty is considered to be absorbed.

According to March and Simon, uncertainty absorption is frequently used, consciously or unconsciously, as a technique for acquiring and exercising power [21]. Thus, not sharing information

can be a means of remaining in power. In crisis management, information is often tremendously important. Absorbing uncertainty in a crisis in the way that March and Simon describe, is probably more often the rule than the exception. Quick decisions have to be made under great uncertainty by constantly judging what is a satisfactory level of knowledge and what is not.

Other systemic theorists have challenged the idea that organizations behave as rationally as the contingency theory and bounded rationality approach assumes. Pfeffer and Salancik [22] for instance, point to the 'active agency' of individual organizations and their leaders where they stress the importance of the initiatives of agents. The idea is that in the dependency on the exchange of resources between the organization and the environment, the organization is not a victim of complex contextual forces, but models its course of action through an active agency. In crisis management, the capacity for open, quick exchanges of resources is crucial.

Just like Pfeffer and Salancik, Thompson [23] also addresses 'active agency' but also the 'sphere of action' as key elements in dealing with uncertainties. Thompson applies a rather cynical view of pure self-interest over discretion. He claims that "individuals exercise discretion whenever they believe it is to their advantage to do so and seek to evade discretion on other occasions" ([23], p. 118). To only stress one-sided, egotistical motives for discretion seems rather tendentious. Even though decision making in the midst of a crisis exceeds the realm of a manager's or other staff member's usual sphere of action [1], it is hard to believe that egoism is the most significant or the only guiding compass.

In order to examine the relational aspects within the healthcare organization as an open system, some concepts from theories of trust are added. The rationale for choosing trust concepts is that the different units within the organization are targeted with expectations. These expectations may come from the caretakers and their akin, the administrative management, the public, the news media, and the other units within the organization. The idea is that the health care is expected to run regardless of circumstances and that people in Sweden generally put a very high trust in the healthcare system.

In particular, two aspects of trust are relevant to apply here: *routine* (and disrupt from routine) and *directions*. The first one concerns, in this case, the expectation that regular routines will apply and that work will continue as usual, in terms of service delivery and decision making, even under stressful circumstances. Möllering [24] describes how taken-for-grantedness is a basis for action 'until further notice' and that faced with uncertainty, routines can enable action [25]. In a study particularly relevant for this paper Child and Möllering [26] found that managers with higher contextual confidence had stronger trust in local staff and that, trust was higher when managers had successfully transferred routine practices to the local operations. We can thus see that trust and agency have clear connections to routines [27], which we will come back to in the results section. The possibility of agency is dependent on the stability, familiarity and continuity carried by routines in the sense of regular action patterns and rules [28].

As the study concerns an open system with units at different organizational levels it is important to distinguish between different directions of trust. We can distinguish two directions of trust: One *vertical*, which is about power relations and communication between organizational levels, and one *horizontal*, which is about peer collaboration and solidarity [29]. The upwards-directed vertical trust has been vastly studied, i.e. the kind of trust employees put in employers or citizens'

trust in institutions [30–33]. Much less research has been conducted on the downwards-directed vertical trust, for instance on employers' trust in employees [34], and companies' trust in suppliers and customers [35]. Yang [36] though, claims that the downwards directed trust is equally important as the upward directed in explaining administrative behavior.

Horizontal trust concerns all kinds of relational networks between people and/or organizations where there is no formal power involved [29]. At an interpersonal level, there might be informal power relations involved emerging from previous interaction between the trustor and the trustee. However, these kinds of relations are not examined here, as it would be too complex to fit with the empirical study.

Regarding decision making Simmel [37] described how trust involves faith as a basic element. Guido Möllering [38] makes a more scientific distinction of this in describing trust as a mental process consisting of *expectation*, *interpretation*, and *bracketing*. The expectation concerns the expected results from the choice made, which is the narrow perspective on trust held by the rational-choice school. However, the expectation is succeeded by an interpretation of the possible results from the different options to choose among. This interpretation is based on the normative perspective of the decision maker and based on the values that he/she holds. This aspect of trust has lately opened up the former rational explanations of trust to include emotions and moral as parameters in trust-related decision-making. Since the interpretation is always ontologically based, trust has also a suspending function. This means that the inherent uncertainty in any decision-making is bracketed; "*suspension*: the bracketing of the unknowable" ([38], p. 417). By this explanation we can see how the combination of interpretation based on rationality, emotions, and moral, in combination with the bracketing function, explains Simmel's notion of faith as an element of trust.

4. Method

Data collecting consisted of interviews with staff members on different levels of the healthcare administration, and with experts in the *Cryptosporidium* case. To keep the study consistent, the only two divisions that were completely within the geographical area of the freshwater system were chosen for the study. It was thus possible to focus solely on the disturbances from the outbreak without having to consider any internal variations with regard to water supply. Three aspects were considered in selecting the care units: *The type of accommodation*; *The kind of care takers and their conditions*; and *The different kinds of care services provided*.

Individual interviews were carried out with: the Deputy head of department (IL)¹, the Division executives (ML1 and ML2), the Head Nurse (CE1), the Municipal security coordinator (CE2), and the Healthcare administration information officer (CE3). Group interviews with care staff were done as follows: Home care service, 2 interviewees (OL1), Special housing, 4 interviewees (OL2), Special housing, 6 interviewees (OL3), Elderly centre, 7 interviewees, of which one was head of department (OL4), and Home care service, 3 interviewees (OL5).

¹The bracketed abbreviations refer to the quotations in the results section.

The interviewees were asked questions about the regular processes of risk and crisis management at work (e.g. planning, training, communication), and about personal and professional experience of other crises and straining situations. Above this they were asked to describe how the cryptosporidium case played out for them professionally and personally. The author carried out all interviews face-to-face at each workplace. All conversations were recorded. Procedures for the interview, data processing, anonymity, and the publication of the results were communicated in writing in advance and orally before starting the interviews. All interviewees consented with no objections. The option to opt out before, during, or after the interview was communicated in advance and at the interviews.

4.1. Analysis

Systemic organization theory asserts that an organization is a compound of both formal and social elements/structures. The construction of the analytical framework, presented in **Table 1**, is based upon this idea, adding a reflexive trust-dimension of active agency.

Organizational structures precondition how incidents are dealt with in organizations. Three elements were identified as being of special significance for handling the Cryptosporidium outbreak: *crisis management plans, formal roles and responsibilities, and crisis management processes*. Municipalities in Sweden are obliged to be prepared for crisis management; however, the rules of how to do this are open to local application. The organizational structures form a baseline for managing adverse events: the formal organizational preparedness.

The formal preparedness of the organization is socially embedded in the everyday work of the staff. A range of **social structures** thus influences how an incident is managed. Four social elements that were assumed to be significant in this case were included: *individual and collective experiences of crises, social work-relations, work-related knowledge, and informal roles and responsibilities*. A smooth and effective distribution of crisis management demands a certain

Organizational structures	Plans (documents, prepared crisis management team)
	Roles (assigned roles in crises)
	Processes (training and exercise, education, involvement)
Social Structures	Individual and collective experiences from crises
	Work-related knowledge (relevant old and emerging new)
	Informal roles and responsibilities
	Social work-relations
Active Agency	Actions and measures taken
	Shifting horizons of action
	Creativity/improvisation/innovation
	Critical distance and reflection

Table 1. Analytical framework.

amount of reliance and confidence between colleagues and between organizational levels. As such, social structures complement formal preparedness with trust.

This combination is the setting for an **active agency**. The agency refers both to the concrete actions, what the staff do to alleviate the problems arising from the outbreak, and the critical distancing of a reflexive subject. 'Active' refers to the ability and motivation of individuals and small groups for taking action in a given situation. In addition to the concrete *actions and measures taken*, three elements are included: *shifting horizons of action*, *creativity/improvisation/innovation*, and *critical distancing and reflection*.

The analysis of the transcribed interviews (ca 50,500 words) was carried out through several readings in order to identify issues and statements fitting the analytical framework. The content was then analyzed by using the analytical frame both from a vertical perspective (consequences, actions taken, communication, etc. on the same organizational level) and horizontally (consequences, actions taken, communication, etc. between different organizational levels).

5. Results

First a short introduction presents how the message regarding the outbreak was received and defined by the interviewees, and how internal communication was handled during the outbreak. In addition, some reflections on learning and when the interviewees believed the incident was over. The results from the analysis are then presented in a condensed form in **Tables 2–4**. The tables include the observations and issues raised in the interviews, and by the findings from the analysis.

Only one of the interviewees found out about the outbreak internally, all the others learned through the news media or through friends and relatives. Several of the interviewees even got to know from people living outside of Östersund or even abroad. No formal information was sent out internally. All available information seems to have been disseminated by word of mouth.

One interview question was "Who defined the incident?" For both the managerial and operative levels, the answer was quite obvious: the definition came from the top. However, for the institutional level, the definition was not at all clear—at least not at the start. At first the process of learning about the incident was slow. It basically concerned acknowledging an increase in the reported number of sick people. "We got the signals before the peak of the outbreak. I think we became aware of this when the figure of reportedly sick people was 500-600" (IL). Later on the institutional level took the standpoint that this was not a crisis: "it hasn't caused any crisis or anything" (IL). Despite the slowly emerging character of the event, the large numbers of affected people and organizations, and the rather long duration, the outbreak was not formally defined as a crisis by top management or experts. Managerial and operative levels however had the impression that the institutional level had made such a definition.

Regular meetings were held between heads of departments and experts. No information was initially communicated from the central administration to the departments or directly to the care staff. Nor was any information communicated from the department to the divisions. Eventually,

daily e-newsletters were sent out to all members of the health department. However, by the time the information was sent out, the operative staff had already taken initiatives to deal with emerging troubles.

"No, I don't think that we got any information at all really about what we should do. Maybe the district nurse told us to boil the water."

"Yes, but at that time we had already started doing that. It was sort of natural thing to do." (OL5).

The operative personnel were generally disappointed about the lack of internal information. A general observation was that operative personnel share information and solve problems informally. For example, they called the hospital for medical advice and other units to ask for assisting personnel.

The division executives seemed satisfied with the information. They mainly talked about information regarding the parasite, not about organizational issues.

"Since it is a new kind of parasite, that we are not familiar with, there is a risk of rumors emerging [...] information is very important" (ML1).

"This time it was good information. They sent out updated newsletters regularly from the department" (ML2).

Practically all interviewees said they were going to drink the water as soon as the boil notice was officially lifted, though some planned to wait longer. At work, there was no intention of extending the water restriction longer than necessary. One division executive though, claimed that the incident would not be over until an assessment had been made. Some interviewees believed that the outbreak was a sign of a permanently changed environment "New parasites will surely show up eventually" (OL3), "When is the incident over? Never, it will always be present" (OL2).

The security manager planned for an overall assessment and some seminars. None of the other interviewees had any intention of collecting experiences from the outbreak.

5.1. Organizational structures

Since the central crisis management team was not activated, the responsibility for handling the crisis remained with ordinary management. Managers at both institutional and managerial levels stressed the importance of line management. Even though the division executives were responsible for regular fire-protection checks and had emergency plans ready, they did not have the knowhow to actually deal with incidents. There should be one person on the institutional level working 20% with risk and crisis management specifically for the department. However, a recently retired person who was not replaced at the time of the outbreak held this position. All managers and experts mentioned this with regret.

Several units had a crisis management plan-stating the minimum staff and duties to be prioritized-but in only one interview were the interviewees aware of the plan. Generally, the personnel expressed uncertainty regarding the plans and procedures for crisis management. All employees at an operational level took a mandatory half-day course in fire safety every 3 years

but none of them had ever been involved in crisis management planning, training, or exercises. Several said that they wanted to be more involved in that kind of work in a practical sense. From the experiences of a number of previous deaths among colleagues, due to cancer and accidents, a general need for local crisis teams was addressed in two interviews.

Apart from the security manager, the other two experts had not been involved in any preparation training at all. The head of the central information office had been involved in exercises and was responsible for the municipal crisis communication plan, but no one else from the healthcare department had been involved.

Institutional level	Managerial level	Central expert functions	Operative level
A parasite outbreak was not a scenario that had been planned for.		<i>The security manager</i>	Feelings of uncertainty.
A central crisis team is assigned for large emergencies.		Responsible for coordinating the planning, analyses, training, assessments, etc. in crisis management.	Have no emergency/crisis instructions.
The responsibility for security is shared between the department's security manager, the central security manager, and division executives.		Was not very involved in managing the outbreak.	Regular security (guarding) and health workers are outsourced.
Line management is very important.		Plans on conducting an evaluation and seminars.	All units have regular collaborative meetings with managers, members of staff, union representatives, etc.
The department lacks a security manager The managers and experts receive training.		<i>The other two experts</i>	The local crisis management plans were not applied in the outbreak.
	The department's crisis team = regular top management (division executives and managers at an institutional level). This group normally meets every second week for regular work planning.	Not involved in plans or groups regarding risks and crises.	The unit manager was identified as responsible for giving information in the outbreak.
	The ML has a list of people to call in emergencies.	Not involved in exercises, security assessments or crisis plans.	All staff members are also responsible but it is difficult to define exactly what for.
	More reactive than proactive crisis work.	In the information office, only the head takes part in exercises.	Have never had any crisis training.
	Responsible for risk and vulnerability analyses at the department.	They have lists of people to call in emergencies.	All staff members take a half-day course in fire safety every 3 years.
	A file for systematic fire-protection.	Feel confident about their expert roles, but generally unsure about crisis management.	Several members of staff would like to be more involved.
	Courses in fire safety.	The department lacks a security manager.	There is a regular system for reporting ill patients.
	A regular 24-hour emergency duty for nurses.		
	Regular assessments and audits of the working environment.		

Table 2. The outbreak related to organizational structures. Observations and issues brought up in the interviews and from the analysis.

5.2. Social structures

Many employees had worked in the department for a very long time. No interviewee at any level though had had any experience of work-related crises. The crisis was similar to the annual outbreak of 'winter vomiting disease', both in terms of individual symptoms and organizational effects. However, the experiences and systems for dealing with the returning disease were not applied in the *Cryptosporidium* case.

All contacts between units at the operative level and between different organizational levels seemed to be characterized by informality. The information officer described how new roles for the people at the information office were modeled ad-hoc as the outbreak evolved. These roles were allocated on a daily basis, and changed from person to person.

The care personnel were in many cases used to dealing with risks in their normal duties. There was no point in taking on other informal roles in this case. Practically everyone took on the individual responsibility for boiling and distributing water.

I think we are working with that [risks] all the time. I mean, training in using stairs with someone who is 80 years old is one hell of a risk. ... It's like a habit so we do not think of it as dangerous anymore. (OL5).

From the managerial perspective, a large portion of trust in the staff was expressed. At the institutional level, not much was found regarding social structures, maybe because very little changed on this level.

Institutional level	Managerial level	Central expert functions	Operative level
The informal nature of internal relations meant that the outbreak was handled smoothly.	Need for a role which bridges safety and the department's work. What needed to be done was done in an informal way. A high level of trust in the staff. Many people at the department have worked here for many years. Despite the long experience of staff, the outbreak came as an unpleasant surprise. Problems may arise differently for private enterprises outsourced to. No extra meetings were necessary.	Their expertise was acknowledged. The need for the right skills became obvious. The experts had key roles in solving the case. Modeled ad-hoc roles at the information office, informally given or allocated every morning.	Almost no experience of crises. But experienced in dealing with risks in everyday work, such as supporting the elderly in physical training. At two units, colleagues had died of cancer and accidents. Are very used to dealing with problems in their daily work in an informal way, either independently or in collaboration.

Table 3. The outbreak related to social structures. Observations and issues brought up in the interviews and from the analysis.

5.3. Active agency

Only at the institutional level were regular meetings about the outbreak held, at first daily but then more sparsely. At a managerial level, almost no action was taken. At an operational level, many small adjustments were made such as boiling water, distributing water in small bottles, putting up warning signs by the water taps, and talking to patients about the outbreak. All of these measures were improvised by the personnel. Some examples of creativity were found such as using strong metaphors or images to really drum into dementia patients that the water was contaminated. However, there was no collaboration or sharing of knowledge/experiences about the outbreak between units.

Institutional level	Managerial level	Central expert functions (not the security manager)	Operative level
<p>The affected municipal departments initially had meetings every morning, then more sparsely later on.</p> <p>Frequent contact between levels during the outbreak.</p> <p>Did not activate the central crisis team. This team is governed by special laws and requires special organizing.</p> <p>The effects of the outbreak were similar to regular stomach diseases.</p> <p>Maintaining the line organization was important.</p> <p>No plans for how the outbreak might have developed (e.g. spreading to other water systems).</p>	<p>Almost characterized by a passive agency.</p> <p>No meetings or communication out of the ordinary.</p> <p>Put great confidence in the staff.</p>	<p>Showed great individual initiatives.</p> <p>Did not have any instructions to follow but had to improvise.</p> <p>The case was prioritized before other duties. Within the case, they made their own individual prioritizations.</p>	<p>Everyone boiled water.</p> <p>No unit received special deliveries of water.</p> <p>Boiling the water was soon incorporated in daily routines.</p> <p>The water was turned off for several patients.</p> <p>In most accommodation, warning signs were put up next to the water taps.</p> <p>Some dementia patients had to be warned by using strong images ("there is shit in the water").</p> <p>The extra tasks took time away from other duties, for instance boiling water, distributing individual bottles to every patient, and turning on and off the water.</p> <p>Most solutions were improvised since no instructions were given.</p> <p>At a couple of units, the outbreak was discussed at morning meetings.</p> <p>The outbreak was quite straightforward. Common sense was enough to deal with it.</p> <p>Many reflections relating to regions with drought or bad water, but also their own, local vulnerability.</p> <p>Several interviewees addressed the environmental issues related to the increased sales of bottled water.</p>

Table 4. The outbreak related to active agency. Observations and issues brought up in the interviews and from the analysis.

Two horizons of action seem to have guided the active agency at an operative level: the safety and well-being of the patients, and keeping the working environment as unaffected by the outbreak as possible.

The experts clearly acted autonomously. The head nurse did not wait for orders or definitions but instantly acted upon the warning alert. She called all nurses at the divisions who were working that night, ensuring that all of them got the information. The information officer showed some innovative initiatives in setting up a notification system and various ways of channeling internal information. However, she stated that the information office in general focused much more on the external information to the public, than on internal information to the staff.

One significant observation was that the variations in reflections on the outbreak were larger and more non-work oriented at the operational levels than at all the other levels (including the experts).

6. Discussion

The aim of this paper is to examine how the interplay between trust and the organizational setting might influence the framing and management of an uncertain, adverse event at different organizational levels. From an organizational perspective, the outbreak represents an almost ideal contingency; it was characterized by a genuine uncertainty regarding causes and how to manage and solve the concurrent problems, most inhabitants had never heard of the parasite before or knew anything about the effects, the outbreak was a combination of a creeping crisis with a slow onset and fast solution and a long shadow crisis with a fast onset and lingering consequences [11]. All in all, the outbreak came as a total surprise to everyone, and put a lot of strain on both the central municipality administration and on the different technical administrations.

As the outbreak had direct effect on the day-to-day operation for each unit, the contamination was not possible to avoid or transfer. The units had to deal with it in their everyday work. Further, sealing off the water supply was not an option either since the water grid is the same for the whole community. Nor was an organizational “siloing” possible because all units were affected and the outbreak affected the core work. Therefore, the outbreak and the uncertainty had to be integrated with the regular tasks at each unit. Absorption was the only feasible alternative of managing the situation.

Throughout the outbreak all operational decisions were made at each unit. Related to Möllering's [40] conceptualization of interpretative trust, this could have led to distinctly differing decisions between the units. This however, turned out to not be the case. And even if some small decisions differed, the general outcome of the decision-making seems to be fairly similar. The explanation for this can be that the units are used to operate solitarily in everyday work. Therefore, the staffs are used to work toward specific goals regarding the wellbeing of the caretakers. In the outbreak, this goal attainment seems to have contributed to a positive outcome by guiding the decisions taken by the staffs.

Thanks to informal relations and an active agency, especially by the care staff at an operative level and also by the experts, the crisis was quickly adjusted for, and measures for dealing with the outbreak were integrated into everyday work above all through improvisation and creativity. Improvisation and creativity are two long-standing terms in crisis research. However as with crisis management studies, general existing studies of improvisation tend to focus on disasters and large-scale emergencies and on manifest crisis management organizations, especially with regard to emerging organizations and leadership [39–42]. Much less is written on the improvisation of ordinary staff in ordinary organizations facing minor emergencies.

Pfeffer and Salancik’s [22] notion of active agency chiefly concerns how *organizations* can act independently in relation to external forces. A general criticism of this notion is that organizations cannot act, only *individuals* can. The active agency demonstrated in the outbreak is a good example of individual initiatives. A high level of internal trust and a wide individual sphere of action seemed to be a decisive precondition for this active agency. This is in line with Thompson’s [23] identification of the sphere of action as a key element in dealing with uncertainties. If the personnel is expected and encouraged to take initiatives in everyday work, it is plausible that they will also do so in a crisis. However, having well-defined limits of the sphere of action is a crucial prerequisite. Participation in planning is another way of enhancing the capacity of the street-level workers [43].

Although no empirical information was found indicating pure egotistical motives, as proposed by Thompson, it should be mentioned that the operative level had low trust in the institutional level. One reason for this could be the reluctance at the institutional and managerial levels to produce and internally disseminate information and instructions. This could be interpreted as an example of March and Simon’s description of avoiding information-sharing as a power technique [21]. Power was not explicitly mentioned in the interviews, but March and Simon do stress that this strategy can be unconscious as well as conscious.

A particularly interesting finding is that the framing of the outbreak differed between the organizational levels with regard to time and space (see **Figure 1**). The institutional level talked about previous incidents and exercises within the administration (*historical-internal focus*). The division executives at a managerial level mainly addressed internal issues, but were much more future-oriented (*future-internal focus*). The experts asserted that regaining confidence among the clients’ relatives, by the local citizens in general, and by tourists and



Figure 1. Time-spatial framing of the Cryptosporidium outbreak at different organizational levels.

visitors (*future-external focus*) guided their prioritizations during the outbreak. At the operational level, the reflections and connotations did not concern the work or the local context. The issues brought up concerned experiences from around the world such as historic hazards and the struggle with water that many people around the globe deal with every day. They also mentioned the environmental consequences of bottled water (*historical-external focus*).

This variation in framings might not be possible to ascribed trust or organizational setting. However, the logic behind the framing is assumedly related to the different roles of the respondents, and to the immanent perspectives at the different levels. Consequently, there are clear organizational influences to this framing. Interestingly, the framings partly contradict Thompson's [23] assertion on the nature of different organizational levels. The operational level was not the most closed rational in this case, the institutional level was. On the contrary, the operational level took an open adaptive approach, which Thompson reserved for the institutional level. In Thompson's theory, management plays a very active role in mediating between levels. In the *Cryptosporidium* case, such a role was not at all visible.

The self-sufficient units and their solitary decision-making, combined with the variations in the framing of the outbreak, highlight the issue of how trust in different directions is characterized. The vertical, power-oriented trust is particularly interesting as it stayed the same as under normal circumstances but was charged with new meanings and interpretations during the outbreak. A high level of downwards directed trust on the one hand provides the units with a large sphere of independency, but is also a way of exercising power by avoiding being questioned. The downwards-directed trust did not change during the outbreak but increased, or strengthened, i.e. the management continued to trust the staffs just as much or even more as in normal circumstances. This was also communicated to the staffs. However, from a critical point of view, this acting could be a sign of exercising power and fleeing from responsibility. Further, it may put the units under a lot of stress and make them more vulnerable.

The upwards-directed trust in the healthcare administration is normally high. The units claim that it is liberating under normal circumstances to be free to make their own decisions. However, the outbreak was something so out of the normal that it was difficult for the staff to know what to do. In the interviews, they stated that they were completely ignorant about the parasite, they did not get any instructions or have sufficient training for crises, and the crisis plans were not adopted. Caught by surprise, yet acting with creativity and improvisation, the staffs seem to have been expecting something more from the management – unclear what though. Presumably, the expectations fall back on two main issues: the lack of clear responsibilities and the lack of sufficient training (see **Table 3**). From a trust perspective, it is therefore a bit peculiar that the upwards-directed trust remained. One speculation though is that the staff might not want to lose the well-grounded trust once the outbreak was over. By bracketing the uncertainties with small decisions to overcome emerging problems, and by avoiding to questioning the management, the staffs secured not to jeopardize their independence. If this is true, then the interplay between the upwards-directed and the downwards-directed trust seems to facilitate the exercising of power discussed above.

7. Conclusions

The general conclusions from this case study are that trust and organizational setting influenced the framing and handling of the cryptosporidium outbreak. Especially, the level of vertically directed trust established before the outbreak, along with the relatively high independence of the different units at operational level was crucial.

Returning to the observations from the introduction on the character of studies in crisis management, it seems clear that there is a need for developing organizational theory of non-emergency organizations, small-scale events, and the integration of adverse events in the formal and social structures of everyday regular work. Existing organization theory and theories from crisis management studies can only partly describe the relational aspects of this integration.

The classical organization theories seem to treat only *known uncertainties* ('known unknowns') directly related to ordinary work and production. They do not treat *genuine uncertainties* ('alien externalities' or 'unknown unknowns') or explicitly the management of crises in organizations. Thus, these theories are not directly applicable to crisis management studies. However, since the theories include aspects of contingency and the absorption of uncertainties, they are relevant for developing a more specific crisis management theory. Such a theory would positively complement existing studies on disaster management and other large-scale events.

Author details

Jörgen Sparf

Address all correspondence to: jorgen.sparf@miun.se

Risk and Crisis Research Centre, Mid Sweden University, Östersund, Sweden

References

- [1] Laufer R. Crisis management and legitimacy: Facing symbolic disorders. In: Pearson CM, Roux-Dufort C, Clair JA, editors. *International Handbook of Organizational Crisis Management*. Los Angeles: Sage; 2007. pp. 25-38. DOI: 10.4135/9781412982757.n2
- [2] Smith D. Modelling the crisis management process: Approaches and limitations. In: Smith D, Elliot D, editors. *Key Readings in Crisis Management. Systems and Structures for Prevention and Recovery*. London: Routledge; 2006. pp. 99-114
- [3] Danielsson E, Enander A, Larsson G. Modell för att studera organisationer som har till uppgift att agera när samhället utsätts för påfrestningar i form av risk, kris och krig. (A Model for Studying Organisations obliged to Act When the Society is Under Pressure from Risk, Crisis and War). Stockholm: Swedish Defence University; 2004

- [4] Reason J. The contribution of latent human failures to the breakdown of complex systems. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*. 1990;**327**:475-484. DOI: 10.1098/rstb.1990.0090
- [5] Roberts KH. Managing the unexpected: Six years of HRO-literature reviewed. *Journal of Contingencies and Crisis Management*. 2009;**17**:50-54. DOI: 10.1111/j.1468-5973.2009.00564.x
- [6] Weick KE, Sutcliffe KM. *Managing the Unexpected: Assuring High Performance in an Age of Complexity*. San Francisco: Jossey-Bass; 2015. 210 p. DOI: 10.1002/9781119175834
- [7] Pidgeon N, O'Leary M. Man-made disasters: Why technology and organizations (sometimes) fail. *Safety Science*. 2000;**34**:15-30. DOI: 10.1016/S0925-7535(00)00004-7
- [8] Andersen S. Evaluation of safety methods and tools supporting decision making in IO-based on HRO and resilience engineering. In Albrechtsen E, editor. *Essays on Socio-Technical Vulnerabilities and Strategies of Control in Integrated Operations*. SINTEF Report: SINTEF A14732. 2010. pp. 37-43
- [9] Howitt AM, Leonard HB. *Managing Crises: Responses to Large-Scale Emergencies*. Washington, DC: CQ Press; 2009. 672 p
- [10] Oscarsson O, Danielsson E. Unrecognized crisis management—Normalizing everyday work. *Journal of Contingencies and Crisis Management*. 2017;**25**:1-12. DOI: 10.1111/1468-5973.12176
- [11] Drennan LT, McConnell A. *Risk and Crisis Management in the Public Sector*. London: Routledge; 2007. 286 p. DOI: 10.4324/9781315816456
- [12] Heath R. Dealing with the complete crisis—The crisis management shell structure. *Safety Science*. 1998;**30**:139-150. DOI: 10.1016/s0925-7535(98)00042-3
- [13] Burnett JJ. A strategic approach to managing crises. *Public Relations Review*. 1998;**24**:475-488. DOI: 10.1016/s0363-8111(99)80112-x
- [14] Penrose JM. The role of perception in crisis planning. *Public Relations Review*. 2000;**26**:155-171. DOI: 10.1016/s0363-8111(00)00038-2
- [15] Mitroff II, Anagnos G. *Managing Crises Before They Happen: What every Executive and Manager Needs to Know about Crisis Management*. New York: Amacom; 2001. 192 p
- [16] FOI/SLV. *Cryptosporidium i Östersund vintern 2010/2011. Konsekvenser och kostnader av ett stort vattenburet sjukdomsutbrott. (Cryptosporidium in Östersund during the Winter 2010/2011: Consequences and Costs from an Outbreak of a Waterborne Disease).* Totalförsvarets forskningsinstitut och Livsmedelsverket. (Swedish Defence Research Agency and The National Food Agency). Report OI-R-3376-SE. 2011. 72 p
- [17] Scott WR. *Organizations: Rational, Natural, and Open Systems*. Upper Saddle River, NJ: Prentice Hall; 2003. 452 p

- [18] Lawrence PR, Differentiation LJW. Integration in complex organizations. *Administrative Science Quarterly*. 1967;**12**:1-47. DOI: 10.2307/2391211
- [19] Morgan G. *Images of Organization*. Thousand Oaks, CA, Calif.: Sage; 2006. 520 p
- [20] Bluedorn AC. Organization and Environment. *Journal of Management*. 1991;**17**:494-496
- [21] March JG, Simon HA. *Organizations*. 2nd ed. Oxford: Blackwell Business; 1993. 300 p
- [22] Pfeffer J, Salancik GR. *The External Control of Organizations. A Resource Dependence Perspective*. New York: Harper & Row; 1978. 336 p
- [23] Thompson JD, Zald MN, Scott WR. Organizations in action. In: *Social Science Bases of Administrative Theory*. New Brunswick, NJ: Transaction; 2003. 222 p
- [24] Möllering G. *Trust: Reason, Routine, Reflexivity*. Oxford: Elsevier; 2006. 230 p
- [25] Becker MC, Knudsen T. The role of routines in reducing pervasive uncertainty. *Journal of Business Research*. 2005;**58**:746-757
- [26] Child J, Möllering G. Contextual confidence and active trust development in the Chinese business environment. *Organization Science*. 2003;**14**:69-80
- [27] Feldman MS, Pentland BT. Reconceptualizing organizational routines as a source of flexibility and change. *Administrative Science Quarterly*. 2003;**48**:94-118. DOI: 10.2307/3556620
- [28] Becker MC. The concept of routines: Some clarifications. *Cambridge Journal of Economics*. 2005;**29**:249-262. DOI: 10.1093/cje/bei031
- [29] Misztal BA. *The Challenges of Vulnerability: In Search of Strategies for a Less Vulnerable Social Life*. Basingstoke: Palgrave Macmillan; 2011. 263 p
- [30] Edlund J. Trust in the capability of the welfare state and general welfare state support: Sweden 1997-2002. *Acta Sociologica*. 2006;**49**:95-417. DOI: 10.1177/0001699306071681
- [31] Bauhr M, Explaining Public Trust in Institutions. The role of consensual expert ideas. In: Lundqvist L J, Biel A, editors. *From Kyoto to the Town Hall: Making International and National Climate Policy Work at the Local Level*. London: Earthscan; 2007. pp. 27-42
- [32] Devos T, Spini D, Schwartz SH. Conflicts among human values and trust in institutions. *British Journal of Social Psychology*. 2002;**41**:481-494. DOI: 10.1348/014466602321149849
- [33] de Jonge J, van Trijp JCM, van der Lans IA, Renes RJ, Frewer LJ. How trust in institutions and organizations builds general consumer confidence in the safety of food: A decomposition of effects. *Appetite*. 2008;**51**:311-317. DOI: 10.1016/j.appet.2008.03.008
- [34] Seppälä T, Lipponen J, Pirttilä-Backman A-M, Lipsanen J. Reciprocity of trust in the supervisor-subordinate relationship: The mediating role of autonomy and the sense of power. *European Journal of Work and Organizational Psychology*. 2011;**20**:755-778. DOI: 10.1080/1359432x.2010.507353

- [35] Svensson G. Perceived trust towards suppliers and customers in supply chains of the Swedish automotive industry. *International Journal of Physical Distribution & Logistics Management*. 2001;**31**:647-662. DOI: 10.1108/09600030110408152
- [36] Yang K. Trust and citizen involvement decisions: Trust in citizens, trust in institutions, and propensity to trust. *Administration & Society*. 2006;**38**:573-595. DOI: 10.1177/0095399706292095
- [37] Simmel G. *Sociology: Inquiries into the Construction of Social Forms*. Leiden: Brill; 2009. 694 p
- [38] Möllering G. The nature of trust: From Georg Simmel to a theory of expectation, interpretation and suspension. *Sociology*. 2001;**35**:403-420. DOI: 10.1017/s0038038501000190
- [39] Wachtendorf T. *Improvising 9/11: Organizational improvisation following the world trade center disaster [doctoral dissertation]*. Newark: University of Delaware, Sociology & Criminal Justice; 2004
- [40] Drabek TE, McEntire DA. Emergent phenomena and the sociology of disaster: Lessons, trends and opportunities from the research literature. *Disaster Prevention and Management*. 2003;**12**:97-112. DOI: 10.1108/09653560310474214
- [41] Uhr C, Johansson H, Fredholm L. Analysing emergency response systems. *Journal of Contingencies and Crisis Management*. 2008;**16**:80-90. DOI: 10.1111/j.1468-5973.2008.00536.x
- [42] Mendonça DJ, Wallace WA. A cognitive model of improvisation in emergency management. *IEEE Transactions on Systems, Man, and Cybernetics*. 2007;**37**:547-561. DOI: 10.1109/tsmca.2007.897581
- [43] Nilsen AS. Tools for empowerment in local risk management. *Safety Science*. 2008;**46**:858-868. DOI: 10.1016/j.ssci.2007.01.008

