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Anthrax Letters in Sweden?

Analysis of how FOI's Division of NBC-Protection managed the "Anthrax Letters" during the Fall of 2001 – from a Crisis Management Perspective.

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1. INTRODUCTION

When the so-called anthrax letters began to appear in the U.S.A. in early October 2001, FOI (the Swedish National Defense Research Agency), prepared to put its personnel and its expert knowledge at society's disposal, in case Sweden should be subjected to similar incidents.

When the first parcel[1] with suspect contents appeared in Sweden in the middle of October, FOI-NBC-Protection (the Division of Nuclear, Biological and Chemical Protection, in the northern city of Umeå), abbrev. FOI-NBC, undertook the task of analyzing its contents. At the request of the Swedish National Police Board (RPS), FOI also agreed to test the contents of any further such parcels that might turn up. FOI is traditionally a research and advisory organization, not a day-to-day operative organization. Thus, NBC-Protection had to make a number of quick decisions concerning management and re-organization, in order to meet the demands of the situation.

Since the term "crisis" is central to this report, a short explanation of what the authors mean by this term is justified. A *crisis* is a situation and a process in which decision makers *perceive*[2] all of the following:

- a threat to fundamental values
- severe time pressure
- uncertainly

Such situations can have their origins both in internal organizational factors and in external factors (Sundelius, Stern & Bynander, 1997).

This report presents an analysis of interviews and testimonies given by staff of FOI-NBC, in connection with the so-called anthrax crisis. The situation/process which arose at that time was experienced not only as fundamentally threatening to society, but also to FOI-NBC's credibility as an organization. It also involved intense time pressure and a great deal of day-to-day uncertainly.

However, crises not only involve threats, but also present new opportunities. More specifically, if FOI NBC-Protection could successfully master the situation, this could only lead to an increase in its credibility as a (expert) knowledge organization.

In the aftermath of the “anthrax crisis”, FOI-NBC was – naturally – interested in finding out if its staff had been given adequate means to do a proper job, if delegated responsibilities were accepted, how assigned tasks were carried out and if the decision making process was employed in a competent manner. In short, how well did the organization actually function when, during that short, intense period in the fall of 2001, it was forced to transform itself from an "advisory" organization to an "operative" one?

Thus, in the spring of 2002, FOI's Division of Defense Analysis in Stockholm was given the task of studying how FOI-NBC in Umeå handled the events of 2001.

[1]The expressions "parcel" and “letter” will be used synonymously in this report.
[2] The concept of "crisis" thus involves a subjective experience which has its basis in the *perception* of events.

1.1 PURPOSE OF THE STUDY

The main purpose of the study is to illuminate how effectively FOI-NBC-Protection carried out its tasks as concerns management and leadership, decision making and coordination with other actors, and with information dissemination and media contacts. All of this had to be carried out under time press and uncertainty, where basic societal values were at stake.

Time wise, the study focuses on a two week period beginning on October 15th, 2001.

Organizational effectiveness is one of the main factors or themes of this study. However, the measure of an organization's "effectiveness" under different circumstances is a complex issue. One way to avoid all too simple explanations concerning whether an organization performed effectively or not in a given situation, is to identify and compare a number of variables that indicate different aspects of effectiveness. Thus, in addition to factors such as leadership, coordination and information management, we have also considered such factors as resource allocation/utilization, and stress management, as indicators of organizational effectiveness.

1.2 METHOD

An extraordinary occurrence like the "anthrax crisis" is not a unified course of events, but consists of a series of individual incidents which places decision makers in critical, "decision-making" situations. In order to get an overall picture of how such an extraordinary occurrence unfolds, one thus needs to examine individual events in detail.

In this report, a so-called process tracing method has been employed. With the help of this method, the timeline of events has been mapped, reconstructed and analysed. The method is based on "cognitive-institutional theory", which makes it possible to take consideration of both organizational rules/regulations and individuals' perceptions and interpretations of events (Stern, 1999). The method focuses on those *features or elements of a course of events, which lead to decisions being made*. Thus, events are mapped into a series of "what should we do now"-situations, each of which can be seen as a partial "defining moment". For each defining moment, both decisions that are made, and decisions that are not made, have consequences for future options, and generate new, future decision points.

In the first phase of the method, the series of events are mapped out and reconstructed. In the second phase, decision points are identified on the basis of three criteria: events which challenge the decision maker's capacity to act; measures taken which further influence the course of events; and events or actions which, from a didactic perspective, illustrate good practice (alt. bad practice) for future crisis situations (Stern, op. cit.). In the method's third and concluding phase, various explanatory principles and perspectives are applied to the studied decision processes. The course of events as a whole is discussed and analyzed on the basis of different crisis management themes.

The analysis, which is presented in this report, focuses primarily on *individual* perceptions of the events.

1.3 THE DATA

The study is based on interviews with individuals who, in one way or another, were involved in working with the suspect "anthrax parcels". Logbooks and minutes from internal and external meeting provided additional sources.

During one week in February 2002, three researchers – Kerstin Castenfors (FOI-Defence Analysis), Eva-Karin Olsson and Edward Deverell (both from the Swedish National Defence College) – interviewed most of the people who were actively involved with the anthrax parcels at the division of FOI NBC-Protection. The interviewees belonged both to the executive body of the division, and to the five different institutions within the division: Threat Assessment, Medical Countermeasures, Environment and Protection, NBC Analysis, and Defence Medicine. Administrative support personnel were also interviewed.

In all, 18 persons were interviewed. The interviews were structured to the extent that questions associated with predefined themes were asked, and follow-up questions were put forward depending on the interviewees' answers. Tape recorders were used and the interview data was later compiled on the basis of a number of issues, which would help to illustrate how the suspected anthrax parcels were dealt with.

1.4 SOURCE CRITIQUE

One possible source of distortion in the interview data is the time period between the events of October 2001 and the interviews, which took place in late February and early March 2002. The reliability of the information in the report rests, in other words, on the trustworthiness of the informants. Another source of uncertainty is associated with the fact that members of an organization may be reluctant to criticise one another. This means that there is the risk that informants will portray both themselves and their colleagues as advantageously as possible. Of course, just the opposite is also possible.

The authors have attempted to compensate for these possible shortcomings by comparing different sources of information, in order to corroborate accounts or discover discrepancies. Certain statements, however, have come from solitary informants, and therefore must stand on their own.

1.5 ORGANIZATION OF THE REPORT

After mapping out the course of events associated with the "anthrax crisis", the report proceeds with a presentation of the critical decision points that arose within the crisis management process, on both strategic and operative levels. On the basis of these decision points, we then examine how the organization dealt with factors associated with strategic management, organizational co-ordination, information dissemination and contact with the media. Resource utilization and stress management are also considered. Finally, recommendations are given concerning the improvement of the organization's preparedness for similar occurrences in the future.

1.6 BACKGROUND

The possibility of terrorists dispersing anthrax bacteria has been on the security policy agenda for many years. Shortly after the terrorist attacks in New York and Washington DC on September 11th, 2001, highly placed American politicians – among them the president himself – considered the risk of an anthrax attack (Melin & Norlander, 2002). The risk for such an attack thus received a good deal of attention in the U.S.A., and even a certain amount of attention in Sweden.

On October 4th, a man was admitted to a hospital in Florida with anthrax symptoms (Dagens Nyheter, 2001-10-05). Employed at American Media in Boca Raton, Florida, he had taken ill on October 27th, and very possibly had been infected as early as the 16th (Melin & Norlander, op.cit.). He died on October 5th. All of this was reported on the Internet the same day, which was noted by two of the FOI NBC-Protection researchers who would later be involved in the Swedish anthrax crisis.

On Monday, October 8th, another American Media employee was reported as having been infected. It was also reported that anthrax bacteria had been discovered on the American Media premises. Media pressure on Swedish experts was immediate. The next day, Sweden's two national morning newspapers ran statements by researchers from FOI NBC-Protection.

Two days later, still another case was reported in the USA: an employee of the TV network channel NBC in New York tested positive for anthrax. Panic spread quickly and by the end of the week, four cases had been reported. Since most of the infected people worked with some form of postal service, there was an early suspicion that the bacteria were spread by post. This, of course, increased public suspicion concerning any unusual or uncommon type of letter or parcel. The situation was aggravated when an unusually large number of letters containing suspicious substances began to turn up throughout the country (Dagens Nyheter, 2001-10-13).

On October 14th, The Swedish afternoon tabloid Aftonbladet reported that another five persons had been infected in the USA. All of these were employees of American Media in Boca Raton. At this point, anthrax alerts began to come in from different parts of Europe.

On the 15th of October, things took on a new twist when an anthrax letter turned up at the United States Congress in Washington DC. The letter was addressed to the Democratic majority leader in the Senate, Tom Daschle (Dagens Nyheter, 2001-10-15).

At this point, fear of anthrax – and of any letters suspected of containing some form of powdered substance – spread around the world. The day before the first letter containing a suspected substance turned up in Sweden, suspected anthrax parcels had been reported by Canada, Brazil, Great Britain and Belgium (Dagens Nyheter, 2001-10-15).

Altogether, the FBI and the American Center for Disease Control and Prevention (CDC) identified five contaminated letters. Four of these were confiscated. Besides Senator Tom Daschle, they were addressed to Tom Brokaw of NBC News in New York, the "Editor" of the New York Post, and Senator Patrick Leahy, Capital Hill, Washington DC. The fifth contaminated letter was believed to be addressed to American Media in Florida, but was somehow lost or destroyed (Melin & Norlander, op. cit.).

1.7 HEIGHTENED PREPAREDNESS AT FOI NBC-PROTECTION

Starting in July of 2001, FOI's division of NBC-Protection began to institute a new set of crisis management planning directives. These, however, had not been fully established when the anthrax crisis occurred. Also, the idea with the new planning directives was to mitigate possible harm coming to FOI personnel, rather than help in cases where FOI's organizational structure and function were threatened.

However, after September 11th, at the initiative of the head of division, a generally heightened preparedness level was declared. The essence of this heightened preparedness was the establishment of seven teams of specialists, from different institutions, who would initiate an appropriate plan of action. Reviewing crisis management routines and procuring vaccines were part of this action plan. Also, an inventory was made of all available equipment, so that testing teams could be activated on short notice. The division laboratories were geared up to be able to receive increased samples for testing.

Existing plans were supplemented with a so-called preparedness list, containing the names and telephone numbers of those division personnel who would be available 24 hours per day, seven days a week, and who could be contacted if events demanded extraordinary measures.

However, on the level of strategic management – including information management – preparations were not as extensive. There was no comprehensive, organizational plan for how the division was to operate during a major crisis. This also meant that the division lacked a well-thought-out plan for media contacts. Thus, right in the middle of the hectic days of October 2001, the division was forced to create crisis and information management routines *a hoc*.

2. OPPORTUNITIES FOR DECISION-MAKING

2.1 HEIGHTENED PREPAREDNESS

As earlier mentioned, the terrorist attacks of 9/11 in the U.S.A. were the main incentive for the decision to immediately increase preparedness at FOI-NBC, the Division for Nuclear, Biological and Chemical Protection in Umeå, in northern Sweden. Although the increase in preparedness did not include any comprehensive plan or strategy for crisis management or media contacts, it later became clear that this measure did have a significant effect -- primarily on the laboratory staff, but also for other personnel – as it led generally to increased mental preparedness. When anthrax letters later began to appear in the U.S.A., this served as an additional impetus to maintain increased preparedness.

2.2 SUSPECTED ANTHRAX LETTERS IN SWEDEN

In Sweden, one of the first so-called anthrax letters was received by Enköpings-Posten, a local newspaper in the city of Enköping in central Sweden. It arrived on Monday, October 15th, 2001, and was marked with the text: “chemical terrorism” (Aftonbladet, 2001-10-16). At the same time, several other suspect parcels appeared in different parts of the country. In all, four suspect parcels were turned in to the police in four central Swedish cities that Monday. Since anthrax letters – which had been sent to American media firms and individual politicians in the beginning of October – were just then receiving headline attention, it is hardly surprising that anyone receiving – or otherwise coming into contact with – “strange parcels”, immediately associated these with the anthrax scare.

FOI-NBC in Umeå was initially informed of the suspected anthrax parcels via one of its researchers, at that time temporarily stationed at the Swedish Institute for Infectious Disease Control (SMI) in Stockholm. The researcher telephoned a colleague in Umeå at 10:30[3] on Monday and told him that the Stockholm Police had been in contact with SMI about some “unidentified specimens” [4]

Although more specific information about these "specimens" was scanty, given the media attention concerning the anthrax scare, the Umeå researcher (who was home sick at the time) understood the possible significance of the event. He first attempted to contact his Division Chief who – as was usual on a Monday morning – was chairing the weekly executive staff meeting, and could not be reached until 2-o´clock in the afternoon. He then contacted one of the Division secretaries, in the hope that she could intercede.

By noon, the researcher stationed at SMI in Stockholm again phoned his colleague with an urgent appeal: "you've got to get the Division activated; a crisis is breaking out down here [i.e. in Stockholm]!" The Umeå researcher again phoned the secretary, imploring her to immediately deliver a note to the participants of the executive meeting. After this, he heard nothing, and assumed that his message had been delivered.

At the same time on that Monday morning, specialists at FOI's Institution for Threat Assessment were also contacted by the (Stockholm) police, and asked if they "could analyse

[3] This report employs the 24-hour clock. Thus, 10.30 is 10.30 a.m., and 22.30 is 10.30 p.m.
[4] The term “specimen” will be used here to designate both the parcels involved, and the contents of those parcels, which were collected for analysis.

suspected anthrax letters". However, the person who received this phone call, and who answered in the affirmative, had interpreted the question to mean: "Do you have the capability of analysing suspected parcels for anthrax?" – and not: "can you please analyse these suspected parcels". The police, on the other hand, having received an affirmative answer, probably thought that this meant: "go ahead and send in the suspected parcels for analysis". This misunderstanding subsequently influenced the overall course of events.

During the afternoon of October 15th, the media also contacted FOI-NBC. One of the division's threat assessment specialists received a telephone call from a journalist who had learned that the police were holding "suspect parcels". Neither did this information reach the Division's executive level, since it was routine for journalists to contact FOI-NBC with questions concerning anything about NBC issues.

Thus, on this first day, from the morning to early afternoon, several FOI employees received signals that something was in the works, without this information reaching the FOI-NBC's Head of Division, and without any coordinated response from the Division.

2.3 WHAT'S GOING ON?

In the end, it was continued mass media contact which finally got the boll rolling at the Division. At 3:00 PM on Monday, one of Sweden's national evening newspapers telephoned the head of the Institution for NBC-Analysis and asked to know the results of the (then non-existent) tests. At that point, the head of institution decided it was time to find out what was going on. Together with one of his staff, he called on the Head of Division, who then attempted -- unsuccessfully -- to locate the person who had received the original telephone call form the Stockholm police. The confusion only deepen when the National Rescue Services Agency (SRV) in Karlstad then called and asked how they should package the specimens that were to be shipped to FOI NBC-Protection in Umeå.

In the face of these events -- and with rumors abounding that suspected parcels were on their way to FOI NBC-Protection in Umeå -- a small group of researchers and institution heads, almost by chance, met in a corridor and decided to contact the Division executive. This meeting represented the embryo of the executive group that was formed *ad hoc* that afternoon in order to deal with the situation. Thus, at this point, any formal obstacles to FOI-NBC receiving and analyzing the suspected anthrax specimens were resolved. What remained were the necessary operative decisions to be made.

2.4 FINDING THE RIGHT ANALYST

FOI-NBC's Head of Division, and the (NBC) specialist who originally alerted him, made up the executive core of the newly created group to deal with the situation. The first thing they had to work out was how the specimens should transported and dealt with when they arrived.

It had been made clear from contacts with the National Police Board (RPS) in Stockholm that two "specimens" (i.e. suspect letters or parcels) were to be shipped from Stockholm to Umeå – some 650 kilometers to the north – as soon as possible. This meant that routines for handling the packages and analyzing the specific substance that they contained had to be reviewed, and suitable personnel had to be located and called in.

The NBC-specialist was more or less given *carte blanche* to see that the right staff were contacted and ordered in, and to find out what type of equipment would be required. At this point, no one in Umeå knew what the parcels looked like or what they actually contained, so full protective clothing would be necessary.

One of the Division's most experienced analysts was contacted at 18:00 at her home and asked to fly down to Stockholm (a one hour flight) to collect the suspect parcels. At the same time, the National Police Board in Stockholm called once again and informed the Head of Division that there were now four "specimens". The press on FOI-NBC was increasing.

Two immediate problems had to be tackled at this point: personally adapted protective equipment had to be secured for the analyst flying to Stockholm; and the analyst and her equipment had to be on the last plane to Stockholm within three hours. At 19.00, the analyst was at Division headquarters, and preparations for packaging and collecting the specimens began. At 22:00 the she was met at Stockholm Arlanda Airport and driven to three different locations in Stockholm to collect the parcels. As it turned out, protective attire was not required, as the police had packaged the parcels is such a way, that they could simply be placed into transport containers.

2.5 HOW TO GET THE SPECIMENS UP TO UMEÅ?

It was important to get the specimens back to Umeå as quickly as possible. However, just how they should be transported was a delicate question. Two alternatives were discussed: transport by police helicopter or transport by military aircraft. The Head of Division at FOI-NBC opposed both of these methods. His motives were the following:

A debate concerning the construction of a new high-risk laboratory on FOI's site had been going on for some time. Construction was to begin the following year – 2002. General opinion in Umeå questioned the advisability of having such a high-risk facility so close to residential housing. The Head of Division's opposition to direct helicopter transport ran along the following lines: to have to look our neighbors (and the Umeå public, in general) in the eye, and defend the helicopter transport of a dangerous – that is to say, a potentially deadly – substance, almost in their back yards, is not a very smart way to maintain friendly relations in the future. If we transport anthrax spores to our facilities now, what couldn't we do when we get a high-risk laboratory? The press will have field day!

On the other hand, military air transport involved its own problems. Infectious or virulent substances are most usually found in solid or liquid form, not in powdered form[5]. It was clear that at least some of the suspected anthrax parcels contained a powered substance. There is, of course, approved packaging for the military air transport of potentially virulent substances but in Sweden, this can only be authorized during time of war. And the transport of a virulent powdered substance without such special packaging could lead to a catastrophe in case of depressurization.

These reservations lead to the decision to transport the specimens by police car from Stockholm to Umeå. However, even in this case, no authorization for the road transport of a

[5] Personal communication from Karin Hjalmarsson, FOI NBC-Protection.

virulent powdered substance existed. The National Rescue Services Agency, which is responsible for the transport of dangerous goods, hastily drew up an exemption on Monday evening.

Thus the suspected anthrax specimens were transported by police patrol cars, relay-style, in which each county police district between Stockholm and Umeå was responsible for the transport within its own district.

2.6 THE FIRST ANALYSIS

At 11:30 PM on Monday evening, the Director of the National Police Board in Stockholm called FOI-NBC in Umeå and spoke to one of the members of the newly formed executive group. The Director wanted to make sure that FOI understood that the "specimens" were police property and were to be treated as evidence. FOI was to contact the technical division of the Umeå police, who would give instructions as how the consignments were to be handled from a legal point of view.

Between 8:00 and 9:00 on Tuesday, October 16th, the traveling analyst was back in Umeå and the testing could begin. The consignments were taken FOI-NBC's secure biological laboratory. A co-worker was asked to help with the analysis. The two analysts conferred on how to proceed, and decided to concern themselves only with the powdered substances found in the parcels. Other material – advertising brochures and pamphlets that had come from a foreign country, as well as parcels not containing powder – were not to be examined.

After lunch, a new executive meeting was arranged, where this decision was reversed: All the parcels were to be examined and analyzed for the presence of anthrax. The analyst who brought the specimens up from Stockholm, tired after the night's work, was sent home. Three other analysts were assigned the task of analyzing the entire consignment of parcels, whether power was found in them or not.

The decision to analyze even those parcels, which contained no powdered substances, seems to have been based on an issue of trustworthiness. The possibility of any one of the parcels – regardless of its appearance – containing anthrax spores could not be excluded. If all the parcels were not examined and treated in the same way, FOI could – later on – run the risk of loosing credibility, thus jeopardizing it status as an expert organization.

The preliminary analysis of the parcels and their contents was finished by 15:00 on Tuesday afternoon, October 16th. The results were negative – i.e. no traces of anthrax were discovered. At 20:45 in the evening, the full analysis was competed – the results also negative. Fifteen minutes later, this result was made public by the Head of Division in a live broadcast on Swedish Television's 9-o´clock evening news.

2.7 AN OPERATIVE *AD HOC* ORGANIZATION IS FORMED

Initially, it would appear that the FOI-NBC executive group did not really consider the question of what this first round of analyses could lead to. They saw it more or less as a one-time occurrence. On Tuesday October 16th , however, two things were beginning to become clear: This was not to be one-time event, and it looked like the beginning of something quite

out of the ordinary. From being an analysis of a few individual specimens, it was to grow into something that would threaten to overtax the organization in the coming weeks and months. For this reason, it was important to begin to prepare the organization for the coming operation.

On Tuesday morning, the Head of Division chaired a meeting in which it was agreed that FOI-NBC was prepared to take responsibility for task at hand, even though the organization recognized that it had limited endurance. The meeting was attended by the four heads of institution plus those that had been involved in the prior night's activities, as well as the analysts who would be responsible for the actual laboratory work. Responsibilities and division of labor were discussed, but there was no doubt about who would be in the middle of things: analysts who routinely worked with testing these types of substances. The executive group was then expanded to include the heads of all four institutions and their assistants, along with suitable technical expertise and other specialists.

Already at an early stage, pressure from the media was increasing. The executive group thus decided to establish a special telephone exchange and staff it with people who could answer questions from the media, government authorities and the public. The Division's secretaries were instructed to establish an emergency communication center and to otherwise support the communication effort. The Head of Division formulated the overall guidelines, while the division's secretaries did the actual practical work.

The communication center was to me manned from 08:00 till 22:00 with five analysts and two secretaries. The staff would work in five-hour shifts. All incoming telephone calls would go directly to the center. The secretaries' task was to locate the right expertise and connect each incoming call to the right persons. The secretaries themselves were not to answer any questions. All incoming calls were to be logged by the secretaries, and the analysts who answered questions were to register their conversations and contacts, which were sent back to the secretaries for further logging.

Media pressure again intensified during the afternoon. The measures taken in the morning to manage this problem were not going to be adequate. However, the division got much-needed help in the afternoon when FOI's central information department (FOI-Info in Stockholm) came to the rescue. FOI-Info took charge of all incoming inquiries from the media, government agencies and the public, and directed these to the right personnel.

Although media and information pressure quickly overwhelmed FOI-NBC's resources, the decision to establish both a strategic management group and an operative information center was of significant importance, since these measures tightened up operations, which hitherto had run in a relatively unstructured manner.

2.8 HOW DO WE ESTABLISH A FUNCTIONING LAB-ORGANIZATION?

Initially, only a select number of analysts were engaged in the anthrax tests – i.e. staff that were experienced in the type of analysis involved. However, it was evident that a far more structured laboratory organization would be required in order to manage the job of testing the new specimens.

On October 17th, an e-mail was sent to all of FOI-NBCs four institutions with a request for suitable volunteers to help in the analysis work. The head of NBC-Analysis was given the task of managing and distributing works loads, and one of her colleagues was responsible for the transport of specimens. A meeting was held in which lab personnel discussed both procedures and suitable working hours.

The laboratory personnel, who originally analyzed the first parcels, managed the pressure for the first week, but when new specimens continued to arrive, the executive group realized that they risked burning out their staff. One of the main reasons for expanding the number of analysts was the need for quick results: tests were to be performed directly when specimens came in – even in the middle of the night. The head of NBC-Analysis thus recruited several extra analysts, and on the weekend of October 20-21 an emergency organization was established.

Interviews have indicated, however, that the original lab personnel were initially sceptical of the idea that added personnel were to be drawn in. These additions also meant that the competence base was broadened to from what initially was predominantly microbiology, to include radiology and chemistry. This resulted in teams of three persons being formed: one who unpacked the parcels, one who photographed the contents, and one who made the required tests and measurements.

During the second week of the crisis, a communication centre was also established. The centre became a node for meetings and for posting time schedules and contacts.

2.9 HOW TO DOCUMENT THE SPECIMENS.

"Specimens" were delivered to FOI from different police districts in Sweden. In this work, the National Police Board (RPS) in Stockholm, and various police district communication centres, were the overall co-ordinating authorities. This included the Umeå police district, whose watch-officer was in constant contact with RPS. The Head of NBC-Analysis was, in turn, the contact point between FOI and the Umeå police.

From October 15th onward, scores of suspected letters and parcels were delivered, which required prompt treatment. The specimens were usually delivered daily at 19.00. Unpacking typically took two hours, at which time the analyses could be carried out. These tests proceeded throughout the night.

Initially, a number of issues were discussed as to the procedures that should be applied. One of these concerned how the specimens were to be marked or labelled. They could either be serial numbered for each day, or be given a running serial number for the weeks or months that the process might take. Questions like this came up continuously, and were treated as they arose.

Many of the parcels that were sent in for analysis in fact contained no discernable, analysable substances. In cases of suspected letters, many of the envelopes were simply empty. During the end of the first week, therefore, analysis routines were reviewed and it was decided that tests for anthrax would only be made on parcels which could be determined to contain some type of powdered substance. Immediate tests would only be made on "priority" parcels. This

decision was made on the basis of the large quantity of specimens which were arriving daily, and which could not be attended to during normal working hours.

The Umeå police technical division set up an office at the FOI-NBC laboratories on Thursday the 18th, and remained there for two months. Most of the lab personnel experienced this as positive support from the police, to whom they could turn for help when needed. This would turn out to be an important form of co-operation.

One of the problems, that required better coordination between FOI-NBC and the police, was that many of the arriving parcels lacked "case numbers", since they were not associated with any reported crime. In order for the specimens to be treated as police evidence, they must be "case numbered". This problem caused a good deal of confusion. Lab personnel often had to "play detective" in order to trace the origin of the parcels – one of the central pieces of information required.

Parcels which came from the technical division of the Umeå police – c. half of the total volume – were clearly labelled and numbered, whereas those that came, for instance, from individual police patrols were often not. Thus, although the National Police Board in Stockholm, and various other district police centres, were the main clearing houses for suspected parcels, individual local police agencies were also sending in their contributions.

One explanation for the lack of proper labelling during the first week was most probably the very volume of parcels being sent in for testing, and the police districts' urgency in getting them sent in. Before this could get out of hand, FOI-NBC and the Umeå police decided that all delivered parcels, which were not the result of an actual case report, would be case-numbered by the Umeå police, regardless of where they came from. This eased the burden on the lab personnel.

On the other hand, laboratory work was complicated by the fact that information concerning priority parcels – i.e. those reported as containing some type of "powder" – was, at best, uneven. Many parcels reported as containing some substance in fact did not, and vice versa. The reasons for this would seem to be poor co-ordination between those who transported the parcels and those who received them.

2.10 WHAT IS AN ADEQUATE LEVEL OF PROTECTION?

At the beginning, testing procedures were considered only from a microbiological perspective, and questions of safety and protection were taken into account only within this context. According to interviewed personnel, there was – at this point – no uncertainty concerning the required safety levels for the lab. Although the laboratory used for the testing had not been decontaminated before the anthrax tests began, the microbiologists who worked there regularly were used to the environment. In addition, all of the personnel had been vaccinated, which meant that they felt personally safe.

This changed when chemists and radiologists were brought in to help relieve pressure on the microbiologists. The new lab personnel not only questioned the existing safety levels, but also questioned why only biological protection was being considered. The ensuing doubts about safety levels resulted in a new type of protective clothing being introduced – so-called C-attire.

Safety levels were therefore upgraded when the original problem area was expanded. One of the interviewed personnel was critical: "It had more to do with our own protection than with finding out what was in the parcels." The extension of testing and the heightened safety levels were most probably introduced on the basis of the daily discussions in the executive group that was established for the lab.

2.11 SUSPECTED ANTHRAX LETTERS IN CENTRAL GOVERNMENT OFFICES

As soon as the first suspected letters and parcels begin to turn up, experts at FOI-NBC-Protection began to sift through all available information concerning the cleansing of areas contaminated with anthrax spores – the form in which anthrax was spread in the U.S.A. This was in order to be able to answer any official inquires, which indeed came quickly – primarily from government agencies, rescue services, the police and medical personnel involved in disease control. Most of the inquiries came from various municipal rescue services and county councils. Decontamination experts also proactively contacted other relevant agencies, such as the National Rescue Services Agency and the National Board of Health and Welfare.

On Wednesday, October 17th, an alert came in that a parcel containing some sort of power had been received at Rosenbad, the seat of the Swedish government cabinet offices. In the uproar that ensued, NBC-Protection was immediately contacted. The local rescue chief's questions, which were made in extreme haste during the early evening, concerned areas to be cordoned, timeframes, how to make tests and what to do with personnel who could have been exposed to infection. The FOI-experts – 650 kilometres away in Umeå – gave their recommendations, but they had no mandate to make any decisions in the matter.

The "Rosenbad letter" caused the Institute for Infectious Disease Control (SMI) to be called in. Analysis of the power was made by both SMI and FOI. Tests were made by SMI the same evening that the power was discovered. Umeå received samples at 02.00. Both tests gave negative results. FOI also announced its results, even though SMI had done so earlier.

The "Rosenbad letter" – as threatening as it was – involved no change of routine for FOI, but was treated in the same established manner as all other consignments. However, the situation at FOI-NBC in Umeå was already as hectic as it could be when the "Rosenbad" letter appeared. That the results turned out to be negative did, however, help to relieve some of the stress.

2.12 REVISED ROUTINES FOR TRANSPORT

One of the main concerns, which arose at the very beginning of the anthrax crisis, and which remained an issue for some time, was how the samples were to be transported. After October 15th, samples began to pour in continuously from police districts all over the country. At the beginning, as discussed earlier, transportation was provided by police patrol cars, and later on by police helicopter. About one week after the first letters appeared, the police decided to send the samples by normal, commercial aircraft. The initiative for this was taken by FOI NBC-Protection in Umeå, where the local contact person for the transports simply called the police and pointed out that this would be easier. The initial problem had involved packaging:

dangerous substances had to be packaged according to strict regulations if they were to be given clearance for air-transport. Although the use of such packaging is only allowed during heightened, wartime preparedness, the Swedish military authorities and the National Rescue Services Agency (SRV) granted an exemption. The police then contacted SRV and received clearance for air transport.

The Umeå police authority's contact person at FOI thought that it would have been better for the samples to have been flown in from the very beginning. Had this been the case, they would have been delivered during the daytime, which would have been to better advantage for the lab personnel.

However, even when this was finally approved, another problem arose. It turned out that local police authorities began sending in suspected parcels by civilian aircraft directly to NBC-Protection, without having them registered at any police communication centre. Nor is it clear from interviews whether the samples were shipped in approved packaging. As mentioned earlier, many of the consignments lacked "labels of origin", which caused a good deal of confusion as concerned later documentation.

One possible reason for this may have been the anxiety experienced in individual police districts concerning what the parcels might contain, and their wish to be rid of them as quickly as possible. Another possibility is that the police did not think that the parcels actually contained anything associated with anthrax – that they were not dangerous – and therefore could be sent by normal, commercial aircraft. Later interviews indicate that the National Police Board, and other concerned communication centres, were unaware of the fact that local police districts were acting in this manner.

The incentive to abandon time-consuming road transports – from southern and middle Sweden to Umeå in the north – was made possible by the Swedish military and the National Rescue Services Agency (SRV) granting an exemption for the use of approved packaging for air transport.

2.13 STRESS ON FOI NBC-PROTECTION EASES

For personnel at FOI-NBC's *ad hoc* emergency information centre, the days of October 16th and 17th were especially hectic. The four dedicated emergency telephone lines were swamped. However, on the 18th, things began to quiet down. Although the number a consignments arriving daily was still considerable, and the lab personnel were still working overtime, the press on the information centre decreased substantially. According to the records, only two calls were received during the last five-hour pass on the afternoon of Thursday the 19th. On this account, schedules were revised, and only two people – a secretary and an analyst – manned the centre that evening.

At this point, the division leadership began to feel that it had more time to take a strategic posture. The hectic week had taken its toll on the executive group, which could not be relieved in shifts, as could the lab personnel. The head of division indicated that he, and his assistant, were exhausted after the five previous days. He concluded that the executive group was competent and functioning well, and decided to go on an earlier planned journey abroad.

In the laboratory, however, activity did not decrease to the same extent. While specimens continued to pour in, two of the most experienced biomedical analysts were planning a trip to London to participate in a conference. Their trip was uncertain right up to the last day, but it was generally felt that the worst was over, and that the number of incoming specimens would decrease. However, the week to come was to be worse than expected.

In summary, the anthrax crisis escalated continuously from the 15th to the 17th of October. However, from the afternoon of Wednesday the 17th to the 18th, the crisis de-escalated, mainly due to the fact that all of the samples hitherto analysed had given negative results. While samples continued to arrive, and lab personnel worked overtime, public and government anxiety diminished along with the media's interest. FOI-NBC responded to this development by decreasing its operative emergency information staff, and even began to devote time to other tasks that did not concern the anthrax issue.

2.14 SMI COMES IN – AND TAKES OVER

According to interviews, before the so-called Rosenbad letter turned up on October 17th, the Swedish Institute for Infectious Disease Control (SMI in Stockholm) had already tested the analysis methods which had been developed by FOI. According to one informant, SMI personnel – notwithstanding these earlier test runs – felt uncertain about applying the method. They were, however, prepared to do so if needed. The Rosenbad letter was their first real test, and after a few days – as they received further specimens – they began to come into their own.

The tests which SMI were involved in were usually high priority specimens which had missed the daily transport to FOI-NBC in Umeå. Priority parcels were, as mentioned earlier, those that could be determined to contain some form of power. On the 18th of October, SMI analysed the contents of four priority parcels.

On Monday the 22nd of October, the National Board of Health and Welfare (SoS) arranged a meeting with FOI-NBC, the Director General of SMI and representatives from the Ministry of Defence and the National Police Board. Before the meeting, the Head of Division at FOI-NBC was determined to argue that dangerous and/or difficult specimens should continue to be handed over to FOI, whereas more routine tests could be handled by SMI.

However, when he returned to Umeå, he explained that it had been agreed that FOI would become a "support function" for SMI, with the added stipulation that preparedness for more complex tests would nonetheless be maintained by FOI-NBC, in case a "hot specimen came along". He also maintained that SMI's Director General had been the driving force behind the decision for SMI to take on the bulk of the testing.

On the following day, Tuesday the 23rd of October, no parcels arrived at FOI-NBC, as police authorities had already begun to follow the new guidelines. The reaction at NBC-Protection was: "OK. Let's go back to normal work." However, during the scheduled afternoon meeting, it was reported that the "National Board of Health and Welfare had gotten cold feet", and that FOI NBC-Protection was to continue testing all samples for the rest of the week. According to diary entries, 16-20 new consignments were expected during the following day, five of which were high priority.

3. ANALYSIS

"Crisis decision-making" can be looked at from two different perspectives: Firstly, from the viewpoint of the decision maker during the acute phase of the crisis, when time is limited and uncertainty is at its utmost. During this period, the decision maker must attempt to interpret an uncertain situation and act as effectively as possible, with limited and fragmented knowledge.

The second perspective is retrospective, i.e. from the viewpoint of the re-constructor, who, with all the facts at hand, can sit down and analyse the situation in peace and quite.

In this section, we shall examine how well FOI NBC-Protection – as an organization – took advantage of the circumstances that arose during the acute phase of the "anthrax crisis". We do this in order to clarify certain facts that have come to light afterwards, which may help to increase the effectiveness of crisis management procedures for future, similar situations.

3.1 FRAMING THE PROBLEM

How a problem is framed influences not only how people act *during* a crisis, but also – implicitly – how one prepares for future, similar such situations. However, problem framing itself is affected by how the actors involved choose to define their areas of responsibility. FOI NBC-Protection chose to look at the anthrax crisis from the following perspective:

On Monday, October 15th, the National Police Board in Stockholm contacted the Swedish Central Government Offices concerning a number of suspect parcels that were turning up in different parts of the country. When this matter was taken up the same day at a meeting of Ministerial Undersecretaries, FOI NBC's liaison officer with the Ministry of Defence was visiting. Since the matter was defined as a "health and public safety issue" (ÖCB, 2002), the Undersecretary Group designated the Ministry of Health and Social Affairs as the "owner" of the problem. It is not clear, from the material that we have at our disposal, just how the Undersecretary Group regarded the division of responsibility between the Ministry of Defence and the Ministry of Health and Social Affairs.

FOI's liaison officer immediately assumed the role of an operative link between the Ministry of Defence and FOI NBC-Protection in Umeå. It should be mentioned at this point, that the Swedish Institute for Infectious Disease Control (SMI) operates under the Ministry of Health, whereas FOI works under the Ministry of Defence. Thus, when FOI's Defence liaison officer contacted the Head of Division at NBC-Protection, the latter simply assumed that the Ministry of Defence owned the problem.

Overall, that fact that FOI became the principal actor, which handled and analysed the so-called anthrax parcels, was due to the contacts both between the National Police Board and FOI, and between FOI, SMI and the Ministry of Defence. However, according to the Head of Division, the decisive factor that led FOI NBC-Protection to undertake the task of dealing with the suspect parcels was that the National Police Board (RPS) took direct contact.

FOI regarded RPS as a client who had requested help. The decision to accept the task was also motivated by the fact that FOI had proven routines for analysing N, B and C-substances in a manner that satisfied the requirements for *police evidence*. According to informed

sources, the Institute for Infectious Disease Control did not – at this time – have such a capability.

3.1.1 Framing the problem at NBC-Protection

At FOI NBC-Protection, heightened preparedness was instituted when the first suspected anthrax letters started turning up in the U.S.A. However, no plans were drawn up for FOI to actually take on the type of operative role that it in fact would. Earlier preparedness plans, that were made during the summer of 2001, were primarily directed toward developing a rapid response team that could be deployed externally for testing and analysing FOI-NBC-substances in a national or international setting. However, even if this earlier planning may have indirectly helped FOI in dealing with the "anthrax crisis", it was a completely different and unexpected type of situation that FOI would actually be subjected to.

Clearly, the most important position taken by FOI NBC-Protection on Monday, October 15th, was the very decision to accept the task presented by the National Police Board. On this point, there is no doubt. The relationship with RPS, as a client, was decisive and the matter was given the highest priority. At the same time, the head of division was convinced that the number of suspect parcels would quickly ebb, and that it was, in any event, unlikely that a "real" anthrax letter would turn up.

It is interesting to note that the "problem frame" changed character after the first few hectic days of the crisis. Accepting the task in general, which FOI-NBC saw as belonging to its area of expertise, must have become all the less self-evident as the crisis started to assume the proportions it later did. In addition, since the parcels, which were analysed during the first few days, contained not a trace of anthrax, the whole matter was gradually transferred from FOI NBC-Protection to SMI. That SMI was quickly able to gain access to the same analysis methods that FOI-NBC employed probably also contributed to this development. That the so-called Rosenbad-letter was analysed by both FOI and SMI, and that SMI was to take responsibility for "non-priority parcels", represents still another divergence from the original problem frame.

As mentioned earlier, it was thought unlikely that the suspect parcels would actually contain anthrax spores. In fact, the job of indicating the presence of anthrax bacteria was not seen by FOI NBC-Protection as its principal task. The primary task seems to have been to demonstrate just the opposite (although this did not mean that the analysis personnel took their jobs lightly).

Another indication of how the division regarded its task – with crucial implications for how the problem would be framed – was the fact that the Head of Division did not plan any media contacts on the first day of the crisis. That there was no clear strategy for such contacts may be because the division – as a whole – was simply not used to dealing with the media. However, the few people in the division who did have ample experience in this context reported that they more or less "saw the handwriting in the wall".

One of the division's principal "threat specialists", who had been under media pressure since September 11th, said in her interview that she could almost foresee what was going to happen on the media front. In this sense, her frame of reference was different from many of her

colleagues. However, her experience did not come to the benefit of the executive group during the first evening of the crisis. This meant that the division was caught with its proverbial pants down on the following day.

Lacking a strategic perspective would seem to be a commonly occurring tendency among decision makers in highly pressing situations – where it is easy to get caught in an operative problem frame at the expense of a more strategic posture. It would appear that this attitude is reinforced in an expert organization, where day-to-day focus is not on operational issues. In an organization, which to a high degree consists of autonomous, well-defined subject specialist groups whose principal activities are advisory, there is normally no clearly defined separation between strategic and operative functions – other than in line functions.

The operative problem frame at the beginning of the crisis was primarily concerned with how to get the "anthrax specimens" up to Umeå. One important aspect of this was how to transport a potentially dangerous substance without alienating relations with the local public. Indeed, these relations were already strained, and a number of interest groups were critical of some of FOI NBC-Protection's activities – among others, animal rights activists. This is just one example of how earlier events and experience influence problem framing.

During Monday evening of the first day, when the first specimens were to be transported from Stockholm to Umeå, there seemed to be no strategic appreciation of what this whole operation could lead to. Focus was on purely operative issues, such as who would travel to Stockholm to collect the specimens, and how they would be transported north. That the first anthrax letter was regarded as a one-time-event, rather than the beginning of a long process, might seem natural. In the middle of a dramatic set of events, one seldom perceives the situation as a developing process, but rather as a number of immediate, more or less acute problems, which demand a particular actions and a particular organizational posture.

3.1.2 Problem framing at the laboratory level

Thus, framing the problem is largely bound up with how one perceives the task at hand. During the course of the anthrax crisis, problem frames were changed not only in the executive management group, but also at the laboratory level. To a large extent, this seems to have been due to the fact that many of those engaged in actually working with the "anthrax letters" came from different scientific and organizational backgrounds.

As previously noted, it was primarily microbiologists who performed the early analyses. When chemists and radiologists were later introduced, the problem perspective changed. The newcomers thought that routines were too lax, which lead to increased safely levels being introduced. They also felt that the scope of the work was too narrow, and argued that N- and C-analyses should also be carried out. Thus, the primary focus of the work also changed.

The microbiologists, who had started the testing, felt that the demand for more advanced protective garments and other equipment was exaggerated, probably reflecting their personal experience and analysis routines. However, this attitude was also due to the fact that the initial work had focused entirely on the issue of establishing the presence (or non-presence) of anthrax spores, and nothing else. According to one of the lab personnel, discussions concerning extended analyses and demands for increased safety measures were raised every

day at personnel meetings. The interviewee felt that the whole thing had "more to do with safety measures than finding out what was in the specimens".

Thus, the problem frame changed even at the laboratory level, as staff with different perceptions of the crisis came into the process. Paradoxically, with the establishment of higher safety levels, the problem frame shifted even more towards the specimens being regarded as harmless. As lab personnel began to question the seriousness of the situation, levels of motivation also dropped.

After a few days, it was decided to change the testing routines. From having analysed the parcels as a whole, based on the decision taken on the afternoon of the 15th, testing reverted to the original routine of only testing parcels actually containing some form of powder. Interestingly enough, we can see a development toward increased testing and enhanced safety levels, at the same time as the lab staff increasingly began to doubt that they would in fact find a "hot" parcel.

3.2 ORGANIZATIONAL STRUCTURE AND CULTURE

Here we will consider some of the problems and issues which influenced FOI NBC's reorganization, followed by a look at how mechanisms for coordination and leadership arose as the new organization developed.

FOI NBC-Protection is an organization with c. 140 employees, working in four different institutions. The majority of the personnel are academic researchers, but there is also laboratory and administrative personnel, specialist technicians and other support personnel. With the latest re-organization, each institution contained subject specialists in N, B and C.

The line organization is represented at two levels: the head and assistant head of division plus staff; and the four institution heads plus their staff. There are no sections or other sub-divisions within the institutions.

3.2.1 Centralisation/decentralisation[6]

Although every organization has its own unique qualities, there are a number of common characteristics in management and leadership functions, which arise during the course of "extraordinary situations". One of these characteristics is the tendency towards centralisation, which is based on the need for concentrating authority vis-à-vis both internal and external actors. Decision-making is centralised and concentrated either in a small group or a specific individual, depending upon the type of administrative setting.

Indeed, successful crisis *communication* also seems to call for increased centralisation and concentration, since mass media all the more often become strong crisis management actors in themselves – many times "usurping the crisis" and making it their own (Nohrstedt & Nordlund, 1993).

Thus, centralised decision-making is one of the most commonly occurring organizational phenomena in a crisis. In addition to the advantages it gives for concentrated decision-

[6] Centralisation vs. decentralisation is, of course, not a black and white concept, but represents rather a sliding scale.

making, it allows decision-makers to circumvent normal line functions and management structures, in order to save time.

Advocates of the opposite viewpoint point out that decision-making in a crisis is better served by decentralisation, in order to make room for improvisation. They emphasize, however, that it depends upon of the type of base organization involved. It is thought that project or matrix oriented organizations more easily decentralise and improvise than hierarchically structured organizations – and that the latter can even risk collapse if decisions-making becomes too decentralised ('t Hart, 1993).

When decision-making is centralised in the Swedish administrative culture, this usually takes place in small, ad hoc groups. During the "anthrax crisis", the decision structure which took form at NBC-Protection did not deviate from this rule. The small, ad hoc group was established at the initiative of the Head of Division. It is interesting to note, however, that this group expanded to include virtually everyone involved in the work with the anthrax parcels. We see this as an expression of the division's cultural mix, i.e. a line organization, but one with strongly decentralised tendencies based on institutions, which have mandates to make expert decisions and independently carry out work within their particular areas of expertise.

While the normal organizational structure at FOI NBC-Protection remained in place during the anthrax crisis, management functions were concentrated at the divisional level to a greater extent then under normal circumstances.

The Head of Division expressed the matter in the following way: ".. they took care of things down there, and I rigged up a [organizational] structure which worked." This form of centralisation was probably necessary in order to integrate managerial authority within the organization.

Although a number of people were removed from their normal assignments, and a considerable number of personnel were put full-time on anthrax testing, the line organization functioned well during the first intensive weeks of the crisis. Routine tasks were either delegated or simply shelved. In summary, we see an increased centralization of authority and decision-making functions in the division without, however, occurring at the expense of wider employee participation and influence.

3.2.2 Composition of working groups

The two types of crisis management groups that arose, one at the managerial level and one at the laboratory level, came to consist of practically all those involved – one way or another – with the anthrax crisis. The embryo to the *ad hoc* executive group, composed of five people, arose during Monday afternoon, October 15th, when those who had been contacted by the police and the media, in turn contacted the Head of Division. Later on, these five individuals came to form a spontaneous operative management group.

A common observation, when something dramatic happens, is that many of those involved tend to take responsibility for actions for which they have no formal authority. Here, factors like availability and personal character come into play. This became clear during the processing of the anthrax parcels, when one of the persons initially contacted came to play an important role in coming events. This was not only because he was an analyst, but also – as he

expressed it himself – "one has to rise to the occasion; I had a number of informal roles to play here".

He saw himself as one of the driving forces in the initial phase of the crisis, active in contacting the police as well as getting the first specimens up to Umeå. This is confirmed by the Head of Division, who considered this person to be a key actor in the crisis.

Early on Tuesday morning, October 16th, the group that had initiated matters the day before, reassembled. The permanent group that was decided upon at this time consisted of the head of Division, the four heads of institution, and a number of different subject specialists. There were no predetermined criteria for how the group should be composed. The group members were chosen on the basis of their line experience and special competence.

Responsibilities were allocated in the following way: the head and assistant head of division, together with the four heads if institution, were in charge of strategic management. Functions for decontamination, laboratory preparedness, medical issues and press contacts, plus two secretarial support functions, were instituted for operational management. Remaining expertise formed panels for handling questions from the media, government authorities and the public. The establishment of command and operation centres created a structure for both strategic and operative activities.

With the division experiencing enormous media pressure, it became evident that some type of formal structure would be needed in order to cope with this onslaught. For this purpose, the Head of Division established a command centre, organized special routines for meetings and re-defined responsibilities and schedules. For example, personnel were timetabled one week in advance.

Most of those involved considered the decision to establish command and operations centres essential for dealing with the crisis. These centres created the structure and order which was necessary for gaining an overview of the situation.

However, problems arose concerning the size of the executive group, since – according to the Head of Division – it came to be governed more by spontaneous needs than by strategic planning. This sometimes led to a group consisting of up to 15 persons, all of whom belonged to the four originally defined functions. The head of division pointed out both the advantages and disadvantages of such an expanded executive group. The greatest advantage was that is significantly shortened the organization's information paths, in that many more people received crucial information at the same time and at its source.

One might wonder if it had been more effective, if the executive group had only consisted of the line managers, who in turn could have provided information to the other involved personnel in a more structured and time-efficient manner. On the other hand, the group that spontaneously arose, and the discussions that took place— where everyone was able to contribute something –, probably created a feeling of increased participation. Thus, as is often the case in such situations, there was a trade off between efficiency and involvement.[7]

[7] For a further discussion, see the section on leadership and information management at the laboratory level – below.

3.2.3 Decision groups at the laboratory level

Another management task was that of organizing work at the laboratory level. During the first days, this task was carried out primarily by those laboratory personnel who had most experience in the type of analyses at hand. This was especially the case for the analyst who had collected the first specimens and carried out the first tests. According to her own testimony, she had a major influence on how the analyses were initially to proceed.

After a few days, however, executive management realized that more analysts would be required in order to cope with the rapidly increasing number of specimens arriving. These new analysts were taken from different parts of the organization and put together in teams of three, based on their *complementary qualifications*.

Many felt the laboratory group was too large. Some were hesitant to see any expansion take place, since routines and communication would "become more troublesome, the more people that are involved". It was also felt that the lab work became more awkward, when personnel with different competencies and laboratory experience than the original analysts, were brought in.

According to one of the interviewees, there were too many people involved in the analysis teams, but that this was probably necessary, since no one knew how long the situation would continue. Others complained that some of the people doing the testing were not really "up to the job". On the other hand, if the total lab group had only consisted of 8-10 people, as some suggested, these would have been required to work around the clock. Others pointed out that this whole problem could have been avoided, had leadership established up a "sensible" timetable and personnel schedule.

An additional reason why so many people became involved in the laboratory testing can probably be explained by the considerable freedom they had in determining their own working hours. Considering the fact that some personnel only worked a single shift, it would seem that there was in fact room for reducing the number of participants, without jeopardizing the organization's staying power.

There were two main reasons why the lab group was thought to be too large: Firstly, as cited above, the difficulties that arose concerning informal communication; and secondly, the fact that many of the lab personnel did not know one another. Especially the latter point made for some uncertainly: how capable – and careful – were others in their lab work? At the same time, one must avoid wearing out the personnel.

The strategy of expanding the laboratory personnel to include microbiologists and radiologist seems to have worked well enough, since the groups do not seem to have been under particularly strong pressure. The crux of the matter is, again, a trade-off between not upsetting stability and structure within the group, and not wearing people out.

3.2.4 Routines and flexibility

An organization's capacity to adapt to a new situation is reflected in the relationship between routine and flexibility. According to Lagadec (1993), there is often considerable organizational resistance to changing routines, even though this – in many cases – is necessary when something extraordinary occurs. Lagadec points out that even such a simple variation in routine as having to work beyond normal working hours can:

> Arouse[s] serious resistance: the fear of seeing one's territory impinged upon is the fundamental terror of organizational life. (Lagadec, 1993)

From an overall perspective, it would appear that the lab personnel's own views concerning their role in the anthrax crisis was relatively sound. However, even though their task seemed clear enough, new routines and procedures had to be developed in order to deal with the crisis a hand.

Initially, the personnel had difficulties following the timetable that was established, and experienced a number of other problems with the working schedule. Not used to working in shifts, they often worked more hours than they should. In addition, they felt that the schedules encroached upon their weekends.

One of the interviewees said that it took almost a full week before the timetable began to work. However, she pointed out that it was not the fault of the timetable as such, but of the personnel's attitude to changing their working hours. Another of the interviewees told us that it was difficult to get people to commit themselves – although this happened primarily on the first weekend, when the situation was most tense and some people had to work both Saturday and Sunday. Although this never turned into a significant problem, it did ware out some of the personnel, which could – in the long run – have jeopardised the organization's staying power.

One of the things that NBC-Protection did have good routines for was the analysis of different substances. Specific routines for how the specimens were to be tested were developed by the lab personnel themselves, and adjusted when needed, over time.

All of this would seem to give the impression that there was a gradual process of adaptation going on. There were, however, snags – one being the labelling and determination of the origin of the specimens. This simply took too much time and effort. Only after a number of days was the problem solved, with help from the Umeå police.

Thus, it took some time to get a working structure in place. Two of the lab personnel reported that the overall routines were in place after the first hectic weekend, when a good number of specimens had been analysed.

During such an extraordinary situation as the anthrax crisis, it is natural to focus one's work on solving the immediate problems that arise. The head of division had given his personnel a clear mandate to leave all other business aside and to focus on processing the incoming parcels. There was never any doubt about this. What is surprising, however, is that one of the key lab personnel went on a business trip right in the middle of the most hectic period.

FOI NBC-Protection's personnel seemed to have had divided feelings about the importance of their respective roles in the organization. While individuals felt that their specialist competence was vital for the efficiency of the organization, they did not feel that they were indispensable. This was probably because people trusted each other, even if everyone did not have exactly the same working experience.

3.3 LEADERSHIP

AT THE DIVISION LEVEL

Theoretically, a leader or manager can see his or her leadership role in two different ways: either focusing on relationships or focusing on tasks. According to many researchers in the field, the most successful leaders are able to adapt their leadership roles to the specific situation, thus successfully combining both of these roles. It is clear, however, that situational adaptation does not take place independently of situational circumstances, nor of earlier experience. This means that leaders, especially when under considerable stress, most usually stick to what they know best, rather than focusing on something new -- i.e., they usually let earlier experience set the agenda (Bowditch & Buono, 1998).

It is generally agreed that leaders accustom to hierarchal organizations tend to be good at giving orders, but are considerably less adept when it comes to co-operation and collaboration. It has also been found that organizations, which are built up around relatively independent and loosely structures groups, are not easily controlled or directed by giving orders. Generally, the management of extraordinary situations requires swift and resolute decision-making. In such a context, a consensus or co-operative leadership style will be far less effective. This is one of crisis management's primary problems. According to Heath (1998), crisis management requires:

> A central commander to whom (and through whom) all information and decision making is placed …

But also:

> … consolidation and decentralized decision making to make full and effective use of all respondents.

The challenge that faces leadership in a crisis is thus to find a balance between giving orders and gaining consensus.

Too much reflection tends to create long, drawn-out discussions, which, while acceptable under normal circumstances, is less functional as a crisis response. As we saw earlier in the discussion on decision groups, the executive group for the anthrax crisis became quite large. For such a group to function reasonably well from the point of view of time management, a relatively "authoritarian" leadership was required.

The primary criticism that was directed toward leadership during the anthrax crisis concerned the fact that meetings tended to take too much time. Even the Head of Division felt that it took too much of his energy to keep these meetings on a stringent line. This was made worse by the fact that – as he put it – he was "not used to being in this type of leadership role". He

describes himself as fundamentally a "discussing and reflecting" manager, but found that the specific situation to a high degree demanded giving clear signals and direct orders – a task which he was not always up to.

This problem could have been avoided if a clearer structure for the meetings had been defined from the very beginning.

Based on the discussion above, it would seem that many in the executive group had greater confidence in that group's capacity to cope with a "reflecting" leadership style, than it actually had. The Head of Division, on the other hand (and according to his own testimony), "went against my own natural leadership style, and instead started giving direct orders". Regardless of this, many declared afterwards that they would have been happier with stronger, more resolute leadership.

However, the authors would like to point out that the call for "stronger leadership" did not come from all the people interviewed, which indicates that a "reflecting and discussing" style of leadership style may also have been appreciated. Nor is it certain that a more authoritarian style would have worked well in an organization made up primarily of subject specialists who normally function quite independently.

Heath (1998) also points out that cultures found in expert organizations have quite another attitude to authoritarian leadership styles than do hierarchical organizations.

> Groups with important specializations are more likely to use the importance of the specialization to operate as they seem fit rather than as an outside manager may require.

This means that:

> Responses to crisis situations require consultation and decentralized decision making to make a full and effective use of all respondents.

The challenge is thus to establish a system, which is able to provide both democratic and authoritarian means of control, each employed on the right occasions. The head of division's more "reflective" style of leadership would undoubtedly have been to greater advantage in a smaller group.

One of the frequent leadership problems that arises during extraordinary situations concerns the centralisation of decision-making and the concentration of responsibility to individual managers. To distribute and delegate responsibility in the middle of a crisis is usually not the first choice of action for those with ultimate responsibility, which means that they tend – relatively quickly – to ware themselves out. This is, in fact, what happened at NBC-Protection, when the head and assistant head of division described themselves as being exhausted by the weekend. This situation could probably have been alleviated if they had, from the vary start, established a division of labour between themselves.

On Thursday, October 19th, the Head of Division traveled to London to a meeting that had been planned some time before. As justification for his absence, he reasoned that everything seemed to be functioning well. However, that he chose to travel abroad at this point in time would seem to indicate that he experienced his role in the crisis as less important then it actually was.

AT THE LABORATORY LEVEL

Many of the same developments that took place at the executive level also took place at the laboratory level. As concerns operational management at this level, it was often relatively informal and built upon open give-and-take.

The reason for this of managerial form can also be found in FOI NBC-Protection's identity as an expert knowledge organizing. There is, in other words, a large fund of expert-based knowledge and competence within the laboratory groups. Also, these groups normally tend to function with high degrees of autonomy.

There is, however, a world of difference between working under normal, everyday circumstances, and working under the extraordinary conditions that a crisis of this type presented. The call for "more structure", which arose in this new situation, can therefore be seen as fully justified. What was called for was more "distinct leadership".

3.4 COORDINATION

A central aspect of crisis management is *coordination*. Successful crisis response requires coordination between organizational units that do not normally work together. In most cases, coordination is made more difficult in an organization which is forced to re-organize, though creating new groups, functions and tasks. It is not unusual for tensions to build up within, or between, such groups, due to differences in outlook, goals and working methods – as well as in purely technical matters (Heath, 1998).

Some researchers point out, that focusing on new tasks in a pressed situation can make it easier for actors to ignore everyday differences, while other feel that such differences can instead be exacerbated once they are "out of the closet" (Lagadec, 1993). Generally speaking, successful coordination depends on all those involved being clear about their roles and responsibilities. It is also aided by those involved knowing one another, and being familiar with each other's working routines (Heath, 1998).

AT THE DIVISION LEVEL

Since members of the executive group each had their own defined areas of responsibility, there was little need for actions to increase coordination. Also, the joint command center which was established facilitated any increased coordination needs, and created an added forum for discussion.

The only area where coordination might have been improved was not of any major importance: the head of division's announcement over Swedish TV about the first specimen tests was made *after this news had been published on Text-TV* (see section on "Media contacts"). However, since the tests were negative, this slip caused no problems – at least compared to what might have happened had the tests proved positive.

According to one of the heads of institution, the reason that everything went so well was because the organization is "flat, and everyone speaks the same language". Earlier experience

also shows that crisis management is made easier when actors know one another well, and have a common frame of reference (Heath, 1998).

AT THE LABORATORY LEVEL

The laboratory personnel worked closely with one another in teams, each consisting of a microbiologist, a radiologist and a chemist. As one of the interviewees pointed out, although the team members were specialists in different areas and did not normally work together, they did all work in the same institutions and everyone felt that they were on the same "wavelength". However, it was also disclosed that although everyone used the same lunchroom, people with different specialist areas tended to stick together.

Despite this, there did not seem to be any significant problems with coordination at the laboratory level. Again, factors contributing to this were the well-defined roles and clear guidelines for how work was to be carried out. Even though no actual problems developed, the original group that carried out the first analyses remained sceptical to the decision to increase the number of active lab personnel. This seems to be due to a lack of confidence in colleagues with different area of specialisation. Nor did this joint effort lead to different specialists getting to know each other any better. This was probably because of the relatively short working shifts and the fact that teams members changed all the time.

3.4.1 Coordination between strategic and operative levels

Good strategic crisis management aims at clearing the way and creating an effective framework for crisis operations. This includes formulating clear, explicit directives concerning overall strategy, and then letting operative personnel get on with their work, within the framework of these directives (Heath, 1998). This is easier said than done, however. Although crisis managers may be well aware of the importance of maintaining a strategic perspective, it can be difficult in the midst of operative activities.

During the anthrax crisis, it was felt that strategic planning lagged behind operative demands during the first few days, as a good deal of energy went into evaluating the situation and defining managerial roles. Despite this, however, clear-cut strategic decisions were made – for instance, in specifying and structuring different areas of responsibility.

It is not surprising that the strategic management level became the principal actor in this crisis, since it was at this level that decisions had to be made concerning how the incoming parcels were to be handled and documented. That the operative level took responsibility for the actual testing was also natural, since it was here that specialist knowledge was required. When things finally got going, each of these levels could – with a few exceptions – concentrate on their respective roles.

It is not always easy for an executive group to escape "managing in too much detail". When the first specimens were to be analyzed, the lab personnel decided only to do tests where actual power was involved – a natural enough decision. However, the executive group, opposing this, decided that even those parts of the parcels which did not contain powder should be tested, thus prolonging the process by a number of hours. This decision was probably made because the executive group judged the situation as being decidedly

dangerous, and that the slightest error could threaten the organization's credibility. The responsible analyst, however, felt that she and her co-worker had decided upon a reasonable level of safety and assurance for the first tests, but that the executive group then raised that level. This is an example of how *problem framing* influenced operations.

3.4.2 Coordination with FOI-Info

As early as Tuesday, October 16th, the managerial group realized that the division would not be able to deal with the onslaught of incoming telephone calls, and that FOI's central information unit in Stockholm (FOI-Info) would need to provide help. This was in fact accomplished relatively quickly: FOI-Info henceforth took care of the general public's queries, and forwarded those questions, that were most relevant, to the information panel at FOI NBC-Protection in Umeå.

Although FOI-Info's help did relieve pressure on the division, communication between these two parts of the organization did not function particularly well during the first few days. This was primarily due to the fact that FOI-Info lacked the specialist competence needed to satisfactorily answer many of the incoming questions. At the same time, those who could answer these questions, at FOI NBC-Protection, were fully occupied with their own information contacts. FOI-Info most likely felt that they did not receive the information and support they needed from NBC-Protection. Also, FOI-NBC´s communication net was not fully integrated: one could call directly to FOI-NBC in Umeå, thus circumventing FOI-Info entirely – which, of course, journalist were happy to do.

Another, and perhaps more serious problem, was that FOI-Info handed over FOI personnel's private cell-phone numbers to journalists. This was probably done according to praxis, which was applied to media contacts under *normal circumstances*. During the anthrax episode, however, when the media onslaught was enormous, this meant that the buffer – which FOI-Info was meant to provide – vanished. These cell phone numbers quickly turned up at most of the media editorial offices around the country.

It also took some time before the secretaries at NBC-Protection's communication center were informed that all calls should be taken by, or transferred to, FOI-Info in Stockholm first.

3.5 INFORMATION AND COMMUNICATION

The first challenge that a crisis management group faces is to bring order into the intense flow of information that a crisis creates – i.e. to avoid getting into a situation of *information overload*. For this, it is important to set up a special group, or groups, for contacts with authorities, the media and the public, and to make sure that these are documented. According the Seymour & Moore (2000), the ideal situation is for the documentation to be regularly evaluated, and this evaluation sent to someone in the executive management group, in order to give that group a good overall picture of information flow. Ideally, one would produce a daily summary of where information had been sent, how the organization had been portrayed in the media, and how the media were handling the news in general. Furthermore, a strategy should be established as to how the organization should act during the next coming time period.

FOI NBC-Protection quickly introduced these types of measures, partly by establishing a communication center, and by maintaining a *crisis logbook*. The purpose of the logbook was to record each contact person's name and organizational affiliation, as well as what questions were asked. Unfortunately, the division did not have enough time to evaluate the logbook continually, or to form a master strategy for coming events.

Taking the public's fears and concerns seriously is also an important component in crisis communication. Subject specialists who make statements in a crisis situation usually do this from the point of view of their own professional roles, and often have difficulties understanding the layman's viewpoint (Quarantelli, 1973; Lajksjö, 1996). In order to succeed in this task, the organization or group, which is responsible for managing the crisis, should have a communication strategy based on how the public *itself* experiences the situation.

FOI NBC-Protection was well prepared in this context, since the division is the national expert organization for NBC-issues in general, and is routinely contacted by the media in this role. One of its primary tasks was to calm an alarmed public. Also, during the anthrax crisis, experienced medical personnel were posted at the communication central.

Some problems did arise at the communications center, where subject specialists answered the public's and the media's questions concerning NBC threats and terrorism. These specialists had been involved in regular media contacts since September 11th, and were pretty well exhausted. Co-workers, both within and from other institutions, had to step in as replacements.

Most of the inquiries from government authorities came from the police, municipal rescue services and medical personnel working with infectious disease control. At the suggestion of FOI-NBC´s decontamination personnel, a set of general guidelines was established.

In summary, NBC-Protection found itself in the situation where it could not exclude the possibility that the incoming parcels contained anthrax spores, even if the probability of this was judged to be low. It thus found itself in a balancing act, where the situation should neither be exaggerated nor underestimated, for fear of the organization loosing credibility. Above all, what was needed was a reasonable risk assessment. It was also important to emphasize FOI-NBC´s competence in this area.

3.5.1 Media policy

FOI NBC-Protection seems to have been well aware of the importance of good media relationships. An examination of reports from the four leading Swedish newspapers reveals that the divisions work had a significant impact on the press. The media regarded FOI NBC-Protection as high on expert status and a trustworthy source of information.

Although it is important to demonstrate accessibility and openness vis à vis the media, there is a backside to this: too much media attention can risk disrupting good crisis management. Intensive media pressure can also lead to an organization becoming *reactive*, instead of being *proactive* and taking the initiative in media contacts. This, in turn, can lead to a vicious circle, further overloading the organization (Seymour & Moore, 2000).

During the initial phase of the crisis, the division took a position of virtually total accessibility toward the media. Although media reports of the crisis were generally regarded as being objective and impartial, this extreme openness led to a media onslaught that no one had

anticipated, and which was difficult to stop once it had gained momentum. One of the interviewees reported:

> [The media] became all the more bold in their behaviour. At first, they called during the daytime and accepted the information they received. Sometimes they called after hours. But later on they started calling us at home. They got our private numbers and called us at any time of the day. Completely ruthless! And then they started using a system, where they would call one of us, and 20 minutes later call a colleague and ask the same questions – weighing the information from each of us. For me, both a number of newspapers and a number of journalists were put on my excrement list. There are some whom I will never contact again, and some newspapers I will no longer buy. However, there were some journalists and media who were extremely serious in their reporting, and for whom my appreciating has only increased.

One way the division attempted to escape the intense media pressure was to buy new cell phones with new, unavailable telephone numbers. Although this was a good initiative, it was far from enough, since the journalists – as cited above – got hold of private, home numbers.

There is another example of the backside of too much media accessibility. Early in the crisis, when the first anthrax tests were being carried out, FOI NBC-Protection was literally besieged by the media, and journalists gained regular entry into the division's premises. Just before 21.00 (the evening news time) on Tuesday, during an informal conversation between a head of institution and journalists from the local TV station, the former was openly contacted by lab personnel, who reported that the tests were negative. The journalists immediately called their editor in order to put this news on the channel's Text-TV. This occurred 15 minutes before the Head of Division was to go live on National TV together with the Minister of Health and Social Affairs. The Head of Division was informed of the negative results of the test one minute before the direct broadcast began.

The line chief's explanation for this was: "We had become quite friendly – me and the journalists". This illustrates a basic rule to keep in mind when dealing with the media: Journalist's access to an organization's premises must be kept under control. In this case, the line chief had simply become too friendly with the journalists. He did not see the problem of them being at the "centre of the crisis", with access to informal communication, which otherwise would have been unavailable to them.

Although the division had a certain premonition concerning the media, there was no real mental preparedness for the intense pressure that would actually arise. However, this was also true for FOI-Info in Stockholm, whose task it was to manage contacts between FOI-NBC and the media. However, near the end of the first week, the media's interest diminished considerably.

3.5.2 Methods of communication

Research has shown that an organisation's formal structure has a major influence on how it manages its communication. Centralised organisations tend to concentrate more on vertical communication than do decentralised organisations. Methods of communication are also influenced by the complexity of the tasks involved, where complicated tasks demand a larger

degree of teamwork and interplay between individuals. Additional factors, such as proximity to colleagues and differential status, can also be important (Kaufmann & Kaufmann, 1998).

Short-circuiting formal information channels is one way for organisations to increase efficiency in time of crisis. FOI NBC-Protection is a decentralised organisation, in which communication is usually directed horizontally rather than vertically. Consequently, few vertical communication channels were short-circuited during the anthrax crisis. Instead, horizontal information structures were expanded.

When the extraordinary occurs, organisations tend more often to reinforce their basic characteristics, than change them (comp. ´t Hart, 1993). Since horizontal information structures were normal for FOI NBC-Protection, this probably explains why the division had trouble in projecting information downwards in the organisation.

3.5.3. Information management in the executive group

The executive group meetings were the forum in which the latest developments were reported. The basic idea of creating such forum for information feedback was good, but the form they took met with some critique. The main complaint was that the meetings lacked structure, especially in the initial phase of the crisis. When time was in short supply, some of these meetings could take hours. After a few days, however, discipline increased as participants grew accustom to their new roles.

According to one interviewee, the meetings did have the important function of keeping the participants oriented in what was going on in the organisation's different sections. In the end, the meetings contributed to strengthening organisational unity and a "we-feeling".

In summary, the advantage gained by expanding the executive group was to shorten information links, which is important for good communication during a crisis (Heath, 1998). The disadvantage is that an expanded executive group requires more distinct leadership and a well-defined structure, conditions which were not fully satisfied. Experience shows that crisis management is a continual balancing act between different organisational values. In this case, between creating shortened communication links and retaining stringency and efficiency within the decision-making group.

3.5.4 Information management in the laboratory

At the laboratory level, information concerning current conditions, routines etc. were dealt with primarily through an informal structure. The following examples can be noted:

The actual testing of specimens was carried out in teams of three, consisting of a nuclear, a biological and a chemical specialist. The teams were put together on a voluntary basis, with the result, that the particular personnel involved varied from shift to shift. That the composition of these groups changed regularly was an additional reason why well-structured information from the executive group, concerning how tests were to proceed, did not reach all of the involved lab personnel directly. Instead, this information was passed on from one team to the next.

At the beginning of the crisis, there was no system for debriefing personnel. Information flows between different teams went on in an *ad hoc* fashion. After a while, however, a structure was developed which – in part, at least – provided for more efficient information exchange. A conference room was made available, to function as a meeting place and clearing house for the different groups.

One of the interviewed personnel felt that the information coming out of these meetings was at times inadequate and, again, lacked structure. Another reported that the meetings themselves were confused, with so many of the lab personnel being involved. Others felt that things went well enough – under the circumstances. It can also be noted, that the need for informal communication channels remained, even after more structured meeting routines were developed.

The need for direct contact between individual lab staff was strong during the entire crisis period, although it did diminish some when routines had become established. The most pervasive problem, however, and one which practically everyone voiced, was trying to find out who had the most up-to-date knowledge of ongoing events. One often got the classical run-around, everyone referring to somebody else.

In summary, the lab staff largely utilised horizontal and informal information structures in order to keep abreast of current conditions.

Even as concerns information from the executive group, information contacts played an important pole. This was made more difficult, however, when the executive group expanded. As one of the staff reported: "There were just too many people involved, to get any clear answers". The information that was most difficult to obtain concerned when new specimens would arrive, and who was to test them.

Thus, it is clear that information from the executive group had trouble getting "down" to the lab personnel. It can also be noted, that those in charge of the work at the lab level had difficulties in adapting their styles of leadership to the new set of circumstances. This concerned not only the problem of how testing procedures were to be worked out, but also how to meet the staff's demands for a more well defined structure.

Thus, it is interesting to note that the problems, which existed at the executive level, and which concerned group size and demands for more structured meetings, also arose at the laboratory level. This in a good illustration of the importance that an organisation's everyday structure and culture has for its capacity to manage extraordinary situations (comp. ´t Hart, 1993).

Finally, an additional problem was insufficient communication from the divisional executive group as concerns overall strategy. Because of this, the lab personnel did not always understand some of the measures, which were taken, or the praxis that developed. For instance, one of the laboratory staff reported that he did not understand why new protective garments were introduced near the end of the two-week crisis period. He assumed that this was in order to test a number of new overalls, which happened to be "lying around".

Lesson learned: if information, explaining why certain measures are being taken, does not reach operative personnel, this will undermine confidence in the decisions being made. This,

in turn, can lead to a vicious (negative) circle, in which an organisation's information flows simply clog up.

3.6 FACTORS WHICH CAN INFLUENCE ORGANISATIONAL ENDURANCE

Two types of factors influence on an organisation's staying power during a crisis.

3.6.1 Stress[8]

A factor, which definitely influences an organisation's endurance, and therefore the endurance of its staff as well, is external and internal pressures – what we in everyday terms call *stress*. Stress is generally regarded as influencing an individual's actions in a negative way, although not always so. A "stressful" situation can also serve as a stimulant or a "rush", if there is a good balance between the demands placed, and the capacity to cope with them. This type of stimulus is sometimes called "positive stress". Negative stress is produced when demands clearly exceed capacity.

Here are some of the reports of how stress was experienced by the staff of NBC-Protection.

At the divisional level, there were unmistakable reports of positive stress during the first few days of the anthrax crisis. However, this gradually shifted toward negative stress, when endurance began to wane after a few days. In this context, media pressure was a double-edged sword. It was indeed a positive experience for FOI NBC-Protection to find itself in the public eye. However, as time went on, the openness with which the division approached the media became all the more demanding for the personnel involved. One senses a growing irritation with the media, which was encroaching upon FOI NBC-Protection's personnel by calling them directly at home, all hours of the day.

This intense media interest certainly increased organisational – and individual – stress. Here is a reaction by one of the people "on the spot".

> There was a high level of stress. We seldom have to make so many dead-sure pronouncements with so little time for preparation. This felt like a real burden … since I spoke a lot with the media. What I said was quoted on radio, TV and in the press. And it was a stress factor to really think things though quickly enough, so that the right words and statements were made, and not to alarm people all the more. I felt that this was terribly stressful. Plus, of course, it is always stressing to have the telephone ringing constantly. … There was enormous pressure on us all the time. Everyone I met was equally stressed out …".

One measure, that reduced some of the pressure on the staff, was the head of division's decision to document everything that happened in the executive group. This contributed to added stability during the most hectic period. The division's secretaries were also involved from the beginning, helping to create a better overall picture of what was going on.

[8] In psychology, medicine and zoology, the term *stress* refers to those adaptive reactions, which occur in an organism, which are triggered by emotionally disruptive or disquieting influences.

Despite this, the executive group experienced the overall situation as extremely taxing. One of the heads of institution reported on a common occurrence during a crisis:

> Everyone was a tired out. You couldn't relax. When you went home, you had this thing in your head all the time, and had a real uneasy night's sleep.

It is generally the case, that people who work in hectic, rushed and uncertain environments have difficulties winding down when they come home. However, rewards, in the form of encouragement and support, make work easier and relieve pressure. The Swedish Minister of Defence provided an example of this when, on Wednesday, October 17, he accompanied FOI's Director General on a visit to FOI NBC-Protection in Umeå. One of the division's staff expressed it in the following way:

> I think that we lived up to the expectations that were placed on us, and it really feels good. To get such a response in a stressed situation makes it easier to go through still another day or two.

Despite this, the division's information functions began to falter after the first week. How stressful a situation is experienced depends largely on how participants experience being able to control – or at least influence – their working situation. Such a feeling of control was, apparently, something that the media-contact personnel lacked. On the other hand, one of the things that contributed to decreasing the pressure on the laboratory/analysis personnel, was the fact that they had a clear mandate to put everything else aside and concentrate on a single task.

The laboratory personnel also experienced "positive stress" – at least in the beginning. One of the staff reported that she had nothing against working until 22.00 in the evening, the first day. An additional reason for the positive atmosphere early on was the fact that these laboratory specialists were finally able to test their knowledge and competence under "real circumstances".

3.6.2 Technical and Logistic Restrictions

Another factor, which can limit an organisation's capacity to function satisfactorily during a crisis, has to do with the purely practical, logistic issues.

At FOI NBC-Protection there are usually two so-called P3 laboratories – i.e. high security bio-laboratories used for isolating and testing potentially dangerous infectious agents. When the anthrax parcels began arriving, one of the laboratories was closed, which meant that working areas were cramped and conditions less that ideal for working systematically. A major problem was the heaps of packaging and wrappings, which accumulated, before it was decided on what to do with them. An even bigger problem concerned how to expose all the accumulated paper and cardboard to ultraviolet (UV) light, for decontamination. There were simply no routines for this. At first, only one side of a piece of paper could be irradiated at a time. This problem was solved after a few days, when equipment was brought in which could irradiate material from several angles at once.

Another technical detail, which caused problems, was the single fax machine in the lab, which was used to fax out all of the protocols. It immediately became a bottleneck. This was solved by quickly purchasing and installing two additional fax machines.

However, the biggest problem reported by the laboratory staff concerned the plastic (protective) overalls they had to wear. These became very hot to work in and – from the point of view of safety – were considered to be "on the verge of overkill". Some described them as "dreadful" and even "appalling".

It is important for crisis managers to encourage positive stress, and try to make sure that it does not turn into negative stress. Personnel must feel that they have a clear mandate, that their work is stimulating, and – not the least – that each individual, to the greatest extent possible, retains control over his/her situation. In this context, difficulties with purely practical matters can easily tip the balance.

Although the challenge, which FOI NBC-Protection faced during the "anthrax crisis", was considerable, neither the psychological nor the logistic problems were enough to drive the organisation into a negative spiral. There was irritation from some quarters concerning the monotony of the lab work, and ever-present interest from the mass media was an added stress.

Despite this, the work proceeded well and the positive feedback, which was generated both from within and outside of the organisation, contributed to creating a positive atmosphere at the division.

4. CONCLUSIONS AND RECOMMENDATIONS: FROM INDIVIDUAL TO INSTITUTIONAL LEARNING

Studies show that individuals in an organisation learn to handle crises on the basis of earlier experience in similar situations. The problem with this, is that experience and lessons learned often remain with the individual, and are not fully realised by the organisation as a whole. The greatest challenge for an organisation's leadership after a crisis is thus to find ways to institutionalise this individually based knowledge. This is in order to create mental preparedness for *different types of crises* that can befall an organisation, and not to simply plan for "crises past".

In this concluding section, we discuss examples of both good practice – e.g. successfully improvised solutions – and less successful behaviour during the anthrax crisis. We do not intend to cover the entire crisis in detail, but instead wish to focus on a number of particular points that were discussed in the proceeding section. We hope that this will lead to further discussion within the Division of NBC-Protection.

The lessons learned from this study are based on how decision-making, coordination, information management and media contacts were handled, from the minute that the division decided to take responsibility for the first parcels, to the end of the crisis, when it went back to business as usual.

4.1 CONDITIONS FOR CRISIS PREPAREDNESS

An organisation's crisis preparedness can be divided into *formal* and *mental* preparedness. The former is associated with structural, organisational conditions for managing a crisis, while the latter is concerned with the mental preparedness of individuals within the organisation.

4.1.1 Knowledge based on experience

As noted above, it is common – and natural – for decision-makers to apply experience of earlier events as a *model* for their behaviour in a new crisis management situation. This can be expressed either by acting in a similar manner as in previous situations, or, alternatively, by acting on the basis of new knowledge gained in such previous situations. Such experienced based knowledge can contribute to better understanding the situation, and therefore the ability to act more quickly when the extraordinary happens. However, it is important to remember that preparedness based upon specific scenarios and a high degree of detail tends to limit the field of action and flexibility – both of which are necessary ingredients in an organization's successful management of a crisis.

4.1.2 Formal requirements

The results of the present study show that FOI NBC-Protection, as an organization, lacked formal plans for the sweeping organizational challenge that the "anthrax crisis" brought about. This is probably because the organization lacked earlier experience in this type of occurrence. Despite this, however, it did have the potential to manage the situation:

- It had the relevant expert knowledge, and
- The division's operative units (the laboratories) had both the equipment and the personnel capable of coping with considerable press during the crisis period.

4.1.3 Mental preparedness

One of the problems concerning mental preparedness is the fact that FOI NBC-Protection – under normal circumstances – is not an operative organization: its primary roles are consultative and advisory. Practically all of those who were involved in working with the anthrax parcels lacked earlier experience of major organizational stress. This probably influenced the division's somewhat delayed reorganization, as well as time lag between the first signals that something was in the making, and the more collected response displayed on day two.

Had the division had earlier experience of – and therefore better preparedness for – similar incidents, an overall strategy could have been developed far more quickly. This, in turn would have saved time during the first 24 hours. To be sure, the *immediate problems* faced during the first day were solved adequately enough, but the events taking place were not adequately identified as the potential, major challenge they would come to be.

That FOI's basic organisational structure is not intended to function operationally – at least not in cases like the anthrax crisis – is something that the organisation should look into. If NBC-Protection, or any other division within FOI, decides in the future to take upon itself tasks of this sort, it should have adequate preparedness to do so.

4.2 Management and leadership

To put a knowledge based, consultative organisation on an operative footing places considerable demands on management. Here we discuss a number of issues which concern management structure and culture, and how these are central for an organisation's capacity to manage crises.

Lacking prepared planes for how the division would be led in the type of situation which developed, a strategic management group was created *ad hoc*. Such groups are often created out of the personnel who are initially accessible at the time, which can result in important functions not being represented. Initially, during the anthrax crisis, it would appear that the composition of the executive group was based on a reasonable combination of the division's functions and competencies. However, later on, the group was significantly expanded to include almost anyone who had worked with the anthrax parcels.

Changing leadership style was the biggest challenge that faced the head of division. An examination of events, however, shows that his "reflecting" and "consensus building" style, practiced under normal circumstances, was largely maintained during the whole anthrax crisis. This resulted in executive group discussions – especially during the acute adjustment phase – being unnecessarily long. A more centralised and direct leadership style was probably needed in order to maintain a more stringent framework within such a large group. On the other hand, this type of leadership would most likely result in less free discussion, possibly

inhibiting the exchange of expert knowledge and the division's potential for appropriate action.

The consensus building style of leadership was also evident at the laboratory level, via those responsible for operative activities. The same critique was voiced here, i.e. that the groups engaged in the testing expanded to a point where protracted discussions were the norm, and where there was sometimes uncertainty as to who was actually making the decisions. Here we find a classic dilemma, which decision makers face in a crisis: to balance time against participation in the decision making process.

It would also seem that management had greater confidence for the organisation's capacity to cope with the prevailing leadership style, than it actually had. There are also indications that the role, which leadership played in the crisis, was thought to be less central than it was. Our analysis of the anthrax crisis points to the fact that leadership styles, practiced at the strategic level, influence purely operative activities as well as other management functions.

We feel that an explicit crisis plan, with more clearly defined mandates given to those persons forming the executive group, would have provided for more conscious and distinct leadership. Such a plan would have contributed to shortening discussion time by giving each management function a specific area of responsibility**.**

Finally, it is of the utmost importance that an organisation distinguishes between an executive management group and an information management group. The former should have a well-defined, limited number of participants, and a distinct chairperson. The information management group, on the other hand, should consist of persons who can support an information function as it grows or changes.

During extraordinary circumstances, the person who is ultimately responsible for crisis management must remain in control over the decisions which different subject specialists might request. This is best facilitated by a prearranged crisis plan, which – among other things – would establish who is to be included in an executive management group. This both saves time – when time is of an essence – and gives the executive group legitimacy.

With these points in mind, we can define some of the areas, which FOI NBC-Protection might concentrate on, in order better to manage the transition from an advisory to an operative organisation. Fundamentally, this should be based on a prearranged crisis plan.

4.3 Coordination

Crisis management deals largely with getting an organisation to work toward a common goal. Organisational awareness of the overall picture helps give meaning to one's work. This, however, requires coordination between different organisational levels and groups.

During the anthrax crisis, coordination between executive management and the laboratory groups was crucial for achieving success. Overall, this coordination seems to have worked well enough, although much took place on an *ad hoc* basis. In some instances, however – e.g. as concerned labelling the parcels and creating work schedules –, information about why specific decisions were made did not reach all of the lab personnel. This meant that many of

the personnel were obliged to actively seek out the required information, instead of receiving it directly.

Good coordination was also very important within the laboratory context itself, as the work there was intensive and at close quarters. Since personnel applied voluntarily for doing lab work, and since there was a relatively high motivation to do so, there were few problems in actually staffing the teams. If anything, there was a slight overcapacity. Since there were enough personnel to cope with the increasing work pressure, and the teams kept each other continually informed, the process ran smoothly enough. The only problems that arose concerned difficulties with equipment and other practical, logistic matters.

As with the executive management group, the composition of the lab groups was determined *ad hoc*, since the number of analysis teams needed increased with the increasing influx of parcels. One of the factors that benefited the lab work was that N, B and C specialists were included in each team.

Generally speaking, coordination is benefited by actors having clearly defined roles, which FOI NBC-Protection's laboratory organisation exemplified. The same technical routines were employed during the anthrax crisis as under normal circumstances. The only grumbling that occurred concerned the fact that not everyone had the same amount of experience.

Although earlier research shows that groups, which do not normally work together, risk having difficulties cooperating when put under stress (Heath, 1998), things seem to have gone fairly smoothly at FOI NBC-Protection. Furthermore, with the teams consisting of N, B and C specialists, discussions concerning how the testing was to be carried out were broadened. This broadened outlook at the laboratory level most certainly expanded the whole division's perspective concerning the task at hand. This also resulted in the decision to routinely test for N and C substances (although many felt that this was *overkill*).

Institutionalising coordination routines within and between different areas of laboratory competence could increase transparency and save time and energy at the management level. In this context, a prearranged crisis plan would have been of great value. Prearranged, institutionalised crisis teams would also create important points of contact during normal, everyday work. This would reinforce organizational unity and support discussions about appropriate emergency group composition. Executive management should also develop a strategy and routines for informing laboratory personnel about the rational behind strategic decisions being made under crisis circumstances.

4.4 Information and mass media contacts

Two important measures were taken by FOI NBC-Protection to support crisis management and increase organizational effectiveness during the anthrax episode. Firstly, establishing a "formal point of contact" vis-à-vis the media, and secondly, keeping a logbook of all the contacts made, questions asked and measures taken during the most hectic period of the crisis.

When FOI-Info in Stockholm came into the picture, incoming telephone calls were transferred to the appropriate public relations officers or subject specialists, thus freeing other personnel from unsolicited calls. Another positive initiative was that of staffing the information center not only with experts on anthrax, but also with general medical expertise, in order to reassure

the public concerning the actual degree of danger involved. However, there were – at least initially – some problems with coordination between FOI-Info and FOI NBC-Protection.

The openness with which FOI NBC-Protection treated the media was good in principle, although it eventually overtaxed the division's spokesperson. Such openness should be maintained even in future crises, but with clearer limits as concerns accessibility. The division should have a media strategy which shields personnel's private lives and reduces workload as much as possible.

More transparent guidelines as to how media contacts should be managed within the organisation would have allowed FOI NBC-Protection to better keep the initiative. This would have been aided by a better understanding of how the media actually operates. Seeking information at inappropriate times and with questionable methods are normal journalist "rules of the game". These "rules"should be part of the cognitive frame of reference which crisis managers bring with them to a crisis. A media strategy must be defined, and continually redefined, during the entire crisis period. In this context, the *logbook* could have been better utilised to keep responsible personnel continually updated on media contacts and media reporting. This would have made it easier to anticipate, and better manage, future confrontations, as well as countering inaccuracies coming from the media.

In addition, FOI NBC-Protection should develop more detailed plans for coordinating information management with FOI-Info. We recommend that key personal from FOI-Info participate in any crisis training or exercises that are carried out by FOI NBC-Protection. This is important, since coordination is facilitated by a mutual understanding of each other's tasks, outlooks and working methods.

Underestimating media pressure seems to be a chronic shortcoming of practically all organisations during a crisis. One of the basic lessons to be learned – also in the case of the anthrax crisis – is that media pressure can never be *overestimated*.

4.5 Endurance

Placing an advisory organisation on an operative footing places great demands not only on management and leadership, but also on the accessibility of personnel. When an organisation tends to centralise, which is a normal occurrence during a crisis, a heavy burden is put on those who are ultimately responsible for the organisation's actions. In such cases, it is not unusual for persons in leading positions to feel that matters require their continual attention. However, this is often not the case. What is important is that leadership is distinct and that the managerial body demonstrates *continuity* of leadership.

One of the problems that became noticeable early on in the anthrax crisis was that the executive group did not have a system for relieving or rotating it own, weary personnel. This could have caused major problems as the intensity of the crisis escalated.

Generally, endurance at the laboratory level was significantly greater than at the executive level. This depended on a number of factors. For instance, lab personnel carried out tasks that they were already used to, and they had a system for relief and rotation. Another factor that definitely favoured the situation in the lab – at least in the beginning – was the enthusiasm that seized practically all of the personnel who worked with the anthrax parcels. This

enthusiasm, combined with a lack of experience in working under emergency conditions, resulted in some of the personnel working too many hours at a time. This could also have led to complications later on, in the form of an exhausted laboratory staff.

In summary, strategic planning for long-term crisis management should include a system for allocating tasks and for relieving personnel at the executive level.

In conclusion, some reflections:

The experience that FOI NBC-Protection gained during the "anthrax crisis" is an excellent foundation upon which to develop crisis management procedures for future, similar occurrences. This includes both formal and mental preparedness measures, which together concern the transformation from an advisory to an operative organisation and from normal, everyday work to crisis management.

As a division, FOI NBC-Protection should examine what went well "this time": what allowed the organisation to manage a situation, which might otherwise have degenerated into calamity. It should develop appropriate preparedness plans for similar events; plans which are flexible, in that they leave room for creative thinking – which is one of the corner stones of crisis management.

Crisis management planning – both its development and its use as a training instrument – can generate mental preparedness for the next organisational challenge. Thus, it is not a formal "plan" *per se* which is most important: It is the mental process involved in its development and exercise.

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ACTORS AND ACRONYMS

FOI: Swedish National Defence Research Agency
NBC- Protection: Division for Nuclear, Biological and Chemical Protection
SMI - The Swedish Institute for Infectious Disease Control
SRV - The National Rescue Services Agency
RPS - The National Police Board
SoS - The National Board of Health and Welfare

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APPENDIX I: MEDIA COVERAGE[9]

Diagram 1: Number of references to different actors in the Swedish Press: Expressen, Dagens Nyheter, Svenska Dagbladet and Aftonbladet, between 2001-10-10 and 2001-11-04.[10]

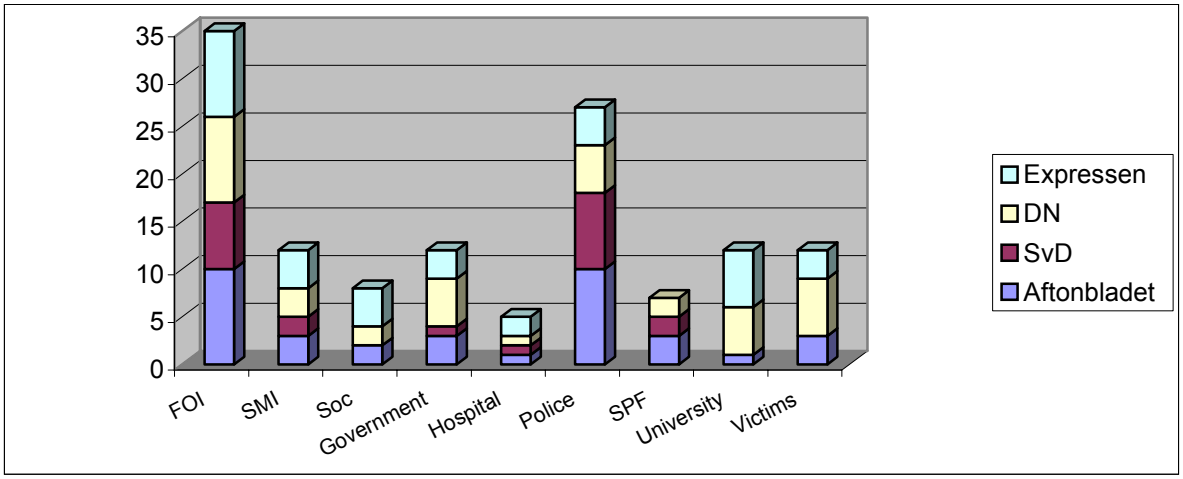
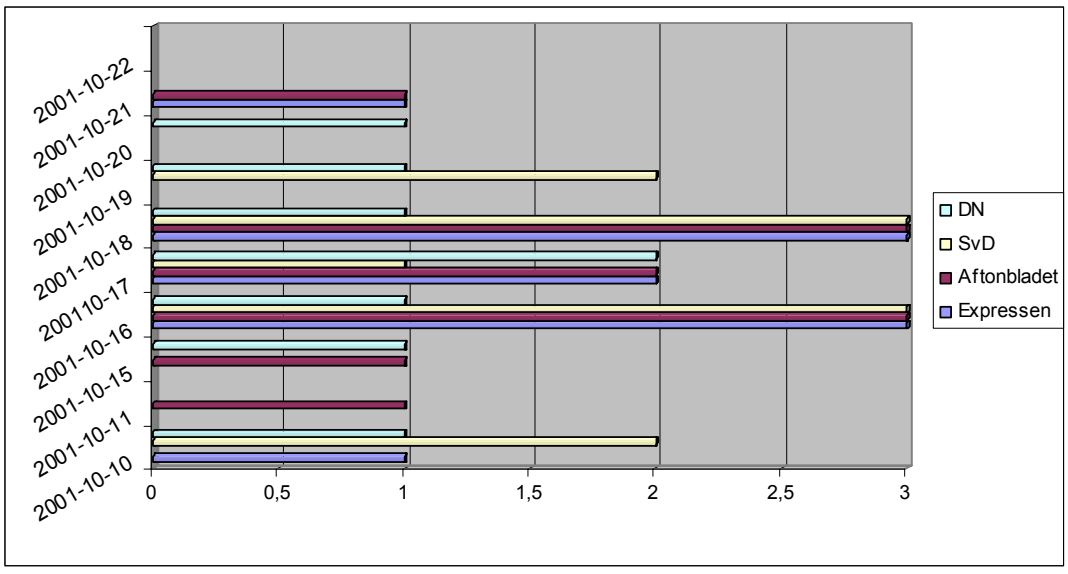


Diagram 2: Number of articles per day in Dagens Nyheter, Svenska Dagbladet, Aftonbladet and Expressen between 2001-10-10 and 2001-11-04. .



[9] Analysis of the content of four national newspapers. Source: Presstext (Expressen, DN) and Mediearkivet (Aftonbladet, Svenska Dagbladet).

[10] A total of 49 references, including articles, backgrounds references and shorter news items. The actors (i.e. organisations) were coded once per article. Both references to organisations per se, and associated personnel, were coded under the organisations name.

APPENDIX II: FREQUENCY OF TELEPHONE INQUIRES[11]

Diagram 3: Number of incoming telephone inquiries from 6-26 October 2001 – categorised by media, government authority or other/unknown (and total).

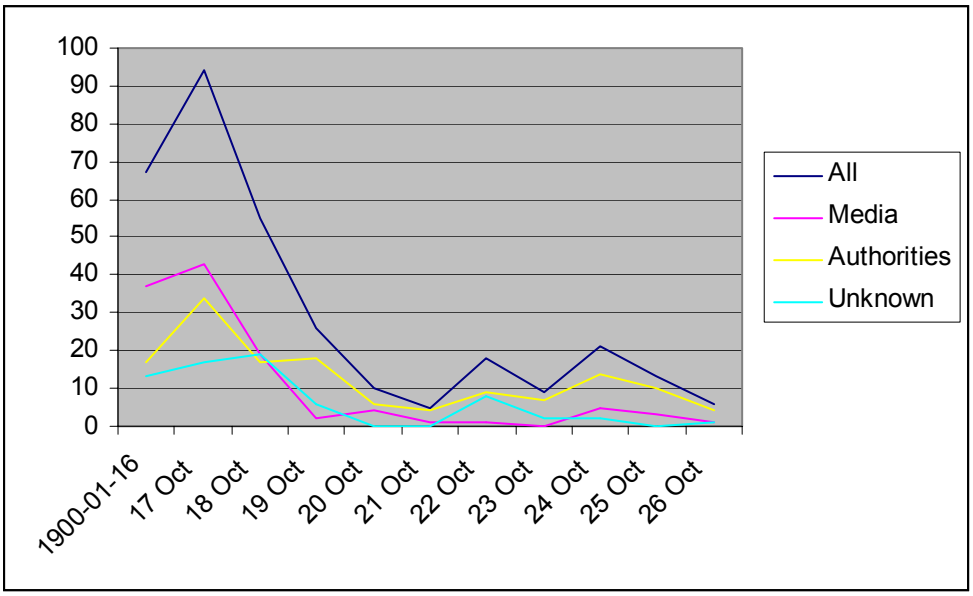
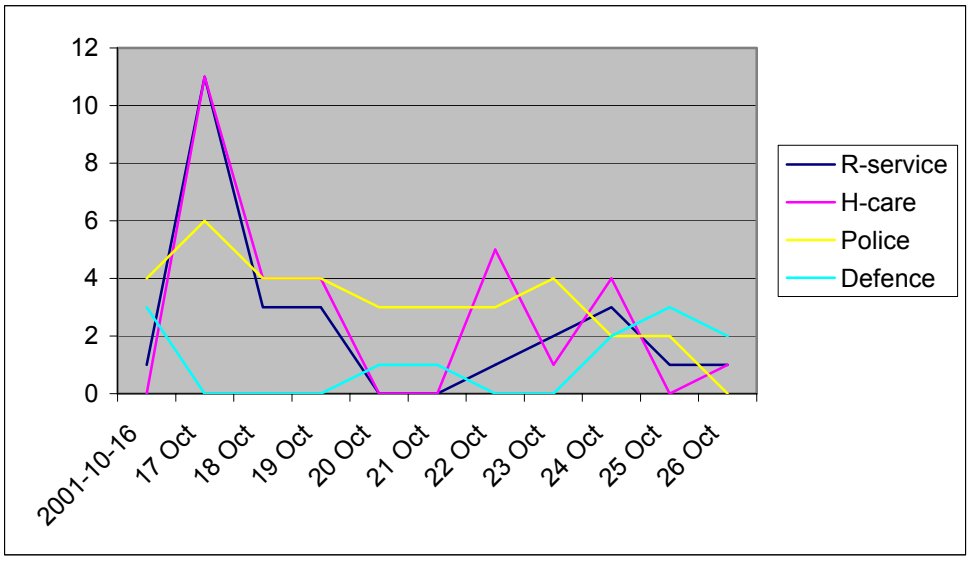


Diagram 4: Number of incoming telephone inquiries from government authorities 16-26 October, 2001 – categorized under Rescue Services, Medical inquiries, Police and Defense.



[11] These figures were compiled from the logbook FOI NBC-Protection kept during October 2001.