

An Awareness of Japanese Crew in the EMS Helicopter on Organizational Management

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Abstract. Kushiro city general hospital and Kojinkai Memorial Hospital started EMS Project on 5 October 2009. It had worked 14 times on 26 November, and save a lot of lives. The EMS helicopter plays an important role of regional differences in medication. The EMS operates three institutions —an Aviation Organization, a Medical Organization and a Fire Organization. However, the cooperation of labor doesn't happen in their division of labors. It does not make divide the work. This is because the EMS does not divide work and responsibilities clearly one solution is to have a common field of responsibility across the 3 organization order to improve cooperation. Since this study analyzes the EMS organization from the knowledge creation point of view. This paper is based on a month-long research study at hospital waiting rooms.

Keywords: EMS Helicopter; Rescue; knowledge management; SECI model;

1 Introduction

The EMS (Emergency Medical Service) helicopter was highly evaluated to take quick action and helpful action. Such high emergency effect was expected to reduce a sequel and decrease a region of medical differences. It's been ten years since EMS's flight test in Japan. However, the EMS introduction project is not implemented nationwide because the EMS project needs a huge sum of money.

The EMS Project consisted of flight doctor, flight nurse, paramedic, pilot, mechanic and CS (communication specialist). This is know as the emergency team. The emergency team show high cooperation and makes adaptable judgment. These things make each other among Emergency team. It does not make divide the work. Since this study analyzes the EMS organization from the knowledge creation point of view and considerate improvement point of view. This paper is based on a month-long research study at hospital waiting rooms.

2 A Problem and state of the EMS organization

Kushiro city general hospital and Kojinkai Memorial Hospital started EMS Project on 5 October 2009. The EMS Project is based on these 2 hospitals. It had worked 14 times on 26 November. The EMS helicopter plays an important role of regional differences in medication. The EMS operates three institutions — an Aviation Organization, a Medical Organization and a Fire Organization.



Picture1. Scene of transportation

In general, the flight crew makes an organization until the CS receives the mobilization request and the patient is sent to the hospital. However, Emergency team members vary with each mobilization trip and it is not easy to coordinate meetings or develop common interests. The highest power to make decisions changes according to the nature of the problem. As a result, the highest institution changes what Organization has it. However, it is difficult to decide which institution has the highest authority. This is because the EMS does not what institution has it in the case. Because, the EMS does not divide work and responsibilities clearly one solution is to have a common field of responsibility across the 3 organization order to improve cooperation.

3 Limited room for the exchange of opinions and sharing of knowledge

The waiting room of the Emergency teams is considered to concentrate on their work. For this purpose, the separate waiting room is basic like a doctor and a nurse or a mechanic and a pilot. But a CS works in the doctor's waiting room on radio contact. Besides, a Paramedic's waiting room is located separately provides in each fire station. Another waiting room of Emergency teams a place to exchange opinion. For example, briefing and inspection before work, debriefing after work, sharing common information from the communications and radio contact through a CS when Emergency teams are working. In addition, they have the case verification committee and training venue where Emergency teams and other related personnel can carry out their tasks.

Briefing and debriefing involves a doctor, a nurse, a CS, a pilot and mechanic but a paramedic cannot participate in it. Because, it is arranged by each fire station.

However, the meeting contents will be told to a paramedic. Actually I understood that they have not discussed with each other about cooperation.



Picture2. Appearance of verification association

A verification committee and training less than briefing and debriefing has time limitations. A DVD recording of a verification committee meeting held once every 2 months in east Hokkaido featured a question and answer session using slides projected on a screen. Emergency rescue team had discussed current and future problems in an inspection meeting. I know from such conversation that they desire that cooperation. However, I felt this inspection meeting was like a report meeting because it is very large and few people had been told.

4 Comparison between corporate organizations and EMS

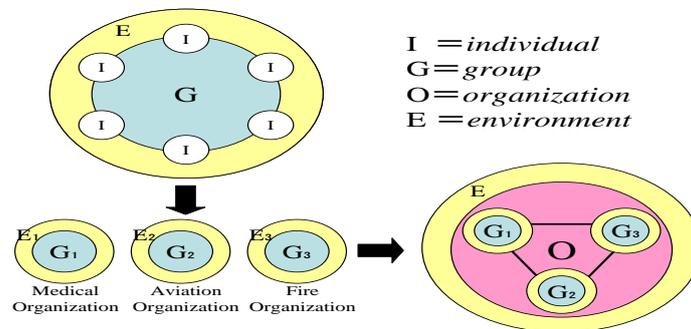


Fig1. The EMS Organizations

As I mentioned earlier, they have to share their knowledge in a limited time which is the most important theme in an emergency situation. The main difference between corporate companies and the EMS project is that they are organized in different groups of institutions. Regardless of differences such as formation and limitation of time, knowledge sharing (Sharing of standard judgment) is essential. According to knowledge sharing, this paper proposes the Externalization and Combination in SECI model. Additionally we analyzed about organization of helicopter operation.

In the EMS, each group (G) has each environment (E). Therefore, it is thought that E₁, E₂ and E₃ of each group included in the environment in the Combination.

4.1 Organizational structure of creation model

In addition to fig1, this paper proposes an organizational formula in order to clarify some problems based on current issues.

$$G_1 = G_2 = G_3 \quad (1)$$

$$\left. \begin{array}{l} G_1 > G_2, G_1 > G_3, E \approx E_1 \\ G_2 > G_1, G_2 > G_3, E \approx E_2 \\ G_3 > G_1, G_3 > G_2, E \approx E_3 \end{array} \right\} \quad (2)$$

Here, G_1, G_2, G_3 , the medical, aviation organization, and fire agencies. The G : agencies, O : emergency rescue team, E : on the situation various activities. Expression (1) was essentially a formulation of relationship between Externalization and Combination. Expression (2) shows that E has affected, it depends on the best decision. We need to bring out the tacit knowing from the organization in order to activate knowledge sharing. Therefore, an individual or group should have equivalent relationships. (The environment can be discussed openly with each other.)

4.2 Clarification of issues from fieldwork

During this study, I asked emergency team to any question. As a result, the word “experience” is often mentioned. The EMS team works within a hierarchy and a sense of respect for each other, although they have difficulty in saying their opinion on activities against other groups.

In other words, their relationships are $G_1 \neq G_2 \neq G_3$ when they have Externalization and Combination, and there is no such an equivalent relationship. As mentioned in chapter four, it’s difficult to discuss each other. Accordingly, The Externalization and Combination in SECI model is proposed as an improvement to the system.

4.3 Improvements derived from the theory of equivalent transformation

The problem as presented in the first five chapters, is that there must be an equivalent relationship among the organizations first in order to clarify the requirements and intentions. They thought they could take advantage of the transformation theory equivalent to the EMS organization.

$$A_o \stackrel{c \varepsilon}{=} B_\tau \quad (3)$$

Fig2 also shows clearly the improvements under the SEIC model.

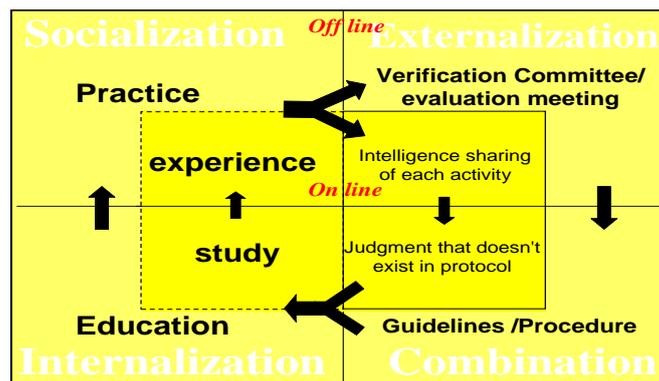
According to the conversation formula equivalent transformation theory, A and B are groups of each organization while o and τ are varying environments. Essentially equivalent to that required them to certain conditions and c, ε is the one thing SECI that part of consolidated and improved models of expression.

5 SECI model in emergency medicine

We tried to adapt the organization of the EMS helicopter on the basis of SECI model. Unfortunately, it was not possible, because decision change according to the situation. Also their roles are clearly divided into collaboration work and individual work. The organization which gathers various parties in such an emergency organization, give the self-examination and education to each organization even within the same work place.

Basically, there is a system of MC (Medical control) in medical emergency. It provides proof that rescue personnel take emergency measures from a medical point of view. However, if the emergency team consists of different organizations, they ought to have a medical point of view as well as aviation, and activities of rescue personnel. It brings about a lot of control in emergency situation. To that end, it is thought that it should exist within each activity not only MC.

5.1 New SECI model derived from the characteristics of emergency



Protocol: Provided procedure and rule

Fig2. SECI model in Emergency

Fig 3 shows emergency activity expressed the SECI model. We considered the SEIC spiral which has two time-lines—online and offline. These come from a special form of organization.

The emergency team has to send patients to hospitals as soon as possible; they do not have time to argue in an actual emergency. Therefore we would like to propose a new dual time line model. Online means decisions and advices at the work place. Offline means self-examination and discovering new merits. Online is short the time axis, and applies to the spiral when mobilizing. On the other hand, the time axis of offline is long. And the idea for each organization appears strongly. Socialization/Internalization is thought that the judgment according to situation and the guideline becomes education and study for the individual. As well as, it showed in the dotted line because it was thought that it was connected with both the experience and practice.

Conversely, the process of Externalization/Combination is more organized than that of Socialization/Internalization. It is thought that it begins a lot to differ about sense of values and the idea by each organization. There is a difference in a physical space and the purpose in them. When the expression (3) is applied to this SECI model, c and ε are strengthening of the verification committee and the reviews of the education method. Their consideration is turned to a knowledge sharing each other of the education method. In addition, the knowledge sharing can be promoted from the physical space by strengthening the verification committee.

6 Conclusion

In this study, we identified essential problems in the organizational structure of the EMS helicopter teams during their survey in fieldwork of three institutions that there were an Aviation Organization, a Medical Organization and a Fire Organization. The activities devoted to consideration by the SECI model were able to find a linkage system for further improvement. Through fieldwork, emergency rescue teams have a strong awareness for each other's work. It is thought that more high-quality emergency service can be developed by making their consciously "Knowledge sharing part" from "Individual area". As prospects for the future, the change is given to service crew's physical space to verify the effect.

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