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Article

COVID'19 Management Experience Feedback of Healthcare Organizations Relationships in Troyes City

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Abstract: COVID'19 crisis management revealed several relationships problems due to missed collaboration between healthcare actors and socio-economic organizations. In fact, these actors didn't work usually together indeed their interdependencies tasks. The government Healthcare authority asks to identify these types of problems. In this paper, first results of interviews with these actors are presented. This experience feedback formalization is focused on the influence of relationships between these actors and the consequences on the large sanitary crisis management as COVID'19 one.

Keywords: Experience feedback formalization, HealthCare organizations relationships, Large Sanitary crisis Management.

1 Introduction

COVID'19 sanitary crisis differs from all others in terms of the quick spread of contaminations, the high number of deaths (more than 5,5 million globally and 123,893 in France) and the accrued number of patients hospitalized and induced in intensive care units. The existing sanitary procedures were inadequate to face this type of crisis. Main problems are revealed related to the relationships and coordination between different actors especially, public and private ones. For instance, organizations as Emergency and rescue, Hospital administration, Regional Health Agencies, Ministry of Health, Socio-medical Agencies, Government delegates, Communal and departmental associations (Figure 1) discovered the importance to collaborate together even to coordinate actions or to make decisions in order to deal with COVID'19 consequences.

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These organizations learned from how to work together and identified several problems in their procedures. They ask to formalize their experience in order to did some recommendations at tactic and strategic level. Experience feedback is important to identify key elements to be considered in process, directives and organizations changes and to learn from the crisis management organization [[1]]. The MASK capitalization method [[8]] is then used towards this formalization with healthcare actors in Troyes city. In this paper, first results of this study are shown.

Figure 1. Organizations involved in COVID'19 Management.

2 Managing COVID'19 crisis in Troyes city

Different actors are included to manage territory crises in France. The ORSEC Plans[1] identify different functions for each security actors along with the crisis and corresponding gravity and extension (Figure 2). The first actor concerned by a crisis is the mayor who has to identify the gravity of the situation and requires the help of the Government Delegate and Department who coordinates means. They can ask means and directives from French national institutions and ministries as well as and European organizations.

Troyes is a small city with several spread geographic agglomerations and rural villages. There in one central public Hospital at the city with several private clinics and medical centers spread around the city and in big villages (Figure 3).

Figure 2. ORSEC Plan[2]

[1] PREMIER MINISTRE, 2019. *Circulaire n°6095/SG du 1er juillet 2019 relative à l'organisation gouvernementale pour la gestion des crises majeures*. p. 8.

[2] PREMIER MINISTRE, 2019. *Circulaire n°6095/SG du 1er juillet 2019 relative à l'organisation gouvernementale pour la gestion des crises majeures*. p. 8.

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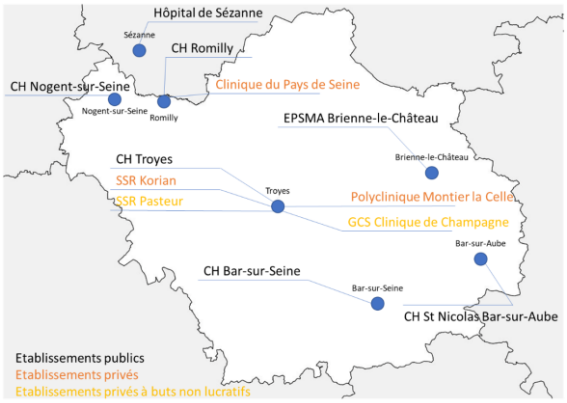

Figure 3. Medical centers and hospitals in Troyes city and its agglomerations.

These centers are quickly overwhelmed by COVID'19 patients. For instance, in April 2020, 225% of hospitalizations were all in Intensive Care Unit. Figure 4 gives an example of the situations of medical centers in Troyes and agglomerations.

Due to this problem, crisis management actors and medical centers reorganized their services and coordination systems in order to face this pandemic. We interviewed a number of these actors in order to identify the main elements of these changes with a special focus on factors that contribute to failures and successes of this crisis management. We focus in our work on relationships between organizations, related to the main requirements of the National Health Agency and the Troyes Emergency departments.

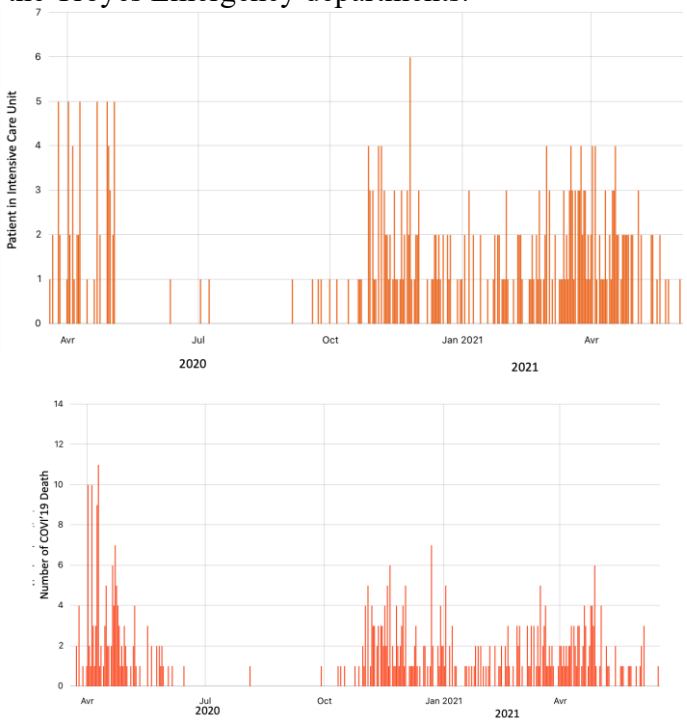

Figure 4. The situation of Troyes Medical centers due of COVID'19 [3]. We note that the number of deaths is very close to patients on Unit Care at the beginning of COVID'19. This number tends to be reduced along times, due to different organizations collaboration.

[3] https://www.coronavirus-statistiques.com/stats-departement/coronavirus-nombre-de-cas-aube

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3 Knowledge Capitalization

Nonaka et al. put on elicitation process as an important step in their Knowledge Management SECI model [[12]]. As same as, Grundstein [[9]] shows formalization of experience feedback as a necessary phase that helps to emphasize knowledge in an organization. Several approaches are proposed in the literature to handle this type of task [[6]], [[11]]. We can note mainly the MASK method [[8]] that guides interview experts in order to model the "what the main concepts organizations' actors use in their work", "the main goals they aim in their activity" and "method followed to achieve their goals". Experts are invited to co-build with the knowledge manager these models (Figure 5). This method has been used to capitalize knowledge in several companies [[8]].

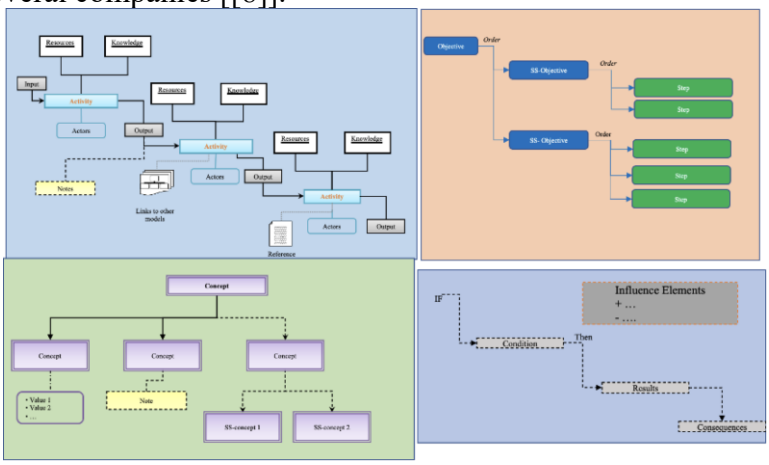

Figure 5. MASK Models [[11]] emphasizing order of tasks and their goals, main concepts and key success of an activity.

We focus on our study on elicitation of HealthCare organizations' relationships. The following sections explain our methodology and first results.

4 Relationships capitalization

Cartier et al, [[4]] studied the resilience of touristic communities in the face of environmental disasters like wildfire based on actors' relationships. They put out three main questions: constant communication between actors, identification of resilient communities and continuous resilience process management. G. Prayag [[13]] emphasizes on the importance of relationships between actors and resilience in tourism. Based on this type of studies, the interactions\ modes between different actors that face a new type of crisis such as COVID'19 can lead to the identification of some recommendations for sanitary organizations and population resilience.

4.1 Actors Interviews

As we note above, the MASK method has been followed especially the co-building of models with actors. Firstly, interviewees have to present themselves and then they draw with the knowledge manager the different relations they had with other organizations during COVID'19 crisis. After that, the MASK constrains model are used in order to emphasize main success and problems to face related to maintaining and missing of communication and relations with some organizations.

25 semi-supervised interviews have been done with actors belonging to different organizations in the Spring of 2021:

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1. Department organizations:
    a. The Department Government Delegate,
    b. Department Health Agency: The Director, the city responsible and the Defense and crisis referent
2. City Mayors:
    a. Six Rural mayors
    b. Troyes Health responsible
    c. Troyes's mayor delegate
3. Hospitals:
    a. The President, the Director and the Health Responsible of Troyes Hospitals Group
    b. The Emergency department Responsible
    c. Two directors of private hospitals
4. Safety organizations
    a. An Elderly house director
    b. One House help association director
    c. One local Firefighters' organization responsible
    d. One City doctor
    e. One SOS Doctors member

They identified main relationships that have to maintain in order to face large sanitary crisis similar to COVID'19 (Figure 6). The following sections presents first results of these interviews.

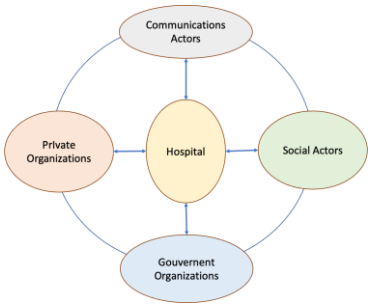

Figure 6. Relationships between actors to face large Sanitary crisis.

4.2 First Results

Actors to be involved

Several studies put on different actors and concepts to be considered in crisis management. These works defined models and ontologies for this aim. For instance, ISYCRI models [[3]] distinguishes concepts such as civil society, people, goods, natural sites, event risks, indicators and dangers. MOAC [[10]], represents mainly classes as Affected Population, Collapsed Structure, Compromised Bridge, Deaths, Infrastructure Damage and properties affected by an impact. Moreover, categorizing damages and resources are identified on SoKNOS [[2]]. POLARISCO [[7]] gathers different modules related to different actors in crisis management

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(PCC or Alert, Police, Firefighters, Public Authorities, Heath Medical and Gendarmerie) (Figure 7).

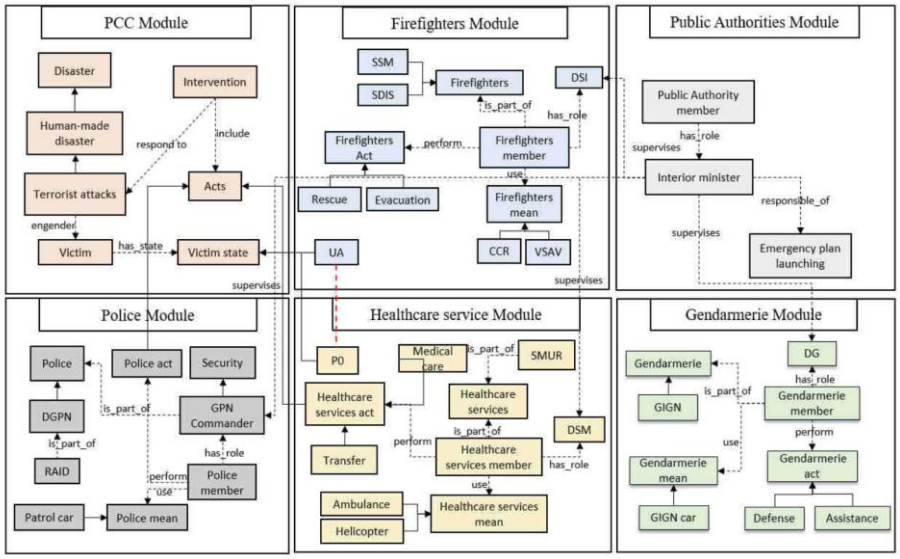

Figure 7. POLARISCO Ontology modules [[7]]

Figure 8. Actors involved in sanitary crisis management

The identified concepts are so generic to represent several crisis managements types or specific close to operational level as those defined for Rescue operations in ReSont ontology [[5]].

In our study only actors involved on strategic and decision-making levels has been interviewed. The main distinction was between public and private organizations. In public sectors, medical, social and government organizations are identified, while private actors are medical, economic and social (Figure 8).

Main Influences in Organizations Relationships

Several influences models have been identified. We can note especially those between healthcare hospitals (public and private), between healthcare organizations, between medico-social actors and Hospitals, between Hospitals and Government organizations, between economical supports and Healthcare actors. In fact, good collaboration and information sharing between these actors lead to good organizations of Patients Healthcare organizations and reduce the deadlock of capacities that hospitals faced during the COVID'19 Management. As same as, logistics of needed materials can be more controlled.

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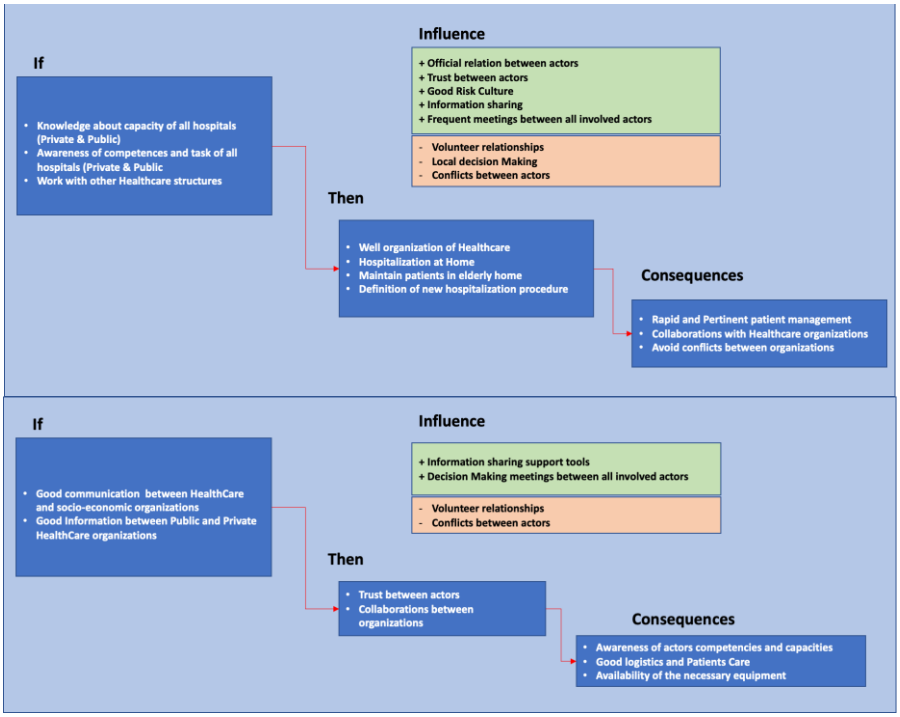

Figure 9. Relations between Healthcare organizations. Awareness and information sharing are necessary to maintain pertinent organization of patients' healthcare. Negative Influence as Volunteer relationships and different communication tools leads to conflict and misunderstanding of actions.

For that, all actors must be involved in decision-making meetings and information sharing support tools must be deployed in order to handle trust and competencies awareness of these actors. Figure 9 gives an example of these influences' models.

Finally, a summary of recommendations has been identified pointing out the influence of the maintaining of these relationships and the impact of large sanitary crisis management (Figure 10).

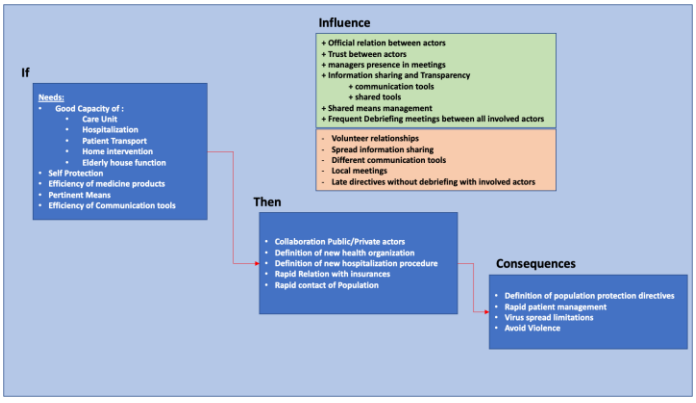

Figure 10. Influence between Maintaining relationships and large sanitary crisis management. For instance, having official relationships, centralized information system and frequent debriefing between all actors promote the trust between them and lead to pertinent patients' management and virus spread limitations, especially by avoiding violence and conflicts.

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5 Conclusion

Even Healthcare organizations usually collaborate to manage sanitary crisis, but the COVID'19 management put on several lacks in these collaborations especially extending relationships with private and socio-economic actors. In this study, COVID'19 management experience feedback capitalization shows different reasons of these problems. Healthcare actors' interviews, using the MASK method, emphasized main consequences of these problems and led to some recommendations for the future like: Promoting partnerships between public and private medical and social organizations in order to install new activities modes and workflows, integration of these actors in the official sanitary procedures, developing new collaborative decision making and debriefing modes and scheduling frequent similar sanitary exercises and training in order to maintain relationships between all actors involved in this type of crisis.

These recommendations can be integrated from one side a large sanitary crisis ontology as an application of Polarisco one (Figure 7) and help from another side, to modify and adapt Government procedures in order to consider Large sanitary crisis management. To develop foresight, a research chair in the field of exceptional health situations has been set up by the university and Simon Weil hospital.

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