An Emergency Center Call Taker Task Analysis

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Introduction

Much of the emergency response literature focuses on disaster response [1, 2, 3]. In contrast, our focus in this article is primarily on day-to-day emergencies (such as automobile accidents) rather than disasters (such as a hurricane). There are several differences between emergency response and disaster response that affect tasks, workflows, and roles. These differences make it difficult to generalize findings from disaster response to emergency response. Our study of day-to-day operations of an emergency call center therefore contributes to an underrepresented literature.

Emergency call centers (ECCs) receive telephone calls from members of the public in need of, or witnessing a need for, first responders. These first responders could be police officers, paramedics or firefighters. ECC staff members who receive calls from the public are **call takers**, while staff members who direct first responders to the location of the incident are **dispatchers**.

ECC staff performance is critical since a delay of a few seconds can mean the difference between life and death [4]. The first step in improving the call takers' performance is to understand their tasks. Once the tasks are well described and understood, we can determine where technology can increase the call takers' efficiency. In this article, we describe the call takers' tasks in a particular ECC, namely Quebec City's ECC, which is managed by the Quebec City Police Service (SPVQ).

Method

To determine the call taker's tasks, we analyzed some of the ECC's documents and conducted semi-structured interviews with some of the ECC's call takers.

Results

Organizational Context

The ECC's organizational structure and workflow (Figure 1) provide a context to situate the call takers' tasks in the broader ecosystem.

Figure 1. Emergency Call Center Broad Context
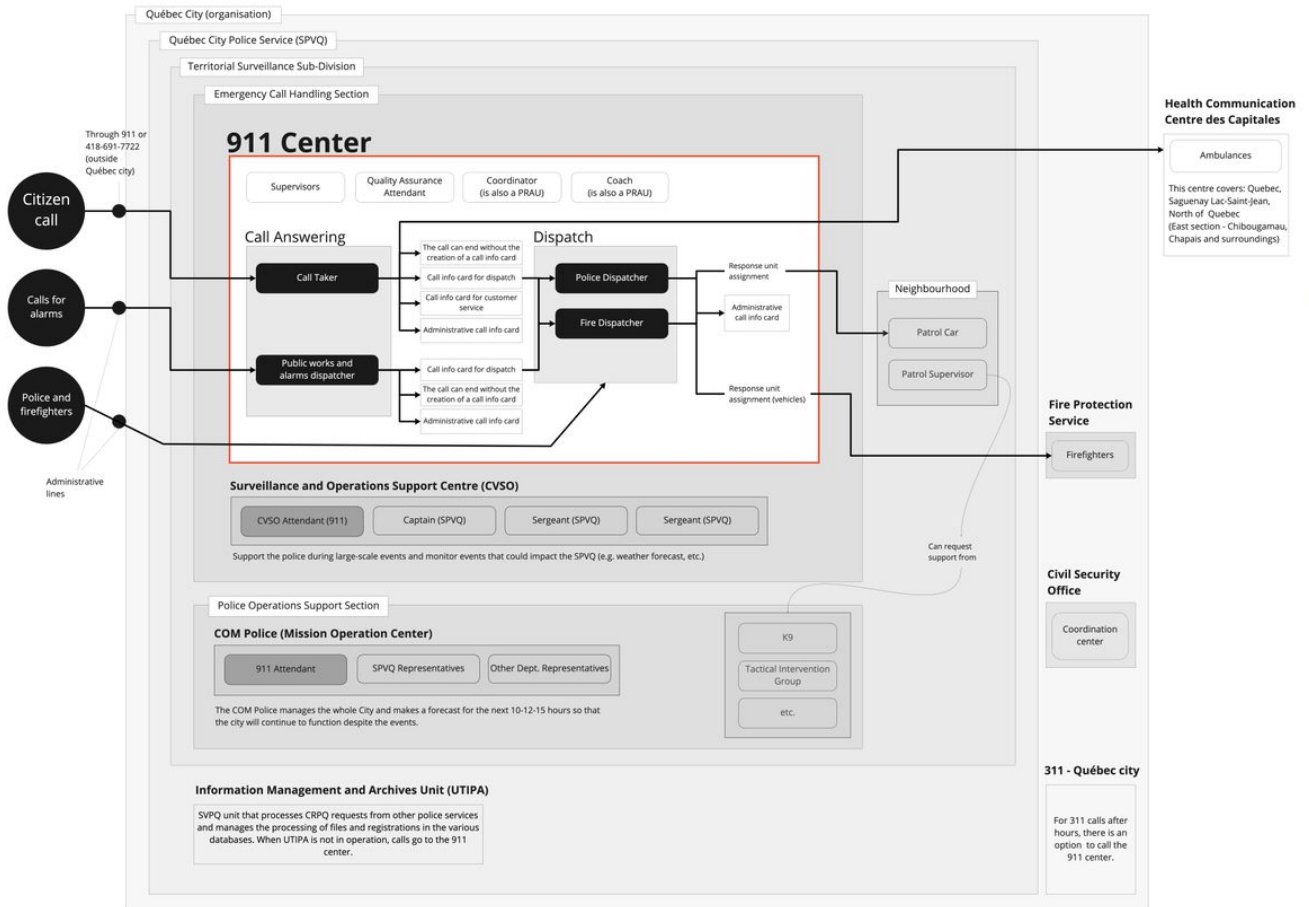
Citizens dial 911 to reach the center. These calls are received by the call taker. Most of these calls are about emergencies requiring an immediate response. Some calls require police or firefighter response, but are not considered urgent (reporting a break-in that occurred earlier, for example). Some calls relate to other municipal services (parks and recreation, for example).

The center also receives calls (and instant messaging texts) from police and firefighters who need additional information about an event to which they are responding, and calls regarding alarms. These calls come in through special **administrative lines** rather than through 911. They are handled by **police and fire dispatchers** or the **public works and alarms dispatcher** instead of the call taker.

Inside the ECC, communication regarding incidents between people in the roles mentioned above occurs primarily through the **call record** — a computer-based record containing important and relevant information about an incident. However, they also use Microsoft Teams as a secondary system.

In addition to roles that are directly involved in communications about an incident, call center staff also have management and training roles: **supervisor and coordinator, quality assurance attendant, and coach**. These roles are not directly involved in incident processing. Most ECC staff perform several roles depending on their experience. Only those with the least training are exclusively call takers.

The ECC as an entity communicates with several other units and organizations:

- Police units.
- The Surveillance and Operation Support Center (CVSO) for police operations requiring coordination.
- Firefighters.
- Ambulance dispatch (Health Communication Center des Capitales).
- External services (like utilities).

Call Taker

A call taker's primary task is to interactively process 911 calls. This involves:

- Answering the call.
- Identifying the ECC, to notify the caller in case the 911 call was routed to the wrong ECC.
- Identifying the incident type.
- Locating the incident.
- Determining which type of response is required.
- For police and firefighter response,
    - Assigning a response type and priority code to the incident.
    - Entering the code and any relevant information into the digital call record.
    - Submitting the call record, which sends it automatically to the appropriate dispatcher (police or fire).
- For paramedic/ambulance response,
    - Transferring the call to the Health Communication Centre whose catchment area includes the incident location.
    - Monitoring the call to determine whether a police/firefighter response is also needed.
- For municipal service requests, referring the caller to the relevant municipal department.

Conclusions

A few descriptions of call takers' and dispatchers' tasks can be found in the literature, even though these publications focused on another topic [5, 6, 7]. In general, our findings regarding the call takers' tasks are very consistent with the tasks reported in those articles, though we provide more details. However, organizational structures differ markedly across ECCs. We will discuss these organizational differences in our article.

We will also describe the difficulties the call takers experience, as these difficulties represent opportunities for technological support.

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Much of the emergency response literature focuses on disaster response [1, 2, 3]. In contrast, our focus in this article is primarily on day-to-day emergencies (such as automobile accidents) rather than disasters (such as a hurricane). There are several differences between emergency response and disaster response that affect tasks, workflows, and roles. These differences make it difficult to generalize findings from disaster response to emergency response. Our study of day-to-day operations of an emergency call center therefore contributes to an underrepresented literature.

Une grande partie de la littérature sur les interventions d'urgence se concentre sur les interventions en cas de catastrophe [1, 2, 3]. En revanche, dans cet article, nous nous concentrons principalement sur les urgences quotidiennes (telles que les accidents de voiture) plutôt que sur les catastrophes (telles qu'un ouragan). Il existe plusieurs différences entre l'intervention d'urgence et l'intervention en cas de catastrophe qui affectent les tâches, les flux de travail et les rôles. Ces différences rendent difficile la généralisation des conclusions de la réponse aux catastrophes à la réponse d'urgence. Notre étude du fonctionnement quotidien d'un centre d'appels d'urgence contribue donc à une littérature sous-représentée.