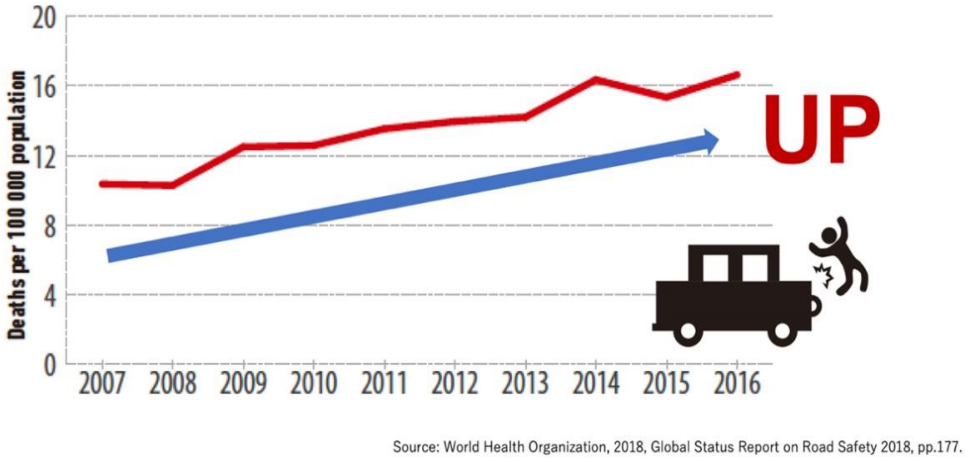
Establishment of Command & Control Center

Background

Year-over-year traffic fatalities have increased in Laos due to the motorization and development of transportation infrastructure fueled by rapid economic growth (Fig. 1).



Source: World Health Organization, 2018, Global Status Report on Road Safety 2018, pp.177.

Fig. 1 Number of Traffic Accident Deaths in Laos

In Vientiane Capital, 8 rescue teams are actively working the roads to provide immediate prehospital care after traffic accidents. However, this has resulted in fragmentation of services, since each rescue team has a separate emergency call number, and coordinating efforts with a total of 36 ambulances and over 500 volunteer members is difficult. According to prehospital care activity records, about 10,000 cases (of which the trauma comprises the majority of requests) are transported to hospitals annually. The main points of improvement with regard to coordination and command are listed as follows:

[Viewpoint from victims and bystander of traffic crashes]

- In cases of emergency, victims or bystanders cannot figure out which number to call.
- After emergency calls are made, the arrival of an ambulance may be delayed since they are not always dispatched from the nearest rescue station to the accident site.
- The prehospital care provided varies by team and thus outcomes depend on the number that victims or bystanders choose to call.
- Dispatched ambulances may not be sufficient to provide required care while other ambulances could have provided better care if only they were dispatched instead. [Viewpoint from the rescue teams]
- There is no standardization of training or sharing of performance metrics between teams, making it difficult to provide and improve standards and quality of care.
- Ambulances cannot be dispatched even if the accident site is very close the ambulance station.

[Viewpoint from the emergency hospitals]

- Multiple, separate rescue teams of variable performance that do not communicate with each other make sharing prehospital information and controlling the EMS system ineffective.

Objectives

The purpose of establishing the first CCC in Vientiane is to improve treatment outcomes of RTC-related injuries. By integrating all emergency calls into 1195, dispatchers can quickly and effectively dispatch the closest and most capable ambulance teams to stabilize and transport injured patients to the appropriate hospital. To prevent system saturation and reduce unnecessary ambulance usage, a consultation desk for those citizens who are unsure if their condition is worth activating EMS for is also planned to be established within the CCC.

Organization

Currently, Mittaphab Hospital (Ministry of Health) has been designated as the lead agency for the proposed EMS system and the role of each sector with regard to EMS is clearly defined based on the "Ministerial Ordinances of the Minister of Ministry of Health on the control of Emergency Medical Service" (details, shown in Annex A-5). However, the chain of command and relationships between the rescue teams and Mittaphab Hospital remain clinically vague, causing past difficulties in establishing such a CCC. Therefore, it is crucial to clarify the proposed organizational structure by placing each rescue team under the direct control of Mittaphab Hospital concurrently with the establishment of the CCC.

System

At the CCC, dispatchers will use the control system to efficiently dispatch ambulances to the accident site after receiving and processing the emergency calls according to training standards. They will accomplish this task by identifying the site on a map shown by the monitor, selecting the nearest ambulance to the accident site, and commanding the ambulance to go into action by telephone or tablet computer.

Rescue members will use tablet computers to enter their ambulance status (standby, active, inoperable, semi-active) and patient information that will be shared in real time with all dispatchers (Fig. 2).

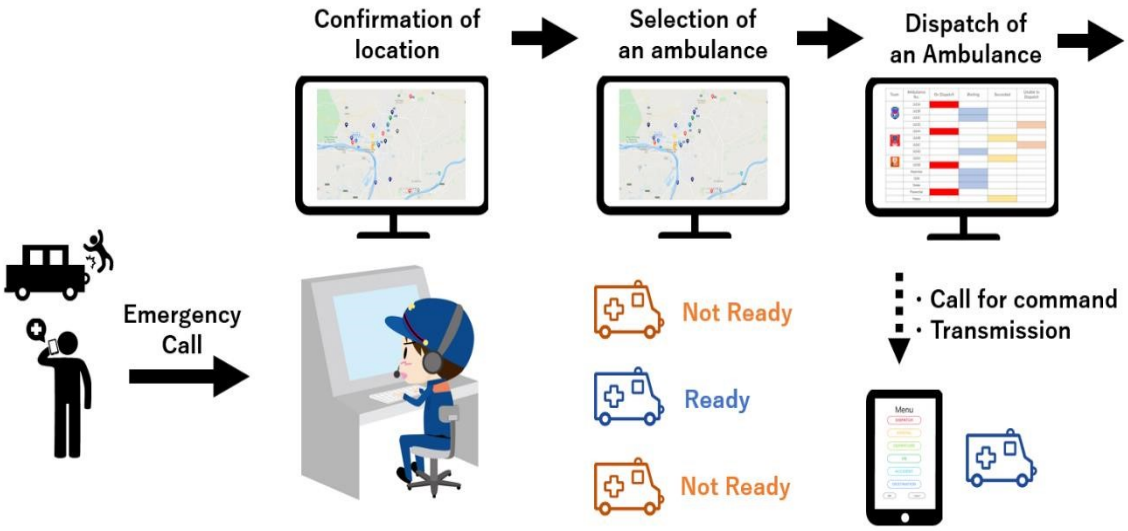


Fig. 2 Aggregating information for ambulance-dispatch

Hospitals will also broadcast their reception statuses so that rescue teams can efficiently choose the best hospital for transport (Fig. 3).

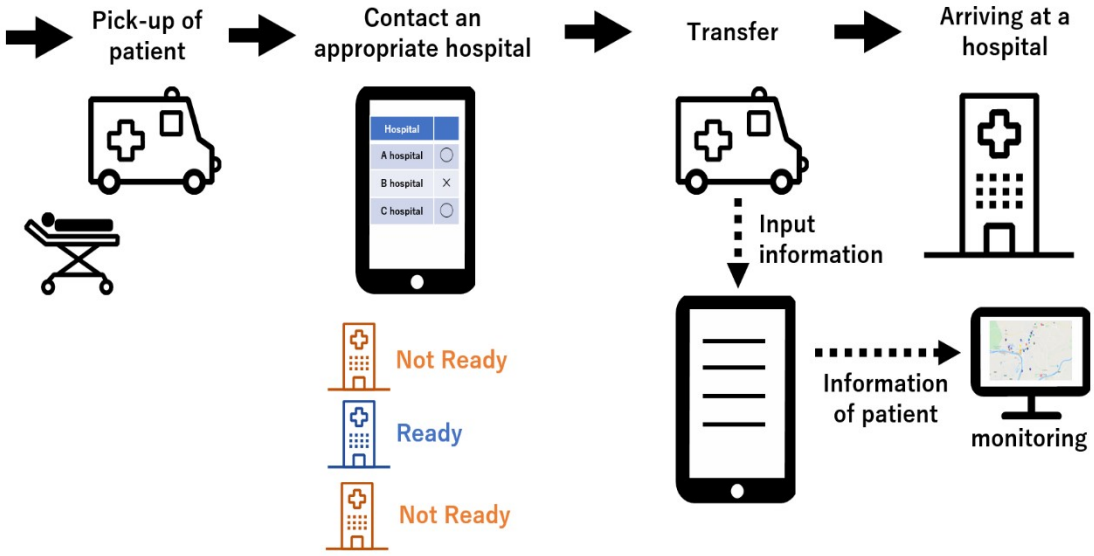


Fig. 3 Aggregating information for hospital-transport

Facility

The CCC will be established within a purpose-specific structure at Mittaphab Hospital. The concrete made, single-story building with 82.5 square meters of floor space will be furnished with telephones, monitors with an ambulance monitoring system, desks for dispatchers, and other utilities (such as water, electricity, and internet).

Human Resources

Human resources are essential to make the CCC both sustainable and high quality. In order to operate the CCC, it is important for dispatchers to fluently cooperate and communicate with the rescue teams. However, there is no existing training program for dispatchers in Laos. Therefore, in this project, the Training of Trainers (TOT) program for dispatchers will be a priority of CCC establishment.

In the early stage of the project, Japanese experts instruct a select core of dispatchers from each rescue team using textbooks written in the Lao language. In the next stage, 10 to 20 of these core dispatchers will guide and teach others, utilizing educational techniques and practical teaching methods. These TOT core members will also undergo training opportunities at Khon Kaen Regional Hospital in neighboring Thailand.

Expected Outcomes

The following outcomes are expected from a well-established CCC:

- An environment will be created where citizens can easily make emergency calls and get useful and appropriate consultation.
- The rescue teams can be dispatched to the site quickly and effectively.
- The hospital will be prepared to initiate treatment at the time of the patient's arrival.

Action Plan

The following action plan will be implemented over a 3-year, staged rollout.

Period			Plan
Preparation Period	2021	4 - 6	**PRESENT** Each rescue team receives separate emergency calls ↓ **CONSIDERATION** Consider new distributing emergency call system
		7 - 12	**CONSTRUCTION** CCC system construction **PREPARATION** - Public relations for Emergency 1195 call system - Dispatcher training (32 people) - Planning shift schedules for dispatchers - Selection for Lao Instructor candidates (18 people)
Transitional Period	2022	1 - 12	**Pre-START** - CCC test operation start + reception of emergency call by each rescue team - Transfer test of emergency call from each rescue team to call 1195 at CCC
	2023	1 - 3	**Re-DESIGN** Improvement of CCC System (examination by Lao Instructor)
New System Period		4 -	**START** - Start accepting emergency calls at CCC - Transfer from rescue teams to CCC or eliminating separate emergency call numbers of rescue teams