



โรงพยาบาลขอนแก่น
KHON KAEN HOSPITAL

Executive summary

10-year EMS registry Khon Kaen, Thailand

From 2012-2022

This report is developed by

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Introduction

The EMS system in Thailand firstly was developed in 1993. EMS system in Khon Kaen province was established in the beginning of that time. The various organizations including government agencies and non-government agencies worked together to set up the system in the resource constraint condition. Since 2008, the emergency medicine Act. Has been established and the national institute of emergency medical service was also established by law. The fast improvement of EMS system is noticed. The government provides a fund for EMS operation as well as there were many standardize and clinical protocols which control the quality of service. The information technology of emergency medical service (ITEMS), which is developed by NIEMS, is the tool for national data collection. These data is a major part of monitoring and evaluation of the quality in the EMS service. Khon Kaen province EMS system also collects and analyzes the data from ITEMS. This report will explain the statistic of EMS operation and criticize the data to understand the EMS operation situation and evaluate the quality of work. This summary is the part of the full official report which will be launched in the end of 2023. The data in this report will be collected mainly form 2012-2022 because of the limitation of reaching the data before 2012. However, some data before 2012 is available.

We would like to thank you for paramedics and advanced EMTs who are working hard to complete this report. Thank you for Mrs.Thanyaras Piyawatchwela for your advice. Finally, a big thank you to Dr. Witaya Chabunchachai for your 20-year hard working to establish the EMS system in Khon Kaen and in Thailand.

Terms clarification

1669 (First Call): call 1669 by patient or bystander.

1669 (Second call): government or non-government agency call 1669 to notify any emergency.

Another phone number: call a dispatch center via landline telephone.

Radio communication: call via VHF radio system.

Other: call via Line

ALS: Advance Life support

ILS: Intermediate Life support

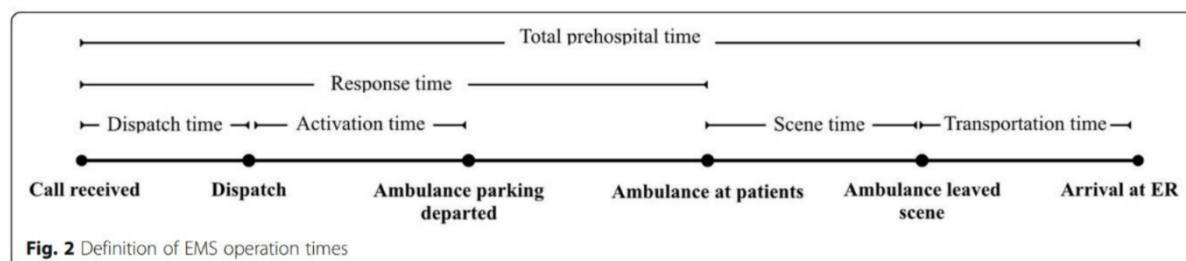
BLS: Basic Life Support

FR: First Responder

Not specify: Missing data/unclear data.

PPE: personal protective equipment.

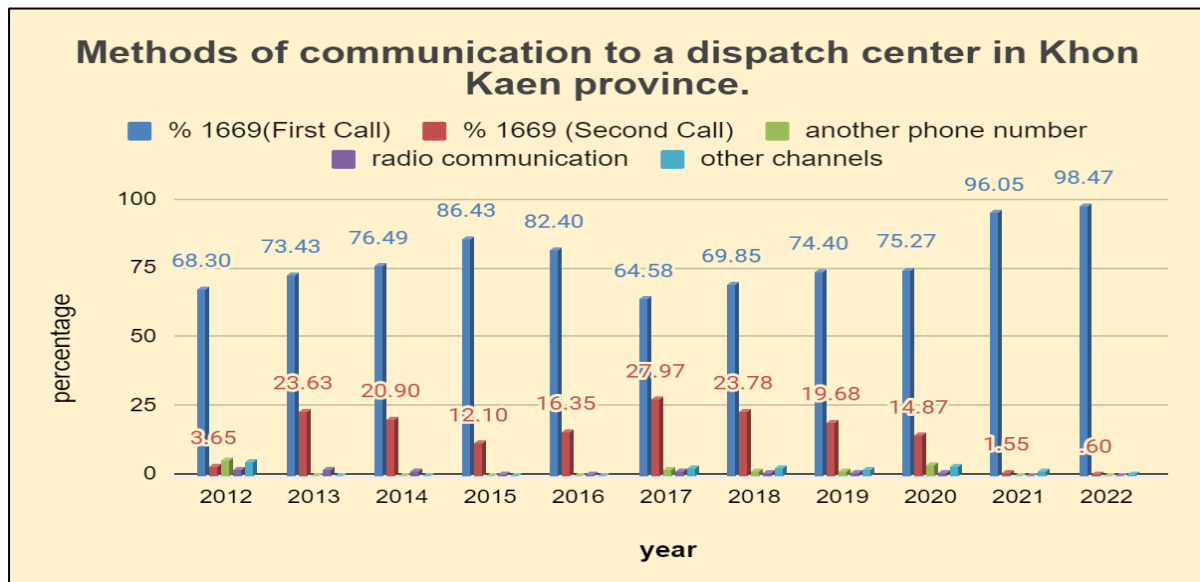
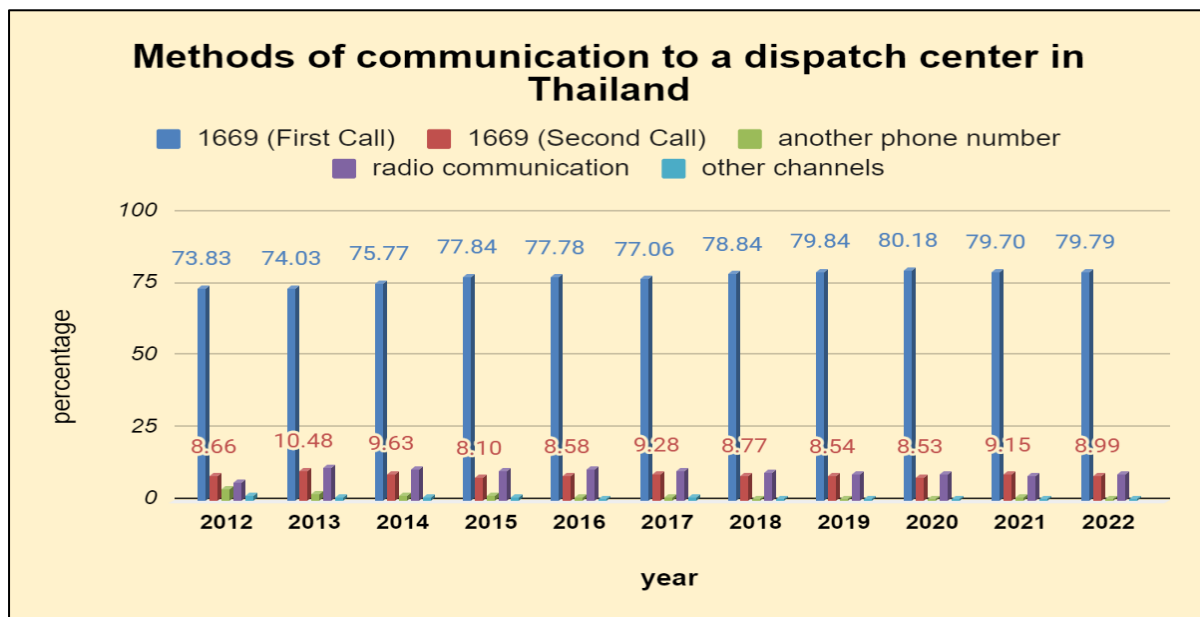
URI: Upper respiratory infection.



The last decade EMS statistic of EMS operation form 2012 -2022.

1. The notification system

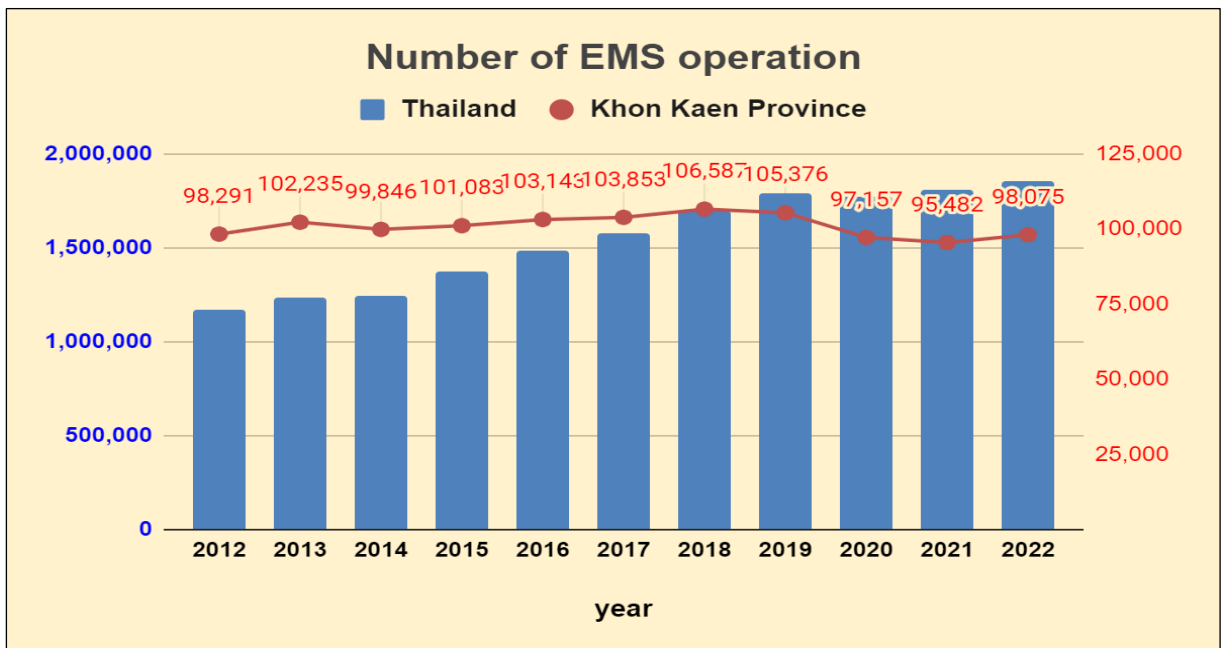
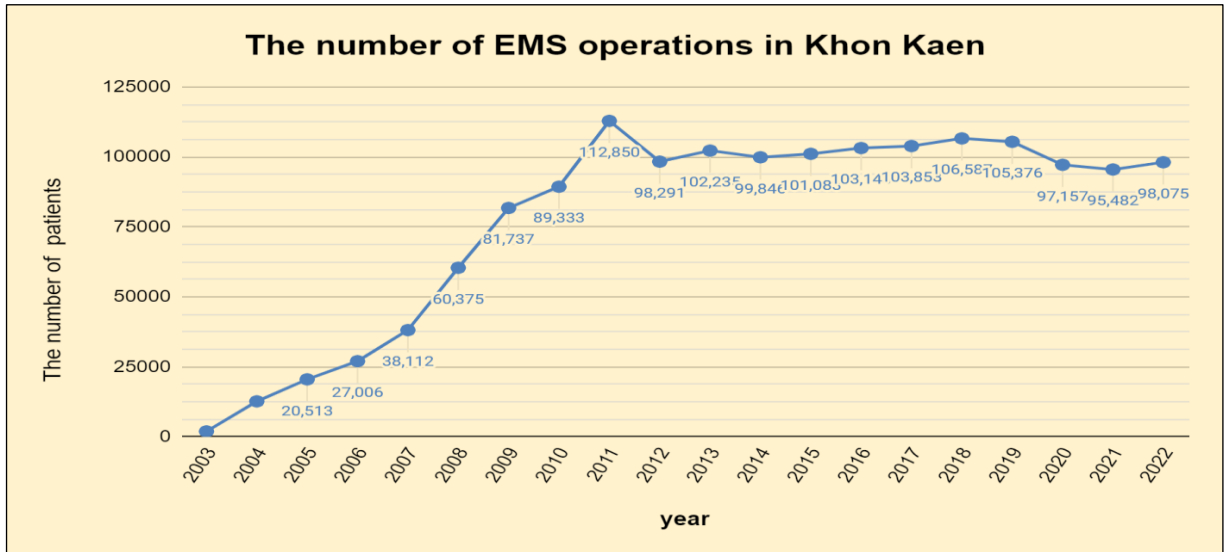
Since the EMS act was established in 2008, 1669 is the national call number for medical emergency. However, the previous communication methods, such as land line number, and VHF radio phone are also used to be the back-up method.



From these two graphs, it showed that 1669 (First call) was the main channel of medical emergency notification in nationwide and Khon Kaen province. While 1669 (second call) has been decreasing since 2014 in Khon Kaen Province.

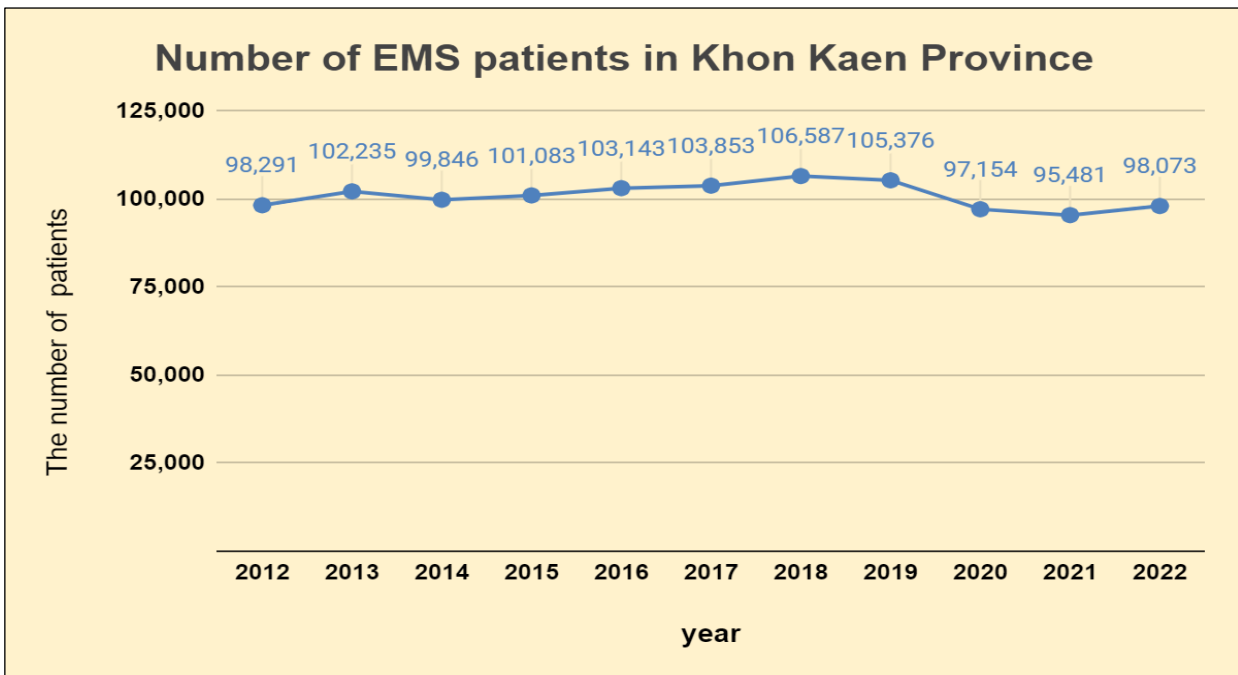
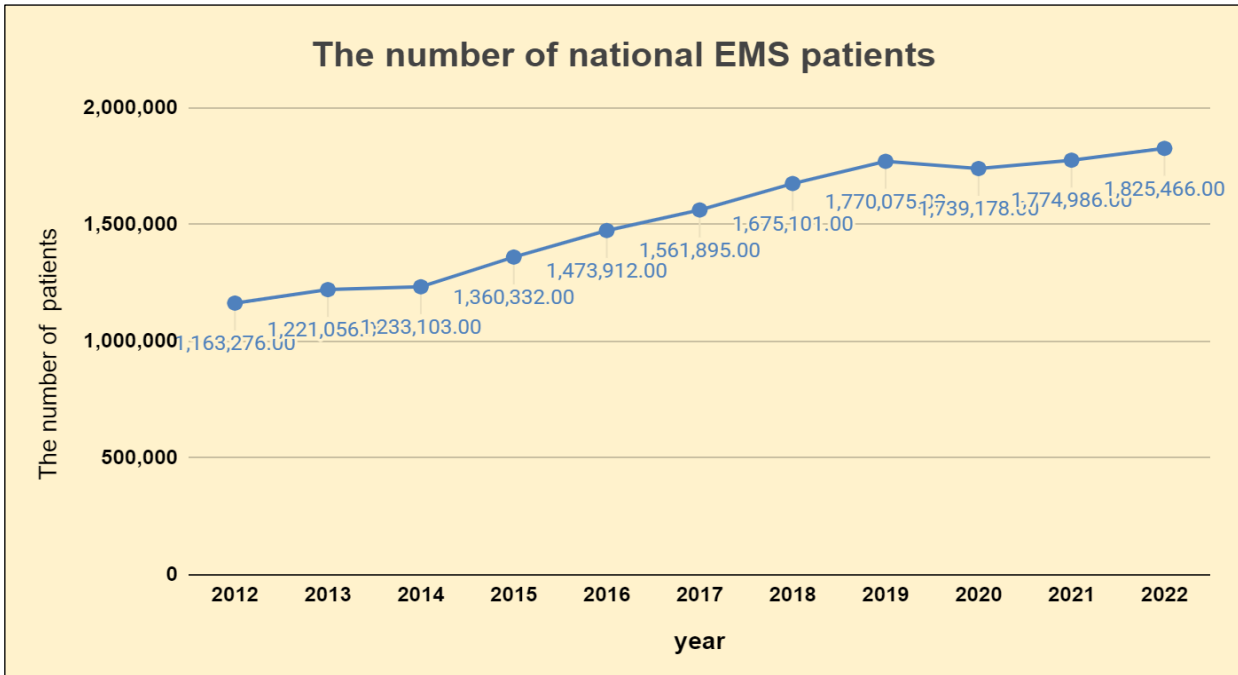
2. Response system and on scene care

2.1 Number of EMS operation



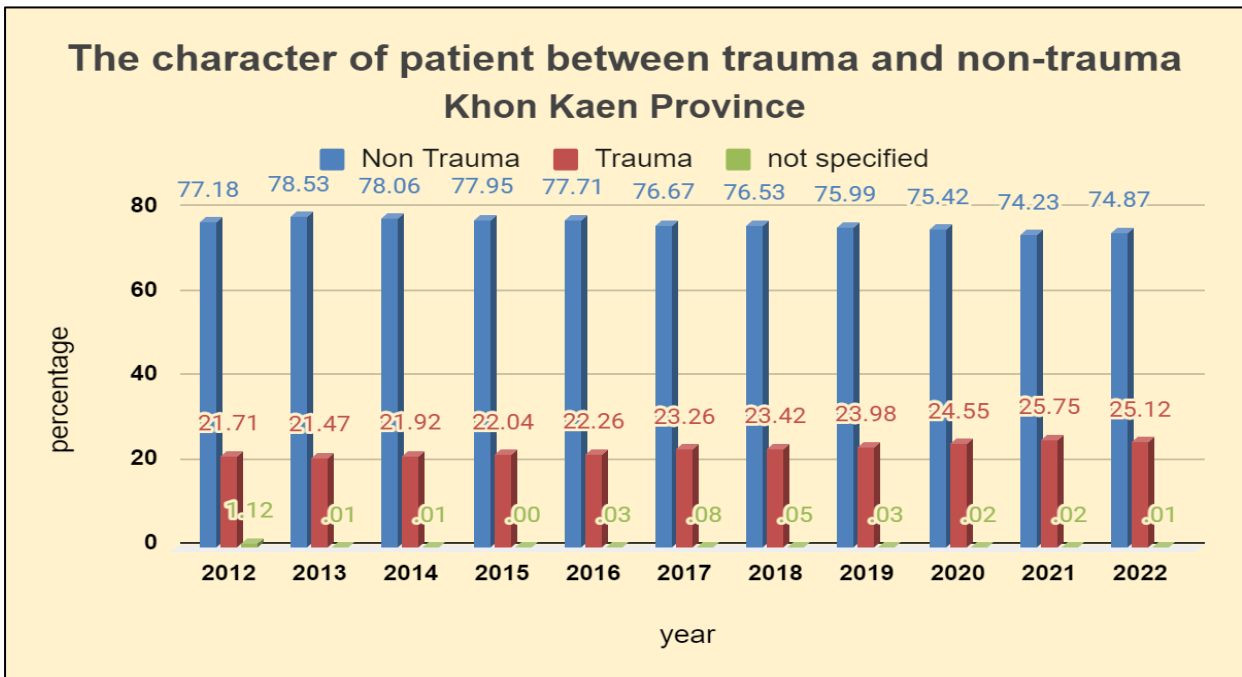
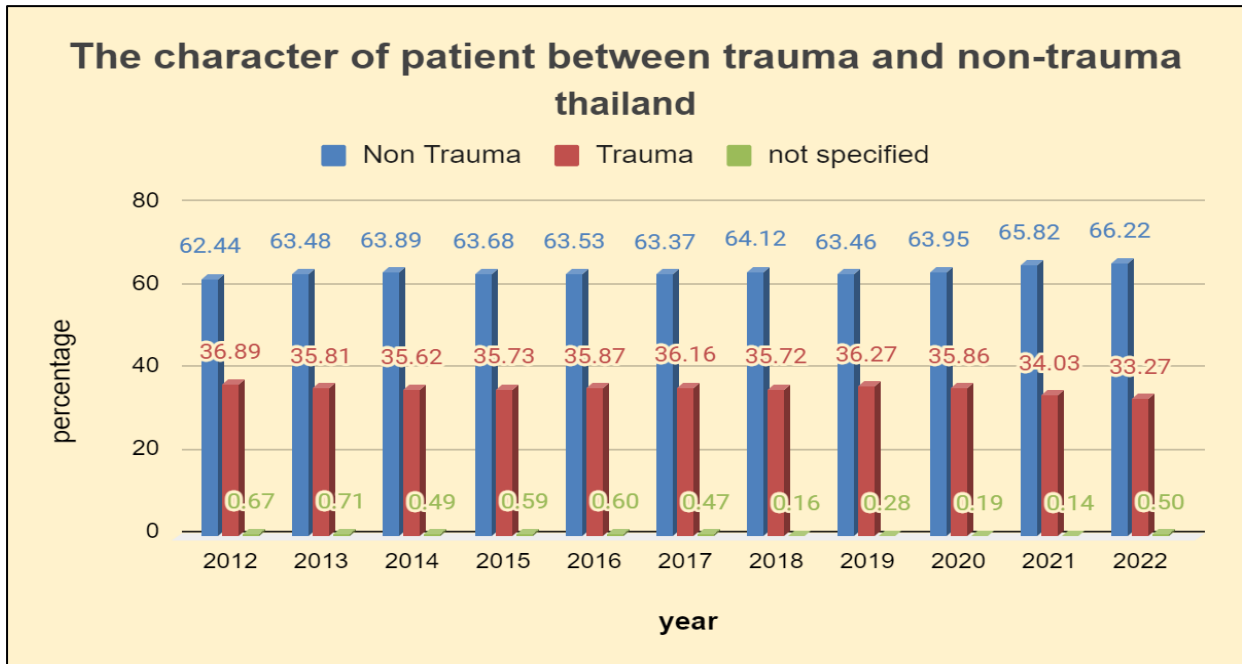
The number of national EMS operation was around 1.8 million in 2022. It has been increasing from 1.2 million in 2012 to 1.8 million in 2022. In Khon Kaen EMS system, the number of EMS operation was around 100,000 cases per year. However, the number of operations has been increased significantly after 2008, when EMS act. and NIEMS were established.

2.2 Number of emergency patient



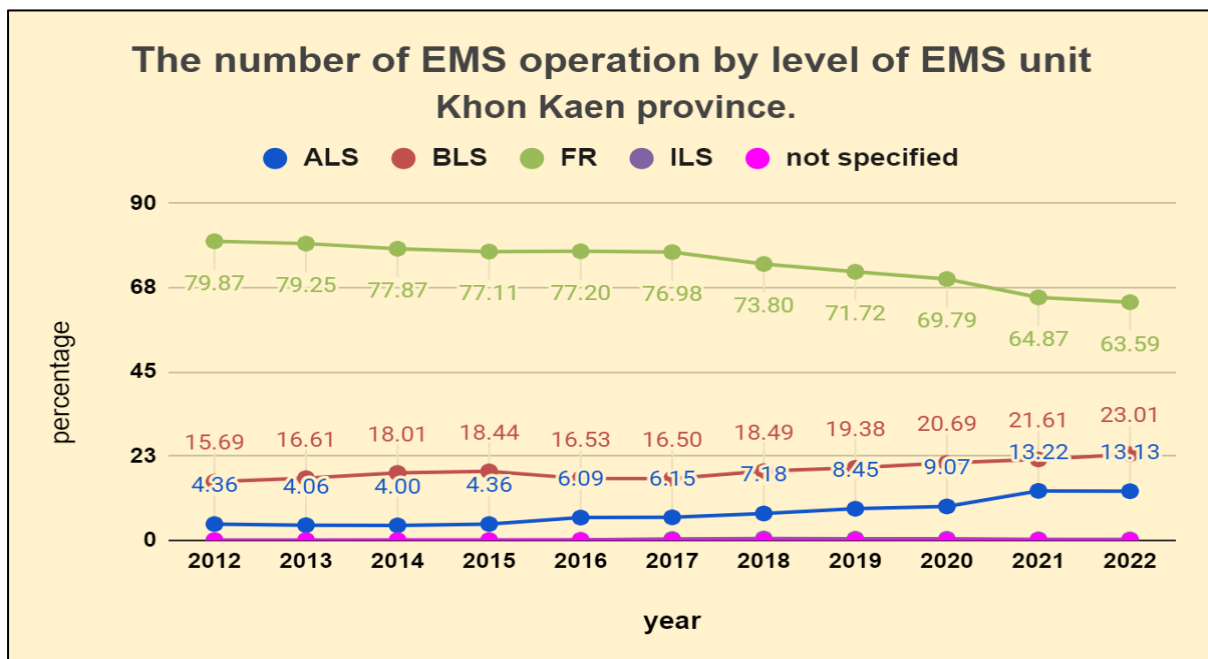
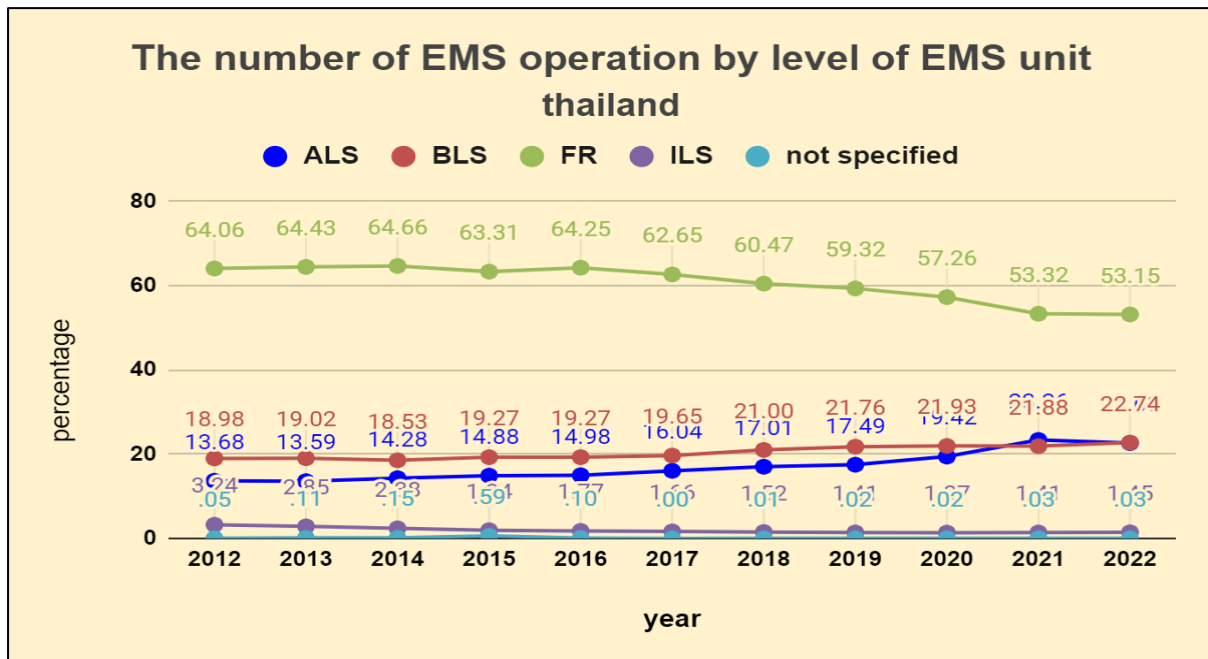
The number of emergency patient has been increasing from 1.1 million in 2012 to 1.8 million in 2022 at the national level. While, the emergency patients in Khon Kaen province were a per year. The number of EMS patient is around 100,000 cases per year in Khon Kaen province. The number of EMS patient has nationally been increasing since 2012.

2.3 The character of patient between trauma and non-trauma



It can be seen that the majority of patient is non-trauma (Three in four cases) in Khon Kaen province. However, the trauma patient is one in three cases in a national level.

2.4 The number of EMS operation by level of EMS unit

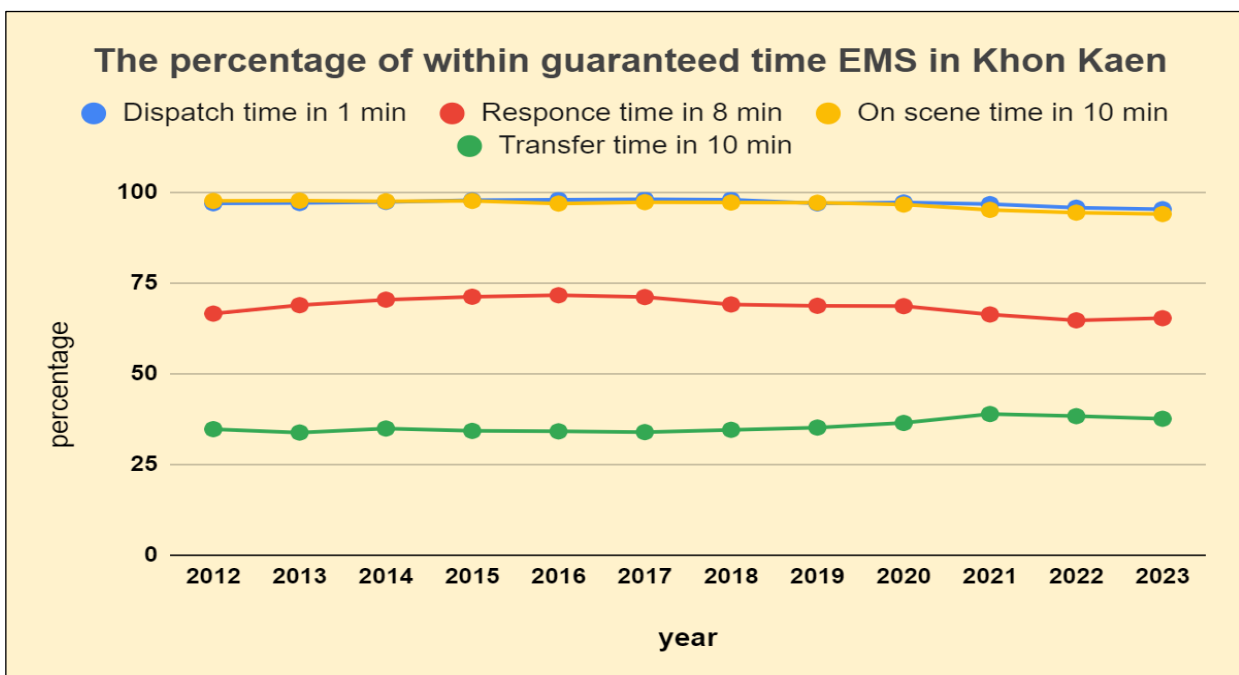
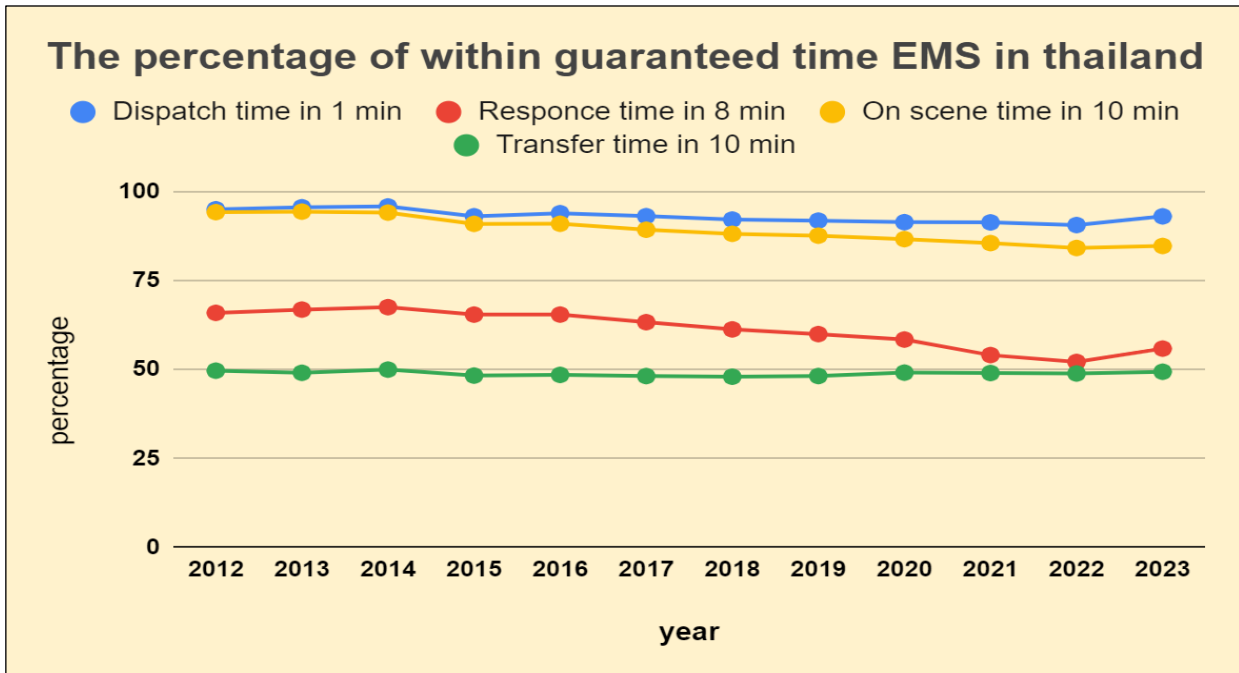


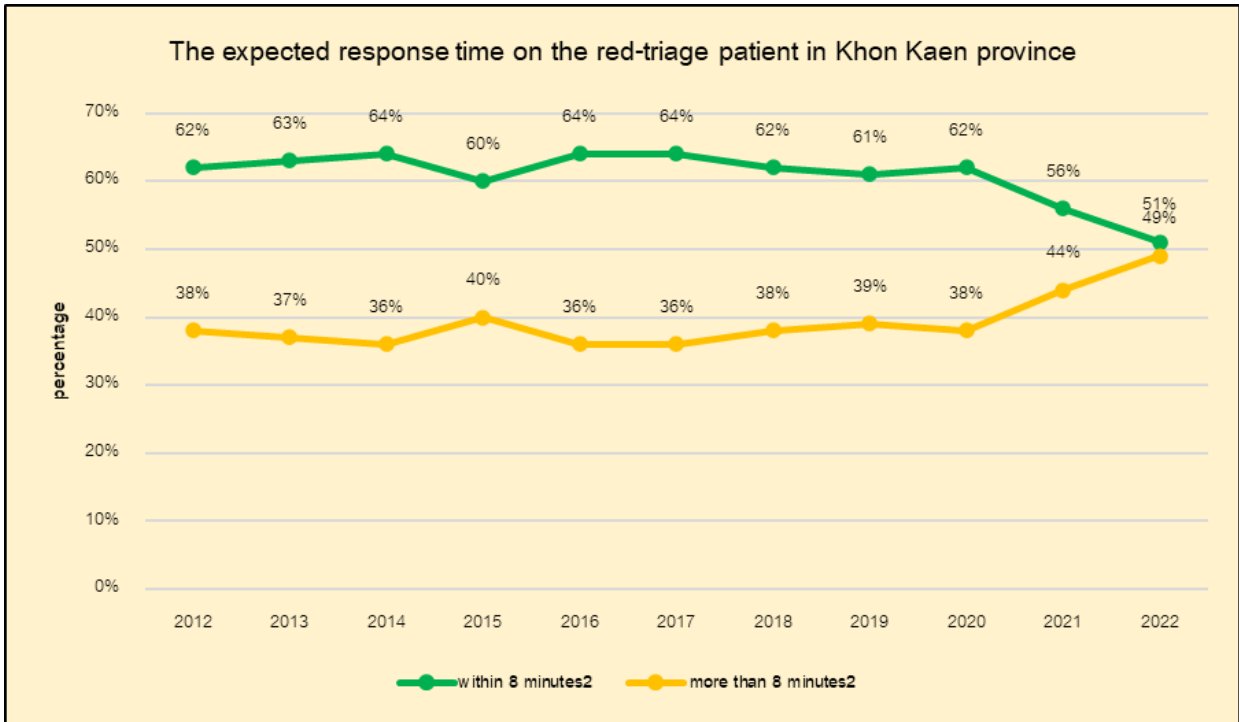
In 2012, most of the EMS operation was FR level, BLS level and ALS level, respectively. From 2012 to 2022, the number of FR EMS operation has been declining, while the number of BLS and ALS EMS operation have been increasing. Notably, the number of ILS EMS operation, which is the EMS team that leads by AEMT, was very low usage.

2.5 the percentage of within guaranteed time EMS operation

In Thailand, the key performance indicator for EMS operation is the response time which is expected to reach the patient within 8 minutes after the dispatcher received the call.

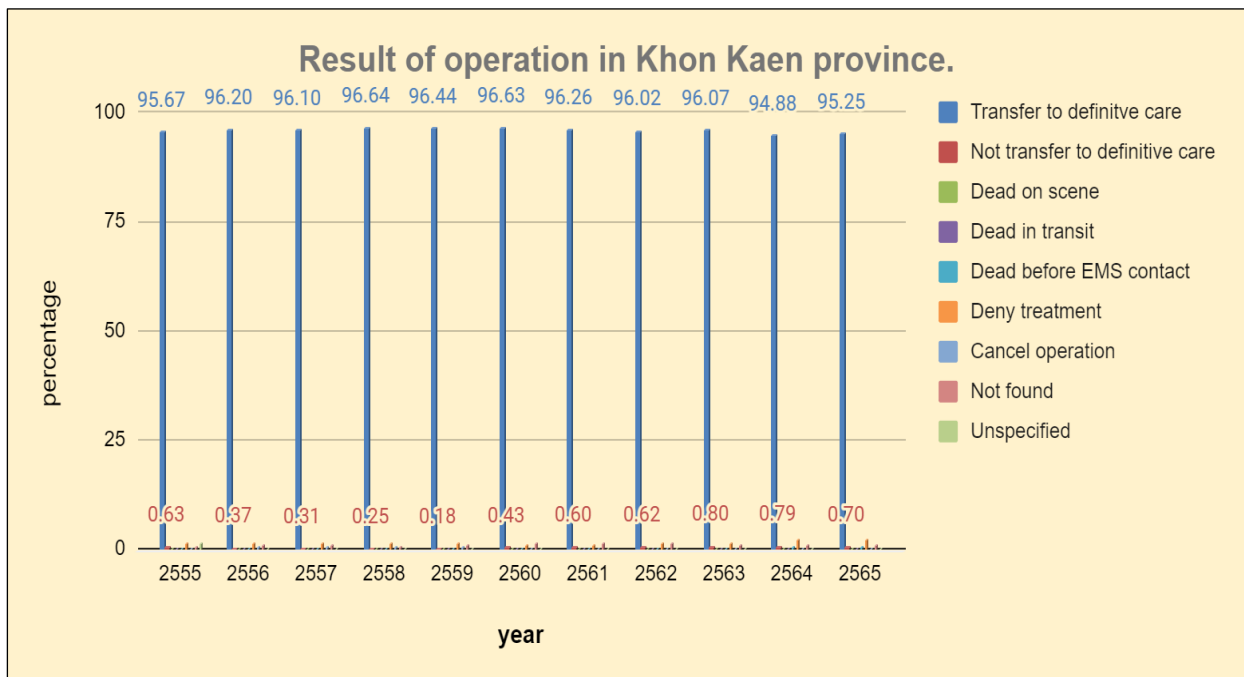
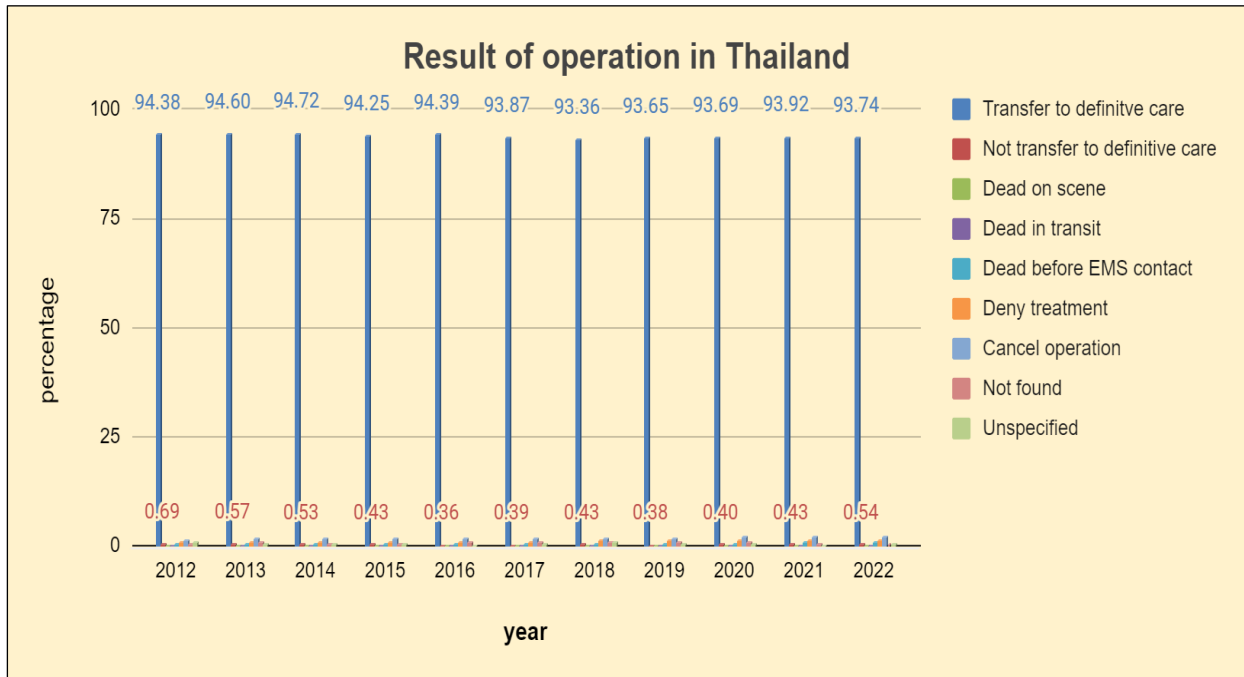
However, in Khon Kaen province, the activation is also monitored to observe the prompt response to the dispatch command. The on-scene time is expected to complete within 10 minutes in trauma scene. The transfer time is currently not reflected in the performance due to





It can be seen that the expected response time has significantly decreased since 2020. After 2020, there has been the Covid-19 pandemic. Consequently, the staff took more time on wearing the PPE before moving to the scene, especially when the patient got a fever, URI symptom, unknown history or unreliable history.

3. Destination and result of operation.



Over 90 per cent of EMS patients were carried to the hospital. While, the other reasons were very low incidence.

Summary

The EMS system in Khon Kaen province is the most active unit compared to other in national level. The EMS operation is around 100,000 cases per year as well as the number of EMS patient. The main medical emergency call number (1669) is majority used for emergency notification. The most of EMS patient is non-trauma patient. The expected response time is over 60 per cent excepting during the Covid-19 pandemic. The most of EMS patient were transferred to the hospital.

The way forward

There are room for improvement in the EMS system in Khon Kaen province. The single emergency call number is the one of projects to reduce the confusion of people due to many emergency call numbers, such as police 191, fireman 199, and medical 1669. Moreover, the participation of local government in EMS will be more. As the subdistrict health office moved to be under the local government, the encouragement for local government to set up the ALS EMS unit may be possible. As a result, this will increase the coverage of ALS unit in rural areas. Moreover, the digital transformation in EMS will be focused on including seamless data transferring, and telemedicine.