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An opinion survey on Emergency Medical Assistant Motor Cycle service in the Hong Kong Fire Services Department

香港消防處急救醫療助理電單車服務的意見調查

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Emergency Medical Assistant Motor Cycle (EMAMC) plays a crucial role in prehospital care in the Ambulance Service. In Hong Kong, the implementation of Ambulance Aid Motorcycle started in 1982. It provides a more rapid response to various types of patients in order to increase survival rates such as by the provision of early defibrillation. The demand of EMAMC is significant and therefore the fleet size has been expanded to 37 motorcycles in 2004. In order to review the development and operational aspects, interviews were conducted with different riders to collect their views. This article discusses issues in different categories such as training, vehicle, equipment and mobilisation. This survey revealed some common concerns of the riders. (*Hong Kong j.emerg.med.* 2004;11:240-244)

急救醫療助理電單車在院前救護服務中扮演十分重要的角色。在香港，救護電單車的實施始創於 1982 年，它對不同種類的病人提供更迅速的反應，以提高生存率，例如及早施行去纖顫術。由於急救醫療助理電單車服務的需求甚殷，車隊於 2004 年擴充至 37 輛。為了檢討發展及運作方面的事宜，作者訪問了不同的電單車救護隊目，收集他們的意見。本章討論不同範疇的問題如訓練、車輛、儀器及人手調動等；這調查還顯示電單車救護隊目一些共同關心的問題。

Keywords: Ambulances, emergency medical services, emergency medical technicians, motorcycles

關鍵詞：救護車、緊急醫療服務、緊急醫療技術員、電單車

Introduction

With the growing population and increasing commercial activities in the 1980s, traffic congestion became a more significant problem to be solved by the Government. As a solution, the Fire Services Department introduced Ambulance Aid Motorcycle (AAMC) on a trial basis in 1982.[1] The aim was to ensure that effective ambulance service could be provided promptly. AAMC were dispatched to emergency incident sites when ambulance arrival would be delayed by traffic.

The fact that AAMC could provide early stabilising treatments to patients with positive results was affirmed. Seven new AAMC were introduced and deployed to six geographical locations in 1987.

In line with the advancement of medical technology, 121 ambulance personnel were trained in the use of Automated External Defibrillator (AED) in 1991. A pilot scheme of equipping AAMC with AED followed.

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In 1993, 15 Yamaha XJ650 AAMC were operating and a new type of Honda CBX750 AAMC had replaced the old batch. In 1999, three BMW R850 RT were introduced for better service (Figure 1). In 2000, 15 AAMC were upgraded to Emergency Medical Assistant Motor Cycle (EMAMC) for a more comprehensive service.

The EMAMC is playing a more irreplaceable role in the Hong Kong Ambulance Service. Today, 37 EMAMC are operating in different ambulance depots and fire stations to assist the Ambulance Service.

Methods

A survey was conducted to review the operations of EMAMC over the 20 years and to find out rooms for further development. Interviews with six motorcycle (MC) riders having 1.5 to 21 years experience in driving AAMC/EMAMC were conducted from October to December 2003. They were chosen randomly from different regions in the Ambulance Command.

Before the interviews, the project team defined possible scopes for discussion on EMAMC duty that might be covered by the MC riders. These scopes included training, types of motorcycle, equipment, uniform, attendance criteria, mobilisation, and duty hour. Each interview lasted 10 to 20 minutes. Six MC riders went through the topics with their opinions. Prompts and guiding questions were given by the project team only when necessary. Key points raised by the MC riders were jotted down for reference.

Figure 1. The EMAMC (BMW R850 RT).

Results

After the interviews, opinions collected from the MC riders were consolidated and categorised as follows:

Driving training

Before performing the duty of AAMC/EMAMC, MC riders must be trained and qualified in motorcycle driving. All MC riders expressed that the training conducted by the Driving Training School (DTS) was able to provide them with the basic technique in driving AAMC/EMAMC. They suggested that DTS should provide a more comprehensive training since the driving skills for AAMC/EMAMC are more demanding.

Ambulance aid refresher course for AAMC/EMAMC rider

All MC riders felt that the extra training offered by the Fire Services Ambulance Command Training School (FSACTS) could give them a better concept in performing prehospital care. The training emphasised the provision of prehospital care by a single MC rider on initial arrival commonly encountered daily.

Vehicle

Some MC riders had the experience of driving different types of AAMC/EMAMC. When compared with the previous type of motorcycle (Honda 750), they felt that the BMW R850 RT met operational needs better. With the introduction of the BMW, storage space and weight distribution were improved which enabled the carriage of more ambulance equipment to cope with the increasing complexity of emergency calls.

They were satisfied with the increased horsepower. They stated that driving stability improved with increased speed, especially on highway. However they felt stability and agility were decreased significantly in low speed such as during traffic congestion.

Due to the different driving characteristics between the previous Honda 750 and the new BMW R850 RT, MC riders expressed that more time was required initially to adapt to driving the new EMAMC.

MC riders in the New Territories Regions stated that due to the wider body of the BMW R850 RT, it was difficult to drive through between the poles in bicycle trails or to enter villages. They suggested introducing different types of urban/rural EMAMC similar to the Cross Country Ambulance and Light Ambulance.

Ambulance equipment

In regard to onboard equipment, they all felt that the current stowage could fulfill operational needs. They expressed that the crowbar placed outside the locker was rarely used. In addition, they felt that it carried potential hazards since it was not totally secure and might loosen accidentally.

Communication equipment

They were satisfied with the current choice of equipment for communication. With the "Shoei Syncrotec" helmet and headset, they were able to communicate effectively with the Fire Services Control Centre (FSCC) during driving.

By the implementation of the Third Generation Mobilization System, adding a panel for electronic map on EMAMC would be useful and convenient for finding the shortest route to the scene. Such information has to be searched manually by the MC riders from the map at present.

Uniform

They agreed that the current clothing equipment was comfortable and suitable for operation. However they felt the "Long Black Leather Gloves" issued for EMAMC rider could not meet the operational needs. It hindered the movement of hands in driving and shorter gloves are preferred for daily use.

They also suggested that using "all-weather boot" to replace the current boot. It was because in rainy days, they had to wear the "Rubber Firetred Boot" which created difficulty for them to maneuver the pedal in driving.

Attendance criteria

They were satisfied with the Attendance Criteria stated in Ambulance Command Standing Orders CSO(Amb) 4.39 (Table 1)[2] and they strongly felt that EMAMC

Table 1. Dispatch criteria of EMAMC [Summary of CSO(Amb) 4.39]

- Emergency at location where the responding ambulance is likely to exceed the 12-minute response time (e.g. traffic congestion)
- Traffic accident
- All unconscious patients
- Major trauma
- Cardiac disease
- Chronic obstructive airway disease
- Diabetes mellitus
- Suspected narcotic overdose
- Paediatric epilepsy
- Anaphylaxis
- All other severe cases that cannot be classified into the above categories, but the despatch of EMAMC will be of better benefit to the patient
- Any emergency as directed by Fire Services Control Centre (FSCC)

could help patients, especially in life-threatening conditions by earlier arrival.

Mobilisation

They reported that in some occasions, FSCC might not mobilise them even when the incidents fell within EMAMC dispatch criteria. It might be due to inadequacy of ambulance in the area and FSCC reserved the EMAMC as the last resort. Sometimes MC riders had to take the initiative for participating in emergency calls while FSCC had not dispatched them.

Duty hour and duty pattern

They agreed that the current 0800-2000 hours and "Day Day Off Off" system was ideal. On the aspect of 24 hours coverage of EMAMC, they said that the road condition was not so congested at night as that in the peak traffic hours. Due to the low visibility at night, the potential hazard in driving EMAMC would be increased. Therefore, MC riders generally did not favour running EMAMC at night.

On the other hand, they expressed adding more special duties in festivals like Christmas and New Year Eve would be valuable because on these days, streets would be congested with traffic and crowds.

Discussion

In the discussions with the MC riders, the project team found that the current system could competently fulfill the operational needs. Undoubtedly, there are rooms for further improvement and they are grossly outlined as follows: -

- Increase the versatility of EMAMC driving training provided by DTS;
- Introduce another type of motorcycle with better low speed stability and higher storage capacity;
- Study the possibility of introduction of rural type EMAMC;
- Add panel for electronic map on board for en-route information;
- Replace boots and gloves to all-weather type; and
- Enhance the EMAMC service by adding more special duties in strategic locations to provide prompt pre-hospital care in which ambulance cannot access easily.

The Ambulance Command has more challenges to tackle in future. In order to promote the effectiveness and value of EMAMC, further feasibility study should be conducted for improvement.

When it comes to saving lives, every second counts and could mean the difference between life and death. EMAMC can provide prompt prehospital care especially in life-threatening conditions in which early stabilisation of injury or illness is crucial. Extra EMAMC can be deployed to more ambulance depots or fire stations in order to provide a more comprehensive and all-round ambulance service. For example, in the Island South area such as Aberdeen, there is no EMAMC service provided except those from the Pokfulam Ambulance Depot.

With the short travelling time of EMAMC, advanced care (e.g. EMA III) can be commenced and delivered by the MC riders earlier before the arrival of the normal ambulance. Application of advanced protocols and techniques such as endotracheal intubation and use of cardiac drugs can be considered in the future. Introducing advanced care on EMAMC is more cost-effective as exemplified by operating defibrillators on AAMC in the 1990s. The winner of the immediate and advanced prehospital care will be the patient.

Conclusion

Introducing AAMC in the Ambulance Command in the 1980s was a foresight and strategic plan for the coming decades. For an accountable department, we should review our performance continuously in order to fulfill our commitment and maintain our responsibility to the public.

Useful information about EMAMC has been revealed in this survey. This survey showed some

common concerns of MC riders in the Ambulance Command. Concerns from their daily operation could be identified and addressed by relevant officers for the further development of EMAMC in Hong Kong.

Acknowledgement

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Appendix I.

Ambulance Aid Motorcycle in London

The project team selected the London Ambulance Service (LAS) for comparison since the system of ambulance service is similar to Hong Kong.[3] The service area of LAS is about 620 square miles, with both emergency and patient transfer services. In 1991, LAS started their Motorcycle Response Unit (MRU), which was manned by paramedics after a pilot scheme (The full implementation of AAMC in Hong Kong was 1987).

In London, all emergency calls are categorized into Category A (immediately life-threatening) and Category B or C (serious or not serious illness or injury). According to the Government guidelines, LAS should respond to Category A call within 8 minutes.[4] By the continuously growing fleet size and different measures, in 2002 the number of Category A calls responded within 8 minutes increased 24% when compared with 2001.

From the Annual Report of LAS 2002, LAS was running the ambulance service by a fleet size of 761 vehicles including 395 emergency ambulances, 11 motorcycles and 30 Fast Respond Cars.

LAS selected the Honda Pan European (ST1100) motorcycle for their MRU. The aim of the unit is to provide a fast response to all emergency calls and to reach life-threatening calls within eight minutes, to be backed up by an ambulance crew. With the help of the MRU, 90% of Category A calls were reached within 8 minute.

The introduction of the Fast Response Unit (Motorcycle and Fast Respond Car) plays a significant role for LAS to meet the Government standard for Category A calls. Continuous development of the Fast Response Unit is encouraged by the positive result in quality of rapid and effective ambulance service in London.