MAY 19, 2015

LOS ANGELES FIRE DEPARTMENT

RALPH M. TERRAZAS
FIRE CHIEF

April 29, 2015

BOARD OF FIRE COMMISSIONERS
FILE NO. **15-047**

TO: Board of Fire Commissioners

FROM: Ralph M. Terrazas, Fire Chief

SUBJECT: TIERED DISPATCH SYSTEM – QUARTERLY UPDATE

FINAL ACTION:	___ Approved	___ Approved w/Corrections	___ Withdrawn
	___ Denied	___ Received & Filed	___ Other

SUMMARY

On December 1, 2014, the Los Angeles Fire Department (LAFD) implemented a new emergency medical dispatch methodology called Tiered Dispatch System (TDS). The purpose of TDS was to improve the handling of emergency medical calls for service by improving and streamlining the 911 interrogation process. The TDS project was the result of the collective efforts of nearly 20 fire department employees. Under the direct supervision and guidance of Dr. Mark Eckstein, numerous dispatchers, quality improvement firefighters, and dispatch floor supervisors worked to develop a customized TDS application that was responsive to the nuances of public safety dispatch in the City of Los Angeles.

TDS was designed primarily to allow for a strategic capacity that supported flexibility and scalability. This capacity to change dispatch algorithms has proven to be especially helpful in building an accurate tiered dispatch configuration. Presently, TDS has performed as expected with an estimated call processing time savings of nearly 18 seconds for all calls. The flexibility and responsiveness of TDS has allowed Metro Fire Communications (MFC) call takers to direct callers to perform compression only CPR more quickly. It is expected that this single effort will directly impact the saving of lives by encouraging bystander CPR prior to the arrival of fire department resources.

As TDS continues to evolve, it is anticipated that additional time saving strategies will be deployed over the next year. Input from field resources has proven to be helpful in shaping new dispatch algorithms and making dispatches more representative of the type of call. Utilizing the Electronic Patient Care Recording (EPCR) data the department has been more precise in determining what type of call the resources are actually finding when they arrive.

RECOMMENDATION
That the Board:
Receive and file this report.

FINDINGS
During the research and development process for TDS the development team had agreed on five strategic objectives. These objectives would become the requirements for the new TDS and also the benchmarks for determining success.

1. Reduce call processing times.
2. To dispatch the least amount of resources needed (reduce over triage).
3. Improve times to bystander CPR.
4. Improve the 911 caller experience.
5. Develop a TDS system that is flexible and scalable.

As previously mentioned, the data shows a reduction in call processing times of nearly 18 seconds. This span of time is between the receipt of the 911 call and the dispatch of LAFD resources. This reduction is consistent with the pre-implementation test scenarios as well as anecdotal observations by MFC staff. It is expected that as TDS continues to evolve and the software is implemented, these times will continue to improve. MFC staff is presently re-configuring several lines of interrogation with the expectation that even further time savings are possible.

The over triage of medical incidents has continued to be a challenge for the LAFD. Dispatching more resources than are needed unnecessarily removes critical assets from the resource pool. Sending the least and most appropriate amount of resources is essential in an effort to manage department resources more effectively. EPCR data has allowed the department to develop a historical perspective relative to the accurate dispatch of certain types of calls. This analysis revealed that on some specific types of calls, the fire department had been sending too many resources. The fire department now has the ability to re-configure these dispatch algorithms to reduce over-triage thereby keep critical resources available to respond.

Bystander CPR has been shown to improve survival rates for patients that are in cardiac arrest. According to the American Heart Association (AHA) bystander CPR can double or triple survival rates.[1] The amount of time from a witnessed cardiac arrest to bystander CPR is a crucial link in the chain of survival for cardiac arrest patients. With the implementation of TDS the amount of time it takes to direct bystander CPR has shortened. The reason for this is that the threshold for determining that chest compressions are indicated has been modified to allow for quicker bystander intervention. Observations from field resources have noted that more often bystanders are performing chest compressions prior to their arrival.

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[1] American Heart Association "CPR Statistics", Website found at: http://www.heart.org/HEARTORG/CPRAndECC/WhatisCPR/CPRFactsandStats/CPR-Statistics_UCM_307542_Article.jspv

It was often a common feeling among MFC call takers that they would feel anxious because they were not able to dispatch resources quickly on critical incidents. Presently, TDS identifies 24 critical incidents that require the immediate dispatch of fire department resources. These incidents require very little interrogation beyond the basic questions related to adequate breathing, mechanism of injury or level of consciousness. Once it has been determined that a patient falls within one of these 24 immediate dispatch categories, the call taker can immediately dispatch the appropriate resources. The call taker remains on the line to further direct the caller and prepare for the arrival of fire department resources. Discussions with the MFC dispatchers indicate that this has provided much needed anxiety relief for both the MFC dispatcher and the 911 caller.

Lastly, one of the advantages of TDS is the fact that it is a completely customized system. In essence, the system was developed by LAFD dispatchers therefore there is no limit to the amount of customization that can occur. The flexibility and scalability of TDS will allow it to remain relevant and in a constant state of improvement. This alone will make sure that the TDS application can truly be reflective of public safety dispatch needs in the City of Los Angeles. Since its inception there have been nearly 80 modifications to TDS that continue to streamline the dispatch methodology and shave seconds from the call processing times.

FISCAL IMPACT
TDS will require a level of on-going support and maintenance and the fire department is presently determining what a budget might look like.

CONCLUSION
The Los Angeles Fire Department has taken a significant step in improving fire department dispatch operations. The implementation of TDS has allowed the fire department dispatch to more accurately and quickly dispatch department resources. Improvements in call processing times and resource triaging will translate into lives saved. Over the next several months TDS will go through further improvement and these modifications will ensure that the LAFD public safety dispatch will accurately represent the needs of the City of Los Angeles.

Board Report prepared by Assistant Chief Trevor Richmond, Metro Fire Communications.