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## Letter to the Editor

## Towards a reliable paradigm shift in emergency medical service for improving mass burn casualty response

Dear Editor,

It was with great interest that we have read the article entitled "Experience of distribution 499 burn casualties of the June 28, 2015 Formosa Color Dust Explosion in Taiwan" by Wang et al. [1], that provides a comprehensive analysis regarding this calamitous incident. Yet and according to our data, some evidence of this paper is rather questionable and requires further clarification.

Based on the data shown in Tables 2 and 3, one of the most significant factors is the Triage (on-site). It shows that the patient distribution in medical centers, regional hospitals, and district hospitals is primarily depended on the results of the on-site triage that are related to the patient transportation to the adequate level of hospitals ( $p < .001$ ). Under these conditions, the rate of inter-hospital transportation should be low. Therefore, we calculated the diversion rate in different hospital levels according to the data of the primary and secondary distribution of patients on June 27, 2015 and July 15, 2015 as shown in the article's Tables (cf. Table 2 and Table 3), while we used 499 patients as divisor. The diversion rates were +3.8%, -1.8%, and -2.0% to the medical center, regional hospital, and district hospital, respectively. These low disturbances could be the major reason that patient transportation in different hospital levels was not significantly associated with patient outcomes by multinomial logistic estimation, since a large portion of patients fit their level of hospitals by the primary distribution and did not require a secondary transportation.

That supports why the authors adopted the term "not significantly" while applying the statistical evaluation method. However, this process cannot obviously prove the conclusion statement: *regardless of the hospital level, immediate treatment of burn patients is crucial to reducing mortality*. In that sense, the on-scene triage is not as essential as it should be, since emphasis is only given to the immediate treatment, not the level of hospitals. Once the patient transportation to different level of hospitals is of minor importance, the on-scene triage will become a redundant process for the prehospital transportation. Nevertheless, the on-scene triage is not only imperative for determining the condition of patients in order to transfer them to the adequate level of hospitals, but also crucial for boosting the efficiency of emergency medical care.

Furthermore, due to the publicity of the 2015 Formosa Color Dust Explosion incident, a plethora of information was available and open-sourced. According to our data, many transportation records of this article are opposed to the released official data sheets [2,3]. More specifically, argument exists for the patient distribution on June 27, 2015 (cf. Table 2). While this article mentions that the highest patient distribution is found for the district hospitals, the references that we have cited [4-9], indicate that the major portion of casualties was sent to the medical centers; only a small portion of patients was transferred to the district hospitals. Another argument is related to the function of Emergency Operation Center (EOC). As mentioned in the article: *The EOC began reporting the number and location of injured people through text messages at 11:24 p.m. and provided updates every 10min*; however, the last casualty departed the disaster area at 11:58 p.m. Based on this fact, the role of EOC seems more passive than active, since we cannot obtain the near real-time data from EOC at the initial phase of this disaster; therefore, how did the EOC control the patient flow?

Last but not least, we want to state that we respect all the contributors' efforts in this catastrophic event, as well as all the related researches. The experiences of the incident could result in new thinking approaches and policies for facing scenarios as such. This is why this article should be improved not only by the data mining, but also by promoting the balance between statistical significance and medical benefits of patients with more realistic facts.

### Conflicts of interest

All authors report no conflicts of interest.

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Available online xxx

<http://dx.doi.org/10.1016/j.burns.2017.07.028>

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