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Documentation and tagging of casualties in multiple casualty incidents

Alan Garner
NRMA CareFlight, New South Wales Medical Retrieval Service, Westmead, New South Wales, Australia

Abstract

The use of triage tags is widely advocated as a tool to improve the management of multiple casualty incident scenes. However, there are no published reports to suggest that triage tags have improved the management of incidents involving more than 24 persons, and a number of reports have detailed problems associated with triage tag use. Alternative systems of scene management such as geographical triage have been successfully used in very large incidents, and are recommended as an alternative to triage tags. Documentation cards attached to casualties may be of use in situations where casualties will pass through an extended evacuation chain, and clear labels for deceased casualties are of benefit as they discourage repeat assessments. Adoption of an evidence-based approach to multiple casualty incident scene management will require a paradigm shift in the thinking of ambulance services. A broad-based educational approach that encourages critical reappraisal of existing procedures is recommended.

Key words: *disaster planning, emergency medical tags, triage.*

Introduction

Triage tags have long been advocated as a means of enhancing the management of multiple casualty incidents. The term 'triage tag' is used to describe tags that have been introduced for three different purposes:

1. To identify the casualty.
2. To quickly identify which triage category patients belong to (colour coded).
3. To provide somewhere to document details about the patient and their management.

Some tags attempt to fulfil all functions. Tags used to identify the triage category of patients will be referred to in this discussion as 'triage tags' and tags used for casualty identification and medical documentation will be referred to as 'documentation cards.'

Rationale and utility in the field

The rationale behind triage tags is that a single triage officer can move through a group of casualties in a multiple casualty incident attaching triage labels to patients who can then be moved by non-medical rescuers to a treatment area in order of their medical priority. Such a system is advocated by some multiple casualty incident training schemes, for example, Major Incident Medical Management and Support (MIMMS).¹ In these systems, either tags or suitable substitute, such as pieces of coloured aluminium,² lengths of fluorescent flagging ribbon, or coloured chemical light sticks³ are attached to patients. Although in theory this seems a reasonable and logical approach resulting in an improvement of the management of

Correspondence: Dr Alan Garner, NRMA CareFlight, PO Box 159, Westmead, NSW 2145, Australia. Email: alang@careflight.org

Alan Garner, MBBS, FACEM, MSc.

multiple casualty incidents, they have proved a failure in practice.³

There are many reasons for the failure of triage tags in the field. These include:

- Several different triage tag designs used in the one incident resulting in confusion.^{4,5}
- Triage tags used on only a portion of patients at an incident.⁶
- Time wasted filling in triage tags on patients with minor injuries that would be better utilized caring for the severely injured.^{2,3}
- Triage tags representing a major departure from standard operating procedures at a time when stress and disorder are highest, so they are not used or completed illegibly.³
- Triage tags discouraging repeat assessment of casualties and thorough secondary assessments.³
- Triage tags leading to organizational uncertainty through use of an unfamiliar tool.³
- Triage tag design only able to reflect deterioration in patient condition and not improvement.^{3,7}
- Insecure patient attachment with triage tags becoming dislodged.^{8,9}
- Triage tags may interfere with medical procedures.⁸
- Children may throw away the triage tags.⁸
- Children may swap triage tags amongst themselves to obtain their colour preference (pers. comm., L Cloughessy 1999).
- Tags may become illegible as they are soaked in blood or other body fluids.⁸
- Triage tags not being available when required.¹⁰⁻¹²
- Insufficient space to document patient information or treatment.⁷
- Triage tags irrelevant to the triage process¹³ or not contributing to improved triage decisions.³
- Information contained on triage tags of little or no clinical value.⁴
- Triage tags missing by the time casualties arrive at hospital.^{4,7,13}

There is only a single incident in the English language medical literature where triage tags have been described as being of benefit, probably more as documentation cards rather than triage tags and the situation suggests that it may not be applicable to other incidents. This incident was a mass shooting that occurred in a hospital on a United States Air Force base.¹⁴ The incident involved only 22 live casualties. Due to ongoing security concerns, the scene was cordoned for 25 min during which patients were triaged and treatment commenced within the base hospital. After this time the victims were shuttled to a staging area

where triage tags were applied prior to transport to civilian trauma centres. It is stated that 'tags are simple to apply and appear to be a reliable way to transmit information from field assessment to the receiving facility.' The tags were used in this incident as documentation cards rather than triage tags. They were applied only after triage and initial resuscitation was complete and the patients were being staged for transport. There are no other direct reports in the medical literature of triage tags being useful at incidents. Vayer *et al.* report indirectly some incidents where triage tags were considered useful but no incident had more than 24 persons.³ An alternative explanation is that these incidents were not large enough for the problems with triage tags to have become apparent.

The major problem with triage tags appears to arise from the fact that they are a departure from normal procedures. This is against one of the fundamental principles of the medical management of large incidents, the so-called 'doctrine of daily routine.'^{3,15-18} In the stress of a large incident people will tend to follow their usual pattern of behaviour, even where disaster plans dictate otherwise. Having to remember the details of application of an unfamiliar system appears to detract from patient care and further confuse an already chaotic situation. Vayer *et al.* argue that either triage tags should be used regularly in routine operations to maintain familiarity, or another system should be adopted.³

Alternatives to triage tags

There are examples of incidents in the medical literature where other systems have been used and been extremely successful. In some, triage tags were available but deliberately not used. The most notable of these is the aircraft accident that occurred in Sioux City, Iowa.¹⁹ This incident involved the crash of a DC-10 aircraft at the airport of a small city (population 82 000). The aircraft contained 297 passengers and crew; 59 were critically injured. Despite the small size of the airport and city, all critically injured casualties had been identified and transported from the site within 40 min of the crash and all critical patients were transported prior to those with lesser injuries.²⁰ Although the disaster plan called for the use of triage tags these were not used. 'It was believed that not using triage tags with this number of victims saved considerable time.'¹⁹

This would seem to contradict the accepted view of medical incident management that triage tags help to

identify patients and make management of the scene easier, particularly in large incidents. As stated above, the only recorded incidents where triage tags have been thought useful are small incidents (less than 25 persons). In large incidents, triage tags have either not been used, caused problems or the incident has been managed with great efficiency because triage tags were deliberately not used.

The alternative to triage tags used at the Sioux City aircraft crash was a geographical system of triage. Patients passed through a designated triage area and were then directed to separate treatment areas according to their priority. Treatment areas were identified by coloured flags. This approach has also been recommended by Vayer *et al.* who note that this has been the standard military approach for most of the last 100 years.³ Traditional military triage systems do not use coloured tags.

This approach appears to work because little triage occurs on the incident site in actual large incidents (unlike exercises). Patients are rarely moved from the impact zone to treatment areas in order of medical priority, the supposed advantage of tagging patients *in situ*. Rather they are moved according to ease of extrication and movement. Hence, those with the most minor injuries and those who are not trapped are typically the first cleared. As patients are moved out of the impact zone, they are transported past a triage officer, who will then direct the stretcher bearers to the appropriate area. When patients are geographically grouped by priority, medical logistics are facilitated by having all critical patients in one area. Medical commanders are also able to tell at a glance how many patients there are of each category without having to count triage tags on patients who may be in different areas.

At the Sioux City incident the geographical areas were designated by coloured flags. It was noted that these need to be at least 210 cm high to be visible above rescuer's heads.¹⁹ The management of large incidents is increasingly multiagency and multijurisdictional in nature. To minimize the possibility of confusion and miscommunication these colours should be standardized. As an example some Australian States currently use a blue colour to designate patients with a low initial priority for treatment due to the overwhelming nature of their injuries.²¹ Other states use orange or green, with an annotation, to indicate the same patient group. A standard colour nomenclature utilizing Australian Standard colours has been recommended previously.²²

Geographic triage has also been documented to work well in small incidents. At the Three Rivers Regatta Accident triage tags were again available but not used.¹⁸ There were 24 casualties, eight of whom were critical. A geographical system of triage was used, with patients classified by location. This was facilitated by the fact that most of the severely injured were near the impact point and hence naturally grouped together. The eight critical patients were exceptionally rapidly treated and transported with a mean time of 12.9 min between the arrival of the first medical responders at the scene and arrival of the patients at the definitive care hospitals.

Documentation cards may have more application than triage tags. The only directly documented case in the medical literature where tags were thought useful was for this purpose.¹⁴ Military systems have long used 'casualty cards' which are all one colour, for documentation purposes. It is noteworthy that in echeloned military medical systems, the evacuation chains are often long with casualties receiving treatment in multiple separate facilities and by many different personnel. Documentation cards that are attached to the casualty may be of particular benefit in this situation as their medical record is more likely to remain with them. Examples of documentation cards include the NATO casualty card and the card used by the International Committee of the Red Cross which is designed to also serve as the medical record for the first 24–48 h of their in-hospital care.⁸ They may not be of benefit in incidents where access to definitive care is rapid and the casualties are not passing through a multiple tiered system like the military medical system or where extended care is required as in Red Cross field hospitals in combat zones. Excepting these types of situations, which are unusual in non-military medicine, using the routine prehospital documentation system according to the 'doctrine of daily routine' may be a better alternative. The majority of tags designed to serve as triage tags, rather than documentation cards, have inadequate space for documentation and do not serve this purpose very well.

A separate and easily identifiable triage tag for the dead is warranted. One of the problems with triage tags for the living is that it discourages repeat assessments and on-going triage. For the deceased however, it is desirable that repeat assessments are discouraged as it is futile, it diverts resources from the living and may lead to interference with evidence on a potential crime scene.

Recommendations

1. That current systems of coloured tags should be abandoned as there is no evidence that they improve management of multiple casualty incidents.
2. That site management be organized around a geographical system of triage. Treatment priority to be designated by grouping patients of the same priority together. Treatment areas to be designated by the use of coloured flags, which should be at least 210 cm high. Sets of triage flags should be carried in all ambulance supervisor and major incident support vehicles. A standardized colour set should be adopted to minimize the possibility of confusion at incident scenes.
3. Documentation in most incidents should be done on the existing ambulance case sheets. These should be modified if necessary to facilitate this process (i.e. it should include a box for documenting triage status and change in triage status). Where medical teams are involved, extended delays likely to occur, or if the incident necessitates the use of an echeloned system analogous to the military system, a standardized documentation card should be introduced. This should be based on accepted trauma management principles, for example, 'MIST' from the Early Management of Severe Trauma Course. The card should be large enough to enable documentation under the stress of an incident where writing typically becomes larger and less legible⁸ and be on permanent paper which will not be adversely effected by the environment, exposure to body fluids or decontamination processes. Card attachment should be sturdy, for example, cable ties that can only be removed by cutting them off (as is the case with current patient identification bracelets used in hospitals).
4. A separate tag that is clearly different to the casualty documentation card be used to identify dead casualties.

Implementation

Adoption of an evidence-based approach to patient management at multiple casualty incident scenes requires a paradigm shift in the thinking of all services that provide medical care in such circumstances. At this time all Australian State and Territory ambulance services utilize coloured tags in their multiple casualty incident triage procedures. However, no service is

prepared to consider an alternative evidence based system. Incident management courses that do not adopt an evidence-based approach to either triage or scene management compound this problem. An alternative scene management course requires urgent development. This should form part of a broad-based educational approach that encourages critical reappraisal of existing procedures.

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