A review of the activation triggers and reasons for stand downs of a Helicopter Emergency Medical Service (HEMS).

Air Ambulance
Kent Surrey Sussex

E. G. Evans[1], A.Hudson[1] , E. McWhirter[2], R.Lyon[2]
1 St George's University of London
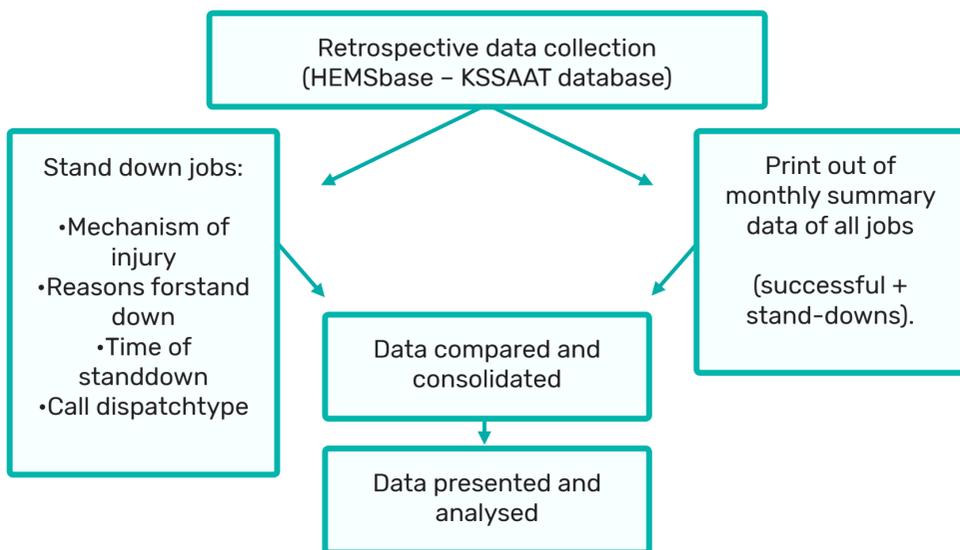2 Kent, Surrey & Sussex Helicopter Emergency Medical Service

AIMS

1. To review the triggers of HEMS activation.
2. To review the reasons for HEMS being stood down following initial activation.
3. To explore potential methods to improve tasking accuracy of HEMS.

INTRODUCTION

HEMS crews – a pilot, doctor and paramedic – provide advanced pre-hospital care to acutely ill or injured patients. With the ability to administer analgesia (pain relief) and sedation, and perform advanced airway and surgical procedures HEMS crews bring the emergency room directly to the patient1. As such this is a highly valuable, if scarce, resource that needs to be used appropriately. Sometimes HEMS is deployed only to be no longer required. This is called a stand down. This causes a vital resource to become unavailable plus it costs the charity money and requires crews to take unnecessary risks. According to one study2, stand downs exist due to difficulties balancing over-triage (deploying HEMS unnecessarily) and under-triage (not deploying HEMS when needed). This balance is managed by the paramedics on the tasking desk where they review all 999 calls and decide which jobs require HEMS. With lots of information being received it is down to the skill and experience of each paramedic to select appropriate jobs.
There have been attempts to produce an effective tasking system but resulting predictability was low2. It seems that eliminating stand downs is impossible (indeed, elimination is also counter-productive as this pushes the imbalance towards under-triage). It is hoped a greater understanding of cancellations and associated factors could minimise stand downs rates.
In this study I will look at activation triggers and reasons for stand downs via the records at the Kent, Surrey and Sussex Air Ambulance Trust (KSSAAT). From this I will look for commonalities in data that could help minimise stand downs and improve tasking accuracy.

METHOD

Retrospective data collection
(HEMSbase – KSSAAT database)

Stand down jobs:
- Mechanism of injury
- Reasons forstand down
- Time of standdown
- Call dispatchtype

Print out of monthly summary data of all jobs
(successful + stand-downs).

Data compared and consolidated

Data presented and analysed

RESULTS

Table 1: Mechanisms of injury and stand downs.	
Mechanism of Injury	Stand Down %
RTC (Road Traffic Collision)	32.97
Accidental Injury	40.59
Assault	57.14
Sport/Leisure	35.00
Medical	45.83
Other	25.00
Intentional Self-Harm	47.62
Total	37.86

Table 1

226/561 jobs (38%) were stand downs.
All mechanisms of injury had >25% stand down rate.
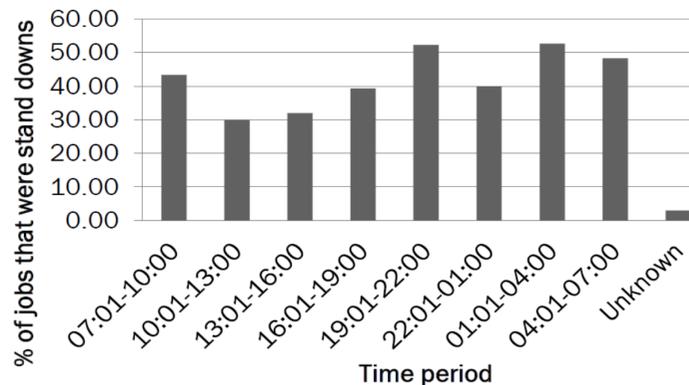57% of assaults were stand downs.

Graph 1: Reasons for stand downs.
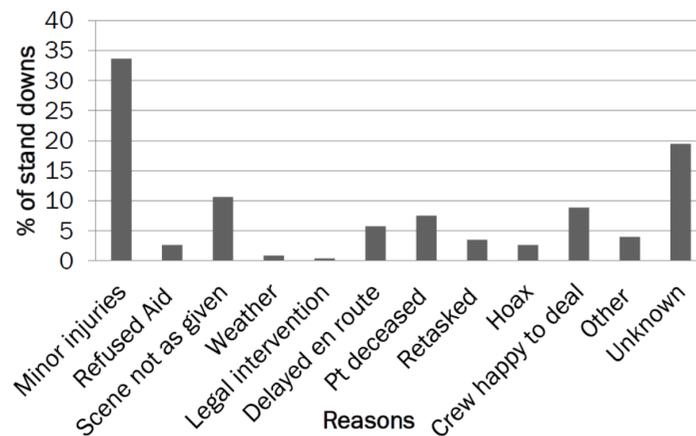
Graph 1:
- Main reason: major injuries were minor (34%).
- Undocumented reasons (20%).
- 10% of stand downs were due to technical issues e.g. Weather, re-tasking (sent to another job) and delays

Graph 2: Percentage of total jobs that were stand downs in relation to time.

Graph 2
- Most stand downs occurred at night (19:01 – 07:00).
- Peaks at paramedic shift change overs (07:00 and 19:00).

DISCUSSIONS

Triggers:
Particular mechanisms of injury may be linked to stand downs. Yet with rates of >25% across all mechanisms this is not a specific enough trigger. Assault jobs are the most likely to result in stand downs (table 1) which may be because more assaults occur at night; the time period with the greatest stand down rate (graph 2). This suggests more work needs to be done with assault tasking.

HEMS can be dispatched can be immediately (deployed on initial information) or after interrogation (more information is gathered before sending). 61% of stand downs were 'immediate' compared to 30% 'interrogated'. This could indicate that not enough information is being received prior to deployment. Perhaps a decision to interrogate more calls would be of benefit.

Reasons for stand downs:
Reports of major injuries from 999 callers may be inaccurate (graph 1) due to discrepancies between civilian and professional interpretations of injury severity. When considered with the high percentage of 'immediate' dispatches this indicates that the quality of information pre-dispatch is an important factor.

Tasking is dependent on the judgements of the paramedics whose decision process may vary across shifts. For example, there are unexplained stand down peaks at shift change overs (graph 2) which could be significant. This is an area of that needs further investigation. Technical reasons impacted on stand downs less than I expected (graph 1). This could be because data collection was limited to summer months where these issues may not be as common as in winter. Focussing on providing training and support for paramedics on the desk may be more influential that concentrating on technicalities.

Tasking improvements:
To assess each incident, ambulance staff ask computer generated questions to the 999 callers. Improving the specificity of these questions and including HEMS-related questions could physically flag jobs for the tasking desk. Questions could be formulated by:

- Looking at past data – are there any dispatch trends?
- Consulting paramedics– what do individuals look for when dispatching HEMS?

For example, one crew noticed that assault patients who were lying down were more likely to require HEMS than those who were walking around. This could be turned into a simple question that effectively assesses an incident.
Currently paramedics are mentored by more experienced staff and learn on the job. Equally the ambulance staff answering the 999 calls do not have any medical training. There is a need for more official training and support for all members of staff so the tasking system can become more efficient.

CONCLUSION

Improving the quality of initial information could improve tasking accuracy and hence reduce stand downs. The improvements are 2-fold:
1. More tasking training for staff.
2. Development of the dispatch criteria.

REFERENCES AND ACKNOWLEDGEMENTS

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2 Giannakopoulos. G et al, Criteria for cancelling helicopter emergency services (HEMS) dispatches, Emerg Med J 2012;29:582-586

KSSAAT staff