Implications of pre-alerts for medical emergency calls

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Introduction

In emergency dispatching, pre-alerts are used to send responders to calls prior to getting a final dispatch code. This allows for early dispatch of responders although the patient status is not yet determined, and critical responder information such as safety hazards at the scene and number of patients are typically unknown at this point in the calltaking process.

A study (Weiser,2013), showed that pre-alerts can be effectively used to reduce dispatch time for out-of-hospital cardiac arrests (OHCAs), which has the potential to improve overall patient outcome. However, the potential risk of running lights and siren on non-triaged, pre alerted calls exists (Robbins, 2018). Although this dispatching process has been used for several years, no research studies have demonstrated its significant benefit, in general.

Objectives

The purpose of this study is to the implications of pre-alerts for medical emergency calls, with regard to dispatch priorities, response units and calls cancellation, call downgrading, and costs and risks involved.

Materials and Methods

The retrospective, descriptive study analyzed dispatch and emergency medical service (EMS) extracted data from two emergency communications centers in the USA:

- Johnson County Emergency Communications Center (JCECC), Kansas.
- Guilford County Emergency Services, (GCES) North Carolina.

Each agency compiled and contributed de-identified medical pre-alert datasets for analysis.

Both agencies pre-alert all medical calls, using moderate (JCECC) or high (GCES) dispatch priorities.
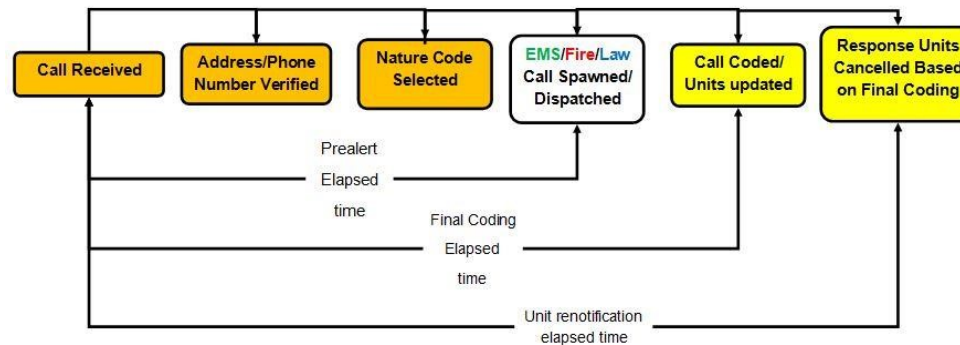
Pre-Alerting Process: Risky Business?

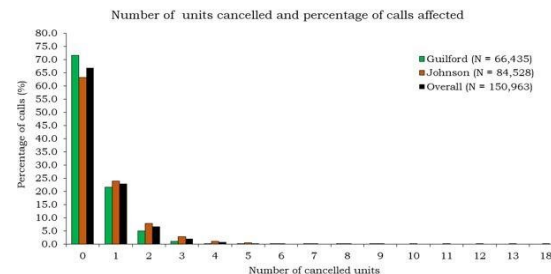

Figure 1. Call pre-alerting process

Results

Figure 2. Number of units cancelled and percentage of calls involved

Overall dispatch priorities (N=150,963)

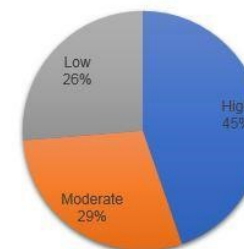Figure 3. Call dispatch priorities

Measure	Guilford (N = 66,435) n (%)	Johnson (N = 84,528) n (%)	Overall (N = 150,963) n (%)
Dispatch priorities			
High	24,786 (37.3)	42,711 (50.3)	67,497 (44.7)
Moderate	27,277 (41.1)	16,499 (19.5)	43,776 (29.0)
Low	14,372 (21.6)	25,318 (30.0)	39,690 (26.3)
Downgraded calls*	65,549 (98.7)	25,318 (30.0)	90,867 (60.2)
Cancelled calls	3,597 (5.4)	5,604 (6.6)	9,201 (6.1)

*All calls in Guilford started with ECHO (i.e., highest) priority and those in Johnson all started with a medium priority (i.e., closest responder with/without lights and sirens) dispatch priority.

Table 1. Characteristics of calls

Measure		Median time (in seconds)		
		Guilford (67)	Johnson (75)	Overall (72)
Caller-party type	1st	57	68	62
	2nd	70	76	73
	3rd	68	77	73
	4th	63	84	67
	Unknown	14	75	22
Dispatch priority	High	56	70	65
	Moderate	74	83	78
	Low	69	77	74
Cancelled calls	No	67	75	71
	Yes	68	74	72
Downgraded calls	No	41	74	73
	Yes	67	77	70
At least a unit was cancelled	No	67	75	71
	Yes	67	74	72

Table 2. Elapsed time from ProQA launch to dispatch (final coding) times

Discussion

- There is an implied risk involved and implied increase in cost when calls get downgraded and/or units get cancelled.
- Critical patient/scene information such as safety has potential of being delayed by dispatching rapidly. Median elapsed time (-14 sec) from pre-alert to ProQA launch indicates that calls sat in the queue before first units were assigned. Therefore, units are being sent prior to acquiring safety information and accurate patient condition.
- The findings showed no significant change in outcome of patients—based on vital signs values.
- A substantial amount of time (49 sec) is spent in phone/address verification before a call is pre-alerted from pick-up.
- Future studies should include a control group where pre alerts are not done to show comparison and impact of pre alerting on overall response time.

Conclusion

The study findings showed there, there is a significant amount of cancelled units (25%) indicating an increased risk to responders and bystanders, potential increased lost dollars, and unavailable resources. In addition, this study indicates an increased risk to units responding on a high percentage of downgraded calls (60%).

A majority of calls (67.9%) showed a low patient transport priority (No lights and sirens), while only 1.3% were high priority (Lights and sirens) indicating non-critical patient conditions.

In 0.6% of calls, dispatch system was launched 37 seconds after pre-alerting a call, creating additional time that units are being sent without safety and final coding information.

To better establish the positive and negative impact of pre-alerting, a controlled study should be done to compare findings from agencies that do not pre-alert calls.