Assessing the Impact of Opening Greetings in Handling Emergency Calls: Genova 118 Experience

Andrea Furgani, MD[1]; Francesca Raffo[1]; Giuseppina Contiero[1]

1. U.O.C. Servizio 118 Genova, Italy

Corresponding Author
Andrea Furgani, MD
U.O.C. Servizio 118
Genova, IRCSS AOU
San Martino – IST
Dipartimento Regionale Emergenza 118
Italia

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ABSTRACT

Introduction: The manner in which calls are handled at the emergency telecommunication center has a significant role in effective management of assistance on the scene. The main information needed to start a response is the location of the incident, which usually means the complete address. The Genova 118 Center has recently modified its standard greeting from "Genova 118" (STD1) to "Genova 118, where do I send the ambulance?" (STD2).
Objectives: To verify whether the new standard reduces the time needed to acquire a complete address during an emergency call.
Methods: The prospective, randomized study assessed consecutive calls assigned to STD1 and STD2 study groups. Various time estimates were analyzed, and the significance of the inter-group differences in the estimated values were assessed.
Results: Of the 500 calls assessed, 170 (34.0%) received the STD1 opening greeting. Except for total time needed to acquire both the complete address and the Chief Complaint, there were statistically significant differences in time estimates for all outcome measures. Overall, there was a statistically significant association between the type of information provided first by the callers and the type of standard call opening greetings.
Conclusion: The study findings showed that the new closed greeting standard directed callers to prioritize the right information when they called 118 Centers.

INTRODUCTION

Management of emergency calls received at the 118 Telecommunication Center (the Italian equivalent of the U.S. 911 communication center) is the first essential step for managing assistance on the scene. The main information needed to start a response is the location of the incident, which usually means the complete address. The Genova 118 Center[1] has recently modified its standard greeting from "Genova 118" (STD1) to "Genova 118, where do I send the ambulance?" (STD2). The two standards differ substantially in their communication approach. The first (STD1) is an open approach that lets callers communicate the information that they consider important; the second (STD2) is a closed approach that, on the contrary, clearly guides the caller to provide the needed information and also specifically aids the goal of the agency, which is to send an ambulance.

OBJECTIVE

The objective of the study is to verify if the new standard reduces the time needed to acquire a complete address during an emergency call.

METHODS

Design and Setting: This was a prospective, randomized study conducted at Genova 118 Center, Italy, from July 1, 2014 to July 3, 2014. Five hundred consecutive calls to the Genova 118 Center's emergency line were collected and assessed. For each call, the following time variables estimates (in seconds) were assessed: call opening greeting standards (STD), need for a second request to acquire address information (address verification) (SR), time to identify the need for resources other than emergency medical assistance (Tr), time to acquire the complete address (Ti), and time to identify the Chief Complaint (Ts). The address was considered complete once the following information was clearly acquired by the dispatcher: city, street/square/intersection, street number, and apartment number.
Outcome Measures: The primary outcome measures were the mean time to identify the need for resources other than emergency medical assistance, time to acquire the complete

address, time to identify the Chief Complaint, and total time needed to acquire both the complete address and the Chief Complaint (Tis) (which combines both SR and Ts)—for both STD1 and STD2.

Data Analysis: All time estimates were calculated and excluded the waiting time in the queue. The mean time estimate was calculated for each outcome measure, including 95% confidence intervals (95%CI). The two-sided Student t-test was used to assess the equality of mean time estimates between STD1 and STD2 opening greeting standards. The nonparametric Fisher's Exact test assessed the association between the information first acquired and the opening greeting standards. The statistical significance of the time estimate differences between the two study groups (STD1 and STD2) were evaluated at the 0.05 level of significance.

RESULTS

Out of the 500 calls assessed, 170 (34.0%) used STD1, while the remaining 330 (66.0%) used STD2. To be able to acquire a complete address, a second request was necessary for 99 (58.2%) calls that received the STD1 opening greeting and for 87 (26.4%) calls that received the STD2 opening greeting. This difference between STD1 and STD2 was statistically significant ($p < 0.0001$).

A summary of the results of the time to acquire the information is shown in Table 1. Overall, Tr, Ti, Ts, Tis estimates (standard deviations) were 10.3 (12.9), 14.8 (10.5), 21.5 (14.0), and 25.0 (14.0) seconds, respectively. Except for Tis, there were statistically significant differences in time estimates for all measures.

Overall, there was a statistically significant association between the type of information provided first by the callers and the type of standard call opening greetings ($p<0.001$) (Table 2). In the STD1 group, callers provided the Chief Complaint details first the majority (57.5%) of the time. However, in the STD2 group, callers instead provided the complete address first the majority (83.3%) of the time.

DISCUSSION

The study findings demonstrated that when callers were not guided by a specific question, they perceived it as a priority to communicate to the dispatcher the "what" compared to the "where." In contrast, if the callers were greeted with a closed question, they tended to answer accordingly in almost all cases. This alternative communication approach also seemed to be reflected on the so-called "improper calls," where the identification time (Tr) was reduced by approximately 55 percent, meaning that those calls could be routed to a more appropriate service more quickly.

The results also showed a significant reduction (44.1%) in the time it takes to acquire a complete address (Ti), in favor of the STD2 opening greeting. Looking at Tis (the time it takes to acquire a complete address and a Chief Complaint), it seems clear that there was a substantial heterogeneity between the two opening greeting standards, thus underlining the effectiveness of STD2 in correctly "prioritizing" the information received from the caller, rather than reducing overall time.

Limitations: The study has some limitations. First, the findings were based on a small sample. Second, the study involved only one emergency telecommunication center, the Genova 118 Center. Therefore, results may not be completely generalizable to other settings.

CONCLUSIONS

Based on the results in the study, the advantage in terms of time and communication strategy when using the new closed greeting standard was clear: it directed callers to prioritize the right information when they called 118 Centers.

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Conflict: The study investigators were employees of Genova 118 Center.

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Measure	STD1			STD2			p‡
	N	Mean (SD*)	95%CI†	N	Mean (SD*)	95%CI†	
Tr	22	16.6 (19.0)	8.2 - 25.0	48	7.5 (7.4)	5.3 - 9.6	0.005
Ti	147	20.9 (12.1)	18.9 - 22.9	282	11.7 (7.8)	10.8 - 12.6	<0.001
Ts	148	18.2 (12.2)	16.2 - 20.2	270	23.2 (14.6)	21.5 - 25.0	<0.001
Tis	149	25.8 (13.4)	23.7 - 28.0	282	24.5 (14.3)	22.8 - 26.2	0.352

*Standard deviation; †95% confidence interval for the mean time estimate; ‡Student t-test p-value; STD1/STD2, call opening greeting standards 1 and 2; Tr (time to identify the need for resources other than emergency medical assistance), Ti (time to acquire the complete address), Ts (time to identify the Chief Complaint), Tis (total time needed to acquire both the complete address and the Chief Complaint).

Table 1. Time intervals (in seconds)

First information	STD 1 n (%)	STD 2 n (%)	p*
Complete address	62 (42.5)	225 (83.3)	<0.001
Chief Complaint	84 (57.5)	45 (16.7)	

STD1/STD2, call opening greeting standards 1 and 2; *Fisher's Exact test p-value.

Table 2. Information provided first by the caller