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Short paper

European standard internal telephone number 2222 for in-hospital emergency calls: A national survey in all French military training hospitals

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Abstract

Background: In 2016, three European scientific societies called for standardization to the “2222” as a European unique phone number in case of in-hospital emergencies. This study describes the management of in-hospital emergency calls in all French military training hospitals and aims to detail their original transition, for the first time in France, to the “2222”.

Methods: An electronic standardized questionnaire was emailed to heads of rapid response teams in the eight French military training hospitals.

Results: All participants answered the questionnaire (100%). The eight French military training hospitals had a specific procedure for management of in-hospital emergencies. Six hospitals already used a unique phone number for in-hospital emergencies, but none of them were using the 2222 in March 2019. Two hospitals still used several phone numbers for in-hospital emergencies, mainly due to historical and local arrangements. Rapid response teams included at least a physician and a nurse. There was a discussion to switch to “2222” as the unique phone number for in-hospital emergencies in two hospitals. In both, the discussions involved hospital executive officers, medical teams, rapid response teams and technical teams leading to a step-by-step transition. Finally, in October 2019, these two hospitals launched the “2222” procedure for in-hospital emergencies.

Conclusion: This study found a large disparity in the eight French military training hospitals, concerning in-hospital emergency protocols. Two French military training hospitals launched the “2222” procedure for the first time in France. Further efforts are still needed to continue to promote the use of the 2222 as a European unique phone number for in-hospital emergencies.

Keywords: In-hospital cardiac arrest, In-hospital emergencies, Rapid response teams, Survival chain, Cardiac arrest call, Communication systems

Introduction

With 15–30% survival rates at hospital discharge, in-hospital cardiac arrest is a severe adverse event which requires an immediate medical intervention.^{1–4} Early recognition and alert are the first essential steps of this chain. Delay in rapid response teams’ call is an aspect

of in-hospital cardiac arrest management which could increase mortality.^{5,6} In Europe, a unique European phone number for out-of-hospital emergency, “112”, exists but there is none for in-hospital emergencies.⁷ Whitaker *et al* reported more than 105 different numbers in 200 European hospitals.⁸ In 2016, the European Resuscitation Council, the European Board of Anaesthesiology and the European Society of Anaesthesiology issued a joint statement calling

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upon European hospitals to use a unique internal telephone number “2222” to call for help from the RRT.⁹ Since 2019, the European Resuscitation Council Quality standards for cardiopulmonary resuscitation practice and training recommends the use of 2222.¹⁰ But to the best of our knowledge, little is known about the deployment of this “2222” phone number in French hospitals. This study describes the management of in-hospital emergency calls in all French military training hospitals and, more importantly, aims to detail their original transition, for the first time in France, to the unique European standard internal phone number “2222”.

Methods

This cross-sectional, descriptive, multicenter survey was conducted in March 2019 in all eight French military training hospitals totaling around 2500 beds. All of them are 200–400 beds public hospitals with medicine, surgery, traumatology, intensive care, and emergency activities. Their first mission is to support French armed forces, but a large part of their medical activity is devoted to care for civilian people.

Two researchers (PP, NP) proposed a questionnaire of several questions regarding in-hospital emergency procedures, and the internal telephone number dedicated for in-hospital emergency calls. Two experts (BP, AL) tested this questionnaire, summarized in Table 1. This electronic standardized questionnaire was emailed to all heads of rapid response teams in the eight French military training hospitals. After answering, data were collected and analyzed in an electronic database (Excel Microsoft®). If the transition to “2222” was planned, responders were invited to describe the transition procedure and to inform the researchers of the actual date of the transition. Results were expressed as a count and percentage.

This study has received the approval of the Ethics Committee of the French Society of Anaesthesia and Intensive Care Medicine (IRB 00010254-2021-211).

Results

All heads of rapid response teams in the eight French military training hospitals were surveyed and responded to the questionnaire (100%). Table 2 details the usual in-hospital emergencies management in all eight French military training Hospitals. Several phone numbers were used in two hospitals, mainly due to historical and local arrangements, and independently of the location and the nature of

Table 2 – Management of in-hospital emergencies in 8 French military training hospitals.

	8 French Military Training Hospitals (n)
Unique phone numbers for intrahospital emergencies (n)	6
15	3
16	2
14	1
Multiple phone numbers for intrahospital emergencies (n)	2
925202, and 16	1
911, 2016 and 2054	1
Alert device	
Fixed phone (n)	6
Mobile phone (n)	2
Specific in-hospital emergencies protocol (n)	8
Department responsible for in-hospital emergencies	
Emergency department (n)	4
Intensive care unit (n)	4
Call responders	
Rapid response team-dedicated physician	2
Rapid response team -dedicated nurse	1
Not dedicated personnel	5
Potential callers	
Hospital personnel, caregivers (n)	8
Hospital personnel, non-caregivers (n)	8
Patients (n)	1

the in-hospital emergency. The person answering the calls for in-hospital emergency was always a staff member of the unit in charge of in-hospital emergencies. The in-hospital emergency location was collected by the responder with clear indications detailing ward, floor, and room number, then transmitted orally to all members of the rapid response team. Calls from a smartphone to the local in-hospital emergency phone number were never possible. Rapid response teams included at least, a physician, junior or senior, and a nurse.

There was a discussion to switch to “2222” as the unique phone number for in-hospital emergency calls, in Percy (Clamart) and Desgenettes (Lyon) military training hospitals. In both, the discussions involved hospital executive officers, medical teams, rapid response teams and technical teams leading to a step-by-step transition. The first step consisted of several technical verifications specially to check that “2222” was not already assigned to another phone number. Then, an important awareness campaign with poster and email was launched a few weeks before the transition to inform all the hospital personnel about it.

Finally, the “2222” procedure for in-hospital emergencies was launched in the Percy and Desgenettes military training hospitals on October 1st, 2019. At this date, the previous in-hospital emergency number and 2222 coexisted but the notices in the hospital, especially on the emergency trolley reminded personnel about the new in-hospital emergency number 2222. The last step was to stop the previous in-hospital emergency phone number after checking that it is no longer used.

Table 1 – Questionnaire survey.

What is the IHE phone number used?
Is this number unique?
Is the reception station fixed or mobile?
What is the IHE protocol in place?
Who could call the IHE phone number?
What department is responsible of IHE call management?
Which personal answers the IHE call (physician, nurse, others...)?
Is a switch to the single number “2222” considered already?
If yes, what is the current implementation process?
IHE: In-hospital emergencies

Discussion

The study highlighted the large variability of practice concerning in-hospital emergency calls between the eight French military training hospitals. No less than eight different phone numbers co-existed and only six hospitals used a unique phone number for in-hospital emergency calls. Especially, in three French military training hospitals, the unique phone number for in-hospital emergencies was “15”. The “15” is the unique phone number of French prehospital medical emergency teams (“15”-centers) for out-of-hospital emergency calls. This use of “15” for in-hospital is a possible cause of confusion for in-hospital emergency calls.

These results are concordant with other results from different studies. In 2018, a survey conducted among the French university public hospitals showed that a dedicated phone number for RRT call existed in 95% of them. But this phone number was the same between hospitals of the same town in only 32% French hospitals.¹¹ Such heterogeneity might lead to a lack of awareness of the in-hospital emergencies phone number, increase intervention delays and maybe mortality in case of in-hospital emergencies.^{6,7,14} Incidentally, in a Danish study, only half of physicians knew the in-hospital emergencies phone number in their hospitals.¹² Examples of countries where a unique in-hospital emergencies phone number has been implemented confirm that memorization is improved by standardization.¹⁵ In this study, intensive care units and emergency departments were equally in charge of in-hospital emergencies calls and RRT. This is specific to French military hospitals when compared to the civilian hospitals where in-hospital cardiac arrest calls are managed by a switchboard, mostly by the French prehospital medical emergency teams (“15”-centers).¹⁶ It’s probably because “15”-centers meets greater criteria for the management of in-hospital emergencies calls: the unique “15” phone number, available 24/7, is known by everyone in France. In this study, the personnel involved in the management of in-hospital emergencies calls and in the RRT were the same people, from the emergency departments in four French military training hospitals and from the intensive care unit in the other four. In 70% academic public hospitals, in-hospital emergencies interventions implied medical teams from different departments: the “15”-centers, the emergency department, the department of anesthesiology, or the intensive care unit.¹³ Such a heterogeneity may be explained by the difference between French military training hospitals, 200–400 beds hospitals structured in a unique block, and academic public hospital, structured as multiple blocks in larger hospitals (at least 1000 beds). In such cases of multi-block hospitals, the deployment of the “2222” could be more difficult, than in one-block model hospitals notably to get information about the location of in-hospital emergencies and to activated the correspondent RRT.^{7,17} The strengths of this study are to describe the first, and still unique, deployment of the 2222 in French hospitals, to give details about the methods used for its deployment and, finally, to contribute to the promotion of the 2222 in France, in Europe and worldwide. This study has several limitations. First, it was a survey, with a small sample of military hospitals personnel only. Then, this survey did not investigate the knowledge of caregivers for in-hospital emergency calls procedures nor the alert signs to trigger rapid response team. The switch to the 2222 as unique European phone number for in-hospital emergencies could be an opportunity to implement standard alert signs and to organize training session of the hospital personal.

Conclusion

This study found a large disparity in the eight French military training hospitals, concerning in-hospital emergency protocols, RRTs responsible for in-hospital emergencies management, and the use of a dedicated unique in-hospital emergencies phone number. The “2222” procedure was first launched in two French military training hospitals. Further studies are still needed to compare different procedures for management of in-hospital emergencies, and to continue to promote the use of the 2222 as a unique phone number for in-hospital emergencies.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Disclaimers

The opinions or assertions expressed herein are the private views of the authors and are not to be considered as reflecting the views of the French military medical service.

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