

Relatives' Presence During Cardiopulmonary Resuscitation



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Background: The question of whether or not to allow family to be present during resuscitation is relevant to everyday professional health care assistance, but it remains largely unexplored in the medical literature.

Objectives: We conducted an online survey with the aim of increasing our knowledge and understanding of this issue.

Methods: This is a cross-sectional, multicenter, descriptive, national, and international study using a web-based, voluntary survey. The survey was designed and distributed through a medical website in Spanish, targeting physicians who frequently deal with critical patients.

Results: A total of 1,286 Argentine physicians and 1,848 physicians from other countries responded to this voluntary survey. Of Argentine respondents, 15.8% (203) treat only children, 68.2% (877) treat adults, and 16% (206) treat patients of any age. The survey found that 23% (296) of Argentine and 20% of other respondents favor the presence of family members during cardiopulmonary resuscitation ($p = 0.03$). This practice was more common among physicians treating pediatric and neonatal patients than among those who treat adults. The most commonly reported reason (21.8%) for avoiding the presence of relatives was concerns that physicians, communications, and medical practices might be misunderstood or misinterpreted.

Conclusions: Avoiding relatives' presence while performing cardiopulmonary resuscitation is the most frequent choice made by the surveyed physicians who treat critical Argentine patients. The main causes for discouraging family presence during cardiopulmonary resuscitation or other critical procedures include the following: risk of misinterpretation of the physician's actions and/or words; risk of a relative's decompensation; uncertainty about possible reactions; and interpretation of the relative's presence as negative.

Cardiopulmonary resuscitation (CPR) practices have come under increasing scrutiny in recent years, due to published evidence-based research and increased emphasis on provider training and in international practice guidelines; however, a number of questions remain unanswered [1]. With an incidence of >200,000 procedures per year in U.S. hospitals alone, CPR is a very common medical intervention [2]. The practice of allowing the patient's family members to be present during CPR was first discussed by Hanson and Strawser in 1992 [3]. Subsequent publications have extended the issue to include other relatives' presence during CPR. The existing literature includes health care professionals' opinions, general public's views, and program evaluations of allowing family members to be present during CPR, according to a thorough review by Porter et al. [4] of this controversial topic.

In spite of this controversy, medical and neonatal professional associations in industrialized countries recommend offering relatives the possibility of attending resuscitation procedures [5–8]. In the first large randomized study on the presence of family members during CPR in France, Jabre et al. [9] provided stronger evidence on the issue, suggesting that relatives' presence has a positive

effect on the family psychology, does not interfere with health care professionals' resuscitation procedures, and does not result in increased stress.

Many countries, however, and especially those in Latin America, seldom provide practice guidelines indicating either the presence or absence of family members during CPR; moreover, neither parents nor relatives are likely to be given the option of attending or not attending a patients' CPR [10–12]. In Argentina, the pediatricians' association (Sociedad Argentina de Pediatría), in their children's CPR courses, offers specific guidelines regarding relatives' presence. The Sociedad Argentina de Pediatría emphasizes the desirability of promoting family presence under certain conditions or circumstances [13]. Unfortunately, these recommendations are seldom followed [13].

Given the importance of this practice to health care providers, family members, and patients in a wide variety of clinical settings and the lack of relevant published research, we conducted an online survey with the aim of increasing our knowledge and understanding of this issue. The survey was designed to identify and describe the professional opinions and clinical practice of health care professionals relating to the practice of allowing relatives to

The authors report no relationships that could be construed as a conflict of interest.

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GLOBAL HEART
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VOL. 12, NO. 4, 2017
ISSN 2211-8160/\$36.00.
<http://dx.doi.org/10.1016/j.ghheart.2016.01.007>

be present during CPR, both in Argentina and in the other, participating Latin American countries.

MATERIALS AND METHODS

This study is a cross-sectional, multicenter, descriptive, national, and international study using a web-based, voluntary survey ([Online Appendix 1](#)). Surveys were conducted between October 1 and October 31, 2014. All health care professionals who subscribed to the IntraMed website and who met the inclusion criteria were asked to participate. IntraMed is a scientific-content sharing medical network and has been online since 1997. This site requires user registration, and registration is free to all eligible site members.

On the day of study initiation, October 1, 2014, 93,115 Argentine physicians and 151,301 physicians from other Spanish-speaking countries were registered on the IntraMed site. A direct link to the survey was provided through the IntraMed website during the data collection period. A total of 3,000 physicians were expected to respond (sample size sufficiently representative of the overall population for a heterogeneity level of 50% and a confidence interval of 95%).

Participation was restricted to IntraMed users treating critical patients (estimated to be not more than 20% of the total medical population).

The survey was set as “open” to the entire IntraMed medical subscribers community, regardless of country of origin, and all registered users were invited to participate. Data collection used a web-based electronic survey platform. Questionnaires were checked for correct visual formatting in the most popular web browsers (Internet Explorer 6 and 7, Chrome, and Mozilla Firefox version 2).

The survey was developed in HTML, using Macromedia Dreamweaver MX software (version 7.0.1, Macromedia Ind., San Francisco, California). Input data were automatically transferred in real time to a multiuser relational database designed in Microsoft Access (Microsoft Corporation, Redmond, Washington). Data validation was performed with JavaScript (Sun Microsystems, Santa Clara, California).

Survey responses were stored along with demographic information and other selected options separately, so that it was on the whole technically impossible to identify users' personal data. This information technology strategy was employed to preserve individual respondents' privacy.

The following demographic information, in addition to the survey question responses, was collected: sex; age; year of graduation as a medical doctor; year of graduation as a specialized physician; environment and community the responder develops its activity on; and specific specialty area.

The analysis of survey variables was descriptive and included relative frequencies and percentages. A chi-square test with a level of statistical significance of 0.05 was used to compare qualitative variables. Intergroup percentage comparison was performed using the proportion-comparison test with normal distribution approximation.

Only the study research staff had access to survey data, which were collected only for the current research project. Survey responses were stratified by country of origin and specialty (including emergency room, neonatal intensive care unit, pediatric intensive care unit, intensive care unit for adults, coronary care unit, outpatient emergencies). Other classifications included age of treated patients, type of health care system (funding of the institution), and frequency of CPR procedures performed.

RESULTS

The total number of Argentine physicians who began the survey was 2,331; however, only 1,286 (55.2%) answered “yes” to the first question, that is, whether they treated critical patients, and were able to continue and complete the questionnaire. Of study completers, 554 (43.1%) were women. The proportion of Argentine respondents by sex was then compared with the proportion by sex in the overall membership of Argentine IntraMed subscribers as of November 1, 2014. This sex comparison resulted in a significant difference ($p < 0.001$), as Argentine male respondents treating critical patients represented 56.9% of the sample, whereas the overall percentage of male physicians subscribed to the portal is only 46.4%.

Also, 3,717 non-Argentine physicians from participating South American countries began the survey (only 2.5% of the subscribed foreign physicians), and 1,848 of these respondents indicated that they treat critical patients and, therefore, were included in the analysis. The majority of these respondents were male physicians (67.3%). [Table 1](#) shows the distribution of foreign respondents by country and [Table 2](#) shows the distribution of Argentine respondents by Argentine province.

Survey data from Argentine respondents were stratified by patients' age groups, revealing that 15.8% treat only children ($n = 203$), 68.2% treat only adults ($n = 877$), and 16% treat all patients, regardless of age ($n = 206$).

Regarding the institutional funding source of the Argentine health care providers, 51.2% of the participating Argentine physicians work exclusively in publicly funded health care institutions ($n = 658$), 27.2% work in the private system alone ($n = 350$), and 21.6% work in both systems ($n = 278$).

When asked the primary study question, that is, “What is your most frequent attitude toward the presence of family members when patient requires CPR?,” only 23% ($n = 296$) of all the Argentine physicians who completed the survey indicated that they encouraged family members to be present during CPR; the percentage was even lower (19.8%) among doctors from other countries ($p = 0.03$).

The last question was conditioned on the answer to the primary research question: Argentine respondents who indicated they discouraged relatives' presence during CPR were asked for the reasoning behind their attitude. The responses to this question are summarized in [Table 3](#).

TABLE 1. Country of residence of foreign physicians attending critical patients who completed the survey

Country	n	%
Mexico	578	31.3
Other	320	17.3
Ecuador	217	11.7
Colombia	217	11.7
Cuba	151	8.2
Peru	147	8.0
Bolivia	66	3.5
Paraguay	62	3.4
Uruguay	53	2.9
Chile	37	2.0
Total	1,848	

Table 4 shows the estimated frequency with which parents or other relatives choose to stay with the patient during resuscitation, in spite of the physician's discouraging them from doing so.

Tables 5 and 6 present the distribution of the main question, based on the estimated frequency with which the respondent performs CPR, for Argentine physicians and physicians from other Spanish-speaking countries, respectively.

Table 7 shows the distribution of the main response stratified by the area of specialty of the surveyed Argentine physicians.

DISCUSSION

In this voluntary survey that recruited users of a free, subscription-based medical website, 23% of the responding professionals offer patients' relatives the opportunity to be present during CPR procedures. Physicians who treat children and infants and those who treat outpatient emergencies are more likely to encourage family to be present than those who see adults or provide routine, nonemergent medical conditions. The primary causes for discouraging family presence include the following: risk of misinterpretation of the physician's actions and/or words; risk of a relative's decompensation; uncertainty about

TABLE 2. Total number of physicians surveyed in Argentina—distribution by province of residence

Province	n	%
Buenos Aires	373	29.1
Caba	303	23.6
Santa Fe	131	10.2
Córdoba	110	8.6
Mendoza	48	3.7
Tucumán	32	2.5
Other	289	22.5
Total	1,286	

TABLE 3. Physicians' reasons for discouraging relatives' presence during CPR

Reasons	n	%
Because they may misinterpret actions and/or words	581	3.2
Because they may decompensate and that would be a further complication	565	18.1
Because I do not know how they will react	547	20.5
Because they interfere in a negative way	482	21.2
Because the Latin population does not react calmly	166	21.8
Because I could feel intimidated by their presence and make mistakes	137	6.2
Other	107	5.1
Because of fear of being sued for professional negligence	85	4.0
Total number of answers*	2,670	

CPR, cardiopulmonary resuscitation.
*More than one answer could be chosen.

possible reactions; and interpretation of the relative's presence as negative.

The use of online surveys has been used by many researchers to explore health care professionals' beliefs, knowledge, and medical practices in many countries and specialized content areas. Previous survey research on this subject has used postal mail, e-mail, and face-to-face questionnaires administered at scientific forums [14–16]. A careful review of the existing scientific literature revealed no previous studies collecting this kind of information through a medical website. The detailed analysis provided here is based largely on the responses by Argentine professionals, given the low proportion of responses received from other countries.

The majority of the Argentine professionals surveyed fail to offer relatives the opportunity to be present during CPR procedures. This is consistent with other published surveys, based on medical and nursery practice and opinion [14,15,17]. In addition, it is consistent with our

TABLE 4. Estimated frequency with which families choose to attend the CPR

Answers	n	%
Very frequently (>75%)	55	18.6
Frequently (40%–70%)	76	25.7
Not frequently (10%–40%)	106	35.8
Infrequently (<10%)	59	19.9

CPR, cardiopulmonary resuscitation.

TABLE 5. Distribution of the main answer based on the estimated frequency with which the surveyed subject performs CPR—Argentine physicians

Frequency of CPR (times per year)	n	Offers to Allow the Relative to Stay			
		No	%	Yes	%
Very frequently (>12)	299	237	79.3	62	20.7
Frequently (6–12)	345	277	80.3	68	19.7
Not frequently (2–5)	364	276	75.8	88	24.2
Infrequently (1–2)	143	103	72.0	40	28.0
Rarely (<1)	116	82	70.7	34	29.3
Hardly ever	19	15	78.9	4	21.1
Total	1,286	990	77.0	296	23.0

Chi-square test: value = 143.1; p < 0.001.
CPR, cardiopulmonary resuscitation.

own experience, arising from a total of 122 CPR clinical case simulation sessions at the SIMMER (Simulación Médica Roemmers, Medical Simulation) center [18]. In these sessions, conducted over a period of 18 months, 100% of the participating teams hastily removed the family member (an actor following an established script) from the area where the procedure was to take place.

Nevertheless, about 25% of survey respondents report that they usually invite relatives to witness CPR procedures. One weakness of this survey is that we failed to sufficiently explore the motivation behind this practice. While the survey sought to investigate opinions and typical behaviors, it did not explore the theoretical assumptions supporting them.

Neither did our survey investigate whether there were written guidelines on the subject available in the respondents' working environment; however, the guidelines on neonatal and pediatric CPR issued by the most important pediatricians' associations in Argentina do not mention anything on how to deal with relatives [13,19]. There is some evidence suggesting that the presence of

TABLE 6. Distribution of the main answer based on the estimated frequency with which the surveyed subject performs CPR—Spanish-speaking physicians from the other countries

Frequency of CPR (times per year)	n	Offers to Allow the Relative to Stay			
		No	%	Yes	%
Very frequently (>12)	568	473	83.3	95	16.7
Frequently (6–12)	498	408	81.2	90	18.1
Not frequently (2–5)	457	357	78.1	100	21.9
Infrequently (1–2)	186	149	80.1	37	19.9
Rarely (<1)	126	83	65.9	43	34.1
Hardly ever	13	12	92.3	1	7.7
Total	1,848	1,482	80.2	366	19.8

Chi-square test: value = 123.05; p = 0.0003.
CPR, cardiopulmonary resuscitation.

TABLE 7. Distribution of the main answer by field of work of surveyed Argentine physicians

Workplace	n	Offers to Allow the Relative to Stay			
		No	%	Yes	%
Emergency rooms	518	429	82.8	89	17.2
ICU adults	240	216	90.0	24	10.0
Outpatient emergencies	125	59	47.2	66	52.8
NICU	68	32	47.1	36	52.9
CCU	62	55	88.7	7	11.3
PICU	28	16	57.1	12	42.9
Total	1,041	807	77.5	234	22.5

Chi-square test: value = 143.1; p < 0.001.
CCU, coronary care unit; ICU, intensive care unit; NICU, neonatal intensive care unit; PICU, pediatric intensive care unit.

family members during resuscitation or other invasive procedures is beneficial for all patients, relatives, and health care providers [20,21]. A public opinion survey in Brazil found that 50% to 96% of health care users believe that family members should be offered the opportunity to be present during emergency procedures [22].

All critical care units should have approved written documentation offering relatives the option of attending invasive resuscitation procedures. This would serve as a justification for physicians who favor the practice. The American Association of Critical Care Nurses guidelines are a good example of this [23]. Two recently published studies found that nearly all children want their parents to be present during medical procedures [24,25].

In this study, we found that physicians who treat children and newborns offered relatives the opportunity to witness resuscitation procedures more often than adult-treating doctors did. This difference, however, has not been found in other studies. Family presence is surmised to be much more widely accepted among health care providers in the cases of pediatric and neonatal hospitalization. Several years ago, Robinson et al. [26] suggested that adult patients preferred to have family members near them, which, in cases of death, facilitated the bereavement process. Powers and Rubenstein [27] noted that the presence of family members in the pediatric intensive care unit relieved anxiety and fear about what was happening both for the family and the patients themselves. In addition, surveys of family members who witnessed critical situation events showed that 94% to 100% of them would repeat the experience [26,28].

Bauchner [28] reported that the presence of family members did not result in any interruption in patient assistance or produce any negative results or adverse psychological effects. Other reported benefits of allowing relatives' presence during CPR include facilitating the bereavement process and increasing the frequency of organ donation [9,28,29].

A recently published study analyzed data from more than 40,000 adult resuscitations reported in 252 U.S. hospitals and compared the progress of patients treated at centers where the presence of relatives is favored to those where it is discouraged. No differences in either spontaneous circulation recovery time or post-discharge mortality rates were observed [30].

Providing health care professionals with complete and accurate information may help to change physicians' attitude (insofar as it is consistent with institutional practice guidelines) regarding the choice of having family members witness resuscitation procedures. There are many guides regarding this subject [14,31–34].

Remarkably, in the centers where this practice was seen as favorable, a health care team member is assigned exclusively to providing emotional support to the family [4].

According to the available literature, nurses in the United States and France are more willing to allow relatives' presence than are physicians [14,15]. In these countries, health care providers are especially trained to deal with the family in such circumstances.

A further possible limiting factor of the current study is that the survey was in Spanish and all respondents were native Spanish speakers. Moreover, the surveys were given to physicians practicing in medical centers located in South American countries. Whereas the resulting data sample may represent the experiences and practices of a unique population of health care providers, who are subject to culturally specific clinical roles, rules and expectations, a limited number of scientific studies on the issue of parental presence during resuscitation come from either English or French researchers who practice within their respective clinical milieu. It is widely known that cultural differences exist regarding how best to deal with rapidly changing medical conditions, clinical situations, and stress during emergencies or emotionally burdened situations [16,35]. Although CPR assistance varies in children and in adults, there is no particular consensus about the presence or absence of relatives during these procedures for any age group [9,16].

Other medicolegal, socioeconomic, and cultural issues are also important in the decision making of the health care team when establishing contact with the victim's family during CPR. For this reason, extrapolating advice or guidelines from other regions and cultures, at least on this issue, would not be appropriate [36,37].

For this reason, it is important that new studies be done throughout South America, so as to obtain regionally specific data on the preferences and hurdles regarding the presence of relatives during CPR procedures and to measure the effect of this practice on the progress, satisfaction, and medical outcomes of the patients and their families.

Meanwhile, health care teams in the respective centers should agree upon guidelines to support doctors who choose to offer relatives' presence as an option. So far, the existence of such guidelines seems to be the most beneficial

practice for patients of different age groups and their families. It would also be helpful for scientific organizations to bring the subject up for discussion to develop general guidelines for this practice.

CONCLUSIONS

Avoiding relatives' presence while performing CPR is the most frequent choice made by the surveyed physicians who treat critical Argentine patients. The main causes for discouraging family presence during CPR or other critical procedures include the following: risk of misinterpretation of the physician's actions and/or words, risk of a relative's decompensation, uncertainty about possible reactions, and interpretation of the relative's presence as negative. New studies exploring the preferences of local patients and their families should be carried out so that changes can be made to our current medical practices that will better meet the needs of our patients and their families.

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ONLINE APPENDIX 1

Survey published on IntraMed website. Relatives' presence during CPR procedures. Self-perception and opinion survey for health care providers attending critical patients or

emergencies (in Spanish). Access via the following link (last visited on July 1, 2015): http://www.intramed.net/sitios/encuesta_familiares/index.asp.