Relatives’ Presence During Cardiopulmonary Resuscitation

Diego Enriquez*, Ricardo Mastandueno¹, Daniel Flichtentrei¹, Edgardo Szyld¹,⁴,⁵
Buenos Aires, Argentina; New York, NY, USA; and Oklahoma City, OK, USA

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 decomposition; uncertainty about possible reactions; and interpretation of the relative’s presence as negative.
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 Inc., 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). A total of 2,331 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 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 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
There is some evidence suggesting that the presence of important pediatricians on neonatal and pediatric CPR issued by the most respondents written guidelines on the subject available in the re-

behaviors, it did not explore the theoretical assumptions

While the survey sought to investigate opinions and typical

suff

ences. One weakness of this survey is that we failed to

that they usually invite relatives to witness CPR pro-

procedure. This would serve as a
dокументация offering relatives the option of attending

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].

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

<table>
<thead>
<tr>
<th>Frequency of CPR (times per year)</th>
<th>Offers to Allow the Relative to Stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>No %</td>
</tr>
<tr>
<td>Very frequently (&gt;12)</td>
<td>299</td>
</tr>
<tr>
<td>Frequently (6–12)</td>
<td>345</td>
</tr>
<tr>
<td>Not Frequently (2–5)</td>
<td>364</td>
</tr>
<tr>
<td>Infrequently (1–2)</td>
<td>143</td>
</tr>
<tr>
<td>Rarely (&lt;1)</td>
<td>116</td>
</tr>
<tr>
<td>Hardly ever</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>1,286</td>
</tr>
</tbody>
</table>

Chi-square test: value = 143.1; p < 0.001.

CPR, cardiopulmonary resuscitation.

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**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**

<table>
<thead>
<tr>
<th>Frequency of CPR (times per year)</th>
<th>Offers to Allow the Relative to Stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>No %</td>
</tr>
<tr>
<td>Very frequently (&gt;12)</td>
<td>568</td>
</tr>
<tr>
<td>Frequently (6–12)</td>
<td>498</td>
</tr>
<tr>
<td>Not Frequently (2–5)</td>
<td>457</td>
</tr>
<tr>
<td>Infrequently (1–2)</td>
<td>186</td>
</tr>
<tr>
<td>Rarely (&lt;1)</td>
<td>126</td>
</tr>
<tr>
<td>Hardly ever</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>1,848</td>
</tr>
</tbody>
</table>

Chi-square test: value = 123.05; p = 0.0003.

CPR, cardiopulmonary resuscitation.

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

<table>
<thead>
<tr>
<th>Workplace</th>
<th>Offers to Allow the Relative to Stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>No %</td>
</tr>
<tr>
<td>Emergency rooms</td>
<td>518</td>
</tr>
<tr>
<td>ICU adults</td>
<td>240</td>
</tr>
<tr>
<td>Outpatient emergencies</td>
<td>125</td>
</tr>
<tr>
<td>NICU</td>
<td>68</td>
</tr>
<tr>
<td>CCU</td>
<td>62</td>
</tr>
<tr>
<td>PICU</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>1,041</td>
</tr>
</tbody>
</table>

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.
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 was 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 [16,33]. 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.

REFERENCES
ONLINE APPENDIX 1