



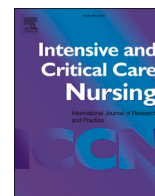
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Research Article

Family support in intensive care units during COVID-19 visit ban: A multinational Delphi Study during first COVID-19 wave

Marie-Madlen Jeitziner^{a,b}, Béatrice Jenni-Moser^a, Bjoern Zante^a, Katja Erne^a, Maria Brauchle^c, Sarah A. Moser^d, Joerg C. Schefold^a, Karin Amrein^e, Magdalena Hoffmann^{e,f,g,1,*}^a Department of Intensive Care Medicine, University Hospital Bern, Inselspital, University of Bern, Bern, Switzerland^b Institute of Nursing Science (INS), Department of Public Health (DPH), Faculty of Medicine, University of Basel, Basel, Switzerland^c Department for Anesthesia and Intensive Care Medicine, Landeskrankenhaus Feldkirch, Feldkirch, Austria^d Department of Cardiovascular Surgery, University Hospital Bern, Bern, Switzerland^e Division of Endocrinology and Diabetology, Department of Internal Medicine, Medical University of Graz, Graz, Austria^f Research Unit for Safety in Health, c/o Division of Plastic, Aesthetic and Reconstructive Surgery, Department of Surgery, Medical University of Graz, Graz, Austria^g Executive Department for Quality and Risk Management, University Hospital Graz, Graz, Austria

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ABSTRACT

Objectives: This study assessed opinions and experiences of healthcare professionals, former patients and family members during the first wave of the COVID-19 pandemic and focuses on challenges in family-centred care for intensive care unit patients and affected families.**Research methodology/Design:** A two-round modified Delphi process assessed the opinions and experiences of experts such as healthcare professionals, former patients and their families (n = 151).**Setting:** This study was conducted across four countries in Europe.**Results:** In total, 121 participants (response rate 80.13%) answered the first Delphi round; the second was answered by 131 participants (response rate 86.75%). Participants perceived family support in the intensive care unit as highly important during the COVID-19 pandemic. Enabling contact amongst patients, families and clinicians is regarded as essential to build hope and confidence in the treatment and the recovery process. The extraordinary situation led to the implementation of new communication structures such as video calls and websites.**Conclusion:** A consensus was reached between healthcare professionals that virtual contact is essential for patients with COVID-19 and their families during visit restrictions. This should be done to establish confidence in the treatment.

Implications for clinical practice

- Virtual visits are regarded as essential to support critically ill patients with COVID-19, and their families.
- We recommend that healthcare professionals be trained in making video and/or telephone calls (curricula to be defined).
- Hospital or ward management should provide safe technical equipment for intensive care unit care and communication.

Introduction

The COVID-19 pandemic presented and continues to present challenges for healthcare professionals in intensive care units (ICU) worldwide. Treatment options are limited due to lack of knowledge and limited experience, ICU resources are stretched and the care capacity of all ICU professionals is reduced because treatment capacities had to be

* Corresponding author at: Auenbruggerplatz 1/3, 8036 Graz, Austria.

E-mail addresses: marie-madlen.jeitziner@insel.ch (M.-M. Jeitziner), beatrice.jenni@insel.ch (B. Jenni-Moser), bjoern.zante@insel.ch (B. Zante), erne.katja@bluewin.ch (K. Erne), maria.brauchle@lkhf.at (M. Brauchle), sarahanna.moser@insel.ch (S.A. Moser), joerg.schefold@insel.ch (J.C. Schefold), karin.amrein@medunigraz.at (K. Amrein), magdalena.hoffmann@medunigraz.at (M. Hoffmann).¹ ORCID: 0000-0003-1668-4294.<https://doi.org/10.1016/j.iccn.2022.103308>

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increased (Cecconi et al., 2020; Phua et al., 2020). This difficult care situation, together with the limited opportunities for family members (includes close friends) to visit, means that family-centred care cannot be implemented as usual. Family-centred care is defined as considering patients' complexity, including the psychosocial, economic and genetic context of their families, with consequences for their medical history and present condition (Davidson et al., 2017). Important aspects, such as need-based communication, shared decision-making and comprehensive information-sharing, are no longer carried out in the usual manner. The complex, often unpredictable and life-threatening situations of many critically ill patients and their families, which are frequently demanding for healthcare workers even in non-pandemic times owing to the high level of responsibility, stress and heavy workloads involved, thus become an even heavier psychological and emotional burden for healthcare professionals (Shen et al., 2020), and especially for family members. At the same time, the risk of complications such as anxiety, depression and post-traumatic stress disorder (PTSD) (Hoffmann et al., 2020) is significantly increased (Zante et al., 2021).

The consequences of such stressful pandemic-situations have scarcely been investigated. Patients may also suffer from limited visiting opportunities and an absence of social and physical contact with families (Kentish-Barnes et al., 2021). Thus, the lack of interaction with families may have a negative impact not only on psychological well-being, but also on physical recovery. Thus, interventions are needed to provide targeted support for families of critically ill patients during a pandemic (Azoulay and Kentish-Barnes, 2020), and the current pandemic requires novel interventions to provide family-centred care for family members. Since little data were systematically collected on this topic during the first COVID-19 wave, the experiences and findings of experts in the current situation are of particular importance (Azoulay and Kentish-Barnes, 2020; Frampton et al., 2020). In addition, few families or critically ill patients were interviewed in previous research to ascertain their care needs or derive recommendations for family-centred care adapted to the pandemic situation. Therefore, the first aim of this Delphi study was to explore the opinions and experiences of healthcare professionals (critical care nurses and doctors, psychologists) regarding family-centred care during the first COVID-19 pandemic wave, and the experiences and needs of the critically ill patients and families affected. Secondly, recommendations for family-centred care during the COVID-19 pandemic as well as for other future public health emergencies that may necessitate restricted hospital and ICU access should be formulated based on the experiences gathered.

Methods

Study design

Between May and June 2020, in the first wave of COVID-19 pandemic hospitalisations, we performed a two-round Delphi process using an online Delphi technique to build consensus (McMillan et al., 2016). We involved a group of experts including healthcare professionals (ICU nurses, doctors, psychologists), as well as colleagues from quality and risk management or research with direct ICU patient contact during the first wave of the COVID-19 pandemic. In this context, 'experts' were defined as specialist healthcare professionals working with patients and families in ICUs from the start of the first waves. In addition, former patients and their family members were invited to participate (from Bern only). Healthcare professionals from Germany, Switzerland (German and French-speaking Switzerland), Austria and Liechtenstein were invited to participate, and the invitation was sent via the Scientific Societies. The ICU stay of the former patients and their families was no more than 3 months previously to ensure that they still had a clear memory of it. The Delphi technique uses questionnaires to elicit and preserve answers in a multistage process, as well as to generate ideas and determine priorities. The Delphi group decision-making methodology is recognised as being particularly valuable as a system

for leading participants through a highly structured process (Humphrey-Murto et al., 2017). In-person meetings were not possible because of travel bans. Thus, online meetings were held. Both Delphi rounds used a mixed-method (qualitative and quantitative) approach (de Villiers et al., 2005). The structured rounds were characterised by anonymity, iteration and controlled feedback.

Participants and setting

Experts were defined as healthcare professionals, and asked for their opinions on and general experiences of family-centred care as well as their initial experiences during the COVID-19 pandemic. The inclusion criteria for healthcare professionals were: 1) contact with the professional network of societies of intensive care medicine (invitation was sent via the Scientific Societies); 2) a minimum of five years' ICU work experience; 3) work in nursing, medicine, management, quality and risk management or research; 4) a good knowledge of German or French; and 5) where relevant and possible, direct patient contact during the first wave of the COVID-19 pandemic.

Former patients and their families were invited to participate if: 1) the patient had spent seven days or more in an ICU; 2) the patient had a chronic critical illness (Roedel et al., 2022); 3) the ICU stay took place no more than three months previously; 3) the patient had no cognitive impairments and 4) the patient and their families had a good knowledge of German or French. The former patients and their families were asked for opinions and experiences that they felt were significant regarding their ICU stay and could be important during the pandemic. To ensure a sufficient geographical distribution of the experts (across Austria, Germany, Switzerland and Liechtenstein) and to prevent selection bias, experts were identified and selected through a range of processes. We aimed to recruit a minimum of 100 participants. Healthcare professionals, former patients and their families were invited via e-mail to participate in the Delphi study. In our invitation, we explained the background and goals of the study. Former patients and their families were from the ICU in Bern and were recruited during a follow-up outpatient appointment. Those who expressed an interest in participating received information verbally, were asked for their consent and received an e-mailed invitation package.

Data collection and Delphi questionnaire preparation

The Delphi questionnaire was based both on a literature review and on the core international study team's combined expertise in nursing, medicine, risk management, quality management and research. First, each member of the study team independently searched for topics in the literature and asked for opinions in their own ICU environment. Then the results were merged. In a multi-stage process for each item, the team began by defining and discussing relevant item statements (via web conferences) until a consensus was reached. This process resulted in 32 draft statements. To ensure that these were easily understandable and in a logical order, they were presented to six uninformed people (four critical care nurses, one physician, one medical layperson). Each statement was formulated for rating on a ten-point Likert-type scale (range: 1 (totally disagree) to 10 (totally agree)), supplemented by a "not applicable" option and the option to enter a free-text response or comment. Once this process was complete (including necessary adjustments), the full questionnaire, including the statements and possibilities for free-text comments, was uploaded to Umfrage Online (DGSVO GmbH, Zurich, Switzerland), an online survey site, for two rounds of testing with the core study team. The online survey meets all requirements and regulations of the General Data Protection Regulation (GDPR) of the European Union. The healthcare professionals, the former patients and their families each received an individual Link for each round with information on how to proceed and a questionnaire with the statements and possibility to enter free-text comments. The e-mails were sent by an independent person.

First round and analytical approach

In the first round, experts were asked to score each of the 32 statements on the chosen 0–10-Likert-type scale, 0 = unimportant, 10 = very important. In each case, respondents were asked both to rate the statements and to write free-text comments, e.g. to explain their rating or express disagreement with the statement's relevance. Agreement was indicated in two ways: by the percentage of responses indicating strong or very strong agreement, and by the median rating. Higher median ratings indicated greater agreement (where a median ≥ 7 indicated strong agreement and 10 very strong agreement). A score ≤ 3 was defined as disagreement, i.e. no consensus had been reached. In such cases, the core study team was convened for an online expert discussion (panel) round. After careful consideration of the participants' comments from the first Delphi round, highly ranked (≥ 7) statements were taken into the second round. Those with median ratings ≥ 7 were adapted based on participants' comments and the core study team's consensus. All responses (ratings and free-text comments) to the first-round questionnaire were collated and considered when formulating the second-round questionnaire. Participants' comments were subjected to inductive content analysis as appropriate and incorporated into the questionnaire. The inductive content analysis gave the opportunity to categorise and summarise. This was done in seven steps: 1) define unit of analysis; 2) paraphrase statements; 3) define level of abstraction; 4) first reduction; 5) second reduction; 6) summary of statements as a system of categories; 7) performance of back testing. The analysis was performed in French and German by the bilingual research team; it was not translated into English until it was being prepared for publication. Descriptive statistics were used to describe the sample characteristics and the statements (median, frequencies, percentages and interquartile range). All statistical analyses were conducted with R version 3.5.

Second round and analytical approach

All experts (healthcare professionals, former patients and their families) were invited via e-mail to participate in the second round. Each person also received a summary of the results from the first round. This allowed them to check their scores from the first round and see how the items had changed after the initial round. Participants were asked to rate the 14 statements in the second questionnaire on a 0–10 Likert-type scale, and to rank them in order of importance, 0 = unimportant, 10 = very important.

Ethical approval

The Swiss Ethics Commission waived the requirement for ethics approval (Req-2020-00501).

Results

A total of 151 ICU experts were invited to participate in the study, 121 of whom participated in the first round (response rate 80.13 %) and 131 in the second (response rate 86.75 %). Demographic and clinical characteristics of the first-round experts are shown in Table 1.

Recommendations with high or low levels of agreement and importance

During the first Delphi round, strong agreement (median ≥ 7) was observed for 18 statements and very strong agreement (median 10) for six statements. Even before the COVID-19 pandemic, almost all experts had placed a high value on support for families. The content analysis showed that informing families regularly and systematically, scheduling daily appointments for phone/video calls to them, showing respect and appreciation when dealing with them, sharing information via a primary contact person, using lay language, training professionals in communication and documenting the content of calls. Communication can also

Table 1
Expert descriptions.

Item	1. Round (n = 121)
Age (year, mean, SD)	43,9 (6.6)
Sex (n, %)	
– Female	75 (62.0)
– Male	45 (37.2)
– Other	1 (0.8)
Country (n, %)	
– Germany	5 (4.1)
– Switzerland	90 (74.3)
– Austria	25 (20.6)
– Liechtenstein	1 (0.8)
Education (n, %)	
– Basic vocational training	12 (9.9)
– Higher education (higher-level technical college)	25 (20.6)
– University of Applied Sciences	45 (37.1)
– University	39 (32.2)
Experts (n, %)	
– Healthcare professional (nursing, medicine)	81 (66.9)
– Family members of former ICU patients	6 (4.9)
– Other professionals (social work, spiritual advisor, pastoral care)	2 (1.6)
– Former ICU patients	2 (1.6)
– Managers and leaders (nursing, medicine)	28 (23.1)
– NA	2 (1.6)
Work assignment during COVID-19 (n, %)	
– Direct care for patients and family members	75 (61.9)
– Indirect support (organisational management and planning)	33 (27.2)
– None	8 (6.6)
– NA	5 (4.1)
Experience working in ICU (n, %)	
– None	4 (3.3)
– ≤ 5 years	8 (6.6)
– ≤ 10 years	29 (23.9)
– ≤ 20 years	25 (20.6)
– ≤ 30 years	37 (30.5)
– 30 years	14 (11.5)
– NA	4 (3.3)

Legend: SD = Standard deviation, ICU = Intensive Care Unit, N = Number, NA = not applicable, Percentages have been rounded up or down.

become a challenge. The experts noted ...: “that communication can sometimes require considerable staff resources, causing other patients to be neglected” (ICU doctor). Thus, according to one expert, “it should be noted that, in these cases, the time spent by highly qualified personnel can very quickly reach a level that exceeds the staff resources” (ICU nurse).

Supporting families via psychologists or care team members and, especially during the pandemic, ensuring the availability of internal hospital guidelines for dealing with families in this situation were very important. The experts very quickly became aware of the possible consequences of the visiting restrictions for families and patients. Thus, one expert believed that “recovery without the physical presence of families is difficult, and the future consequences are not known. The aftercare of families and patients should not be forgotten” (psychologist). Structured and clear communication with ICU professionals was also cited as an important category by former patients and their families. Particularly sensitive communication is needed. They assume that training health-care professionals how to conduct conversations could lead to improved care for families. Furthermore, former patients and their families need their own images of the ICU so that they can cope with the unpredictability of the disease trajectory.

In the first round, four statements, concerning pre-pandemic attitudes towards video calls, text chats with families, photos of ventilated patients and data-secured transmission of photos via e-mail, were assessed by experts with a median rating of ≤ 3 (disagree). On the one hand, video calls were considered by the experts as an opportunity to see the patient, but on the other hand it was emotionally very stressful to see a loved one and not be present. Thus, one expert noted "...It should be ensured that families are supported since they are, after all, seeing images of their family member in an exceptional situation" (ICU nurse).

Dealing with technical equipment was another category and involved the often limited technical skills of the families in crisis situations, the procurement of the equipment and data protection.

The 32 statements from the first round and the corresponding results are shown in Table 2.

Table 3 provides the strongly agreed with statements after the second Delphi round.

Recommendations

The following recommendations were derived from expert statements and an inductive content analysis (Table 4).

Discussion

This international Delphi study shows that, in all the participating countries (Switzerland, Germany, Austria, Liechtenstein), family support was just as challenging as caring for critically ill patients. According to the experts family-centred care could not be implemented as usual because in May 2020 very little was known about the disease and legislation regarding data protection varied widely from one country to the next.

Mistraletti et al. (2020) present a structured process with a checklist that includes the organization of communication during a pandemic. The checklists offer a structured communication in order to ensure good-quality communication between healthcare professionals and families (Mistraletti et al., 2020). Similarly, statements and two practical checklists formed the basis for communicating with isolated families by Azoulay and Kentish-Barnes (2020). Our results are in line with these studies, especially in crisis situations, families need clear, structured communication and checklists can be helpful to this end. Other studies have shared their experiences with internet portals or video calls (Goldfarb et al., 2017; Kennedy et al., 2021; Pedrotti et al., 2020). The opportunity to see their ill family member can bring great happiness to families, but can also be emotionally draining, according to the experts in our study. Particularly problematic is the fact that healthcare professionals may not be able to help families cope with feeling burdened or helpless after video calls in the same manner that they would support families who experience these feelings in conventional ICU visits.

Assessing the ability of critically ill patients to communicate and enabling them to communicate with their families should not be forgotten (Choi et al., 2017). In our results, the experts noted that limited abilities or technical problems significantly affect communication options between patients and families. In view of the existential threat posed by the patients' illness, alongside their families' risk of losing them, a clear, closely-tailored communication strategy is needed.

Yet not all families either want to make video calls or possess the technical equipment. In such cases, patient diaries, pictures of patients and their families and checklists to prepare communications are important both for the families and for ICU professionals. Various studies carried out prior to the pandemic point to the supportive effect of ICU diaries for patients, families and ICU professionals (Choi et al., 2017; Nydahl et al., 2020). ICU diaries, pictures, text messages or, possibly, a virtual simulation of the ICU may also help during the pandemic. In the process of coping with the situation, families and ICU professionals in our study highlight the importance of their own personal images and conceptions of the ICU. However, the images shown in

Table 2

Delphi 1.

Support for family members before the COVID-19 pandemic					
Statements: How important was the following:	n	% >7	Md	IQR	n comments
1. Support for family members in your view	96	93.8	9	2	24
2. Support for family members in your place at work	95	88.4	9	2	16
3. Regular, systematic informing of family members by phone calls (initiated by healthcare personnel)	95	70.5	8	4	25
4. Regular, systematic informing of family members by video calls	97	20.7	1	5	29
Respondent's general attitude towards support for family members					
Statements: How important is the following:	n	% >7	Md	IQR	n comments
5. Stipulation of a period within which a first phone/video call must occur, e. g. within the first 24 h after admission to the ICU	95	86.4	9	2	19
6. Respect, appreciation and empathy of the treatment team towards the family members	97	96.9	10	0	7
7. The fact that phone calls to family members are answered by a reference person, who then forwards the information to the other family members	96	89.6	10	2	25
8. A handy leaflet with a call guide for personnel who make the video or phone calls to family members	95	48.5	6	4	22
9. A leaflet for family members to help them prepare for the video or phone call	93	51.6	7	4	14
10. Speaking in language that can be understood by laypersons during the phone or video calls to family members	96	90.7	9	2	12
11. Training for healthcare personnel in making calls so that they are able to inform family members in the best way possible	96	81.3	8	3	18
12. Transferring support for family members to healthcare professionals who are not directly involved in patient care	94	43.5	6	5	24
Situation during the COVID-19 pandemic					
Statements: How important is the following:	n	% >7	Md	IQR	n comments
13. The regular, systematic informing of family members by phone calls	97	92.8	10	1	10
14. The regular, systematic informing of family members by video calls	97	45.4	8	5	12
15. The provision of smartphones or tablets by the hospital for video calls	94	74.5	9	3	19
16. The documentation of calls to family members (time, participants, content)	97	88.7	9	2	17
17. The need for family members to identify themselves with an ID document before the first video call	97	44.6	7	4	14
18. Video calls to family members as a substitute for hospital visits	97	60.9	10	5	21
19. The ability of conscious and oriented patients to communicate independently with their family members by FaceTime, Skype)	96	90.7	10	1	15
	95	66.3	8	4	14

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Table 2 (continued)

Support for family members before the COVID-19 pandemic	n	%	Md	IQR	n
Statements: How important was the following:		>7			comments
20. The provision of clear, written requirements / guidelines for phone or video calls to family members					
21. The ability, in addition to phone or video calls, to exchange text messages with family members, e.g. via app, so that they can ask questions in writing	94	21.3	4	4	22
22. Taking photos of intubated and ventilated patients without their consent (only for patients)	91	23.1	3	6	33
23. The receipt by family members of photos of (intubated and ventilated) patients during the ban on visiting, e.g. via secure e-mail ³⁾	92	8.8	2	5	32
24. The sending of photos by family members of intubated and ventilated patients, e.g. by e-mail, so that these can be printed out and hung by the patient's bed	95	71.5	8	5	10
25. Keeping a patient diary as a result of the ban on visiting	95	73.7	8	4	24
26. The offer, by a hospital, of psychological support for patients and family members during a pandemic	96	91.7	9	2	18
27. The offer, by a hospital, of spiritual support for patients and family members during a pandemic	96	91.7	9	2	13
28. The offer, by a hospital, of social services support for patients and family members during a pandemic	95	84.2	9	2	8
29. Allowing family members to visit dying patients or in exceptional situations, despite the ban on visiting and subject to the necessary protective measures	96	98.9	10	0	15
30. During the ban on visiting, sending a short letter of sympathy to the family members following the death of a patient	93	42.0	5	6	28
31. Keeping of a diary at home by the family members during the ban on visiting, so that they can record their own thoughts and feelings	94	54.2	7	4	17
32. During the COVID-19 pandemic, drawing the attention of family members during (video) phone calls to measures announced by the government or the Federal Office of Public Health	94	34.1	5	5	0

Legend: n = number of answers given, Md = Median, IQR = Interquartile range. Not applicable (NA) answer option was for participants who did not know how to answer the statement, as it was not conducted at their institution. Statement 4 included 11NA answers (9.1 %), statement 14 included 8NA answers (6.6 %), statement 17 included 7NA answers (5.8 %), and statement 18 included 5NA answers (4.1 %).

the media may trigger feelings of anxiety and uncertainty. Patients themselves often need pictures to help them understand what has happened: after all, these pictures are proof of their stay in the ICU (Ewens et al., 2017).

During the first wave of the pandemic, ICU professionals and families faced a new disease with an unpredictable outcome and altered visiting options. For the experts in our survey, of course, this was also their first experience of the pandemic. In this study they report the sudden explosion of time-consuming tasks arising from changes in support for families. Kennedy et al. (2021) confirms this observation: phone/video calls require far more time and actions than simple visits (Kennedy et al., 2021). Also in 2020, Azoulay et al. recommended the provision of

Table 3
Delphi 2.

Questions/Statements	Results					
	n	%	Md	IQR	NA, N (%)	n
How important is each of the following?		>7				comments
1. The provision by the hospital management of sufficiently secure mobile systems with adequate data protection for video calls between conscious and oriented patients and family members / employees?	111	79.2	9	3		19
2. Provision by the hospital management of sufficiently secure mobile systems with adequate data protection for video calls between employees and family members of sedated and intubated patients?	111	66.4	8	4	1 (0.9)	17
3. Open question: If you have experience with video calls: Please briefly describe how video calls are organised in your company?	111	-	-	-	-	96
4. A handy and brief call guide with the key topics with instructions on making video/phone calls to family members?	111	61.4	8	4	2 (1.8)	20
5. Giving family members access (e.g. by e-mail or as a download from a website) to a brief call guide with space for notes, so that they can prepare for the video/phone call?	111	52.7	7	3	3 (2.7)	14
6. Systematic informing of family members by video calls, provided easy-to-use technical facilities are available for this purpose and data protection can be ensured?	111	74.6	8	3	1 (0.9)	8
7. Support from ICU healthcare professionals to assist the nurse looking after the patient with the video calls, for example by helping family members set up the app, coordinating the appointments for the video calls)	111	62.1	8	4	3 (2.7)	19
8. The need for family members to identify themselves before the first video call, e.g. by means of a code word? 0 not important / 10 very important.	111	72.9	9	4	4 (3.6)	19
9. The provision by the hospital management of clear, written requirements for data protection and for the technical and time-related conditions for the phone or video calls to family members?	111	77.8	8	3	3 (2.7)	12
10. The option of text chats with family members, where a professional	111	34.0	5	4	5 (4.5)	21

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Table 3 (continued)

Questions/Statements	Results					
	n	% >7	Md	IQR	NA, N (%)	n comments
writes messages for family members in a data-secured program and regardless of time, but who is also able e.g. to answer written questions from family members?						
11. The offer of a peer group or self-help group to which family members seeking support can be referred?	111	63.8	7	4	3 (2.7)	16
12. Taking photos of intubated and ventilated patients, so that the patients are better able to process everything that has happened to them, provided the photos are kept in a separate envelope and are the property of the patient?	111	58.8	8	4	4 (3.6)	24
13. Keeping of a diary at home by the family members, so that they can record their own thoughts and feelings, where templates could be sent by e-mail or made available for download from a website?	111	56.8	7	4	2 (1.8)	19
14. A website based on scientific principles with easily understandable information all about the intensive care unit (incl. videos, information on hygiene, delirium, rehabilitation, mental health), and which is specifically developed for family members and patients, enabling them to find relevant information both during and after the stay on ICU?	111	78.6	10	3		15

Legend: n = number of answers given, Md = Median, IQR = Interquartile range. NA = answer option for participants who did not know how to answer the statement, as it was not conducted at their institution.

support by medical students or other healthcare professionals (Azoulay and Kentish-Barnes, 2020). Our study likewise mentioned individuals able to help in supporting families, although the experts interviewed primarily saw support for families as one of their tasks. This would mean families could be supported without worrying that they were wasting the care professionals' valuable, time that should be devoted directly to their ill family members. Additional support such as psychological, spiritual and social services/support for critically ill patients and families can be helpful.

This study shows that support for families is required at various institutional levels and on an interdisciplinary basis. In addition to making the necessary technical resources available, key recommendations include guidelines on making secure phone/video calls. This observation has been confirmed by various reports and studies (Aziz et al., 2020; Hart and Taylor, 2021; Kennedy et al., 2021; Mistracchi et al., 2020). Although the above-mentioned recommendations are based on a situation with restricted visiting, measures such as video calls can be added to routine ICU practice, e.g. for those who are unable to visit, or as a nightly pre-sleep ritual. Additionally, a website based on scientific principles with easily understandable information about the

Table 4

Expert recommendation on family management during pandemics.

Communication	<ul style="list-style-type: none"> Use of lay language is recommended during phone or video calls with family members. Willingness of healthcare professionals to make phone and video calls by providing information and supervising them during calls is recommended. Healthcare personnel should be trained in making video and/or telephone calls (curricula to be defined). Maintain communication across the board via interfaces (ICU to department or other hospital).
Video or phone calls to family members	<ul style="list-style-type: none"> In cases of complete or partial visiting ban, phone and video calls should be used. A first video or phone call to family members should be made e.g. within the first 24 h after ICU admission. Family members should clearly identify themselves before the first video call. A code word for identification is suggested. Family members should be informed regularly (i.e. daily) by phone calls during a visiting ban. A reference person among the family members should be defined for phone calls, who forwards information to other family members. Video/phone calls to family members should be documented systematically (time, participants, content). A checklist should be provided to enable family members to prepare for calls. We recommend inclusion of children in phone/video calls. Calls can be made by a defined ICU healthcare professional who is not directly involved in patient care. Specific meetings should be planned to convey in-depth information.
Facilitate independent communication	<ul style="list-style-type: none"> In conscious and oriented patients, independent communication with family members should be encouraged by video calls.
Management tasks	<ul style="list-style-type: none"> Hospital management should provide secure, hygienic mobile devices and systems with adequate data protection for video calls. Provision of a mobile phone and brief call guide with key topics and instructions on making video/phone calls to family members is advised (particularly for less experienced ICU healthcare personnel). Provision by hospital management of clear written requirements for data protection and for technical and time-related conditions affecting phone or video calls to family members.
Pictures and photos	<ul style="list-style-type: none"> Family members should send pictures of themselves so that these can be printed and placed by the patient's bed.
Diary	<ul style="list-style-type: none"> An intensive care diary should be kept for patients (e.g. short form: pictures/photos, each with legally acceptable captions) and family members should write a diary for themselves. Guide family members in collecting their thoughts and experiences in a crisis situation.
Additional support	<ul style="list-style-type: none"> Family members should be asked actively about emotions, needs and experiences. Hospitals should offer psychological, spiritual and social services/support for patients and family members. We recommend follow-up offers (video/phone) for patients and family members (ICU visits, virtual services of the ICU).

(continued on next page)

Table 4 (continued)

	<ul style="list-style-type: none"> The visiting ban should be lifted for patients in the process of dying (or in other exceptional situations), subject to necessary protective measures (e.g. defined rooms).
Online information sources	<ul style="list-style-type: none"> We recommend use of a website (based on evidence-based medicine principles) with easily understandable information about ICUs (including videos, information on hygiene, delirium, rehabilitation, mental health). Such information should be specifically developed for family members and patients, enabling them to find relevant information both during and after the ICU stay.

ICU (including videos, information on hygiene, delirium, rehabilitation, mental health) that is specifically aimed at family members and patients could help them find relevant information and support around the clock during and after the ICU stay (Aziz et al., 2020; Hart and Taylor, 2021) (Examples are <https://www.icusteps.org> (English) or www.intensivstat.ion.jetzt (German)).

Although the results of our study are from the first wave, it has been shown that new services such as online information (video calls, chats, etc.) were critically discussed at the start of the pandemic, then became established internationally and were implemented throughout the pandemic (Rose et al., 2022). In this respect it may be seen that even a crisis may offer the opportunity for innovations in care. It is also necessary to expand on the ways in which the evidence-based services implemented, such as flexible visiting hours, can be adapted during pandemics. It is important to clarify the utility of established and less established interventions and processes before and during the pandemic, so that they can be sustainably introduced into the care of critically ill patients.

Limitations

We recognise that this study is subject to various limitations. The survey had to be restricted to two rounds to avoid overburdening the healthcare professionals. Family members and critically ill patients were not included in the development (study team) of the primary questionnaire, although they were enrolled later as experts in the Delphi study. We could only include French-speaking Switzerland and no other French-speaking countries due to limited resources. We were only able to include patients and family members from Switzerland because only Switzerland had a follow up clinic and sufficient resources. Lastly, it was not possible for us to check which participants took part in both rounds, since the identifying variables were not always completed.

Conclusion

A consensus exists among healthcare professionals, former patients and their families that during a pandemic with visiting restrictions, virtual contact is essential to help patients with COVID-19 who are critically ill, and their families, to gain and maintain confidence in the healthcare professionals providing care. Particularly when critically ill patients are in the process of dying, the psychological stress and other consequences are to be considered dramatic. In the present study, we summarise expert recommendations to facilitate ICU care and communication during a pandemic. Furthermore, our study does not address the extent to which patients miss physical and social contact with their family members, or how this could be managed in future. While ethical considerations are crucial in deciding which forms of communication should be regarded most appropriate, other important considerations include data safety, resource distribution and information needs of patients and affected families.

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CRediT authorship contribution statement

Marie-Madlen Jeitziner: Conceptualization, Methodology, Validation, Data curation, Writing – original draft, Project administration. **Béatrice Jenni-Moser:** Conceptualization, Methodology, Validation, Formal analysis, Writing – review & editing. **Bjoern Zante:** Conceptualization, Methodology, Validation, Formal analysis, Writing – review & editing. **Katja Erne:** Conceptualization, Methodology, Validation, Formal analysis, Writing – review & editing. **Maria Brauchle:** Conceptualization, Methodology, Validation, Formal analysis, Writing – review & editing. **Sarah A. Moser:** Conceptualization, Methodology, Validation, Formal analysis, Writing – review & editing. **Joerg C. Schefold:** Conceptualization, Methodology, Writing – review & editing. **Karin Amrein:** Conceptualization, Methodology, Writing – review & editing. **Magdalena Hoffmann:** Conceptualization, Methodology, Validation, Data curation, Writing – original draft, Project administration.

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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Clinical Trial registration number

Not applicable.

Ethical statement

The Swiss Ethics Commission waived the requirement for ethics approval (Req-2020-00501).

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