

# System of Psychological Support Based on Positive Suggestions to the Critically Ill Using ICU Doulas

**BACKGROUND:** Surviving critical illness often creates a lasting psychological impact, including depression, anxiety, and post-traumatic stress. Memories of frightening and delusional experiences are the largest potentially modifiable risk factor, but currently, there is no proven intervention to improve these inciting factors. Psychological support based on positive suggestion is a psychotherapeutic approach that can be provided even to patients in altered cognitive states and is therefore a viable psychotherapy intervention throughout the ICU stay. Traditional ICU care team members have limited time and training to provide such psychological support to patients. Doulas are trained supportive companions who have been effectively used to provide patient advocacy and emotional support in other clinical settings and may address this need. Our aim was to train and implement a psychological support based on positive suggestion program for the critically ill using doulas, and measure acceptance of this intervention through stakeholder feedback.

**METHODS:** Doula training included three objectives: an introduction to ICU practice structure and policies; education about fundamental aspects of critical care conditions and procedures; and didactic and hands-on learning experiences in effective use of psychological support based on positive suggestion in the critically ill. Doulas were evaluated at the end of their training and during subsequent clinical activities using competency-based assessments as well as through survey-based questions and interviews with key stakeholders.

**RESULTS:** The ICU doulas performed psychological support based on positive suggestion on 43 critically ill patients in the ICU setting. Stakeholder feedback from nurses, patients, and patient families was positive. The majority (28/32) of surveyed bedside ICU nurses reported that the doulas' involvement was helpful for both patients and nurses alike. All interviewed family members offered positive comments about the ICU doula presence and of the 40 patients who recalled the intervention 37 found it comforting.

**CONCLUSIONS:** Our program successfully trained two doulas to work effectively in the ICU setting performing patient-centered psychological support based on positive suggestion interventions. Their training improved their skill sets and was reported as beneficial by patients, families, and critical care nursing. This training program offers a proof of concept that could be applied in other medical centers, bringing doulas more commonly into the ICU practice to help humanize the experience for patients, families, and medical teams.

**KEY WORDS:** critically ill; doula; early psychological support; intensive care unit doula; positive suggestion; psychological support

Lioudmila V. Karnatovskaia, MD, FCCP<sup>1</sup>

Jason M. Schultz, DPT, MS, EdSp<sup>2</sup>

Alexander S. Niven, MD, FCCP<sup>1</sup>

Amanda J. Steele, MPH<sup>3,4</sup>

Brittany A. Baker, BS<sup>3,4</sup>

Kemuel L. Philbrick, MD<sup>5</sup>

Kathryn T. del Valle, MD<sup>1</sup>

Kimberly R. Johnson, MD<sup>1</sup>

Ognjen Gajic, MD, FCCM<sup>1</sup>

Katalin Varga, PhD<sup>6</sup>

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In the ICU, as with birth, there is more needed than just facts or education about procedures. We need people to talk to. We need someone to hold space. We need someone to listen. We need someone who is familiar with the great unknown that we are facing, who can help us through it—even if that just means giving us a safe place to cry.

—Sarah Clark, a Birth Boot Camp instructor and a doula (1)

Survivors of critical illness often suffer from long-term impairment in physical, cognitive, and psychological functioning domains collectively known as post-intensive care syndrome (PICS) (2). PICS is associated with increased rehospitalization rates, higher healthcare costs, and impaired quality of life (3, 4). Pioneering work in the early physical rehabilitation of ICU patients and systematic strategies for delirium prevention demonstrated improvement in physical and cognitive outcomes (5, 6). The prevention of psychological complications, however, has not been adequately addressed (7, 8). Anxiety, depression, and post-traumatic stress disorder affect over a third of all critical illness survivors postdischarge (9–12). The current pandemic is expected to only further increase the mental health burden of survivors and caregivers (13–15).

Memories of frightening and delusional experiences, especially during mechanical ventilation, appear to be the strongest potentially modifiable risk factor (9, 16). During critical illness, the thinking process changes, becoming literal and overly sensitive to direct and covert meanings of communicated messages (17, 18). Given this heightened suggestibility, a therapeutic approach called psychological support based on positive suggestions (PSBPS) was designed to communicate with the critically ill (19). PSBPS is a communication framework that can be used to inform the patient about the current condition, the planned therapy, and the possible outcome; it can actively involve patients into their care, improve cooperation with the staff and with the technical equipment (20). The usual “fight or flight” stress management can be tuned toward a more favorable “calm and connected” type by redefining the ICU as a safe place and healthcare providers as cooperative colleagues/supporters of the patient (instead of being seen as enemies) (20). This form of psychological support can be performed with patients regardless of patient’s participation level,

as semantic processing continues in an altered state of consciousness (20–22). In preliminary studies from Hungary, this intervention has been associated with earlier ventilation weaning and decreased need for sedative and analgesic medication (23–25) with early timing of the positive reframing intervention being the most important factor in predicting favorable outcomes.

Our pilot experience with intensivists providing early psychological support to mechanically ventilated patients found broad-based acceptance by patients, families, and staff but competing tasks precluded rigorous application of PSBPS (26). Limited availability and the high cost of clinical psychologists restrict their viability to fulfill this role. Therefore, we explored alternate options.

Lay healthcare providers have the potential to extend the reach of the medical team. The use of patient advocates occurs in many cancer centers (27). Doulas offer specific support skills by providing guidance, assisting mothers in labor to cover gaps in their care, building a team relationship, and facilitating communication between patients, nursing staff, and medical caregivers (28). Notably, the spectrum of emotional support doulas provide such as listening, speaking in a soft and soothing voice, providing companionship and a safe place to express emotions, and offering encouragement and social support is similar to PSBPS (1, 29). While doulas do not traditionally practice in the ICU setting, expansion to the ICU has been discussed in the literature with practical recommendations on such a transition (30). The purpose of this study was to develop a system to effectively train doulas to deliver a standardized program of PSBPS in the ICU setting and to evaluate their acceptance in the ICU via stakeholder feedback. Two individuals (A.S., B.B.) from MedCity Doulas, with combined 15 years of experience, agreed to undergo training for this pilot program.

## MATERIALS AND METHODS

The study was approved by the Institutional Review Board (17-008755) and registered on ClinicalTrials.gov (NCT03736954) prior to the first patient enrollment.

### ICU Doula Training

Current training to become a doula generally consists of an intensive 2–3 day seminar that includes hands-on

practice of skills measures (30). The method for ICU doula training we developed applied to individuals who already had experience working as doulas and was not intended to train someone who has not had prior doula experience. Specifically, we identified three key learning objectives: 1) orientation to the structure and workflow of the ICU, 2) development of a basic fund of medical knowledge specific to the ICU practice, and 3) mastering application of PSBPS in the ICU setting.

Each doula participated in a comprehensive training program that started with a detailed introduction to the ICU. Each doula rounded with ICU teams on two separate occasions to observe patients in this setting, learn team roles and responsibilities, and listen to treatment plans. They were encouraged to ask questions about the equipment they saw. Doulas also received instruction on critical care unit protocols, safety measures, infection control, and hygiene measures via online education modules. Doulas were also instructed in the use of “Ask Mayo Expert,” an online medical reference resource, to familiarize themselves with common ICU conditions in addition to discussions on rounds.

Doulas also had lectures on a broad range of common ICU topics and procedures. Lessons were designed by the reviewer (K.T.d.V.), with the assistance of the reviewer (L.V.K.) and input from intensivists from multiple specialty backgrounds and given in-person by the reviewer (L.V.K.) to allow for interactive discussion. The lecture material intentionally

used minimal medical jargon and as many lay terms as possible to facilitate both comprehension and use of these concepts by the doulas with their patients during future PSBPS sessions.

A curriculum and virtual classroom was developed through collaboration between the reviewers (L.V.K., K.V.), an expert in positive suggestion who also has experience working with doulas (31). Suggestion training included a flipped classroom model with a series of recorded presentations using an established curriculum of topics designed and delivered by the reviewer (K.V.) to train a variety of diverse audiences (**Table 1** for covered topics) (32). These brief, 20–30 minute snippets included supporting examples and recorded hands-on demonstrations. Each doula participant completed all workshops, reinforced by reading assignments done prior to each workshop and also by reading selected chapters in two books edited by the reviewer (K.T.V.) (33, 34), followed by practical exercises supervised and evaluated by the reviewer (L.V.K.).

Following completion of above training, the doulas began practicing PSBPS by role-playing with each other. Practice sessions were up to 20 minutes for each clinical scenario, with each doula doing every scenario at least once. Scenarios were representative of the most common anticipated patient interactions and represented various stages of the previously described intervention (26). Once the doulas felt comfortable with the PSBPS techniques, they returned to the ICU, and after obtaining patient or family member permission,

**TABLE 1.**  
**Psychological Support Based on Positive Suggestion Training Topics**

Lecture 1	Introduction: the nature of suggestions and fields of application
Lecture 2	Main studies in various fields of medicine using suggestive techniques
Lecture 3	Types, forms, definitions of suggestions. Suggestion vs hypnosis
Lecture 4	Altered states of consciousness and rapport formation. Alternative and dominant cognitive styles
Lecture 5	Laws and principles of suggestions
Lecture 6	Suggestive techniques, metaphors, and symbolic language
Lecture 7	Critically ill—working principles
Lecture 8	Special needs of ICU patients. Suggestions in emergency situations
Lecture 9	Suggestions in critical states: cases
Lecture 10	Prevention of burnout, managing emotional involvement of healthcare professionals

provided a supportive intervention to patients while the reviewer (L.V.K.) observed. The reviewer (L.V.K.) provided formal feedback following each session on PSBPS techniques and hand hygiene/appropriateness of isolation techniques. Feedback sessions were done immediately after each patient encounter where doulas were asked to reflect on how the session went, on what went well, and what could be improved. This was followed by the reviewer's (L.V.K.) impressions and then a plan was made with how areas of improvement would be acted upon going forward.

### ICU Doula Evaluation

To ensure fidelity of the training course, doulas next practiced PSBPS while being filmed on a simulated patient (J.M.S.) who provided interactive formative feedback as a "patient." That recording was reviewed once before the start of PSBPS course and once following its completion. Video recordings of the doula practice sessions was shared with the reviewer (K.V.) who provided summative feedback and grading based on the rubric designed for grading of the PSBPS skills (Table 2). Of the listed skills, cadence/pace, positive yet realistic reframing, optimistic future orientation, and affective self-reflection following the interactions were deemed most crucial. Since neither of the doulas scored in the "poor" range on any of the skills following training completion, they were next able to practice in the ICU unsupervised. After doulas followed the first 10 patients each for their entire ICU course, doulas had another recorded session with the mock patient (J.M.S.); the reviewers (J.M.S., K.V.) then provided further feedback using same grading rubric.

### Participants

Participants were critically ill patients in a medical ICU requiring vasopressor support or mechanical ventilation. Inclusion criteria included adults (age > 18) admitted to the ICU, expected to stay greater than 48 hours, and able to answer questions. Exclusion criteria included a history of dementia or other mental disability; suicide attempt; psychotic disorders such as schizophrenia; recent (within 6 mo) ICU stay; incarcerated; acute alcohol/substance intoxication or withdrawal; severe metabolic encephalopathy; status epilepticus; patients on comfort care; patients not expected to survive the hospital stay; and non-English

speaking. Additional participants included family members and bedside nurses who witnessed the intervention and were willing to answer questions about it.

### Analyses

The additional evaluation was structured on the basis of the Kirkpatrick model (35) with the following identified levels: level 1 (reaction)—feeling of learners; level 2 (learning)—performance feedback; level 3 (behavior)—subjective impressions of nurses; and level 4 (outcomes)—patient/family feedback and satisfaction. A neutral third party obtained qualitative stakeholder feedback from bedside nurses, patients, and their family members. Qualitative questionnaires were designed by the reviewers (L.V.K., K.L.P.) and consisted of open-ended questions. Bedside nurses who were present during the ICU doula intervention completed questionnaires asking for their positive and negative impressions as well as whether communication with the ICU doula was helpful to them or not and how. Patients who received the intervention were approached following ICU transfer and asked whether they recalled the ICU doula providing explanations of aspects of their hospital course, whether they found it helpful, and how. Families who were present during the intervention were also asked for feedback what they liked or disliked about the intervention, whether ICU doula presence was helpful to them or not, and how.

## RESULTS

Doula performance improved from mostly in the good range following first standardized evaluation to mostly in the excellent range as assessed by the grading rubric by the second feedback session. Doulas reaction to their performance and skills improved dramatically with practice: they both felt insecure during the initial bedside feedback, more confident following the initial recording/first formal feedback session, and at ease/comfortable with their skills by the second formal feedback session after actually performing PSBPS on 10 study patients each.

Thirty-two bedside nurses provided feedback. No demographic data were collected on the nurses to facilitate complete anonymity of responses. When asked about what they liked about the doulas' involvement, all offered positive comments about the intervention.



Qualitative data are organized by themes with representative examples provided in **Table 3**. When questioned about what they did not like, 34% (11) provided comments, including that positivity may not always

reflect reality; that it may overstep the nurse's role; that the intervention should be longer; and some recommended better coordination with nursing shift changes. When asked whether communicating with

**TABLE 2.**  
**Grading Rubric**

Skill	Poor	Good	Excellent
Tone/ca- dence	Not all words are legible, tone is rushed	Speech is clear, tone is calm	Speech easy to hear and all words are legible, tone is calm and reassuring
Rhythm/ pace	Speaks at a normal pace without awareness that sedated patients may need longer time to process speech	Speaks at a slower pace than normal	Speaks at a slower pace than normal. Pauses in between sentences
Rapport manage- ment	Does not observe patient's response if any, does not address patient by name	Manages rapport building: e.g., by Using patient's name in communication	Handles rapport formation, maintenance and termination well. E.g., by uses patient's name in communication. Uses "we" language, introduces colleagues
Active in- volvement, providing sense of control	Speaks to patient as passive recipients of treatment	Speaks patient (including sedated or comatose patients) as active recipients	Emphasizes that patient is a key part of the treatment team. Explains what patient can do to help the team and what patient can do during a procedure to make sure it goes smoothly if applicable. Provides choices whenever is possible
Positive (but realistic) language	States "you are safe" without additional explanations	Uses suggestions of safety such as "catheter is increasing the safety and comfort"; some suggestions are formulated well	Uses situation-specific suggestions of safety and expands them to the treatment team; well-formulated suggestions
Future orientation	Forgets to discuss temporary nature of things that cause discomfort in the ICU. Does not discuss future goals	Emphasizes that endotracheal tube/other limitations are temporary	Emphasizes that endotracheal tube/other limitations are temporary, explaining their role from the perspective of treatment/future recovery. Provides patient with suggestions on recovery, talks to the patient about the day when they would recover and do something they really look forward to doing
Suggestive techniques	Does not apply suggestive techniques. The text is purely informative, based on "dominant mode of consciousness"  Does not recognize the negative suggestion in the communication	Applies some techniques, but mostly for the sake of implying the technique. The focus is not on the "message" but the technical elements of the communication	Applies flexibly many techniques (yes-set, metaphors, reframing, implication, illusion of alternatives, modeling, etc.). The communication is flexibly moves on the continuum of "dominant-alternative" modes of consciousness

(Continued)

**TABLE 2. (Continued).  
Grading Rubric**

Skill	Poor	Good	Excellent
Reframing conditions	Forgets to discuss the reason for ICU admission. Forgets to reframe essential aspects of care (endotracheal tube, machine noises, etc.). Does not preframe upcoming procedures	Discusses reason for ICU admission. Reframes some not all aspects of care and sounds. Preframes upcoming procedures	Discusses reason for ICU admission. Reframes basic facts, procedures, lines, medications. Lists multiple sounds when reframing ICU environment; links sounds to the care team and suggestions of safety. Preframes upcoming procedures including the reason why they are important
Touch	Does not warn the patient or ask permission before touching them	Provides touch once rapport has been established but does not inform the patient	Provides touch once rapport has been established and informs the patient that she would touch their hand if ok. Uses touch appropriately for rapport maintenance
Communication patterns	Introduces self by name, does not use phrases that would be used in a normal conversation such as “thank you,” “good morning,” and so on	Introduces self by name, occasionally uses routine phrases that would be used in a normal conversation such as “thank you,” “good morning,” and so on	Introduces self by name and function, routinely says “good morning,” “thank you,” “please,” and “good bye” even when patient is sedated
Self-reflection	Does not reflect on the impact of the process on herself	Briefly reflects on the interaction	Regularly and appropriately reflects on the emotional aspect of the process (“detached concern”). Manages evoked emotions well. Asks for supervision if necessary
Overall impression	Not yet advised to communicate with the critically ill	Ok to interact with patient while being aware of the areas that need improvement	Ready to interact with the critically ill, speaking from the heart and not just repeating a model text

the ICU doula was also helpful for the nurse, 81% (26) answered yes. Of the six respondents who did not find the intervention helpful to nurses, only two elaborated on why, explaining that the intervention appeared redundant to the care nurses already provide. Notably, most comments centered on the very skills a priori deemed most relevant—cadence/pace coupled with positive yet realistic reframing—with major themes being soothing/relaxing to the patient with patient-focused positive conversation (44% or 14 responses).

Forty-three patients with a median age of 67 (interquartile range [IQR], 58–74); 58% male, received the intervention for a median of 4 days (IQR, 3–5 d) with each session lasting a median of 20 minutes (IQR, 14–25 min). Median Acute Physiology and Chronic

Health Evaluation III score was 91 (64–106); 29 patients required mechanical ventilation for a median of 2.0 days (1.4–4.1 d). Median ICU length of stay was 4.5 days (2.9–7.3 d). All patients provided feedback. Ninety-three percent (40) recalled a doula explaining what was happening to them, and 86% (37) found this comforting. Sixty-seven percent (29) remembered their hand being held; of those, 28 reported it as comforting. When asked what made them feel better while in the ICU, 79% patients (34) recalled specific aspects with themes and representative responses summarized in **Table 4**; others had no factual memories. Nine family members who had witnessed an interventional session also provided feedback; no demographic data were collected on family members. When asked what

**TABLE 3.**  
**What Nurses Liked About ICU Doulas**

Themes (No. of Responses)	Specific Examples
Soothing/relaxing for patient (14) and nurse (1)	Her voice was soothing, and her words were calming  The tone was very soothing. She took the time to explain what was going on to the patient which is not always something we are good about doing. It provides something that is hard to do when we are busy  Soothing, relaxed the patient and me, reassured the patient
Positive/compassionate conversation focused on patient (10)	I loved she was telling him he is safe and he has a support system  I liked how positive the conversation was
Explaining the situation/re-orienting patient in terms patient can understand (8)	The doula talking to the patient at the patients level  It is extra reassurance for the patient, and they take the time to re-explain what is going on  I think it is great to take time to have therapeutic communication at the bedside  Explained what was going on in terms that patient could understand
Additional support by another team member to off load this task when nursing is busy (4)	Patients in these circumstances need more personal interaction. Very nice to see  Great to have someone in the room with time only dedicated to visit with the patient especially on busy shifts  It felt good to have the support of another team member talking to the patient and re-orienting her
Patient appreciated and enjoyed it (2)	Patient did not have any visitors all day and appeared to enjoy talking with someone  Very calming effect—could tell patient enjoyed the doula
Allows to complete other tasks (2)	Took the time to sit down with my vented patient to explain things. Helped me as the Registered Nurse get things done
New ideas on how to better verbalize care and why for nurses (1)	Gives me ideas about how to better verbalize the cares I do and why they are happening

they thought about the intervention, all offered positive comments. Family members were also asked if the doula interaction was helpful to them, and again all responded positively. Representative themes are provided in the Table 4. Again, patient's open-ended responses centered on themes of being comforted and positive interactions/reassurance (all responses), which reflect the main skills expected of the course participants, namely of establishing the right tone/rhythm while providing positive reframing. Of note, the skills of optimistic future orientation and affective self-reflection were assessed during feedback sessions.

Notably, one study patient was in the ICU for almost a month while on mechanical ventilation and received daily intervention by the doulas for the first 2 weeks. At that point, family approached the study team and asked for the intervention to be discontinued because they did not feel it was helping the patient and did not like what they interpreted as the doulas "talking down to the patient," saying that the patient was very independent at baseline and would never want someone to explain things to her in that much detail. Patient was therefore withdrawn from the study and the intervention discontinued. She eventually underwent

**TABLE 4.**  
**Patient and Family Feedback on ICU Doulas**

Patient Perspective Themes (No. of Responses)	Specific Examples
Positive interaction with team/feeling cared for (15)	Starting to feel better, caring people, holding hands Everyone was very helpful and attentive Help from the care team
Being comforted/feeling secure (8)	Talking with me, showing empathy, care, holding my hand Feeling more secure about living ability Very, very comforting. They kept up to date on what the plan was and what was happening
Reassurance/explanations of medical course (5)	Both doulas and staff. More doulas than staff. That connection helped put me at ease and feel less frightened People explaining things
Family perspective—what they liked (number of responses)	They were very compassionate Very calming soothing talks, great explanation of events Soothing, comforting, informative from a nonmedical person All aspects of it (3) Liked them spending time in their visits with us when he was sick Helped to understand what was going on They focused on helping him with his anxiety—talking about his breathing and being safe!
Family perspective—how communication with doula helped you	Did a nice job of answering questions or finding answers of questions Was good to hear how he was able to answer that his memory is okay They explained things and helped Ron and me get through this difficult time Reassurance Helped with dad's anxiety. They had a bad nurse one day, and Amanda went in and gave them hugs and that really helped them Provided comfort for my mom Everyone is so nice and polite. The team had the decisions made were done in front of the patient. That transparency was very helpful for his recovery Showing a very caring team approach to care

tracheostomy and was transferred to the respiratory care unit for further weaning. Once the patient became more alert, she was asking who it was that spoke to her daily and found out from her nurse that she was enrolled in the ICU doula study. Patient then asked to speak with the doulas to give them a personal “thank

you.” The author (B.A.B.) went to visit with the patient and then wrote the study team the following email: “Visited per patient request, her feedback gave me goosebumps! When I introduced myself, she said: ‘oh you’re “the voice”! When I’d hear that voice, I knew I was not alone. You gave me hope, I knew I was safe,



and I don't know if I would have made it through this without your reassurance. The way you spoke, I could understand what was happening to me and I could fill in the missing pieces. It was an out of body experience. It was like I was standing on the other side of that door, looking at my body lying in an empty room on a white cot made of light. When I'd hear that voice telling me where I was and what was happening all the pieces would fill in. I could then see the machines and the staff, and I realized I wasn't dead.' Apparently her first words were directions for her husband to contact a client about a pending real estate transaction and she credited us for her memory and mood. She described having an 'out of body experience,' that the sound of our voices let her fill in the 'missing pieces of the story' and 'gave her hope to stick with it.' She profusely thanked us and asked me to share her experience with the rest of the team."

## DISCUSSION

Our system to train experienced doulas to provide standardized PSBPS in the ICU setting appears to be effective based on doulas' progress in the grading rubric and stakeholder feedback themes. The presence of ICU doulas was also well accepted by the nursing staff, patients, and their families.

Doulas have been known to practice outside the birth setting: for example, death doulas have been trained to provide personalized care to patients at the end of life (36). Doulas' training to be empathic, emotionally involved, and to serve as social support makes them particularly well-suited to the ICU setting traditionally lacking such an atmosphere. While the complex, technology-driven environment can feel comfortable to the intensive care providers accustomed to it, to the distressed, ill, vulnerable, and heavily medicated patients, the experience may seem frightening and "reminiscent of hell" (18, 37, 38). One of the biggest challenges faced by patients in the ICU—particularly those undergoing noninvasive or mechanical ventilation—is the inability to communicate, which can be very traumatic (39). Another major challenge is the experience of loss of one's humanity when treatment is focused on an "object" rather than the "person" (40). Doulas trained in PSBPS can provide a timely psychological support intervention to patients in real time, and their interactions are geared

to both provide better communication and humanize patients' experience (41).

Stakeholder feedback reflects acceptance of the intervention by nursing, patients, and families. Lack of physician feedback limits inferences one can make on whether trained ICU doulas can also facilitate communication between patients, families, and the care team. This would be important to measure in subsequent trials of the intervention as most critical care providers agree that the lack of communication with mechanically ventilated patients affects patient care negatively (42). As the application of PSBPS previously did result in a decreased need for sedatives and analgesics (25), perhaps the presence of doulas at the bedside can also decrease the need for centrally acting medications, thereby potentially reducing the rate of delirium (43); this too would need to be evaluated in subsequent trials.

Another potential role of ICU doula that can be explored further is whether ICU doula presence on the team could favorably affect physician burnout. Several pathways are possible: by working as an additional liaison between patients, family members, and the care team, ICU doulas could be well-positioned to strengthen these, sometimes strained, working relationships. Additionally, the knowledge that patients are receiving adequate psychological support could provide comfort to clinicians who otherwise may feel frustrated by not fulfilling this vital part of patient care personally. Last, the ICU doulas' presence could lead to cultural changes in ICU with renewed and increased focus on the humanization of patients' ICU experience. Burnout would be therefore a great outcome measure to add to a subsequent longitudinal study.

In designing and implementing the program, we observed that with continuous structured feedback doula's performance steadily improved with each session. Incorporating reflection, what went well, and what could be improved into each feedback session with trainee and trainer both contributing helped establish collaborative atmosphere. The program can be expanded to training ICU doulas at other centers interested in this model with minor modifications. Specifically, ICU orientation video can be made to accomplish the first learning goal with additional site-specific orientation to be provided at each location. For the basic knowledge fund objective, the lectures can be delivered in a virtual format that would allow for the interactive discussion. Application of PSBPS

in the ICU setting lecture materials can similarly be transitioned to a virtual platform; same can be done for the initial practice sessions. Formative feedback sessions with a mock patient would have to be done in person and can be provided by trained doulas; as those sessions can be videotaped, summative feedback can then be performed upon review of the recordings. While initially summative feedback may require an independent reviewer, with time and practice, this role can likely be transitioned to experienced ICU doulas.

We are unable to infer if the presence of trained doulas at the ICU bedside may lead to unintended consequences, for example, over reliance of the medical team on a Doula to assume responsibility for patient/family communication. Therefore, it would be important to clarify a priori in any future studies that the role of the doulas would be to communicate in addition to, not instead of, what is currently being done by the medical teams. Another potential concern is whether mixed messaging may be understood by family when hopeful positive talk might stand in opposition to the medical team's message of poor prognosis. From our experience with the PSBPS approach, the latter concern is less likely because any given situation (up to dying) can be communicated in context of good rapport, acceptance and trust that could support coping with bad prognosis and/or situation. Thus, PSBPS can potentially help clinicians to learn a new way of supporting patients and families.

One study limitation includes its single-center design. Additionally, we trained only two very experienced doulas, which limits the conclusion that most doulas who wish to transition to the ICU setting would do so as smoothly. Feedback from physicians was not obtained as originally planned as there was not a single instance where a physician was at bedside to witness the intervention and thus give feedback. Strength of the study was the reviewer's involvement (K.V.) in the training and assessments of the ICU doulas. As the original author of the PSBPS technique, her guidance provides external validation for the fidelity of doulas' abilities in performing PSBPS. The study also obtained involved stakeholder feedback to identify common themes in responses and provide guidance on future iterations for implementing the intervention.

This research is innovative and offers a potentially viable alternative to the lack of dedicated mental health professionals in most ICUs. ICU doulas may represent a more cost-effective means to deliver psychological support to ICU patients than implementing

psychologists or psychiatrists. Furthermore, given nationwide doula presence, it may be feasible to create a trained ICU doula network, making the intervention generalizable and widely available.

## CONCLUSIONS

PSBPS is a unique approach that has a potential to humanize the patients' critical illness experience. We have demonstrated both successful training of ICU doulas in this technique and stakeholder acceptance of the intervention. Testing this promising intervention on a wider scale with a randomized treatment arm to evaluate its efficacy is therefore warranted.

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- 1 Department of Medicine, Mayo Clinic, Rochester, MN.
- 2 Department of Physical Medicine and Rehabilitation, Mayo Clinic, Rochester, MN.
- 3 MedCity Doulas, Doula Agency, Rochester, MN.
- 4 Anesthesia Clinical Research Unit, Mayo Clinic, Rochester, MN.
- 5 Department of Psychiatry and Psychology, Mayo Clinic, MN.
- 6 Affective Psychology Department, Eötvös Loránd University, Budapest, Hungary.

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Address requests for reprints to: Lioudmila V. Karnatovskaia, MD, FCCP, Division of Pulmonary and Critical Care Medicine, Mayo Clinic, 200 First Street SW, Rochester, MN 55905. E-mail: Karnatovskaia.lioudmila@mayo.edu

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