



Case Report

Near-death experience: memory recovery during hypnosis

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ABSTRACT

Increasing numbers of research studies have offered evidence regarding awareness of verified events during near-death experiences (NDEs) occurring during cardiac arrest and severely impaired brain function. The prevalence of patients reporting core NDEs under these conditions is reported as 10–12 %. One question that is often asked is why this percentage is low. Though it may be hypothesized that NDEs are limited to this low percentage of patients, it is also possible that more patients experience an NDE, but that memory is impaired sufficiently such that the NDE is not recalled. In this article I present a detailed and extensively verified case study of a woman, Stephanie Arnold, who experienced an NDE during the birth of her second child when she was 41 years old. The data provide evidence that supports the hypotheses 1) that during cardiac arrest an NDE may occur, but not be remembered until hypnotic regression therapy reveals extensive details of the events that could not have been perceived with the five senses, both in the operating room and elsewhere during resuscitation. 2) that there may also be pre-cognition of the events leading to the cardiac arrest, reported in clear detail, and 3) that NDEs lead to a fundamental transformation in an individual's understanding of the nature of consciousness, their quest for meaning and purpose, their concern for others, and their appreciation of life.

Introduction

Near-death experiences have been reported throughout recorded history^{1–4} with prevalence of reports increasing during the last 30–40 years, due in part to increased survival rates with modern technology.^{5–7} NDEs occur in a variety of situations, including cardiac arrest, coma, and other traumatic physical incidents.^{6–8} There are a variety of mechanisms proposed to explain the origin of the experiences, including physiological changes in the brain.^{6–7} However, there is increasing evidence from prospective studies of individuals with cardiac arrest,^{6,7,9,10} reporting verified visual and auditory perception of events happening both in the resuscitation room and at a distance.^{6–9,11–15}

Memories of NDEs have been reported to occur in about 6–23 % of cardiac arrest survivors, depending on the study.^{6,7,9,13,16} It has been proposed that the low percentage of patients with NDE-related memories is possibly due to their being unable to access memories related to the event. Interestingly, one study by Parnia and colleagues, reported:

"39 % of 140 cardiac arrest survivors described a perception of awareness without any explicit recall.... Thus, some people may have had consciousness/awareness during cardiac arrest, but subsequently forgotten their experiences when asked to recall them."⁸

Parnia proposes that there may be a "larger iceberg of memories" beyond those that patients normally access in relation to explicit recall, and that enhanced methods may be more suited for exploring the range of awareness during these events.^{7–8}

The case study reported here is a verified case of a woman, Stephanie Arnold, who experienced an NDE during the birth of her second child and gained access to her NDE only during **hypnotic regression sessions shortly after the event**. It addresses the hypothesis of Parnia, that enhanced methods may allow access to memories beyond those normally available through explicit recall. This case provides additional evidence that supports the hypotheses that 1) NDEs may occur in a larger portion of the population than originally verified; 2) that during NDEs individuals have perceptual experiences not possible according to the framework in which consciousness is solely produced by the brain, and 3) that NDEs lead to fundamental transformations in an individual's understanding of the nature of consciousness, and broad life changes, including an increased appreciation for life and concern for others.

Methods

After hearing of Stephanie Arnold's NDE,¹⁷ the author, Marjorie Woollacott, contacted her and asked if they could explore the details of

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her case, and the use of hypnotic regression therapy in bringing memories of the events during cardiac arrest and afterwards to conscious memory. She agreed, and they discussed details of the events, as well as subsequent transformational changes in her life during an hour recorded call. She also completed the Mystical Experience Scale,¹⁸ the Spiritual Transformation Scale¹⁹ and the Life Changes Inventory,²⁰ having already completed the NDE Scale.²¹

Arnold also shared with Woollacott her own unpublished written narrative of the events which had been submitted to the Bigelow Institute for Consciousness Studies (BICS), which includes excerpts from transcripts of videos recorded while under hypnosis,²² while Robert and Suzanne Mays shared transcripts of their own interviews with Arnold.²³

Arnold is a Caucasian female, who at the time of the interview was 52 years old. She received her Bachelor of Science in Communication from the University of Miami and then worked as a producer of documentaries and television programs. It was on May 30, 2013, during the birth of her son, that she had cardiac arrest.

For the recorded interview, on July 11, 2023, Arnold and Woollacott connected on Zoom and Arnold completed the described scales/inventories.^{24–30} This information was supplemented with that from previous recorded interviews with hospital personnel, recorded hypnotic regression sessions, and additional documents that were created during the years following her NDE.

Results

Arnold’s NDE scale responses and scores are shown in Table 1. For the NDE scale her score was 23 out of a possible 32 (a score of 7 or higher suggests that the individual experienced an NDE). This is a substantially higher score than that of 230 NDErs (mean:15.1 ± 6.7) from a previous study by Greyson and Khanna.¹²

The following paragraphs are taken from Arnold’s narrative about her experience. They summarize the circumstances of the NDE, followed by the narrative of the contents of her experience and the verification of the experience by identified medical personnel.

The NDE occurred on May 30, 2013, when Arnold was 41 years old and experienced cardiac arrest during the birth of her second child. Her case has many remarkable aspects. First, starting in the third month of her pregnancy she began having premonitions about the birth, which she discussed with her doctors, and which were mainly dismissed, due to lack of sufficient evidence, according to the doctors’ diagnostic tests. However, the events related to her premonitions did unfold. Second, after her cardiac arrest, caused by an amniotic fluid embolism (AFE) and a subsequent 6-day medically induced coma, she had no memory of anything that happened during or surrounding her cardiac arrest. However, during a sequence of recorded hypnotic regression sessions a few months after the cardiac arrest, the events surrounding the cardiac arrest were recalled in great detail, including many incidents that would not be physiologically possible for her to have perceived through her five senses. These were verified by the hospital staff in subsequent recorded interviews..

Events leading up to the cardiac arrest, amniotic fluid embolism and medically induced coma

In 2012, Stephanie became pregnant with her second child. She says, "I was at a prenatal checkup when the radiologist poked his head in after the test and said, 'You have a complete placenta previa (a condition in which the placenta blocks the cervix). As the uterus grows, it might move out of place. If it doesn't, worst-case scenario, you will have a C-section' "²² (p 6)

She describes her experience later that night, as she researched the condition.

"Then, as if I were watching a movie on my computer screen, I saw a flash and my future unfolded. I saw myself on the operating table. I saw

Table 1
Stephanie Arnold’s Greyson scale results.

TOTAL NDE SCALE SCORE: (Sum of 16 items) = 23	
A score of 7 or higher is considered a NDE for research purposes. (answer to the left of individual questions, below)	
2_ 1. Did time seem to speed up or slow down?	0 = No 1 = Time seemed to go faster or slower than usual 2 = Everything seemed to be happening at once; or time stopped or lost all meaning
1_ 2. Were your thoughts speeded up?	0 = No 1 = Faster than usual 2 = Incredibly fast
0_ 3. Did scenes from your past come back to you?	0 = No 1 = I remembered many past events 2 = My past flashed before me, out of my control
1_ 4. Did you suddenly seem to understand everything?	0 = No 1 = Everything about myself or others 2 = Everything about the universe
1_ 5. Did you have a feeling of peace or pleasantness?	0 = No 1 = Relief or calmness 2 = Incredible peace or pleasantness
1_ 6. Did you have a feeling of joy?	0 = No 1 = Happiness 2 = Incredible joy
1_ 7. Did you feel a sense of harmony or unity with the universe?	0 = No 1 = I felt no longer in conflict with nature 2 = I felt united or one with the world
2_ 8. Did you see, or feel surrounded by, a brilliant light?	0 = No 1 = An unusually bright light 2 = A light clearly of mystical or other-worldly origin
2_ 9. Were your senses more vivid than usual?	0 = No 1 = More vivid than usual 2 = Incredibly more vivid
2_ 10. Did you seem to be aware of things going on elsewhere, as if by extrasensory perception (ESP)?	0 = No 1 = Yes, but the facts have not been checked out 2 = Yes, and the facts have been checked out
1_ 11. Did scenes from the future come to you?	0 = No 1 = Scenes from my personal future 2 = Scenes from the world's future
2_ 12. Did you feel separated from your body?	0 = No 1 = I lost awareness of my body 2 = I clearly left my body and existed outside it
2_ 13. Did you seem to enter some other, unearthly world?	0 = No 1 = Some unfamiliar and strange place 2 = A clearly mystical or unearthly realm
2_ 14. Did you seem to encounter a mystical being or presence, or hear an unidentifiable voice?	0 = No 1 = I heard a voice I could not identify 2 = I encountered a definite being, or a voice clearly of mystical or unearthly origin
2_ 15. Did you see deceased or religious spirits?	0 = No 1 = I sensed their presence 2 = I actually saw them
1_ 16. Did you come to a border or point of no return?	0 = No 1 = I came to a definite conscious decision to "return" to life 2 = I came to a barrier that I was not permitted to cross; or was "sent back" against my will.

the doctors working feverishly on me. I saw Jonathan holding our newborn Jacob, who was fine. But I was not. I saw my mouth open and my body heavily placed on the operating table like a slab of meat, blood pooling under me. I was dead. I wasn't sure why I was seeing it, but I

Table 2

Arnold's Visual Premonitions regarding Delivery.

	Accuracy
Placenta previa would turn into placenta accreta	Yes
She would need a hysterectomy	Yes
The baby would be fine	Yes
She would be put under general anesthesia	Yes
She would bleed out	Yes
She would have cardiac arrest and be clinically dead	Yes

immediately felt that the "vision" was real.²² (p 6)

A day later, Arnold had another vision. "I was seeing inside myself as blood started to ooze and pool and hemorrhage. I saw blood coming out of my veins and pouring out over my uterus and running down the insides of my legs."²² (p 7) In another premonition she saw in her mind's eye that she would need a hysterectomy, as she saw the uterus and placenta melding into one another, a condition called a placenta accreta.

In an attempt to alert the doctors to her concerns she made an appointment with the head of gynecological oncology. He suggested that the likelihood of a placenta accreta occurring was rare, but he suggested she have an MRI, to see if this might be the case. The MRI came back negative. However, her fears were not alleviated.

When she continued to tell her OB/GYN doctor, Dr. Levitt, of her visions, the doctor suggested she consult with the anesthesiologist, Dr. Lim. Dr. Lim became concerned, and flagged her file, creating a Plan "B" for the delivery that included extra blood, monitors, and a crash cart.

The events of the delivery, including cardiac arrest, AFE, and a medically induced coma

Though Arnold's Cesarean Section was scheduled for June 6th, on May 30th, she felt a full rush of blood, went to the hospital and was admitted for delivery. She said, "I remember someone putting soap on my belly where the place for the incision would be marked. And then they began."²² (p.13)

She gave birth to a baby boy, name Jacob, and then went into cardiac arrest due to a rare delivery complication, an amniotic fluid embolism (AFE) which caused anaphylactic shock, and cardiac arrest. She was clinically dead for 37 s before being resuscitated and then her body went into a second phase of AFE, in which the blood could no longer clot, due to disseminated intravascular coagulation (DIC). She said,

"I was given 60 units of blood and blood product over the next few hours to save my life, but I was on the edge. The doctors placed me in a medically induced coma. They transported me to the ICU, where I continued to hemorrhage. Several hours later, the ICU doctors determined I needed a hysterectomy."²² (p 14)

The doctors then paged the surgeon who she had met with during her pregnancy, regarding the possibility of a placenta accreta, and he performed the hysterectomy. They later discovered that there was a placenta accreta, as her premonition had predicted, though it wasn't visible from the MRI.

Thus everything Arnold saw in her visions during her pregnancy and warned the doctors about in advance, actually took place. Table 2 lists these, and their accuracy.

Post-NDE transformations: regression therapy

Events associated with an NDE are often described as being disorienting at first.²⁸ This was the case for Arnold, in that she became traumatized by the manifestation of her ability to predict these future events, and the fact that each of her premonitions was true. She asked herself,

"How and why had I seen my own death? Was there a deeper meaning to the premonitions? I knew I needed professional help, but

I also needed answers.... I was afraid of another premonition or a 'self-fulfilling' prophecy, as some have said."²² (p16)

Arnold decided to work with a hypnotic regression therapist to see if she might retrieve memories of the event. She said, "The goal of this type of psychotherapy is to retrieve memories of traumatic experiences and through insight and emotional release be able to gain physical, mental and emotional relief." She worked via internet with a therapist in Miami. She said, "I recorded many of our sessions in the beginning because I didn't know what I would remember if hypnotized and I wanted to share that information as accurately as possible." This is her experience:

Session 1

Linda told me to relax and try to get into a meditative state. All of a sudden I was whisked back to the OR just before the procedure. I saw my body on the table with the doctors preparing for surgery. My mouth was ajar, but no words were coming out of it. The doctors were "checking in" with me, telling me what they were about to do and asking if I understood, but I wasn't responding. I realized I was looking back at the moment when my spirit separated from my body. There I was, standing next to my body, trying to warn everybody in the operating room that I was about to die. Through the regression, Linda asked me if I could feel it as they cut into my belly.²² (p18)

"No," I said, "it's just a body. I don't feel anything. I also had the sense I wanted to remove myself from being there. I can't do anything. The baby is coming out, but it's too painful, too fearful. So I just separate. I go away while they do their job." (p 128¹⁷ ; p 19²²)

Linda asked me specifically what I saw when I separated from my body. "I was above it [my body], but I was next to it. So I was on my left side. I remember the EKG there." "Did you see anyone else in the room?" Linda asked. (p 19)²² "There was someone standing on my left side that was right next to the curtain. I just don't know who that person was. Dark hair. It could've been Nicole. It could've been the anesthesiologist."

Linda asked what it felt like when I separated. "I literally feel myself rip out of my body, and I'm standing next to the EKG unit. Next to me, on the other side, is Grace Lim, the only doctor who flagged my file." "Actually," I continued to explain, "I wasn't standing. I was floating a few inches above the floor. Then, amazingly, I floated out of the OR and down the back hallways to see [my daughter] Adina with Tessie, the nanny, in the labor and delivery room. Adina was playing with the blood pressure cuff, and Tessie was trying to get her to sit down and listen to a story. Adina was singing and dancing around and pretending she was the cartoon character Doc McStuffins. It made me laugh."

I had to go back to the OR and check in on "me" again. My listless body, with eyes open, was still on the table just waiting for them to start the operation.... I felt as if I was as light as a feather. The opposite could be said when I looked at my body on the table. I could feel the heaviness of my body on the operating table as life was getting sucked out of me. My body was just dying. "I just wonder if it was my grandmother [next to me]. Wow." I was shocked. Was Grandma Ida there? She had been dead for more than 30 years. It was at this point I became convinced I had not been alone, both before and during the entire ordeal. I had more questions going out of this session than I had coming into it. (p 20)²²

Regression Session 2:

Linda instructed me to go to the hospital in my next hypnotherapy and be there next to myself. I am an observer watching it all go down. Frame by frame. "So understand," she said, "you're there to be of assistance. This has already happened to a part of you. The other part of you is there to help her."

"I'm her eyes and ears because she's tuning out. It's hard because no one is paying attention to her, because they're focusing on their job, but they're not paying attention to her real fears....And they're saying: Patient; Arnold. Stephanie. Forty-one-year-old woman. Complete placenta previa. Blood on hand. O negative. Something about extra IV lines. Heart rate. Pulse. Give the numbers. I can't hear what they are. The time is? I don't know. And then the doctors do a roll call. "Dr Julie Levitt, obstetric gynecology. Dr, Nicole Higgins, anesthesiology."

I described how they painted my belly with soap and where everyone was standing. Then I watched as they started the C-section. "I don't feel anything. Dr. Higgins is down by my feet, which is odd because she controls my breathing. She should be up at the top, not down by the feet, but for whatever reason she's down there. I see them pulling apart the fascia, the muscles. I see it, but there's no hurt. I tell the Stephanie on the table, 'You are going to be fine. You're going to get through this.'" (p 22)²²

I watched Jacob coming out, he was fine and then, when they went back in for the placenta, I knew what was about to happen. I knew I had to warn myself that I was about to die. I looked up and saw what I can only describe as my spirit with a hand on top of the EKG monitor. *Tap, tap, tap.* Her finger was tapping to the beat of my heart-beat. *Tap, tap, tap.* It was getting louder. It was almost as if she was counting down to the flatline.

"I explain to Stephanie, 'it's going to happen very quickly, and I'm going to brace you, and I'm going to hold on to you, and I'm not going to let go.'" (p 145–146)¹⁷ (p 23)²²

The moment was terrifying....As I was recounting it to Linda, something made me thrust my chest forward as I was having a hard time breathing. I realized I was feeling the moment of my death. I watched as my spirit's finger slowed down to a final TAP, and I heard the beep from the monitor as I flatlined. I looked down at the table and saw my eyes roll back. "I heard them screaming. They say, 'Stephanie, Stephanie, Stephanie!' And Nicole runs to the head of the bed. 'She's turning blue,' she says, and the EKG machine goes flat and I'm done. I hear them say, 'Hit the button. Call the code.' They hit the button, and it seems like 40 doctors and nurses rush in and they're like, 'Get the cart.' They get it up."

I had to let go of Stephanie's hand when one of the nurses, who was very big and strong, pushed me out of the way so she could start compressions. Julie kept saying, "This can't be happening, this can't be happening." Nicole said, "It's an AFE, it's the only thing that can do this. She's in cardiac arrest." I saw a weird flash but was more focused on the chaos, which was at a fever pitch. Not only was I watching what was going on, but I could feel it, too, from two different perspectives.

Meanwhile, I noticed that nobody in the OR was talking to me. They were just treating me like a science experiment that had lost its electricity. I watched as Julie stood frozen in shock. I saw Nicole put a tube down my throat and got my breathing back. I gagged. I looked down at my C-section and saw blood pouring out. I felt them jabbing my arm as they put another IV into it and called for another blood bag. They cut into my side to put in another tube. The blood they were putting into me was pouring out of me seconds later. I was feeling lighter and lighter. I watched every detail as they brought me back to life. I could see my blood on Julie's face as she wiped her forehead and I could hear Nicole speaking very loudly and asking for different medicines. How was it possible to be back in the OR and see everything? Had Nicole really been at my feet and not where she was supposed to be at the head of my bed? And why did Dr. Levitt freeze? Was there any validity to what I'd seen? (p 24)²² (p 149–50)¹⁷

In one of her regression sessions, Arnold saw her husband Jonathan getting off the plane in Chicago, as he was trying to get to the hospital as

soon as he could. This would have been at about the time that Jonathan received a text from Dr. Levitt that "Jacob is fine. Stephanie is stable."

After hearing of Arnold's NDE, researchers Robert and Suzanne Mays asked Arnold about this perception of Jonathan during her regression session.³¹ Below is an excerpt from the interview:

They asked, "What did you perceive? Where was he?" She said, [He was] pushing his way out of a plane door. Like not even giving it a second thought. Normally he's very polite. Normally he is patient with other people and everything. But there was no talking with Jonathan, like he was on a mission. I saw him turning the corner, getting out of the plane. So maybe like three rows. So not all the way back. I think he was in economy, but from the way he was pushing through, where I saw him was in first class. (May 10, at 37:19)²³

These perceptions were corroborated in a subsequent recorded interview Robert and Suzanne Mays had with Jonathan Arnold:

[I] just literally rushed out the plane down to the waiting area for cars.... So, I was in the first or second row of coach as I recall.... And so, when the plane pulled up to the gate, I was one of the first people off.

Okay, so you're like really trying to get off the plane. Oh, yeah, I was trying to get to the hospital as fast as possible. (July 1, at 3:41–8:14).²³

Arnold also recalled,

As I struggled to process all that had gone on during that regression session, I started thinking about what else I saw in the OR. I'd seen Julie down by my feet, but she wasn't doing the delivery. I'd seen another doctor there cutting into my abdomen and helping to pull Jacob out. I thought I saw the gyn-onc resident do it. But if a curtain had been put up so I wouldn't see the C-section as it was happening, why could I see right through it to my feet and see this other doctor?

....I needed evidence. I needed to talk to some of my doctors who had been there with me through all of the months of foreboding. (p 149–150)¹⁷ (p 24)²²

Corroboration of events by clinical staff

Arnold decided to talk to the doctors and nurses who were present during her cardiac arrest about their own experiences of the event. She called Dr. Lim, the anesthesiologist and asked her why she had flagged the file after Arnold told her about her premonitions. She said, "It is rare for someone to tell me that they are certain, without a shadow of a doubt, about some bad feeling they have. You were calm but gravely concerned." (p 26)²²

She showed Dr. Lim the recording of her regression session. Dr. Lim responded:

It's powerful. Because I am reliving it myself and that activity that you did actually where your chest was coming off of the couch, is pretty much almost exactly what I saw. As I mentioned, it didn't look like a seizure the way I had seen seizures. It's difficult to describe it. A heave or something. Pretty much exactly what you did. (p 28)²²

Arnold called Dr. Nicole Higgins, her anesthesiologist for the delivery, and they scheduled a recorded call to examine the regression tapes. After seeing the tapes, Dr. Higgins said:

All I know is that she had knowledge of certain events and people and situations in that room that would've been impossible for her to know." (p 30)²²

Stephanie said,

"The responses of these doctors only strengthened my growing conviction that what I'd seen through regression was real, but I

Table 3
Veracity of Arnold’s NDE/Regression Session perception of events surrounding the cardiac arrest, and associated amniotic fluid embolism (AFE).

In the hypnotic regression sessions:	Verification
1. Just prior to surgery, Arnold saw her young daughter Adina playing with a BP cuff and pretending to be Doc McStuffins in a separate room, the labor/delivery room.	Tessie, the nanny, confirmed
2. Arnold saw another doctor, not Dr. Levitt, delivering Jacob.	Dr. Hyo Park, the resident, who delivered Jacob confirmed that she had delivered him.
3. During the delivery, Dr. Higgins (anesthesiologist) was standing at the foot of the operating table in the operating room instead of at her head.	Dr. Higgins and Levitt confirmed this. Higgins said she was at the foot of the operating table, as others were at her head, and she wanted a better view. Dr. Levitt said, "It's accurate down to where Nicole [Higgins] was, where I was."
4. Arnold saw Dr. Lim in the operating room, standing next to the EKG, though she was not scheduled to be there.	Dr. Lim confirmed that at the last minute she decided to attend Arnold's delivery.
5. Just before cardiac arrest, Arnold felt and saw herself thrust her chest forward as if gasping for breath, then heard the beep of the cardiac monitor before she flatlined.	Dr. Lim confirmed how Arnold looked when she thrust her chest out, gasping for breath, just before she flatlined.
6. Arnold saw a brunette nurse push the code button.	Dr. Higgins verified this.
7. Arnold saw Dr. Higgins put a tube down her throat to get her breathing back.	Dr. Higgins confirmed she intubated Arnold.
8. Arnold saw one of the nurses, who was very big and strong, starting compressions (she recognized her a year later when meeting her for the first time and said, "You were the one who broke my ribs").	Nurse Jessica confirmed this.
9. Arnold saw Dr. Levitt standing frozen.	Dr. Levitt confirmed, she was both in shock and waiting for Dr. Higgins to get Stephanie back online before she could close up the C-section.
10. Arnold heard Dr. Levitt saying, "This can't be happening; this can't be happening."	Dr. Levitt confirmed this.
11. Arnold saw that blood was pouring out of the C-section. 12. She then saw them cutting into her side [and putting in another drainage tube].	Dr. Levitt said, "Exactly as it happened, you recounted it in detail, and blood pooling up and I couldn't close you right away and making a drain and waiting in the OR."
13. Arnold saw two crash carts in the operating room, not one.	Dr. Hyo Park confirmed: the first didn't work, so they had to bring in a second.
14. Arnold described the exact circumstances of her husband exiting the plane after landing in Chicago, while she was under anesthesia in the delivery room.	Her husband, Jonathan Arnold, confirmed the circumstances.

continued to try and get more validation.... I asked Tessie, my nanny, about the time she spent in the labor and delivery room with Adina. She confirmed that Adina played with the blood pressure cuff and that she had pretended to be Doc McStuffins.

Lastly, I wanted to talk to Julie, my OB/GYN. I showed her the tape, and she started to cry. When it was finished, she spoke with both a shaky voice and an unbelievable sense of enlightenment. "It's accurate down to where Nicole was, where I was. Exactly as it happened, you recounted it in detail, and blood pooling up, and I couldn't close you right away, and making a drain, and waiting in the OR." I asked her whether she had said, "This can't be happening, this can't be happening," as I'd heard. "I don't know whether I said that under my breath or in my head," she responded, "but I definitely said it." She also corroborated her "frozen" state. She explained that, besides being in shock herself, she'd had to wait for Nicole to finish getting me back up on-line before she could do her job and close me up. So she just stood there.

Julie said, "I was amazed, because it was something that I didn't have any expertise or knowledge of, or had seen any kind of regression therapy. But when she was describing what she saw outside of her body and what she observed with the team and the conversation that was going on, there was no way that she could've heard that in her condition. I mean she was basically sedated, not present. Alive, pulse, respiration, vital signs everything being done for her, but there's no way that she would've been able to know what was going on had she not been in a different state. It blew me away. I mean I was moved to tears. It really opened my mind.... But there's no denying what she described when she was going through it."

Finally, I asked her, "Had she been the one to perform my C-section?" "No," she replied. This confirmation that another doctor had performed my C-section solidified my feeling that I had truly "been there" while I was flatlined.... I added "Did a resident by the name of Hyo Park do it?" She looked at me bewildered. "How do you know that? We are in a teaching hospital and we always ask residents to assist. Yes, she delivered Jacob." (p 31–32) ²²

Stephanie went to Prentice Women's Hospital, on Jacob's first birthday, to thank everyone there who helped save her life. She recalls:

One nurse introduced herself as Jessica. "You probably don't remember me, but—" she began. I interrupted her and said, "You were the one who broke my ribs." I knew immediately that this was the nurse I saw in regression with the strong hands that had pushed "me" out of the way to work on my body when she started chest compressions. She said, "I would do it all over again to save your life." With tears in my eyes, I hugged her and told her I would be forever grateful.

A doctor came up to me and introduced herself. Dr. Hyo Park (the gyn./onc. resident) said that she was the one who delivered Jacob. There she was.... The face behind the "familiar" doctor at my feet I had seen in regression. She went on to tell me that she was the resident in Dr. Schink's office, the gynecologic oncologist I went to see when I was having my premonitions.

I had also seen in subsequent therapy sessions [that] there were two crash carts. The first one lit up, and then died. I had asked Nicole if there were indeed 2 carts. Unprompted, Hyo said: "It was pretty hectic. And the first crash cart didn't work, so we had to bring in a second one." Damn. (p 36–37) ²²

Table 3 summarizes the veracity of the 14 perceptions of Arnold's NDE/Regression Sessions surrounding the cardiac arrest and associated amniotic fluid embolism (AFE). The left-hand column describes the content of the regression memories and the right-hand column lists the verifications for each statement she made, regarding events she could not have perceived with her five senses.

Transformation in life and career

As NDEs often cause transformations in the life of the experiencer I asked Arnold to complete the Spiritual Growth Subscale of the Spiritual Transformation Scale (Table 4). Arnold's Spiritual Transformation Scale

Table 4
Stephanie Arnold's STS-SGS score.

SPIRITUAL TRANSFORMATION SCALE – SPIRITUAL GROWTH SUBSCALE (Cole et al., 2008)	
Stephanie Arnold's Score: 170 out of 203	
Instructions: WRITE the number NEXT TO EACH STATEMENT that best describes any changes that have occurred since your NDE using the following scale.	
	1 2 3 4 5 6 7
It is not at all true for you	It is true for you a great deal
5	1. Spirituality has become more important to me.
7	2. My way of looking at life has changed to be more spiritual.
7	3. Because of spiritual changes I've been through I've changed my priorities.
7	4. I pay more attention to things that are spiritually important and forget about the little things that used to bother me.
2	5. I pray or meditate more often.
4	6. I spend more time taking care of my spiritual needs.
7	7. I more often experience life around me as spiritual.
7	8. I more often see my own life as sacred.
7	9. I have a stronger spiritual connection to other people.
7	10. I have a stronger spiritual connection to nature.
6	11. Spiritually I am like a new person.
5	12. Taking care of my body has taken on spiritual meaning.
7	13. My relationships with other people have taken on more spiritual meaning.
5	14. I have a stronger sense of the Sacred (God, Higher Power, Allah, Adonai, etc.) directing my life now.
7	15. I act more compassionately towards other people since my diagnosis.
7	16. I see people in a more positive light.
7	17. I more often express my spirituality.
4	18. I spend more time thinking about spiritual questions.
7	19. I am more humble since my diagnosis.
7	20. I more often think about how blessed I am.
7	21. I have grown spiritually.
7	22. I am more spiritually present in the moment.
3	23. I take part in spiritual rituals more often.
7	24. I more often have a sense of gratitude.
4	25. I more often pray for other people.
7	26. My spirituality is now more deeply imbedded in my whole being.
6	27. I am more receptive to spiritual care from others (examples: prayer, healing practices, etc.).
3	28. I more often look for a spiritual purpose for my life.
4	29. I'm finding it more important to participate in a spiritual community.

score for the Spiritual Growth subscale was 170 out of 203, which was substantially higher than the average score for NDErs (153.8 ± 41.2) from a previous study by Greyson and Khanna.¹² She scored 17 of the 29 items at the maximum level.

Arnold also completed the Life Changes Inventory.²⁰ Table 5 shows her scores for each personal value domain, as well as the absolute change, as compared to those from a previous NDE study by Greyson.¹⁴ The absolute change score for Arnold was +1.36, while the average for individuals in the Greyson study¹⁴ was +1.14, indicating the high magnitude of her changes.

It is of interest that Arnold describes her initial process of transformation, after these events as very challenging.³⁰ However, during the hypnotic regression sessions Arnold began to feel a weight lift off her shoulders, as she finally relived all that happened, and verified the recorded details of her sessions.

Arnold also found it challenging to realize that she had increased intuitive abilities and felt people's pain at a level that she hadn't before. She said,

"I would meet someone and shake their hand and I would know that they were ill in their kidneys.... And then I had to learn how to tell God, spirit, universe, to only give me what I really needed to know."³⁰

She said that spiritually it took years to accept what she was feeling, and to trust it. She said, "I learned to give the information in a filtered way - more like, "When was your last physical?" It was more of a conversation."³⁰

Arnold also shared that there were deep transformations in her life. She said,

I am not the same person I was before all of this happened. I love more deeply than I did before. I care more about the little things. (p 186)¹⁷

When asked what outer changes had occurred in her life to accompany these inner changes, Arnold said that she currently serves on the Board of the AFE foundation and speaks on patient advocacy to both clinicians and students. She said, "All those things are personally

Table 5
Life changes inventory - personal value domain scores.

	Stephanie Arnold	Previous NDE Experiencers (n = 63) (Greyson, 2022) (mean ± SD)
1. Appreciation for life	+1.25	+1.31±0.58
2. Self-Acceptance	+1.00	+1.05±0.77
3. Concern for others	+1.80	+1.18±0.54
4. Concern for worldly achievement	-1.00	-0.50±0.72
5. Concern for social/planetary issues	-0.60	+0.26±0.90
6. Quest for meaning/purpose	+1.25	+1.16±0.63
7. Spirituality	+1.40	+1.28±0.66
8. Religiosity	-0.50	+0.67±0.86
9. Appreciation for death	+2.00	+1.32±0.65
10. Absolute Change	+1.36	+1.14±0.44

important to me because I feel like I am bridging some gap between science and spirituality and being a patient advocate."

Discussion

Recent prospective studies on the characteristics of NDEs have confirmed that unconscious patients during cardiac arrest who have minimal to absent EEG activity are able to accurately perceive events occurring during that time period.^{5,31} Memories of events taking place during NDEs occur in about 6–23 % of cardiac arrest survivors.^{6,7,9,13,16} Parnia proposes that these percentages may be low, not because they occur in few individuals, but because some patients retain no memory of the event. This raises the possibility that NDEs may be more common, with some individuals being aware during cardiac arrest but having forgotten the experiences when later attempting to recall the events.⁸ The current case study addresses this point of Parnia's, that enhanced methods may permit access to a "larger iceberg of memories" outside the range of those attainable through explicit recall.

Data show that Arnold did not remember events associated with the cardiac arrest and associated AFE immediately after regaining consciousness. However, during recorded hypnotic regression therapy sessions she had explicit recall of 14 separate events later verified by hospital personnel, her husband, and her daughter's caretaker. These events were experienced during the hypnotic regression as if they were unfolding for her again in the moment.

A study of cardiac arrest survivors by Parnia¹⁰ found that they had a spectrum of explicit recall of events during cardiac arrest, despite absent visible signs of consciousness. Memories included the correct recollection of medical events as well as unique transcendent recalled experiences." (p 9)¹⁰ As Parnia previously proposed that there may be a "larger iceberg of memories"⁸ beyond those that patients normally access in explicit recall, and that enhanced methods may be more suited for exploration of the range of awareness during these events,⁷⁻⁸ it may be that more patients in the study would have shown recall, if hypnotic regression had been used. Recent studies have begun to examine the question.³²⁻³⁴

To explore this question further, Palmieri et al. used a hypnosis-based protocol to facilitate the richness and thoroughness of NDE memories. Hypnosis significantly increasing the complexity and detail of memories.³² When examining the EEG patterns associated with hypnosis-related increase in memory, they found a peculiar pattern associated with NDE memory recall linked to both delta and theta slow-wave activity. They propose that this may be related to the state-dependent memory hypothesis, where memories are easier to recall in a conscious state similar to that in which they were encoded (theta and delta activity being associated with meditative, NDE or trance states).³⁵⁻³⁶

Palmieri states that some individuals who experienced an NDE were able to remember it only under hypnosis.^{32,37,38} Further, Holden and

MacHovec³⁸ described a case of a man who recalled his NDE related to anaphylactic shock, with the entire experience being replicated, including a sudden fall in blood pressure and dramatic increase in heart rate.

These previous cases show similarities to Arnold's, with no memory of her NDE until hypnosis therapy, and with physiological responses during hypnosis that were very similar to those of the original cardiac arrest.

Of additional interest is the observation that Arnold had precognition of six events that occurred during the birth of her child that were verified by her doctors and other hospital clinicians. A peer-reviewed study surveying medical practitioners on the occurrence of death premonitions in their patients³⁹ revealed that 95 % of responders had encountered the phenomenon, with 50 % agreeing that patients with such premonitions had a higher mortality rate. And though it is rare, the NDE literature does report cases of premonitions.⁴⁰

NDEs are also often accompanied by spontaneous transformational changes in both intuitive abilities⁴¹⁻⁴² and in the individual's approach to spirituality. The intuitive transformational changes for Arnold were initially challenging as she found she had heightened sensitivity regarding the physical and emotional health of others. This phenomenon was also reported by Greyson⁴¹ who noted that psychic and psi-related experiences after NDEs were significantly increased (p=.0001).

This case study also confirms previous research showing that NDEs lead to a fundamental transformation in an individual's understanding of the nature of consciousness, their quest for meaning and purpose, their concern for others, and their appreciation of life.

Study limitations

Though the details of Arnold's memory of events during her NDE in this case study have been verified by multiple attending clinicians, and the visual events perceived could not have been sensed physiologically with vision blocked and in some cases at a distance from the OR, it is nevertheless a single case study. Thus, it could be criticized as simply "anecdotal." However, it is important to remember the quote of Wolf-singer who said, "the plural of anecdote is data." (p 779)⁴³ Each verified individual case study that is published adds to the growing data showing the veracity of these experiences.

Summary and conclusions

In summary, this study provides evidence that supports the hypothesis that during cardiac arrest an NDE may occur, but not be remembered until hypnotic regression reveals details of events that occurred in the operating room and elsewhere during resuscitation. Of interest is the observation that Arnold had precognition of six events that occurred during the birth of her child, supporting previous research on this occurrence during NDEs. Finally, Arnold experienced spontaneous transformational changes in both intuitive abilities, including heightened intuitive sensitivity regarding the physical and emotional health of others, as well as a powerful transformation in her own life, as evidenced by her scores on the Spiritual Transformation Scale and The Life Changes Inventory.

CRedit authorship contribution statement

Marjorie Woollacott: Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

References

1. van Lommel P. *Consciousness beyond life: the science of the near-death experience.* HarperOne. 2010.
2. Zaleski C. *Otherworld Journeys: Accounts of Near-Death Experience in Medieval and Modern times.* Oxford University Press; 1988.

3. Heim A. Notizen über den Tod durch Absturz. *Jahrbuch des schweizer. Alpenclub*. 1892;27:327–337.
4. Plato. *The Republic*. 10. London: J.M. Dent & Sons; 1937:318–325.
5. Eisenberg M.S. History of the science of cardiopulmonary resuscitation. In: Cardiopulmonary Resuscitation. J. Ornato, MA Peberdy, Eds.: 1–9. Humana Press. 2005.
6. van Lommel P, van Wees R, Meyers V, Elfferich I. Near-Death experience in survivors of cardiac arrest: a prospective study in the Netherlands. *Lancet*. 2001;358(9298):2039–2045.
7. Parnia S. Death and consciousness—an overview of the mental and cognitive experience of death. *Ann N Y Acad Sci*. 2014;1330:75–93. doi: 10.1111/nyas.12582.
8. Parnia S. Understanding the cognitive experience of death and the near-death experience. *QJM: Int J Med*. 2017; 110: 67–69.
9. Greyson B. Incidence and correlates of near-death experiences in a cardiac care unit. *Gen Hosp Psychiatry*. 2003; 25: 269–276.
10. Parnia S, Keshavarz Shirazi T, Patel J, et al. AWAREness during REsuscitation - II: a multi-center study of consciousness and awareness in cardiac arrest. *Resuscitation*. 2023;191, 109903. <https://doi.org/10.1016/j.resuscitation.2023.109903>. Epub 2023 Jul 7.
11. Kelly EF, Kelly EW, Crabtree A, Gauld A, Grosso M, Greyson B. *Irreducible Mind: Toward a Psychology for the 21st Century*. Lanham, MD: Rowman & Littlefield; 2010.
12. Greyson B, Khanna S. Spiritual transformation after near-death experiences. *Spirituality Clin Pract*. 2014;1:43–55.
13. Schwaninger J, Eisenberg PR, Schechtman KB, Weiss AN. A prospective analysis of near death experiences in cardiac arrest patients. *J Near-Death Exper*. 2002;20: 215–232.
14. Greyson B. Persistence of attitude changes after near-death experiences: do they fade over time? *J Nerv Ment Dis*. 2022;210(9):692–696. <https://doi.org/10.1097/NMD.0000000000001521>. Epub 2022 Mar 29.
15. Long J, Woollacott MH. *Long-term Transformational Effects of Near-Death Experiences*. Explore. In press; 2024.
16. Parnia S, Waller D, Yeates R, Fenwick P. A qualitative and quantitative study of the incidence, features and aetiology of near-death experiences in cardiac arrest survivors. *Resuscitation*. 2001;48:149–156.
17. Arnold S, Padorr S. 37 S: dying Revealed Heaven's Help. *HarperOne*. 2015.
18. Hood RW. The construction and preliminary validation of a measure of reported mystical experience. *J Sci Study Relig*. 1975;14(1):29–41. <https://doi.org/10.2307/1384454>.
19. Cole BS, Hopkins CM, Tisak J, Steel JL, Carr BI. Assessing spiritual growth and spiritual decline following a diagnosis of cancer: reliability and validity of the spiritual transformation scale. *Psychooncology*. 2008 Feb;17(2):112–121. <https://doi.org/10.1002/pon.1207>.
20. Greyson B, Ring K. The life changes inventory - revised. *J Near-Death Studies*. 2004; 23(1):41–54.
21. Greyson B. The near-death experience scale: construction, reliability and validity. *J Nervous Mental Disease*. 1983;171(6):369–375.
22. Arnold S. Unpublished essay submitted to Bigelow Institute for Consciousness Studies 2021.
23. Mays R., Mays S. Transcript of interviews with Stephanie and Jonathan Arnold, May 10, 2023 (personal communication).
24. Greyson B. Near-death encounters with and without near-death experiences: comparative NDE Scale profiles. *J Near-Death Stud*. 1990;8:151–161.
25. Hood RW, Ghorbani N, Watson PJ, et al. Dimensions of the mysticism scale: confirming the three-factor structure in the United States and Iran. *J Scient Study Religion*. 2001;40:691–705.
26. Lange R, Greyson B, Houran J. A Rasch scaling validation of a 'core' near-death experience. *Br J Psychol*. 2004;95:161–177. <https://doi.org/10.1348/000712604773952403>.
27. Hood RW, Jr Hill PC, Spilka B. *The Psychology of Religion: An Empirical Approach*. 4. New York, NY: Guilford; 2009.
28. Greyson B. Congruence between near-death and mystical experience. *Int J Psychol Religion*. 2014;24:298–310.
29. Ring K. *Heading Toward omega: In search of the Meaning of the Near-Death Experience*. New York, NY: William Morrow; 1984.
30. Woollacott M. *Transcript of Recorded Interview With S. Arnold*; 2023.
31. Rivas T, Dirven A, Schmidt R. *The Self Does Not Die*. 2nd ed. International Assoc. of Near-death Studies; 2023.
32. Palmieri A, et al. "Reality" of near-death experience memories: evidence from a psychodynamic and electrophysiological integrated study. *Front Hum Neurosci*. 2014;8:429.
33. Thonnard M, et al. Characteristics of near-death experiences memories as compared to real and imagined events memories. *PLoS One*. 2013;8:e57620.
34. Martial C., Mensen A., Charland-Verville V., et al. Neurophenomenology of near-death experience memory in hypnotic recall: a within-subject EEG study. *Sci Rep*. 2019 1;9(1):14047. doi: 10.1038/s41598-019-50601-6.
35. Hartman D, Zimberoff D. Memory access to our earliest influences. *J Heart Cent. Ther*. 2002;5:3–63.
36. Palmieri A, Kleinbub JR, Calvo V, Soraru G, Grasso I, Messina I, et al. Efficacy of hypnosis-based treatment in amyotrophic lateral sclerosis: a pilot study. *Front Psychol*. 2012;3:465.
37. Schroeter-Kunhardt M. A review of near death experiences. *J Sci Explor*. 1993;7: 219–239.
38. Holden JM, MacHovec F. Risk management in hypnotic recall of near-death experiences. *Am J Clin Hypn*. 1993;36:38–46.
39. Miglietta MA, Toma GI, Docimo S, Neely R, Bakoulis A, Kreismann E. Premonition of death in trauma: a survey of healthcare providers. *Am Surg*. 2009;75(12): 1220–1226.
40. Lai CF, Kao TW, Wu MS, et al. Impact of near-death experiences on dialysis patients: a multicenter collaborative study. *Am J Kidney Dis*. 2007;50(1). <https://doi.org/10.1053/j.ajkd.2007.04.021>, 124-32, 132.e1-2.
41. Greyson B. Increase in psychic phenomena following near-death experiences. *Theta*. 1983;11(2):26–29.
42. Krohn EG, Kripal JJ. *Changed In A Flash: One Woman's Near-Death Experience and Why a Scholar Thinks it Empowers Us All*. North Atlantic Books; 2018.
43. Polsby NW. The contributions of president richard F. Fenno, Jr. (in Forum). *Polit. Sci*. 1984;17(4):778–781.