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Setup and execution of the Rapid Cycle Deliberate Practice Death Notification Curriculum

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TITLE:

Setup and Execution of the Rapid Cycle Deliberate Practice Death Notification Curriculum

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KEYWORDS:

death notification, GRIEVING, rapid cycle deliberate practice, simulation, medical education, simulation-based medical education

SUMMARY:

The goal is to demonstrate how to apply the rapid cycle deliberate practice debriefing technique to the GRIEV_ING death notification curriculum.

ABSTRACT:

Death notification is an important and challenging aspect of Emergency Medicine. An Emergency Medicine physician must deliver bad news, often sudden and unexpected, to patients and family members without any previous relationship. Unskilled death notification after unexpected events can lead to the development of pathologic grief and posttraumatic stress disorder. It is paramount for Emergency Medicine physicians to be trained in and practice death notification techniques. The GRIEV_ING curriculum provides a conceptual framework for death notification. The curriculum has demonstrated improvement in learners' confidence and competence when delivering bad news. Rapid Cycle Deliberate Practice is a simulation-based

medical education technique that uses within the scenario debriefing. This technique uses the concepts of mastery learning and deliberate practice. It allows educators to pause a scenario, provide directed feedback, and then let learners continue the simulation scenario the "right way." The purpose of this scholarly work is to describe how to apply the Rapid Cycle Deliberate Practice debriefing technique to the GRIEV_ING death notification curriculum to more effectively train learners in the delivery of bad news.

INTRODUCTION:

Death notification is an important and challenging aspect of Emergency Medicine. An emergency medicine physician must deliver bad news, often sudden and unexpected, to patients and family members without any previous relationship. On average 270,000 patients die in United States emergency departments each year[1]. This number is anticipated to increase as the population ages[2]. Unskilled death notification can lead to the development of pathologic grief and posttraumatic stress disorder[3-5]. It is paramount for emergency medicine physicians to be trained in and practice death notification.

Graduate and undergraduate medical educators employ a variety of death notification techniques when teaching residents and medical students to deliver bad news[6-8]. One example is the GRIEV_ING curriculum. It provides medical personnel a conceptual framework for death notification. The curriculum has demonstrated improvement in learners' confidence and competence when delivering bad news[8].

Rapid Cycle Deliberate Practice (RCDP) is a simulation-based medical education technique that uses within-scenario debriefing[9]. This technique is based on the concepts of mastery learning and deliberate practice[9-11]. It allows educators to pause a scenario, provide directed feedback, and then let learners rewind and continue the simulation scenario the "right way." The purpose of this scholarly work is to describe how to apply the Rapid Cycle Deliberate Practice debriefing technique to the GRIEV_ING death notification curriculum to more effectively train learners in the delivery of bad news[12].

In preparation for this curriculum, learners are given a 45-minute lecture on the principles of death notification and the GRIEV_ING conceptual framework. Prior to starting the simulation session, faculty perform a prebrief of the objectives, RCDP and simulation environment logistic details, establish a fiction contract with the learners and pledge to respect the standardized patient actors[13-15]. The learners are split into groups of 4-5 and assigned an examination room with a faculty member and standardized patient. Each learner is given a GRIEV_ING pocket card to reference during the simulation. To start, one learner is selected from each group to perform the first death notification scenario. This first death notification serves as a needs assessment for the faculty. It is allowed to run from start to finish without interruption. Next, the same learner performs a new death notification simulation using the same scenario, this time RCDP is used by the faculty to provide feedback throughout the death notification scenario. Faculty pause the scenario, provide directed feedback and then rewind the scenario 30-60 seconds. The scenario is then restarted by the standardized patient.

PROTOCOL:

All methods described here were found to be exempt from review by the Indiana University Institutional Review Board.

1. **Preparation**

1.1. E-mail the GRIEV_ING pocket card (**Figure 1**) to all faculty one week prior to the scheduled simulation session.

1.2. E-mail the death notification simulation scenarios (**Supplement 1**), that include patient role and background history, to the standardized patients one week prior to the scheduled simulation session.

1.3. Prepare the simulation examination rooms prior to beginning the death notification simulation exercise.

1.3.1. Place a chair for the standardized patient and a stool for the learner in each examination room.

1.3.2. Print patient scenario information (**Supplement 2**), which includes name, age, gender, background, present condition and survivor present, and post outside each exam room for learners. Have faculty read death notification scenarios prior to the start of the session.

2. **Rapid Cycle Deliberate Practice GRIEV_ING Simulation Exercise Pre-brief**

2.1. Gather all faculty and learners in one room. Review the simulation session goals and objectives.

2.2. Review logistic details about RCDP and the simulation environment.

2.3. Form a fiction contract with the learners and pledge to respect the standardized patient actors

NOTE: A fiction contract is an agreement between the educators and learners. This creates the expectation that educators attempt to create as realistic of simulation environment as possible while the learners pretend that things are real and actively participate in the educational experience[14].

2.4. Divide the learners into groups of no more than 4-5 learners.

2.5. Assign each learner group an examination room with a faculty member and standardized patient.

2.6. Give each learner a GRIEV_ING pocket card to reference during the simulation (**Figure 1**).

3. **Rapid Cycle Deliberate Practice GRIEV_ING Simulation Exercise**

3.1. Select one learner from each group to perform the initial death notification scenario.

3.2. Position the standardized patient in the exam room. Have the learners to review the simulation scenario case details posted outside the exam room.

3.3. Start the initial death notification scenario. Run the scenario from start to finish without interruption. Identify specific areas that necessitate feedback.

3.4. Perform a micro-debriefing at the conclusion of first scenario. Give succinct feedback to learners on initial performance in less than 5 minutes.

3.5. Reset the scenario and place the learners outside the room. Perform the same simulation scenario from the beginning. Begin with the same learner as the leader for the second round of the scenario.

3.6. Apply the RCDP technique during the scenario. Pause the scenario, provide directed feedback and then rewind the scenario 30-60 seconds. Have the standardized patient to restart the scenario.

NOTE: In order to allow multiple students to participate in a single scenario, faculty can switch out the participating learner by "tagging in" observing students to continue the scenario. For example, if John started the scenario, faculty can stop, give feedback and rewind the scenario. Faculty then "tags in" Sam to resume the scenario as the new active participant from where John left off. Faculty should make sure all learners have an opportunity to be in the "hot seat" throughout the allotted training time.

3.7. Perform a micro-debriefing at the conclusion of the scenario training period. Provide constructive feedback to the learners.

3.8. Repeat the scenario again from the start and continue with the RCDP approach.

NOTE: The goal is to need less interruptions each time the scenario is performed. The RCDP simulation exercise requires 45-50 minutes.

4. **Rapid Cycle Deliberate Practice GRIEV_ING Wrap Up**

4.1 Gather all faculty and learners in one room for a group wrap-up at the conclusion of the simulation training. Focus on key take-home points from the training and allow for learner feedback during the 15 minute wrap-up.

REPRESENTATIVE RESULTS:

As noted in Ahmed et al., the study involved 22 emergency medicine residents[12]. Learners' median self-efficacy and knowledge scores increased from 3 to 4 and 65 to 90, respectively, when comparing pre- and post-simulation results. In addition, pre- and post-intervention death notification performance scores improved (**Table 1**).

Qualitative themes from the post-curriculum surveys by Ahmed et al. were that this exercise was a great experience and provided instant feedback[12]. Residents felt the RCDP Death Notification Curriculum solidified their death notification skills and allowed them the opportunity to refine their technique. Only one resident preferred the tradition simulation method with no interruptions.

FIGURE AND TABLE LEGENDS:

Figure 1: GRIEV_ING pocket card. Pocket card with overview of GRIEV_ING curriculum. This figure has been modified from research by Ahmed et al.[12].

Table 1: RCDP Death Notification Curriculum results. Scores from participants (N=22). Median pre- and post- scores were calculated. Wilcoxon rank sum test was used to test for score differences between pre- and post-intervention groups. All statistical analysis was performed using SAS Version 9.4. This table has been modified from research by Ahmed et al.[12].

DISCUSSION:

The RCDP death notification curriculum consists of several critical steps. First, the prebrief is critical to introduce the concept of RCDP and create psychological safety for learners. Learners who feel psychologically safe have less anxiety and feel more comfortable making mistakes, allowing for optimization of the learning experience[13-15]. In addition, the curriculum requires that educators provide learners with an overview of the GRIEV_ING framework and death notification materials prior to the simulation session. This allows the students to be more engaged in the simulation and use the session to refine death notification skills. Each learner is given a GRIEV_ING pocket card during simulation session. Learners in an observational role are able to follow along and remain actively engaged. Possible modifications of this simulation protocol include altering group size or providing the GRIEV_ING pocket card to the learners prior to the event.

During the simulation, a key step is running the first death notification scenario from start to finish without interruption. This needs assessment displays the learner's baseline skill and enables the faculty member to identify areas of weakness and provides a roadmap when subsequently implementing the RCDP technique. RCDP provides the student an opportunity to incorporate the feedback provided and demonstrate optimal performance. It allows learners to practice through repetition with expert feedback and direct coaching. Faculty can correct performance gaps while maximizing the time spent practicing. This has been shown to increase learning without cognitive overload[9].

Lastly, it is critical to repeat the same scenario again from the start and continue with the RCDP approach. The goal is to have fewer interruptions each time the scenario is performed. This allows learners to continuously improve throughout the simulation session and leads to mastery[9-11]. This differs from traditional simulation training in that faculty can immediately visualize improvement in performance.

There are few limitations to executing the RCDP death notification curriculum. This exercise does not require any particular equipment or setup. It does require one standardized patient per every 4-5 learners. Standardized patients should be trained and have experience playing the role of a grieving patient. This training includes acting methods on how to accurately portray psychosocial characteristics and emotions. It can be provided by the simulation staff or standardized patient liaison. In addition, faculty must be knowledgeable in RCDP in order to use this technique successfully in the training. Lack of faculty with formal simulation training and experience using RCDP creates practice variation. This introduces subjectivity into the training experience.

Currently, there is limited literature on improving delivery of bad news using RCDP. This innovative technique allows learners to rewind and practice each part of the scenario until mastery is achieved. Future directions for this study include assessment of skill retention using the RCDP technique, directly comparing this technique to traditional simulation approaches, and investigating how this curriculum translates to effectiveness of death notification in the clinical environment.

ACKNOWLEDGMENTS:
The authors have no acknowledgements.

DISCLOSURES:
The authors have nothing to disclose.

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Figure

GRIEV_ING© Protocol for Death Notification

Gather

Ensure that important survivors are present prior to delivery of death notification.

Resources

Inquire about supportive resources (additional family members, social work, charge nurse, pastoral care, chaplain).

Identify

Identify patient by name.
Introduce yourself by name and state your role.
Determine level of knowledge of survivors prior to arrival in ED.
Fire warning shot.

Educate

In plain language, educate survivors to the chronology of events and cause of death.
Provide summary of important information to ensure understanding.

Verify

Verify the patient's death. Use the phrase "dead" or "died".

_Space

Pause and allow family to assimilate information.

Inquire

Check for understanding and answer all questions.
Correct any misinformation.

Nuts and Bolts

Address any issues of post-mortem care (organ donation, need for autopsy, funeral arrangements, personal effects, etc.).

Give

Give your contact information and establish your availability to answer questions.

Figure 1.

Table

Click here to access/download;Table;JoVE RCDP Table 1 Results.xlsx

	Pre	Post	P-Value*
Self-efficacy Survey	3.0 (3.0-4.0)	4.0 (4.0-5.0)	<0.0001
MCQ Scores	65.0 (40.0-80.0)	90.0 (80.0-90.0)	<0.0001
	Case A	**Case B**	**P-Value***
Death Notification Scores	78.7 (72.3-85.1)	84.0 (80.9-93.6)	0.0303

*estimated using Wilcoxon

Name of Material/Equipment	Company	Catalog Number	Comments/Description
Chair			
Facial Tissues			Standardized patients will need for simulated crying
GRIEV_ING pocket card			
Stool			

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Editorial Comments:

• Please take this opportunity to thoroughly proofread the manuscript to ensure that there are no spelling or grammatical errors.
Manuscript proofread for spelling and grammatical errors.

• **Protocol Language:** Please ensure that ALL text in the protocol section is written in the imperative voice/tense as if you are telling someone how to do the technique (i.e. "Do this", "Measure that" etc.) Any text that cannot be written in the imperative tense may be added as a "Note", however, notes should be used sparingly and actions should be described in the imperative tense wherever possible.
1) Examples NOT in the imperative: 3.6, 4.1, etc
All text in the protocol section changed to the imperative tense.

• **Protocol:** Please note that your protocol will be used to generate the script for the video, and must contain everything that you would like shown in the video. **Please add more specific details (e.g. button clicks for software actions, numerical values for settings, etc) to your protocol steps.** There should be enough detail in each step to supplement the actions seen in the video so that viewers can easily replicate the protocol.
1) We can only film mechanical actions. Actions such as "disseminate", "review", "assign," etc. cannot be filmed. Most of your protocol steps are non-filmable as such.
The actions were changed to reflect mechanical actions.
2) 1.1: unclear what the contents of the materials are. How were they prepared? Please cite appropriate references
Clarified contents of materials and how they were created.
3) 1.2: unclear what the simulation scenarios are. How were they prepared? Please cite appropriate references
Clarified contents of simulation scenarios. These scenarios were written by simulation experts at one institution.
4) 1.3.2: What are the contents of the scenario?
Clarified contents of scenario.
5) 2.3: What would we show here? A supplementary fig with a contract would be useful.
Additional note added to clarify fiction contract, see lines 127-130. Can film learners seated around table with facilitator.
6) 3.4: unclear what is happening here.
Clarified term micro-debriefing.
7) 3.6: what is the RDCP method? And how would we film it?
The RCDP method is clarified in Lines 67-74. It can be filmed by showing a group of learners with a facilitator in a simulation room with a standardized patient; the simulation will be paused, the facilitator will give feedback to the learner, and the simulation will be

resumed by the standardized patient.
8) 3.7: What happens during this?
Clarified micro-debriefing in 3.4.

• **Protocol Highlight:** Please highlight ~2.5 pages or less of text (which includes headings and spaces) in yellow, to identify which steps should be visualized to tell the most cohesive story of your protocol steps.
1) The highlighting must include all relevant details that are required to perform the step. For example, if step 2.5 is highlighted for filming and the details of how to perform the step are given in steps 2.5.1 and 2.5.2, then the sub-steps where the details are provided must be included in the highlighting.
Relevant details were highlighted.
2) The highlighted steps should form a cohesive narrative, that is, there must be a logical flow from one highlighted step to the next.
Cohesive narrative steps were highlighted.
3) Please highlight complete sentences (not parts of sentences). Include sub-headings and spaces when calculating the final highlighted length.
Complete sentences were highlighted.
4) Notes cannot be filmed and should be excluded from highlighting.
Notes were excluded.

• **Discussion:** JoVE articles are focused on the methods and the protocol, thus the discussion should be similarly focused. Please ensure that the discussion covers the following in detail and in paragraph form (3-6 paragraphs): 1) modifications and troubleshooting, 2) limitations of the technique, 3) significance with respect to existing methods, 4) future applications and 5) critical steps within the protocol.
Thank you for your feedback. This simulation with a standardized patient does not require troubleshooting as it does not involve significant technology use. Possible modifications for the simulation were added to the discussion. Additional limitations added. Future applications and critical steps within the protocol were outlined.

• **Figures:** Mention statistical tests performed.
Statistical analysis added to Table 1 legend. See lines 207-210.

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Reviewer #1:

Manuscript Summary:
The author's have done a very nice job of laying out a case for the importance of teaching emergency physicians the specific skills needed to perform a death notification effectively. The main objective is quite clear and they have established the protocol in a way that the reader is able to follow.

Major Concerns:
none

Minor Concerns:
1) Please define fiction contract
Thank you for the comment, fiction contract definition added as a note, see lines 127-130.

2) Per line 163, the goal is to need fewer interruptions, however is there a specific time allotted to the group for the simulation exercise? How do faculty know when to stop the exercise?
The simulation exercise is usually continued for approximately 45-50 min. Additional clarification added, see lines 179-180.

3) Overall, there are many areas of redundancy and repetition where the same ideas are explained in multiple places. It may help to consolidate some of these lines to make it more concise for the reader. For example, line 87-89 are repeated almost verbatim in the protocol section lines 152-157, then again lines 211-214. Would consider putting these logistical pieces only in the protocol.
Thank you for the comment, lines 87-89 and lines 211-214 have been deleted to remove redundancy.

4) Recommend elaborating on the limitations section starting line 220. One potential limitation here is the lack of training or preparation that faculty members receive prior to facilitating these groups. Consider acknowledging the fact that despite the provision of the framework to the faculty, there may be some practice variation and differences in style among them which may introduce significant subjectivity into the learning experience, especially without formal communication training to prepare them for this teaching exercise. Line 222-223 states that faculty must be "knowledgeable", but makes no mention of training. Would also include more information about the training (if any) of the standardized patients.
Additional limitations added to expand on standardized patient training and practice variation without formal RCDP training, see lines 245-251. Thank you for this feedback.

Reviewer #2:
Manuscript Summary:
This manuscript describes the use of Rapid Cycle Deliberate Practice, a simulation based medical education technique which allows the instructor to stop the interaction, give feedback and then allow the learner to proceed using improved communication, to improve death notification. Death notification is an essential aspect of Emergency

Medicine which, if not done well, can contribute to pathological grief disorder and/or post traumatic stress disorder. Learners will use the GRIEV__ING curriculum, an approach which has demonstrated improvement in the confidence and competence of learners notifying individuals of a death.

Major Concerns:
none

Minor Concerns:
none

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Article Title: Setup and execution of the Rapid Cycle Deliberate Practice Death Notification Curriculum

Signature:  Date: 5/10/20

TRAINING MATERIALS FOR STANDARDIZED SURVIVOR

Case: Karen or Karl Rollins (Standardized Survivor and friend of patient)

Survivor Profile

A. Age: 60-70
B. Gender: male or female (match gender of patient)
C. Race: Caucasian
D. Affect (mannerisms, behavior): Survivor friend is in shock and disbelief. His/her friend was playing golf/tennis when he/she collapsed. The survivor friend called 911 and has contacted Carol Woods. The survivor rode in the ambulance to the hospital, but the survivor friend has known the patient through church and community activities for only about six months. He/she is not certain of the location of next of kin, although there are two children and a surviving sister.
E. Social History/Lifestyle: The survivor is dressed in clothes appropriate for the activity (golf or tennis) and has become a friend of the patient through church activities and mutual friends. The patient lives at Carol Woods Retirement Community, but the survivor lives independently in another Chapel Hill neighborhood.
F. Occupation: Survivor and patient are retired (use your real occupation).
G. Marital Status: Patient and survivor are both divorced.
H. General Appearance: Survivor is dressed appropriately for the respective sport.

Scenario

Faye/Frank Sumner was playing tennis (Faye) or golf (Frank) with you, the survivor friend, this morning around 10:00 AM when he/she collapsed on the court or slumped in the golf cart. He/she had mentioned that there had been some numbness in his/her left side this morning upon awakening. He/she had dismissed it as sleeping in an awkward position. When Faye/Frank collapsed, you were not able to get a response from him/her immediately, and you called 911 on your cell phone. Whether on the second hole or on the tennis courts, you were close enough to yell for assistance from others. You do not know very much about Frank or Faye's medical history, but you know he/she took medication for hypertension—you had discussed this in one of your self-help healthy-update sessions sponsored by your church fellowship. You did check to see if Faye or Frank was wearing a bracelet or a health alert necklace, and you did not see one.

You have accompanied the friend on the ambulance, as you felt responsible for seeing him/her to the hospital. The comments by the emergency medical technicians scared you, and you fear that Faye/Frank is in real danger.

When the resident enters the room, you are making a list of the things you need to do: 1) contact the friend's eldest child or ensure that someone from Carol Woods is doing this, 2) get both cars back from the recreational area (you drove separately this morning), and 3) initiate the prayer chain at the church.

You are in disbelief when informed that Faye/Frank has died. You ask some questions, but are finding it hard to believe that your good friend did not survive this experience. You were

frightened, but you were sure that the hospital could save him/her. After all, he/she seemed to be in very good health, jut a little overweight.

You do not know whether Faye/Frank had significant preexisting health problems. You feel somewhat responsible, as you invited him/her to play golf/tennis. You had not played with him/her before, but he/she had expressed interest in playing, and your regular partner was on a trip so you invited Faye/Frank to join you for your weekly outing. Now you wish that you had not made the offer. You wonder what you will tell the family or even the other folks at Carol Woods. You do mention that you can call on the mutual friends for help.

Instructions for Survivor

A. **How the survivor responds to the physician's initial inquiry.**
You are somewhat shaken by the events of the morning but are trying to consider what needs to be done, and you are expecting your friend to pull through. You have been making a list of things to do and are focused on this when the resident enters. *Your opening statement to the resident is:* "Is Faye/Frank improving?" You will be working on the list and have the paper and pencil in your hands.

B. **The survivor's *demeanor* at the beginning and throughout the encounter (affect, non-verbal behavior**).
You are calm but become a little emotional when told that Faye/Frank has died. You rise and ask your opening question when the resident comes in, but sit immediately upon hearing the bad news.

C. **The survivor's *concerns regarding his/her understanding* of the situation.**
You are concerned that you do not know Faye's/ Frank's family (children or siblings) and wonder what role the hospital will play in making these contacts. You express the feeling that you and the church can assist the family, but you think someone else should speak to them first. You then state that the minister could make the initial call.

D. **How the survivor will *respond to different interviewing styles*.**
Your style of conversation is the same regardless of the resident's actions or comments.

E. **Questions the survivor will *consistently ask* during the encounter.**
"Is Faye/Frank improving?" Ask when resident enters the room.
"Was playing (golf/tennis) too much this morning?"
"Who will tell his/her children?"
"Is there someone here who can call Carol Woods for me?"

F. **The *challenges* the survivor will present to the physician NA**

Guide to the items that the resident should address:

Gathered the family
The resident must elicit that the survivor is only a friend and no immediate family is available—the essential questions must be asked of the survivor present.

Resources
Determines that the patient has a minister and that the survivor thinks he should be contacted immediately. The survivor will ask if a chaplain can be available right now.

Identify
The resident must introduce himself/herself and identify the patient, Faye/Frank Sumner, and clarify the medical events up to this point.

Educate
Educate the survivor as to what has transpired in the ER and be definite about communicating the patient's death.

Verify
Verify that Faye/Frank is dead—must use the words "dead" or "died."

Inquire
Ask if there are any questions; answer all questions

Nuts and Bolts
Inquire about organ donation, funeral services, personal belongings; offer an opportunity to view the body.

Give
Give the survivor a professional card and offer to be available for further questions.

Setting: Emergency Department

Patient Information

Name: Frank Sumner

Gender: M

Age: 72

Reason for visit: Cardiac arrest

Medical Profile: Active 72-year-old male, with no significant history other than hypertension, collapsed while playing golf this morning. He had complained of numbness in extremities the previous day.

Survivor Present: Sibling with whom he was playing golf; accompanied patient to hospital via ambulance.

Background: Sibling was with Frank this morning. They had been playing golf for less than one hour when the patient collapsed in the golf cart. The survivor called 911 immediately, as Frank was not answering his questions. The sibling has been waiting in the private waiting area for about 15 minutes and has not had a recent update.

Patient's Present Condition:

The sibling of Frank Sumner followed the ambulance in their private vehicle to the hospital. The patient (Frank) collapsed and has since died from what appears to be a massive stroke.

Upon arrival by EMS, the patient was unresponsive and was experiencing an active seizure. After the seizure resolved, it was noted that the eyes were deviated to the L, and the patient responded to deep painful stimuli with decerebrate posturing.

En route to the hospital, the patient became bradycardic and atropine 0.5 mg was administered. The patient did not respond, and he was noted to have seizure-like activity and become totally apneic then asystolic. ACLS algorithm for asystole was followed and the patient delivered to the ED in Full Arrest. The code was continued in the ED without success. The patient was pronounced dead 15 minutes after arrival in the ED.

Task to be completed:
1. You have 15 minutes to inform the sibling of Frank's death and answer any questions he/she may have.