



Blazing the Trail to Pediatric Excellence

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Improving the Self-Efficacy of Caregivers of Children with Seizures Using Simulation and Evidence-Based Practice

Malorie Brooks MSN, RN, CPN, CHSE

Natalie Palau MSN, RN

Disclosures

We have no financial disclosures or conflicts of interest related to the material in this presentation

Over a lifetime, **1 in 26** people will be diagnosed with epilepsy.





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Background: Internal

- **Nursing survey evaluating pre-intervention seizure education:**
 - **Caregiver comfort to respond to a seizure at home**
 - **95.83%** of nurses rated caregiver comfort as ranging from only somewhat comfortable to very uncomfortable
 - **How often caregivers express anxiety, fear, or stress related to seizures at home**
 - **79.1%** of nurses reported this happens often to very often
- **Readmission data**
 - **39.2%** of readmissions on the inpatient neurosciences unit are seizure related

Background: External

- Epilepsy is a common condition in children
- A lack of self-efficacy to respond to seizures may result in negative consequences for both the child and the caregiver
- Self-efficacy is linked to caregiver well-being

Project Purpose

- Improve the self-efficacy of caregivers of children with seizures to respond to a seizure outside of the hospital environment
- PICOT Question: For caregivers of children with seizures (P), is simulation training (I), compared with no simulation training (C), effective in increasing self-efficacy to respond to a seizure outside of the hospital environment (O) within a 3-month project implementation period (T)?

Literature Synthesis

- Initial search yielded 1,043 articles from CINAHL (921), MEDLINE (37), and Academic Search Complete (85)
- Removed duplicate articles, articles with no full text, and irrelevant articles
- Review of evidence-based interventions suggested simulation would most effectively address the project's purpose
- 10 articles included in critical appraisal
- Simulation was feasible for the organization and supported by the project team

Methods: Sample and Setting

- 31 caregivers
- Recently diagnosed with seizures or recent change to seizure rescue plan
- Recruitment via collaboration with neurology
- 3 month pilot
- Facility-wide implementation

Methods: Intervention

- Private 45 min to 1 hour training session
- Customized to child's seizure rescue plan
- Review of seizure first aid and hands on practice with actual rescue medication administration
- High-fidelity seizure response simulation with human-patient simulator

CookChildren's **Seizure first aid**

The brain sends out signals to all parts of our body. A seizure happens because the signals are not working right. Some seizures are easy to see. The person may fall down and start shaking all over.

Some seizures look different.
The person may begin:

- Staring
- Chewing or smacking their lips
- Picking at an object
- Moving a body part over and over

Having a seizure may seem scary.

- Knowing what to do helps you stay calm.
- Following these steps helps keep the person safe.

Protect child	<ul style="list-style-type: none">• Move hard or sharp objects away from area.• If child is on ground, place something soft under the head. Pillow, towel, or rolled up jacket works well.• Some people may start walking during a seizure. Gently stop them from going out a door or into street.• Do not hold child down.
Nothing in mouth	<ul style="list-style-type: none">• Do not try to force anything into mouth.• It is impossible to swallow the tongue when having a seizure.
Time the seizure	<ul style="list-style-type: none">• Look at a clock or watch as soon as you see the seizure.• Most seizures stop within 5 minutes.• If seizure lasts longer than 5 minutes, or if several seizures happen in a row, call 911.
If unconscious: Turn to side	<ul style="list-style-type: none">• If child passes out, turn to one side.• This prevents choking if vomiting or drooling happens and helps your child to breathe easier.
Check breathing	<ul style="list-style-type: none">• During seizures, a person may briefly stop breathing and turn blue.• Most of the time, we do not need to do CPR.• Breathing and color will get better after the seizure.• When seizure stops, if no breathing or no pulse, call 911 and start CPR.
Rest after seizure	<ul style="list-style-type: none">• After seizure is over, let child rest.• Stay with child and offer comfort.• If in a public place, offer to phone a taxi, friend, or relative to take person home.

These instructions are only general guidelines. Your health care providers may give you special instructions. If you have any questions or concerns, please call your health care provider.
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Methods: Measures

- Demographic survey
- KidSIM-ASPIRE Parent Seizure Self-Efficacy Questionnaire by Sigalet et al.
- Program satisfaction survey

Findings: Demographics

- Age
- Gender
- Level of education
- Marital status
- Race
- Ethnicity
- Relation to the patient

Findings: Self-Efficacy

KidSIM-ASPIRE Parent Seizure Self-efficacy Questionnaire Pre- and Post-Intervention Analysis

Item	Pre-simulation median	Post-simulation median	z-score	p value	Effect size (r)
A. How sure are you that you know when your child is having a seizure?	3.0	5.0	-3.533	< .0001	.45
B. How sure are you that you can manage your child's seizure at home rather than calling 911 or driving your child to the emergency department?	3.0	4.0	-4.662	< .0001	.59
C. How sure are you that you know when to call 911 or drive your child to the emergency department when they are having a seizure?	3.0	5.0	-3.236	.001	.41
D. How sure are you that you can protect your child from harm when having a seizure?	3.0	5.0	-4.182	< .0001	.53
E. How sure are you that you can place your child in the recovery position?	3.0	5.0	-4.283	< .0001	.54
F. How sure are you that you will carry the rescue medications on you at all times?	4.0	5.0	-3.07	.002	.39
G. How sure are you that you can follow the directions for administering the rescue medication correctly?	4.0	5.0	-3.619	< .0001	.46
H. How sure are you that you can draw up the correct dose of rescue medication when your child is having a seizure?	3.0	5.0	-3.915	< .0001	.50
I. How sure are you that you can administer your child's rescue medications during a seizure?	3.0	5.0	-4.065	< .0001	.52
J. How sure are you that you can administer the rescue medication if your child has a seizure for longer than 5 minutes?	3.0	5.0	-4.312	< .0001	.55
K. How sure are you that you know the common/emergent side effects of your child's rescue medications?	1.0	5.0	-4.641	< .0001	.59
L. How sure are you that you can assess your child's breathing during a seizure?	2.0	5.0	-4.381	< .0001	.56

Note. Item column reflects questions included on the KidSIM-ASPIRE Parent Seizure Self-efficacy Questionnaire (Sigalet et al., 2014). $p < 0.05$. small effect size (r) = 0.1, medium effect size (r) = 0.3, large effect size (r) = 0.5 (Cohen, 1988).

Findings: Program Satisfaction

“Thank you”

“I learned more about how to give rescue medications”

“I am much more comfortable in caring for (my child) in case of any long seizures”



Limitations

- **Logistical challenges and scheduling**
- **Differing levels of caregiver knowledge**
- **Survey item confusion**
- **Caregiver concern**

Why did this work?

- Leadership support
- Facilitator schedule
- Close collaboration with Neurology team

Incidental Discoveries

- Psychogenic Non-Epileptic Seizures (PNES)
- CPR
- Unexpected teaching opportunities

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Infant CPR
birth to 1 year

Decide if responsive

1. Gently tap bottom of baby's foot.
2. Support baby's head.
3. Place on firm surface.
4. If baby does not respond send someone to call for help and get an Automated External Defibrillator (AED).

Chest compressions

1. Move clothes out of way.
2. Place 2 fingers on breast bone, just below nipple line.
3. Push down about 1 1/2 inches.
4. Give 30 fast pushes.
5. Push at a rate of at least 100 to 120 times per minute.
6. After 30 pushes, give 2 breaths.

Give breaths

1. Make tight seal with your mouth over baby's nose and mouth.
2. Give 2 slow breaths.
3. Be sure baby's chest rises with each breath.
4. Resume pushes after 2 breaths even if chest does not rise.

Continue CPR until help comes.

Keep pushing until:



- The child responds.
- Another person with more training takes over.

After 2 minutes of CPR, call 911.


These instructions are only general guidelines. Your health care providers may give you special instructions. If you have any questions or concerns, please call your health care providers.

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Send someone for help



Give 30 fast compressions.
Rate of at least 100 to 120 a minute.



Give 2 slow breaths.
Take 1 second for each breath.

Long-Term Impact: Nursing

	Pre-Intervention	Post-Intervention
Caregiver comfort to respond to a seizure at home	4.17% of nurses rated caregiver comfort as comfortable to very comfortable	100% of nurses rate caregiver comfort as comfortable to very comfortable
How often caregivers express anxiety, fear, or stress related to seizures at home	79.1% of nurses reported this happens often to very often	16.7% of nurses rate this happens often

100% of surveyed nurses strongly agree that the Simulation Seizure First Aid Course appropriately teaches caregivers what to do in an emergent situation

100% of surveyed nurses strongly agree that the Simulation Seizure First Aid Course leaves families **more prepared** than traditional discharge strategies

Long-Term Impact: Patients & Caregivers

- **95%** of patients who completed the course with a known seizure outside of the hospital had their seizure medication administered correctly
- Ongoing evaluation of seizure readmission rates

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Questions?



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