ICD Deactivation

Section I: Scenario Demographics

Scenario Title:	ICD Deactivation
Date of Development:	(06/04/2019)
Target Learning Group:	☐ Juniors (PGY 1 – 2) ☐ Seniors (PGY ≥ 3) ☒ All Groups

Section II: Scenario Developers

Scenario Developer(s):	Dr. Skye Crawford, Dr. Nathan Ashmead
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Section III: Curriculum Integration

Learning Goals & Objectives	
Educational Goal:	1. To recognize that recurrent ICD shocks are a medical emergency.
CRM Objectives:	1. Communicate clearly with team regarding goals of care and decision to use magnet to discontinue painful shocks. 2. Demonstrate appropriate sensitivity when disclosing death to a patient's relative. 3. Appropriately debrief the team following termination of resuscitation.
Medical objectives:	1. Understand the difference between ICDs, pacemakers, and CRTs. 2. Know how to activate an ICD.

Case Summary: Brief Summary of Case Progression and Major Events

An 88 year old female with metastatic ovarian cancer, not on any active treatment, presents to the ED with 2 weeks of decreased oral intake, decreased energy, and 3 days of decreased LOC. She was brought in by her son. He was alerted by homecare workers that his mother's status was worsening. Unsure what to do, he decided to bring her to the ED. He presents a community DNR form from her fridge. After initial assessment, she goes into VT, and her ICD starts to shock repeatedly. This causes the patient significant discomfort and the son becomes distressed. The team leader needs to confirm the patients goals of care from her son, and use a cardiac device magnet to stop the ICD shocks. Comfort care measures are taken, the son is counselled, and the team is debriefed.

References

https://en.wikipedia.org/wiki/Ventricular_fibrillation

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6415004/#s002

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Section IV: Scenario Script

A. Clinical Vignette: To Read Aloud at Beginning of Case

Nurse (Giving report of information gleaned at triage)
A 88 year old female with metastatic ovarian cancer, not on any active treatment, presents to the ED with 2 weeks of decreased PO intake and decreased energy, and 3 days of decreased LOC. She was brought in by her son. He was alerted by homecare workers that his mother's status was worsening. Unsure what to do, he decided to bring her to the ED. (son to present DNR form)

PMHx consists of COPD, CAD with quadruple bypass in 2014, CHF, T2DM. On puffers, ASA, candesartan, metoprolol, rosuvastatin, nitro spray, metformin, and hydromorphone 2mg PO Q4h and 1mg PO Q1h prn. NKDA.

B. Scenario Cast & Realism

Patient:		Realism:	
	☒ Computerized Mannequin	*Select most important dimension(s)*	☒ Conceptual
	☐ Mannequin		☐ Physical
	☐ Standardized Patient		☒ Emotional/Experiential
	☐ Hybrid		☐ Other:
	☐ Task Trainer		☐ N/A

Confederates	Brief Description of Role
Son	Looks worried and explains that his mom has been deteriorating over months since she stopped chemotherapy, and has been especially sick in the last few weeks. He was called by homecare workers because his mom declined over the past 3 days and is now difficult to rouse. He hands the team lead a home DNR form.
Nurse	+/- Primes team leader to use a magnet to cease defibrillation shocks +/-Initiates a team debrief
Cardiology	If consulted, directs team leader to use magnets.

C. Required Monitors

☒ EKG Leads/Wires	☐ Temperature Probe	☐ Central Venous Line
☒ NIBP Cuff	☒ Defibrillator Pads	☐ Capnography
☒ Pulse Oximeter	☐ Arterial Line	☐ Other:

D. Required Equipment

☒ Gloves	☒ Nasal Prongs	☐ Scalpel
☒ Stethoscope	☐ Venturi Mask	☐ Tube Thoracostomy Kit
☒ Defibrillator	☒ Non-Rebreather Mask	☐ Cricothyroidotomy Kit
☒ IV Bags/Lines	☐ Bag Valve Mask	☐ Thoracotomy Kit
☒ IV Push Medications	☐ Laryngoscope	☐ Central Line Kit
☐ PO Tabs	☐ Video Assisted Laryngoscope	☐ Arterial Line Kit
☐ Blood Products	☐ ET Tubes	☒ Other: Cardiac device magnet
☐ Intraosseous Set-up	☐ LMA	☐ Other:

E. Moulage

Patient lying with eyes closed, no acute distress

F. Approximate Timing

Set-Up:	5 min	Scenario:	20 min	Debriefing:	20 min

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Section V: Patient Data and Baseline State

A. Patient Profile and History			
Patient Name: Sandy Aberham	Age: 88	Weight: 60 lbs	
Gender: ☐ M ☒ F	Code Status: DNR M1		
Chief Complaint: Failure to thrive			
History of Presenting Illness: Decreased PO intake, decreased energy, and decreased LOC for the last 3 days.			
Past Medical History:	COPD	Medications: *Not taking for last few days	Atrovent and Ventolin
	CAD with quadruple bypass in 2014		ASA
	CHF		Candesartan
	T2DM		Metoprolol
			Rosuvastatin
			Nitro spray
			Metformin
			Hydromorphone 2mg PO Q4h and 1mg PO Q1h prn
Allergies: NKDA			
Social History: 70 pack year history of smoking, previous alcohol abuse.			
Review of Systems:	CNS:	Nil	
	HEENT:	Nil	
	CVS:	Nil	
	RESP:	Nil	
	GI:	Decreased PO intake for months but especially in last 3 days, ongoing abdominal pain	
	GU:	Nil	
	MSK:	Back pain (due to vertebral mets)	INT: Nil

B. Baseline Simulator State and Physical Exam			
☐ No Monitor Display	☐ Monitor On, no data displayed	☒ Monitor on Standard Display	
HR: 85/min	BP: 95/60	RR: 14/min	O_2SAT: 96%
Rhythm: Regular	T: 37°C	Glucose: 6mmol/L	GCS: 12 (E3 V4 M5)
General Status: Look cachectic, pale, unwell			
CNS:	GCS: E3V4M5, opening eyes to voice, confused and moaning, localizing to pain		
HEENT:	Dry mucous membranes		
CVS:	Nil		
RESP:	Nil		
ABDO:	Distended, mildly tender, many masses palpated		
GU:	Nil		
MSK:	Nil	SKIN:	Nil

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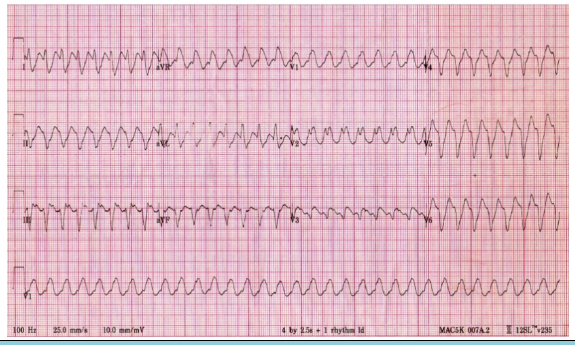
Section VI: Scenario Progression

Scenario States, Modifiers and Triggers			
Patient State	Patient Status	Learner Actions, Modifiers & Triggers to Move to Next State	
1. Baseline State Rhythm: Regular HR: 85/min BP: 95 /60 RR: 14/min O_2SAT: 96% T: 37°C	Decreased GCS, stable	Learner Actions -☐ MOVIE -☐ Order bloodwork, ECG, defibrillation pads -☐ Primary and secondary survey -☐ History taking (AMPLE) -☐ Determine severity of cancer and goals of care from son	Modifiers *Changes to patient condition based on learner action* -Patient is unable to answer questions about her goals of care -If asked, son is SDM Triggers *For progression to next state* -Initial assessment complete -Brief goals of care discussion
2. Patient Desaturates Rhythm: Regular HR: 80/min BP: 92 /60 RR: 14/min O_2SAT: 88% RA	Same	Learner Actions -☐ Optimize airway with non-invasive measures	Modifiers *Changes to patient condition based on learner action* -If not optimization of airway, patient further desaturates -If intubation is attempted, son will interrupt and say his mom never wanted a 'tube down her throat.'
2. VT Rhythm: VT HR: 160/min BP: 60/40 RR: : 10-12/min (bag rate) O_2SAT: 60% T: 37°C	Defibrillator starts to go off, patient is yelling out in pain every ~20 seconds	Learner Actions -☐ Recognition of rhythm change and patient discomfort with defibrillation shocks -☐ Decide to use magnet to stop shocks and secure to patient's chest -☐+/- consult cardiology for second opinion -☐+/-analgesia	Modifiers - Son is asking what is happening and why his mom is in pain -If team leader does not consider a magnet, have either cardiology (if consulted) or nurse suggest magnet Triggers -Magnet used to stop defibrillation
3. Comfort Care	Defibrillator no longer firing, patient looks comfortable but is agonal breathing, ongoing VT and eventually VF then asystole	Learner Actions -☐ Consider medications to keep patient comfortable (midazolam/hydromorphone) -☐ De-medicalize patient by withdrawing leads, turning off monitors, asking extra staff to leave	Modifiers -If leads and monitors are left on, son to ask why there is so much beeping and so many wires hooked up Triggers -Patient is made comfortable -Son is addressed

		-☐ Tell son that patient is in a fatal arrhythmia and was not responding to defibrillator shocks. Explain comfort care.	
4. Discussion with Son	Patient has passed away	Learner Actions -☐ Compassionate discussion with patient's relative -☐ Ensures appropriate privacy, body language, use of silence as needed -☐ Offers social worker -☐ Allows questions	Modifiers -Son is very reasonable and agrees with comfort care Triggers -After approximately **5 minutes**, son leaves the room to call family members
5. Debrief Team		Learner Actions -☐ Lead the team debrief, explain the purpose of debriefing, and explain ground rules -☐ Ask for reactions -☐ Highlight things that went well -☐ Address any medical concerns raised by team (areas for improvement) -☐ Address any psychological concerns raised by team, discuss possible coping strategies -☐ +/- moment of silence for patient	Modifiers -If debriefing is not initiated by the team leader, nursing to ask if he the medical team can discuss the case Triggers -After approximately **5 minutes** → End of scenario

Section VII: Supporting Documents, Laboratory Results, & Multimedia

Laboratory Results
None provided during case.

Images (ECGs, CXRs, etc.)

Ultrasound Video Files (if applicable)
None provided during case.

Section VIII: Debriefing Guide

General Debriefing Plan			
☐ Individual	☒ Group	☐ With Video	☒ Without Video

Objectives	
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Sample Questions for Debriefing
-What was the underlying rhythm? -What was the rationale behind using a cardiac device magnet for this patient? -How was it having the son in the room during the resuscitation? -What would putting a magnet on top of a pacemaker do? -Unlike deactivation of an ICD by cardiology, why is deactivation of a pacemaker usually not indicated? -If you cannot find a magnet in your ED, who else can you ask?

Key Moments
Obtain patient's medical information from son, and explore goals of care
Decision to use cardiac device magnet
Breaking bad news to son
Debrief ED team