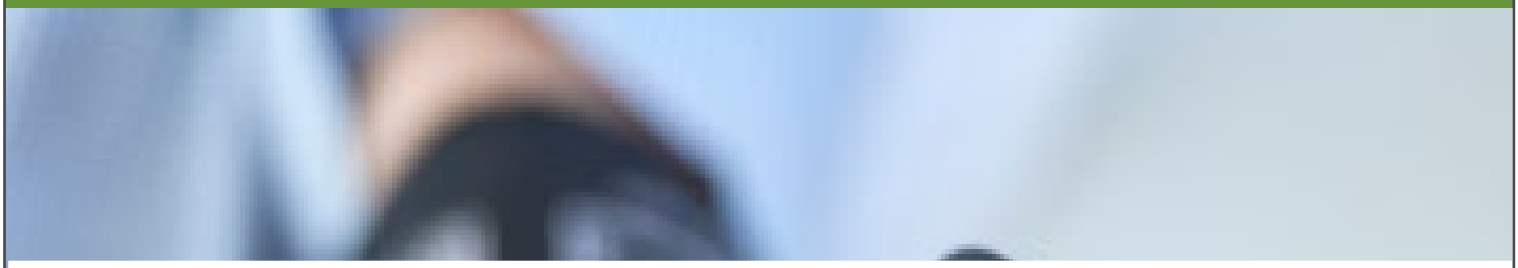
2022



Drill & Simulation Binder

A guide to quick, multidisciplinary OB drills

Hypertension Drills

The heart and science of medicine.

ACOG
The American College of Obstetricians and Gynecologists

AIM
ALLIANCE FOR INNOVATION ON MATERNAL HEALTH

PERINATAL QUALITY COLLABORATIVE VERMONT

VCHIP
Vermont Child Health Improvement Program
UNIVERSITY OF VERMONT LARNER COLLEGE OF MEDICINE

THE University of Vermont MEDICAL CENTER

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Welcome to the Drill Book. Doing OB drills might be near the last thing you want to do if you have a few minutes for yourself, so we put together a framework that might make it easier.

The goal is to run and talk through infrequent events frequently, in order to develop the mental and muscle memory to help you during those times when you need it. We do not have easy jobs. These drills are designed to be quick (10-15 min, shorter if you want), multidisciplinary (perfect for that nullip second stage), and above all, judgement-free: this is an educational activity, no bad question, no response that cannot be corrected. We encourage the use of teaching tools during the drill, to remind you of those small details.

Use these resources during any drill - this is not a test.

Feel free to modify based on how the team feels: even running through a drill sitting at the nurse's station, talking through where everything is and what you will do next is progress.

Drill Champion Instructions:

1. Identify the availability of at least 2 different Providers (ie. Nursing & OB Provider)
2. Select scenario type: PPH vs. HTN Crisis
3. Choose Appropriate binder and select scenario
4. Access applicable resources for drill: ie. Vital sign cards, blood product cards, role cards
5. Review Scenario and then identify your participants
6. Explain that this is a drill and review the Pre-Brief section with them
    a. This is the time to identify the environment in which the drill is happening
    b. Identify if participants need to find the resources located on the unit or if you've provided any of them in your environment
        i. Medications, algorithm, PPH cart/scale, etc.
            1. This is a good time to review WHERE things can be located
    c. Remind them to complete a debrief of the scenario utilizing the unit-specific debrief form as part of the simulation
7. Run scenario, identify when the scenario portion is complete, and have participants complete a debrief.
8. After the participants complete their debrief, announce the END to drill.
9. Utilizing the Debrief Quick Reference Guide go through these steps including reviewing the debrief form that was filled out by participants.
    a. Highlight where these forms live, how quick it was to fill out, where to file completed ones, and the process to which they will be utilized
        i. IE. Nurse Manager will collect these and bring them to the QI committee for review
10. Thank everyone for their participation and distribute tokens of appreciation (if applicable)
11. Fill out Grab & Go Drill Log, file in designated spot, and return all drill items to drill binder

Role Cards

It may be helpful to have role cards available to use as a tool in the prebrief if you are working with novice learners. These can also be utilized in the debrief to review who did what, who's responsible for what, and to share a general awareness of what all members of the team are doing in this type of OB emergency. Examples of the different roles on the team can be found below:

Role Card Options:

- Primary RN
- Secondary RN
- Charge RN
- OB Resident
- OB Attending
- Anesthesia Provider
- Additional Personnel
- Nursing Assistant/Tech
- Support Staff

For permanent role cards to be used during simulation: you can create them via print-your-own sites such as: https://www.zazzle.com/create_your_own_badge-256357529671054531

Supply Lists

This drill binder does not provide the following supplies; you should retrieve these items for the drills.

Additional HTN Drill Supplies: When setting up for your drill consider the environment. If you're not in a patient care area with all of the equipment and supplies available, make sure you grab everything you need to create a realistic environment and the resources you want participants to use.
Items to consider:

1. IV start supplies. For most of the drills the patient already has an IV in place. Cutting the catheter off the hub and securing with a tegaderm looks pretty realistic!
2. IV tubing
3. Bag of IVF
4. Demo medications:
    a. Magnesium
    b. Hydralazine
    c. Labetalol
    d. Nifedipine
5. Syringes and needles for drawing up medication
6. Supplies for drawing labs
7. IV pump and channel and pole
8. Fetal monitors
9. BP cuff/stethoscope and/or BP monitor
10. O2 sat probe and cable
11. O2 source and NC/face mask/non rebreather
12. Suction canister and tubing
13. Gown for patient if using a real person or manikin
14. Copies of either your hospitals checklists, algorithms and protocols or the AIM versions provided

HTN Crisis – Case Study Packets

In this next section, you will find different case studies.

In each packet, you will find:

- Laminated case study and facilitator guide
- Laminated patient case study – to be given to primary RN
- Laminated VS Cards
- Laminated Role Cards
- AIM HTN Checklist (paper copy) – replace with your institution's version if created.
- AIM Debrief Form (paper copy) – replace with your institution's version if created.
- Grab & Go Drill Log – to be completed at the end to document drill

In the 4th envelope, you will find an additional activity for a scavenger hunt that staff could participate in to identify where their resources are located. Tailor as need be.

- Scavenger hunt instructions
- Laminated clue cards
- Pyxis puzzle: this is a simulated experience of removing emergency meds via the Pyxis by placing the correct images in the order in which you would see them on the machine.

General Simulation Instructions:

General Principles during the Simulation:

We recommend that the team run the scenario as if they were addressing the care of a real patient. This means obtaining all adjunct supplies and calling ancillary services as they would in a real-life emergent situation. If medications are needed, those should be retrieved – but not opened – to prevent waste.

The team should assign a member to write down the desired orders as if they were ordering them in the electronic medical record (if applicable). Using this approach provides an opportunity to both observe the teamwork and communication and identify any potential facilities or systems issues that arise.

If you have little time, specifically state where each needed cart, equipment, and medication is and how it will be used/administered.

Case 1: Preeclampsia with Severe Features in a Full-Term Pregnancy

Learning Objectives

By the end of this scenario, each care team member should be able to do the following:

- Recognize risk factors for preeclampsia
- Identify severe hypertension as an early warning sign for preeclampsia
- Identify preeclampsia with severe features and treat with appropriate medication(s)
- Demonstrate teamwork and communication skills during a simulated hypertensive emergency

Pre-Simulation Briefing/Orientation

Prior to the simulation, you should brief the team on the drill. Begin by orienting them to the simulator and its capabilities and limitations.
Then, explain the following:

- Emphasize that the drill is meant for training and it is not a test.
- Treat the simulator/standardized patient as they would a real patient
- If the team needs additional supplies or instruments, they should go and obtain them or state where they are
- Call for assistance and other providers (anesthesia, etc.) as they would in a real emergency.
- If they feel they need to take the patient to the operating room, they should physically move the “patient” to that location or state exactly the steps to get the pt into the OR
- Medications, if needed, should be obtained in the normal manner or stated where they are located and how to access (ie: Pyxis override) but not opened or used during the drill.

Basic Scenario Management and Tips

Beginning the Simulation Scenario:

After you have conducted your pre-simulation briefing/orientation, have the participant who will be the primary OB nurse come with you to the simulated patient's room.

To begin the scenario, read the scenario to primary OB nurse and then have them enter the room. With the Simulation Leader acting as the patient, tell the nurse about the patient's complaint of a headache.

Patient's blood pressure will remain elevated in the severe range until two doses of an antihypertenive medication are given. Once the team orders serial blood pressure measurements, you may display a new blood pressure every 2 minutes. Allow time for team to discuss initiating anti-hypertensive therapy and answer patient/family questions.

Once an antihypertensive medication is given, the faculty proctor will need to do the following:

1. State that "15 minutes have elapsed"
2. Display a new blood pressure in order to prompt additional discussion by the team and at that time they should order/administer another dose of an antihypertensive medication. Initial laboratory values are available for the team to review.

The scenario should end when the team reaches the Completion Points below.

Case Scenario:

Patient Information:

Heidi P. Tension:

- The patient is a 27y/o G2P1001 37+4wks.
- Her first pregnancy was complicated by preeclampsia at 36wks gestation.
- The patient complains of a frontal headache that is a 7 out of 10 in severity.
- She has had an uncomplicated prenatal course and has no known drug allergies
- BMI: 32.5

Laboratory Data:

- Hemoglobin: 12.2 g/dL
- Hematocrit: 36.6 %
- WBC: 12,000 K/uL
- Platelets: 218,000
- Serum creatinine: 0.68 mg/dL
- AST- 23 IU/L
- ALT- 18 IU/L
- Urine Protein/Creatinine ratio – 0.18

Clinical Information includes:

- First Blood pressure 188/115 and repeat will be 180/110, RR 18, O2 Sat 96% on room air.
- The patient has an IV line in place with NS running.
- FHR: Baseline 150s, moderate variability, accelerations present, no decelerations.
- Tocodynamometer: Contractions approximately every 10 min

Answers to frequent questions that come up:

- The team can order labs during the simulation, but they will not return during the simulation
- The patient has a history of preeclampsia in her first pregnancy
- The patient does not have asthma
- If asked additional questions, try to redirect and not answer specifics so as to avoid topics that might complicate the scenario (i.e., do not say that the patient has migraines).

5.0 Case Flow/Algorithm with branch point and completion criteria:

Simulation facilitator will introduce the scenario to the team outside the room and then bring the participant who will be the initial provider (OB Nurse) into the patient's room.
The patient and/or family member will greet the nurse and express concern regarding a headache and that her BP is high (188/115)

↓

The OB nurse will assess the patient and may obtain a repeat blood pressure or call for assistance.
The proctor will produce the repeat blood pressure (180/110)
The OB nurse should identify severe hypertension and call for assistance.

↓

OB Provider/team as called enters room and is briefed by OB Nurse. The patient continues to complain of a headache.
(*Magnesium sulfate may be ordered/given at any time but will not affect BP readings.)

↓

The patient should be examined by the team and an antihypertensive should be ordered. The patient or family member should have questions about the medication and about the plan of care.
After the first dose of an antihypertensive is given. The proctor will:

- Inform the team that time has elapsed*

*The amount of time you tell the team has elapsed depends on the medication given:
Labetalol: 10 minutes
Hydralazine: 20 minutes
Nifedipine: 20 minutes

- Display a new blood pressure (BP range 175/115).

↓

Team should recognize continued severe range hypertension and administer a second dose of antihypertensive medication.

↓

After the second dose antihypertensive is given. The proctor will display a new blood pressure (BP range 145/95).

↓

VITAL SIGNS
START
BP 188/115 **HR**- 98 **O2 sat** 96% **RR**-18
REPEAT VITAL SIGNS
BP 180/110 **HR**- 101 **O2 sat** 96% **RR**-20
REPEAT VITAL SIGNS BELOW UNTIL HYPERTENSIVE DOSE #1 IS GIVEN
BP 175/110 **HR** 95 **O2 sat** 96% **RR**- 19
ANTIHYPERTENSIVE DOSE #1 GIVEN
BP range **Systolic**- 175 **Diastolic**- 115 **HR**- 95 **O2 sat** 96% **RR**- 19
ANTIHYPERTENSIVE DOSE #2 GIVEN
BP range **Systolic**- 145 **Diastolic**- 95 **HR**- 95 **O2 sat** 96% **RR**- 19

Prompt the team to discuss diagnosis of preeclampsia with severe features to the patient and confirm a delivery plan with the patient.

Scenario ends when the team has done the following:

Recognized and treated severe hypertension with two doses of an appropriate antihypertensive medication

Diagnose preeclampsia with severe features and order magnesium sulfate

Counsel the patient regarding preeclampsia and provide delivery recommendation

OR

If the team does not correct the hypertension or fails to recognize preeclampsia with severe features and initiate magnesium sulfate within 10 minutes

At the end of the scenario, clearly state the simulation is over and then gather the team for the review and debriefing.

Planned Completion Points

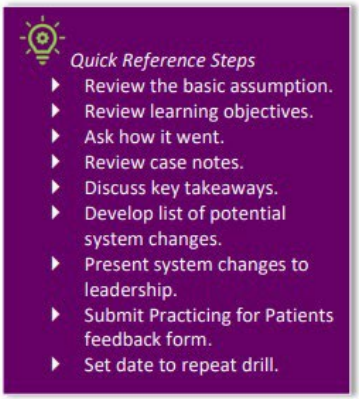
In order to successfully complete this scenario, the care team should do the following:

- Recognize severe hypertension
- Diagnose preeclampsia with severe features
- Administer antihypertensive medications correctly and in a timely manner
- Order/administer magnesium sulfate correctly and in a timely manner
- Counsel the patient regarding the diagnosis of preeclampsia with severe features and provide delivery recommendations

OR

- If 10 minutes have elapsed since the recognition of severe hypertension and the team has not initiated anti-hypertensive medications
- If 10 minutes have elapsed and magnesium sulfate has not been initiated

Debrief



Complete debrief form with focus on educational issues and system improvements

Fill out drill log and give to RN Manager/Educator

Case Study #1

Case Scenario:

Patient Information:

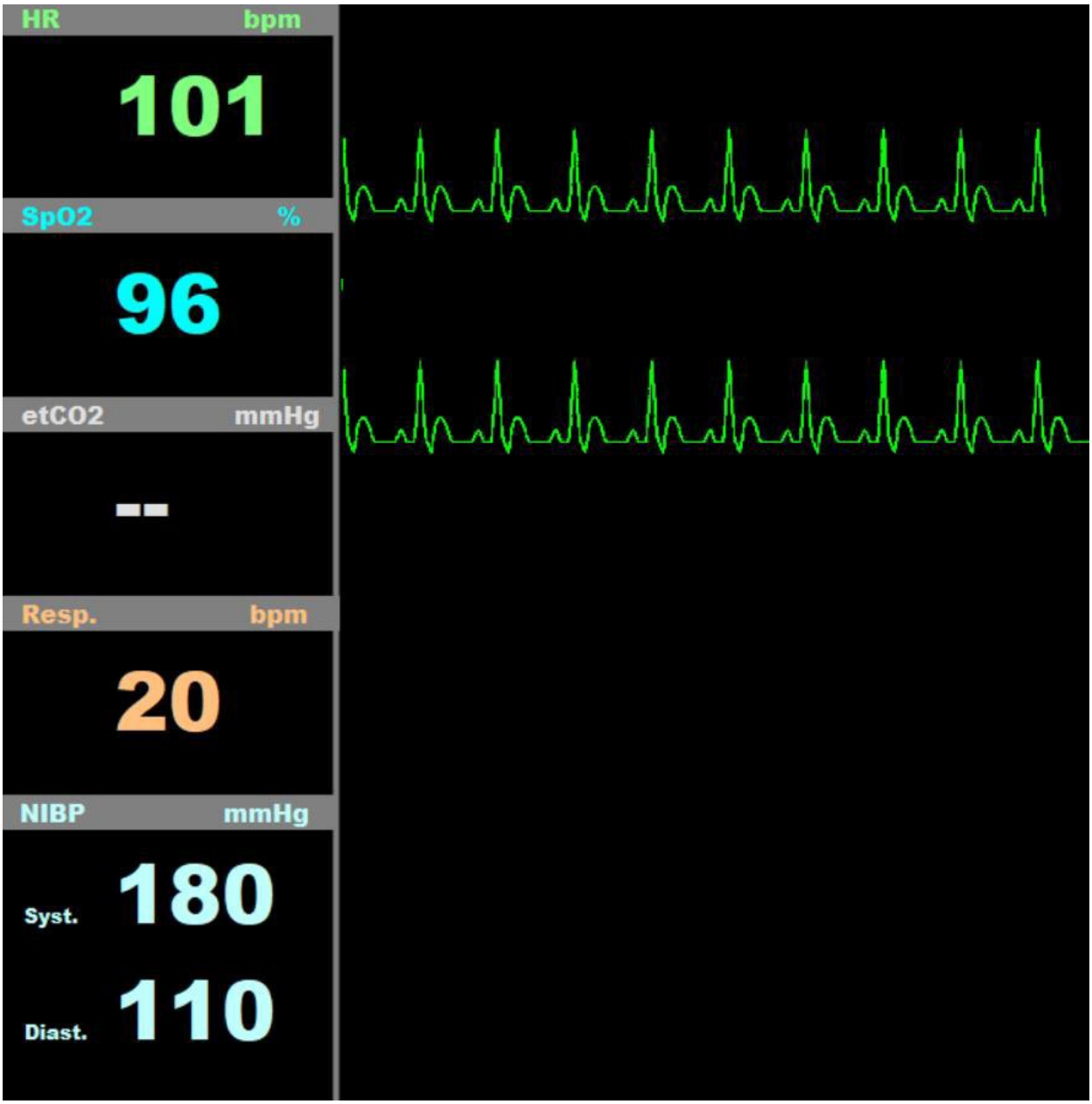
Heidi P. Tension:

- The patient is a 27y/o G2P1001 37+4wks.
- Her first pregnancy was complicated by preeclampsia at 36wks gestation.
- The patient complains of a frontal headache that is a 7 out of 10 in severity.
- She has had an uncomplicated prenatal course and has no known drug allergies
- BMI: 32.5

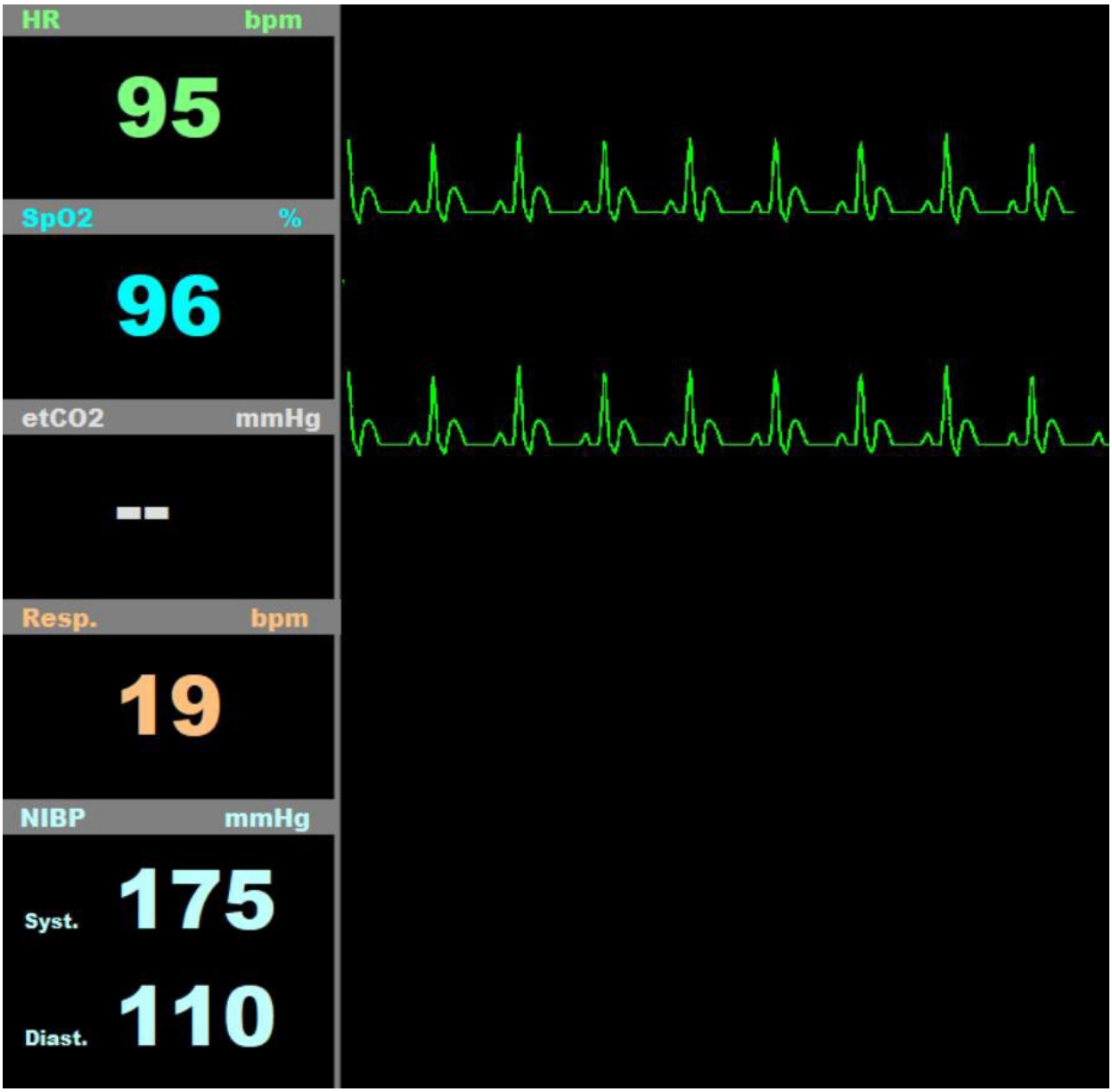
Laboratory Data:

- Hemoglobin: 12.2 g/dL
- Hematocrit: 36.6 %
- WBC: 12,000 K/uL
- Platelets: 218,000
- Serum creatinine: 0.68 mg/dL
- AST- 23 IU/L
- ALT- 18 IU/L
- Urine Protein/Creatinine ratio – 0.18


HR
bpm
98
SpO2
%
96
etCO2
mmHg
--
Resp.
bpm
18
NIBP
mmHg
Syst.
188
Diast.
115



V1 MAR 2021
Made utilizing the SourceForge Vital Sign Simulator (here). CASE #1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bpm
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mmHg
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175
Diast.
110


HR
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mmHg
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175
Diast.
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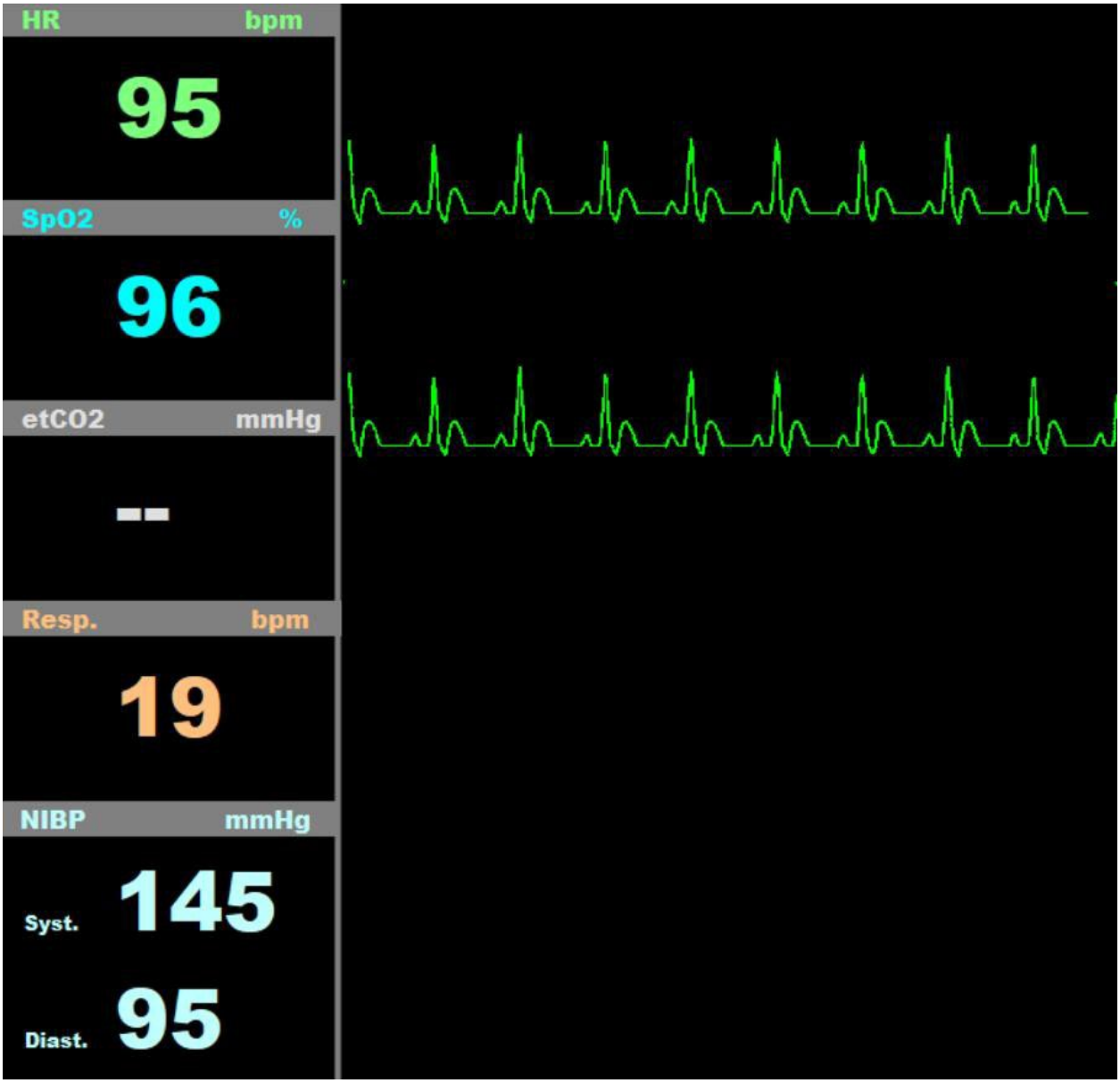
HR
bpm
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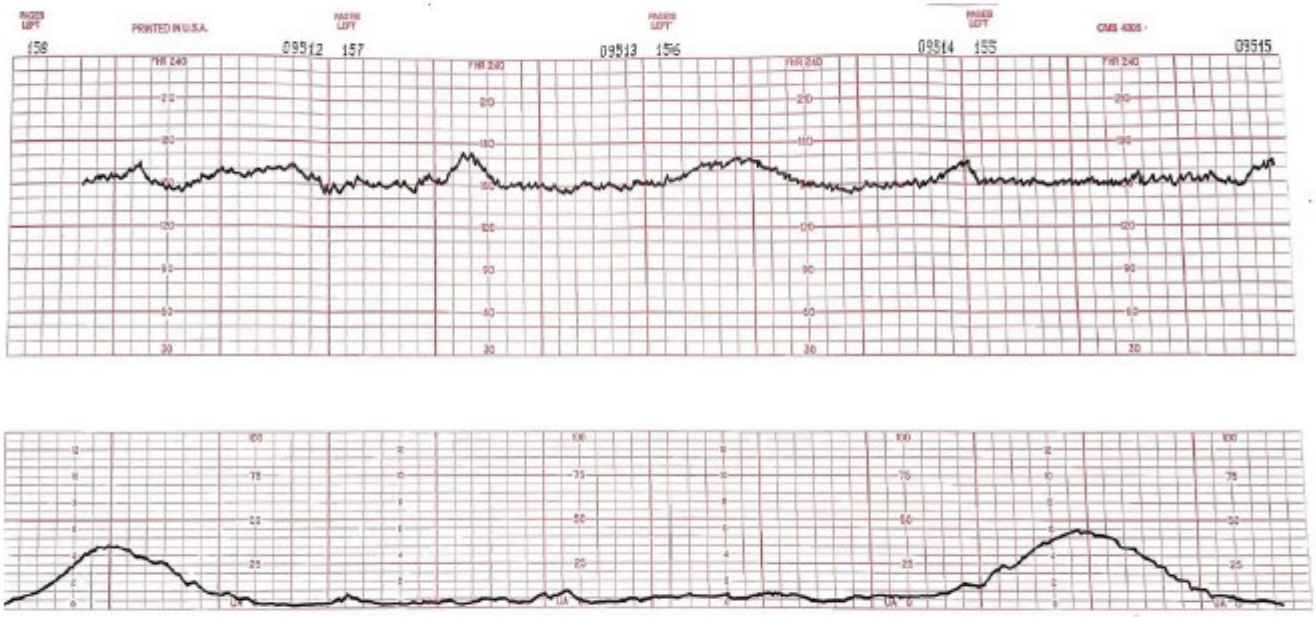
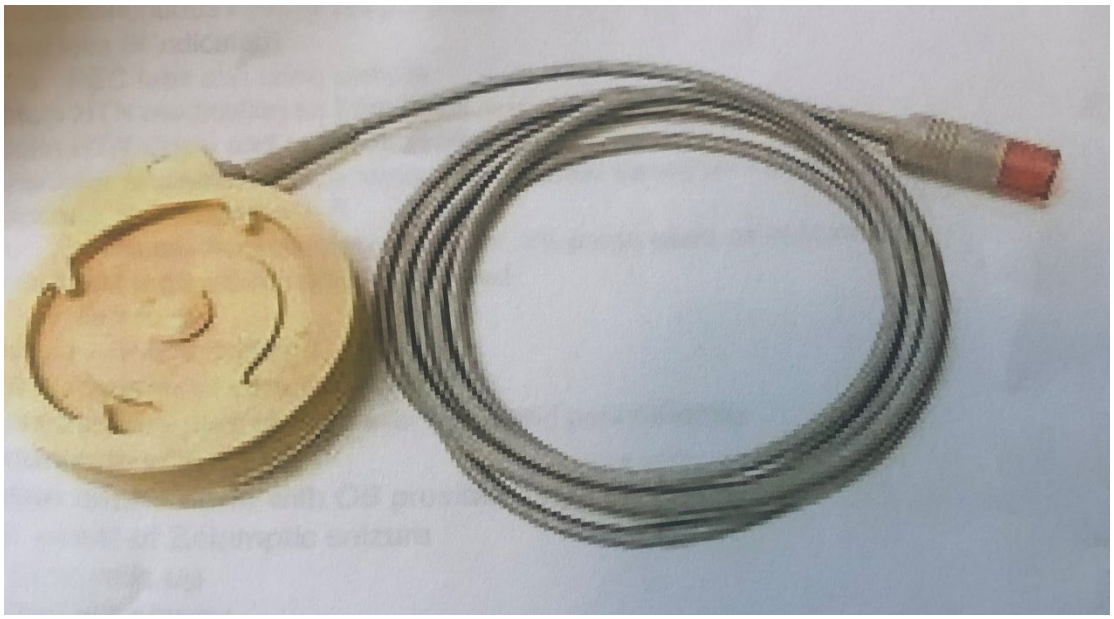
145
Diast.
95

Case #1 Fetal Heart Rate Tones





HTN Crisis Role Card – RN

RN – This encompasses the RN role and could be divided up amongst multiple RNs (i.e. Primary, Secondary, Charge) based on how your team functions:

- Notify Provider with BP > 160/110 and repeat in 15 minutes
- Obtain IV access or flush SL
- Initiate continuous EFM (if still pregnant)
- Send labs (if indicated)
    - PEC labs and urine sample
- Obtain HTN medication kit from Pyxis
- Obtain HTN Crisis and medication algorithms
- Administer antihypertensive medication ordered based on elevated repeat BP, IV access, and maternal HR
    - Follow medication algorithms and VS parameters as indicated
- Administer magnesium sulfate if ordered
    - Insert foley
- Administer BMZ if ordered
- Assist in transfer of care if indicated
- Discuss delivery plan of care with team and patient/family
- Communicate with family
- Complete debrief form with OB provider
- If in the event of Eclamptic seizure
    - Side rails up
    - Protect airway
    - Apply oxygen

HTN Crisis Role Card – LNA/Support Staff

LNA –

- Provide support in covering lights/completing hourlies in other patient rooms
- Complete VS as delegated by RN
- If delegated, assist with transfer to higher level of care
- If patient is postpartum, provide support to support person or newborn as needed

HTN Crisis Role Card – Resident Provider

Systolic blood pressure ≥ 160, diastolic blood pressure ≥ 110; repeat in 15 minutes & Notify Provider

Goal: Initiate medication within 30-60 minutes to achieve BP of 140-150/90-100

If AP: Initiate and maintain Continuous Fetal Monitoring throughout treatment and during recovery

Obtain IV access

- Call senior OB resident and/or attending
- Order labs and monitoring
- Decide medication start:
- Nifedipine (if no IV access)
- Consider Labetalol (if HR > 80)
- Consider hydralazine (if HR < 80)
- Assess Patient & Remain at the bedside for Med Administration
- Consider initiating Mag

HTN Crisis Role Card – Attending Provider

Systolic blood pressure ≥ 160, diastolic blood pressure ≥ 110; repeat in 15 minutes & Notify Provider

Goal: Initiate medication within 30-60 minutes to achieve BP of 140-150/90-100

If AP: Initiate and maintain Continuous Fetal Monitoring throughout treatment and during recovery

Obtain IV access

HTN Crisis Role Card – Anesthesia Provider

Systolic blood pressure ≥ 160, diastolic blood pressure ≥ 110; repeat in 15 minutes & Notify Provider

Goal: Initiate medication within 30-60 minutes to achieve BP of 140-150/90-100

If AP: Initiate and maintain Continuous Fetal Monitoring throughout treatment and during recovery

Obtain IV access

- Induction of general anesthesia and intubation should never be undertaken without first taking steps to eliminate or minimize the hypertensive response to intubation

EXAMPLE

Hypertensive Emergency Checklist

HYPERTENSIVE EMERGENCY:

- Two severe BP values (≥160/110) taken 15-60 minutes apart. Values do not need to be consecutive.
- May treat within 15 minutes if clinically indicated

- ☐ Call for Assistance
- ☐ Designate:
  - ◯ Team leader
  - ◯ Checklist reader/recorder
  - ◯ Primary RN
- ☐ Ensure side rails up
- ☐ Ensure medications appropriate given patient history
- ☐ Administer seizure prophylaxis (magnesium sulfate first line agent, unless contraindicated)
- ☐ Antihypertensive therapy within 1 hour for persistent severe range BP
- ☐ Place IV; Draw preeclampsia labs
- ☐ Antenatal corticosteroids (if <34 weeks of gestation)
- ☐ Re-address VTE prophylaxis requirement
- ☐ Place indwelling urinary catheter
- ☐ Brain imaging if unremitting headache or neurological symptoms
- ☐ Debrief patient, family, and obstetric team

† "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
Ⓒ any history of intubation or hospitalization for asthma.

Magnesium Sulfate

Contraindications: Myasthenia gravis; avoid with pulmonary edema, use caution with renal failure

IV access:

- ☐ Load 4-6 grams 10% magnesium sulfate in 100 mL solution over 20 min
- ☐ Label magnesium sulfate; Connect to labeled infusion pump
- ☐ Magnesium sulfate maintenance 1-2 grams/hour

No IV access:

- ☐ 10 grams of 50% solution IM (5 g in each buttock)

Antihypertensive Medications

For SBP ≥ 160 or DBP ≥ 110
(See SMI algorithms for complete management when necessary to move to another agent after 2 doses.)

- ☐ **Labetalol** (initial dose: 20mg); **Avoid parenteral labetalol with active asthma, heart disease, or congestive heart failure; use with caution with history of asthma**
- ☐ **Hydralazine** (5-10 mg IV* over 2 min); **May increase risk of maternal hypotension**
- ☐ **Oral Nifedipine** (10 mg capsules); Capsules should be administered orally, not punctured or otherwise administered sublingually

** Maximum cumulative IV-administered doses should not exceed 220 mg labetalol or 25 mg hydralazine in 24 hours*

***Note:** If first line agents unsuccessful, emergency consult with specialist (MFM, internal medicine, OB anesthesiology, critical care) is recommended*

Anticonvulsant Medications

For recurrent seizures or when magnesium sulfate contraindicated

- ☐ **Lorazepam (Ativan)**: 2-4 mg IV x 1, may repeat once after 10-15 min
- ☐ **Diazepam (Valium)**: 5-10 mg IV q 5-10 min to maximum dose 30 mg

EXAMPLE

Eclampsia Checklist

- ☐ Call for Assistance
- ☐ Designate
  - ◯ Team leader
  - ◯ Checklist reader/recorder
  - ◯ Primary RN
- ☐ Ensure side rails up
- ☐ Protect airway and improve oxygenation:
  - ◯ Maternal pulse oximetry
  - ◯ Supplemental oxygen (100% non-rebreather)
    - ☐ Lateral decubitis position
    - ☐ Bag-mask ventilation available
    - ☐ Suction available
- ☐ Continuous fetal monitoring
- ☐ Place IV; Draw preeclampsia labs
- ☐ Ensure medications appropriate given patient history
- ☐ Administer magnesium sulfate
- ☐ Administer antihypertensive therapy if appropriate
- ☐ Develop delivery plan, if appropriate
- ☐ Debrief patient, family, and obstetric team

† "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
Ⓒ any history of intubation or hospitalization for asthma.

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(See SMI algorithms for complete management when necessary to move to another agent after 2 doses.)

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- ☐ **Oral Nifedipine** (10 mg capsules); Capsules should be administered orally, not punctured or otherwise administered sublingually

** Maximum cumulative IV-administered doses should not exceed 220 mg labetalol or 25 mg hydralazine in 24 hours*

Note: *if persistent seizures, consider anticonvulsant medications and additional workup*

Anticonvulsant Medications

For recurrent seizures or when magnesium sulfate contraindicated

- ☐ **Lorazepam (Ativan)**: 2-4 mg IV x 1, may repeat once after 10-15 min
- ☐ **Diazepam (Valium)**: 5-10 mg IV q 5-10 min to maximum dose 30 mg

For Persistent Seizures

- ☐ Neuromuscular block and intubate
- ☐ Obtain radiographic imaging
- ☐ ICU admission
- ☐ Consider anticonvulsant medications

Obstetric Team Debriefing Form

Remember: Debriefing is meant to be a learning experience and a way to address both human factors and systems issues to improve the response for next time. There is to be no blaming/finger-pointing.

Type of event: _____ **Date of event:** _____

Location of event: _____

Members of team present: (check all that apply)

- ☐ Primary RN
- ☐ Primary MD
- ☐ Charge RN
- ☐ Resident(s)
- ☐ Anesthesia personnel
- ☐ Neonatology personnel
- ☐ MFM leader
- ☐ Patient Safety Officer
- ☐ Nurse Manager
- ☐ OB/Surgical tech
- ☐ Unit Clerk
- ☐ Other RNs

Thinking about how the obstetric emergency was managed,

Identify what went well: (Check if yes)

- ☐ Communication
- ☐ Role clarity (leader/supporting roles identified and assigned)
- ☐ Teamwork
- ☐ Situational awareness
- ☐ Decision-making
- ☐ Other: _____

_____

Identify opportunities for improvement: "human factors" (Check if yes)

- ☐ Communication
- ☐ Role clarity (leader/supporting roles identified and assigned)
- ☐ Teamwork
- ☐ Situational awareness
- ☐ Decision-making
- ☐ Other: _____

_____

Identify opportunities for improvement: "systems issue" (Check if yes)

- ☐ Equipment
- ☐ Medication
- ☐ Blood product availability
- ☐ Inadequate support (in unit or other areas of the hospital)
- ☐ Delays in transporting the patient (within hospital or to another facility)
- ☐ Other: _____

_____

Obstetric Team Debriefing Form

For identified issues, fill in table below

Issue	Actions to be Taken	Person Responsible
	1	
	2	
	3	
	4	

Grab and Go Drill Log Information

(to be utilized by drill facilitators)

Date:

Time:

Scenario:

Location (ex. M7, B7, OR):

Participants:

Facilitator:

General Simulation Instructions:

General Principles during the Simulation:

We recommend that the team run the scenario as if they were addressing the care of a real patient. This means obtaining all adjunct supplies and calling ancillary services as they would in a real-life emergent situation. If medications are needed, those should be retrieved – but not opened – to prevent waste.

The team should assign a member to write down the desired orders as if they were ordering them in the electronic medical record (if applicable). Using this approach provides an opportunity to both observe the teamwork and communication and identify any potential facilities or systems issues that arise.

If you have little time, specifically state where each needed cart/equipment/medication is and how it will be used/administered.

Case 2: Preeclampsia with Development of Eclampsia

Learning Objectives

By the end of this scenario, each care team member should be able to successfully do the following:

- Identify hypertension in pregnancy as a risk factor for eclampsia
- Initiate rapid stabilization and treatment of a patient with eclamptic seizure
- Demonstrate teamwork and communication skills during a simulated hypertensive emergency simulation

2.0 Pre-Simulation Briefing/Orientation:

Prior to the simulation, you should brief the team on the drill. Begin by orienting them to the simulator and its capabilities and limitations.
Then, explain the following:

- Emphasize that the drill is meant for training and it is not a test.
- Treat the simulator/standardized patient as they would a real patient.
- If the team needs additional supplies or instruments, they should go and obtain them or state where they are

Call for assistance and other providers (anesthesia, etc.) as they would in a real emergency.

- If they feel they need to take the patient to the operating room, they should physically move the “patient” to that location or state exactly the steps to get the pt into the OR

- Medications, if needed, should be obtained in the normal manner or stated where they are located and how to access (ie: Pyxis override) but not opened or used during the drill.

3.0 Basic Scenario Management and Tips:

Beginning the Simulation Scenario: After you have conducted your pre-simulation briefing/orientation, have the participant who will be the primary OB nurse come with you to the simulated patient's room.

To begin the scenario, read the scenario to primary OB nurse and then have them enter the room. With the Simulation Leader acting as the patient, tell the nurse about the patient's complaint of a headache.

Patient's blood pressure will remain elevated in the severe range until two doses of an antihypertensive medication are given. Once the team orders serial blood pressure measurements, you may display a new blood pressure every 2 minutes. Allow time for team to discuss initiating anti-hypertensive therapy and answer patient/family questions.

Once an antihypertensive medication is given, the faculty proctor will need to do the following:

1. State that "15 minutes have elapsed"
2. Display a new blood pressure in order to prompt additional discussion by the team and at that time they should order/administer another dose of an antihypertensive medication. Initial laboratory values are available for the team to review.

The scenario should end when the team reaches the Completion Points below.

Case Scenario

Patient Information:

Courtney Davis:

- The patient is a 36yo G2P1001 at 34w2d presenting for headache and blurry vision. Her medical history is uncomplicated. Her previous pregnancy was complicated by gestational hypertension at 38 weeks, resulting in induction of labor and uncomplicated spontaneous vaginal delivery.
- She has no known drug allergies
- She has been taking Aspirin 81mg daily during pregnancy.

Laboratory Data (on admission):

- Hemoglobin: 12.2 g/dL
- Hematocrit: 36.6 %
- WBC: 12,000 K/uL
- Platelets: 218,000 K/uL
- AST: 22 IU/L,
- ALT: 32 IU/L
- Serum Creatinine: 0.7 mg/dL
- Urine Protein/Creatinine Ratio: pending (this will not become available during the simulation)
- Last ultrasound performed at 32 weeks for advanced maternal age with fetus measuring appropriate for gestational age.

Information includes:

- The patient has an IV line in place with a heplock.
- Initial vital signs taken 15 minutes prior were: BP 145/99, HR 81, RR 18, O2 Sat 98% on room air.
- FHR Tracing (if available): Baseline 140, moderate variability, no accelerations, no decelerations. Tocodynamometer: flat.
- Available medications will depend on what is on the actual unit. The team should be instructed to go and physically obtain any medications or supplies but should be told not to actually open them during the simulation.

During seizure:

- Vital signs: 170/105, O2 sat 993 (no changes if supplemental O2 is provided), RR 6, HR 110. 4
- FHR Tracing: Maintain bradycardia to 80s with minimal variability.
- After seizure concludes vital signs will depend on whether antihypertensive medications were given. The FHR tracing should slowly recover back to baseline over 5-10 minutes

Answers to frequent questions that come up:

- The team can order labs during the simulation, but they will not return during the simulation
- The urine protein/creatinine ratio results will not return during simulation but is not necessary for diagnostic purposes.
- The FHR tracing will demonstrate fetal bradycardia during the eclamptic seizure and will slowly recover after the seizure ends.
- If asked additional questions, try to redirect and not answer specifics so as not to introduce things that might complicate the scenario (i.e., do not say that she has a recent head trauma or family history of seizure disorder)

5.0 Case Flow/Algorithm with branch point and completion criteria:

Simulation facilitator will introduce the scenario to the team outside the room and then bring primary bedside provider to the patient's room and then read them the patient scenario.

The OB Nurse should then enter the room, assess the patient, and then call for assistance as seizure begins.

"Initial" Vital Signs and FHR tracing should be on monitor. Vital signs may be repeated but will remain in mild HTN range.

Patient should explain symptoms (headache and blurry vision). After brief history is taken she will begin to have an eclamptic seizure.

↓

OB Provider/team enters room when called and are briefed by OB Nurse
"During seizure" Vital Signs and FHR tracing should be available

↓

OB Team should care for patient (put up handrails/place patient in left lateral position/continuous maternal pulse oximeter in place)
IV magnesium sulfate should be initiated.
IV antihypertensives should be administered for severe range HTN

↓

After approximately 2 minutes, the patient will stop seizing.
"After seizure" Vital Signs and FHR tracing should be on monitor*

* The vitals shown will depend on whether or not antihypertensive medications were administered

↓

Team should discuss the delivery plan and further management. They may talk with the patient/ family members about additional care and delivery.

VITAL SIGNS
START
BP: 145/99
HR: 81 bpm
O2 sat: 98% on RA
RR: 18
VITALS DURING SEIZURE
BP: 170/105
HR: 110 bpm
O2 sat: 93%
RR: 6
VITALS AFTER SEIZURE ENDS
BP: 155/92 (if antihypertensive given) **OR** 179/107 (if no antihypertensives were given)
HR: 100 bpm
O2 sat: 98% on RA
RR: 18

Scenario ends when the team has done the following:

Diagnosed the patient with eclampsia
Administered at least one dose of an appropriate antihypertensive medication
Initiated IV magnesium therapy
Discuss delivery plan once patient is stabilized

OR

If 10 minutes have elapsed and above steps have not been taken

At the end of the scenario, clearly state the simulation is over and then gather the team for the review and debriefing.

Planned Completion Points

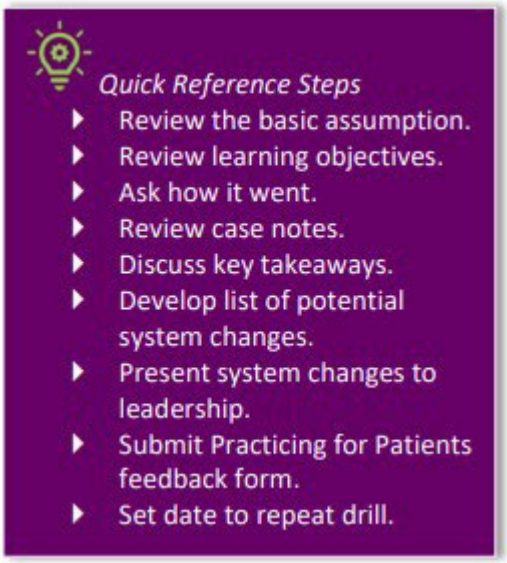
In order to successfully complete this scenario, the care team should do the following:

- Recognize severe range hypertension
- Make the diagnosis of eclampsia
- Demonstrate the "ABC's" in stabilizing a patient with eclampsia
- Administer IV magnesium and antihypertensive medications correctly and in a timely manner
- Counsel the patient regarding the need to move towards delivery

OR

- If 10 minutes have elapsed after beginning simulation and team has not recognized eclampsia or stabilized the patient by demonstrating "ABC's" and initiating magnesium sulfate

Debrief



Complete debrief form with focus on educational issues and system improvements

Fill out drill log and give to RN Manager/Educator

Case Study #2

Case Study #2 Scenario

Patient Information:

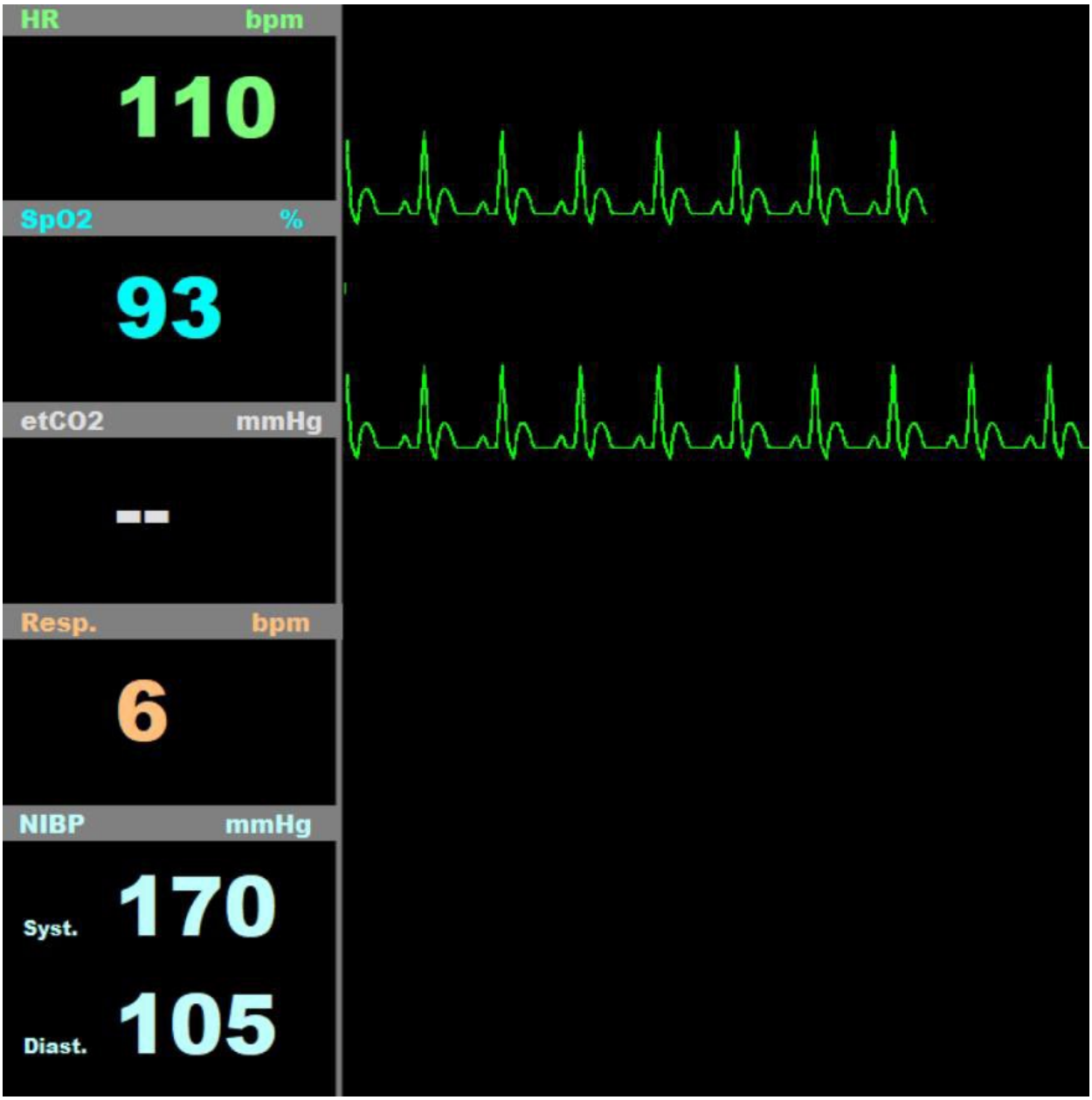
Courtney Davis:

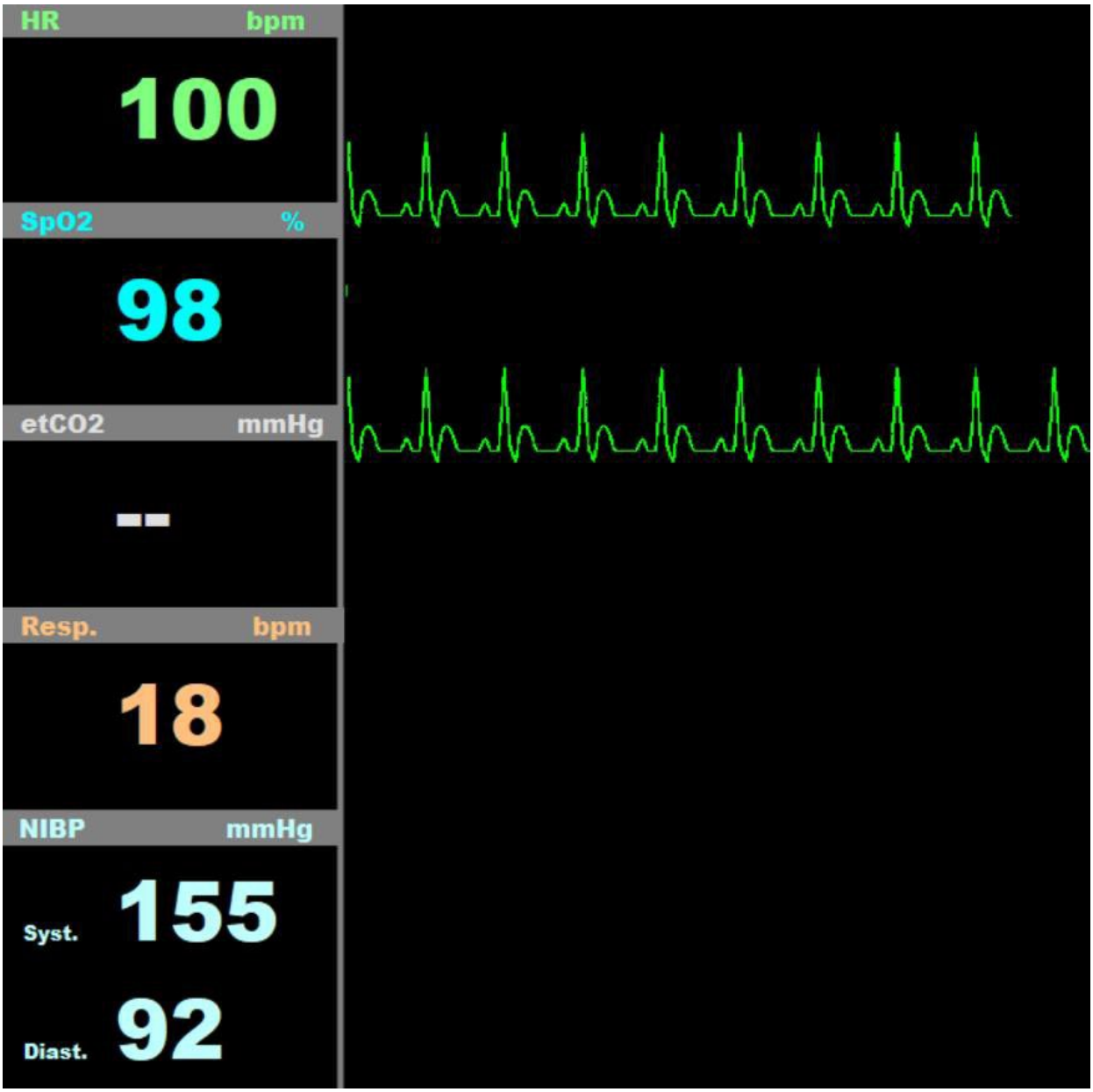
- The patient is a 36yo G2P1001 at 34w2d presenting for headache and blurry vision. Her medical history is uncomplicated. Her previous pregnancy was complicated by gestational hypertension at 38 weeks, resulting in induction of labor and uncomplicated spontaneous vaginal delivery.
- She has no known drug allergies
- She has been taking Aspirin 81mg daily during pregnancy.

Laboratory Data (on admission):

- Hemoglobin: 12.2 g/dL
- Hematocrit: 36.6 %
- WBC: 12,000 K/uL
- Platelets: 218,000 K/uL
- AST: 22 IU/L,
- ALT: 32 IU/L
- Serum Creatinine: 0.7 mg/dL
- Urine Protein/Creatinine Ratio: pending (this will not become available during the simulation)
- Last ultrasound performed at 32 weeks for advanced maternal age with fetus measuring appropriate for gestational age.


HR
bpm
81
SpO2
%
98
etCO2
mmHg
--
Resp.
bpm
18
NIBP
mmHg
Syst.
145
Diast.
99


HR
bpm
110
SpO2
%
93
etCO2
mmHg
--
Resp.
bpm
6
NIBP
mmHg
Syst.
170
Diast.
105


HR
bpm
100
SpO2
%
98
etCO2
mmHg
--
Resp.
bpm
18
NIBP
mmHg
Syst.
155
Diast.
92


HR
bpm
100
SpO2
%
98
etCO2
mmHg
--
Resp.
bpm
18
NIBP
mmHg
Syst.
179
Diast.
107

Case #2 Initial Fetal Heart Rate Tones

Case #2 Eclampsia Fetal Heart Rate Tones

HTN Crisis Role Card – RN

RN – This encompasses the RN role and could be divided up amongst multiple RNs (i.e. Primary, Secondary, Charge) based on how your team functions:

- Notify Provider with BP > 160/110 and repeat in 15 minutes
- Obtain IV access or flush SL
- Initiate continuous EFM (if still pregnant)
- Send labs (if indicated)
    - PEC labs and urine sample
- Obtain HTN medication kit from Pyxis
- Obtain HTN Crisis and medication algorithms
- Administer antihypertensive medication ordered based on elevated repeat BP, IV access, and maternal HR
    - Follow medication algorithms and VS parameters as indicated
- Administer magnesium sulfate if ordered
    - Insert foley
- Administer BMZ if ordered
- Assist in transfer of care if indicated
- Discuss delivery plan of care with team and patient/family
- Communicate with family
- Complete debrief form with OB provider
- If in the event of Eclamptic seizure
    - Side rails up
    - Protect airway
    - Apply oxygen

HTN Crisis Role Card – LNA/Support Staff

LNA –

- Provide support in covering lights/completing hourlies in other patient rooms
- Complete VS as delegated by RN
- If delegated, assist with transfer to higher level of care
- If patient is postpartum, provide support to support person or newborn as needed

HTN Crisis Role Card – Resident Provider

Systolic blood pressure ≥ 160, diastolic blood pressure ≥ 110; repeat in 15 minutes & Notify Provider

Goal: Initiate medication within 30-60 minutes to achieve BP of 140-150/90-100

If AP: Initiate and maintain Continuous Fetal Monitoring throughout treatment and during recovery

Obtain IV access

- Call senior OB resident and/or attending
- Order labs and monitoring
- Decide medication start:
- Nifedipine (if no IV access)
- Consider Labetalol (if HR > 80)
- Consider hydralazine (if HR < 80)
- Assess Patient & Remain at the bedside for Med Administration
- Consider initiating Mag

HTN Crisis Role Card – Attending Provider

Systolic blood pressure ≥ 160, diastolic blood pressure ≥ 110; repeat in 15 minutes & Notify Provider

Goal: Initiate medication within 30-60 minutes to achieve BP of 140-150/90-100

If AP: Initiate and maintain Continuous Fetal Monitoring throughout treatment and during recovery

Obtain IV access

HTN Crisis Role Card – Anesthesia Provider

Systolic blood pressure ≥ 160, diastolic blood pressure ≥ 110; repeat in 15 minutes & Notify Provider

Goal: Initiate medication within 30-60 minutes to achieve BP of 140-150/90-100

If AP: Initiate and maintain Continuous Fetal Monitoring throughout treatment and during recovery

Obtain IV access

- Induction of general anesthesia and intubation should never be undertaken without first taking steps to eliminate or minimize the hypertensive response to intubation

EXAMPLE

Hypertensive Emergency Checklist

HYPERTENSIVE EMERGENCY:

- Two severe BP values (≥160/110) taken 15-60 minutes apart. Values do not need to be consecutive.
- May treat within 15 minutes if clinically indicated

- ☐ Call for Assistance
- ☐ Designate:
  - ◯ Team leader
  - ◯ Checklist reader/recorder
  - ◯ Primary RN
- ☐ Ensure side rails up
- ☐ Ensure medications appropriate given patient history
- ☐ Administer seizure prophylaxis (magnesium sulfate first line agent, unless contraindicated)
- ☐ Antihypertensive therapy within 1 hour for persistent severe range BP
- ☐ Place IV; Draw preeclampsia labs
- ☐ Antenatal corticosteroids (if <34 weeks of gestation)
- ☐ Re-address VTE prophylaxis requirement
- ☐ Place indwelling urinary catheter
- ☐ Brain imaging if unremitting headache or neurological symptoms
- ☐ Debrief patient, family, and obstetric team

† "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
Ⓒ any history of intubation or hospitalization for asthma.

Magnesium Sulfate

Contraindications: Myasthenia gravis; avoid with pulmonary edema, use caution with renal failure

IV access:

- ☐ Load 4-6 grams 10% magnesium sulfate in 100 mL solution over 20 min
- ☐ Label magnesium sulfate; Connect to labeled infusion pump
- ☐ Magnesium sulfate maintenance 1-2 grams/hour

No IV access:

- ☐ 10 grams of 50% solution IM (5 g in each buttock)

Antihypertensive Medications

For SBP ≥ 160 or DBP ≥ 110
(See SMI algorithms for complete management when necessary to move to another agent after 2 doses.)

- ☐ **Labetalol** (initial dose: 20mg); **Avoid parenteral labetalol with active asthma, heart disease, or congestive heart failure; use with caution with history of asthma**
- ☐ **Hydralazine** (5-10 mg IV* over 2 min); **May increase risk of maternal hypotension**
- ☐ **Oral Nifedipine** (10 mg capsules); Capsules should be administered orally, not punctured or otherwise administered sublingually

** Maximum cumulative IV-administered doses should not exceed 220 mg labetalol or 25 mg hydralazine in 24 hours*

***Note:** If first line agents unsuccessful, emergency consult with specialist (MFM, internal medicine, OB anesthesiology, critical care) is recommended*

Anticonvulsant Medications

For recurrent seizures or when magnesium sulfate contraindicated

- ☐ **Lorazepam (Ativan)**: 2-4 mg IV x 1, may repeat once after 10-15 min
- ☐ **Diazepam (Valium)**: 5-10 mg IV q 5-10 min to maximum dose 30 mg

EXAMPLE

Eclampsia Checklist

- ☐ Call for Assistance
- ☐ Designate
  - ◯ Team leader
  - ◯ Checklist reader/recorder
  - ◯ Primary RN
- ☐ Ensure side rails up
- ☐ Protect airway and improve oxygenation:
  - ◯ Maternal pulse oximetry
  - ◯ Supplemental oxygen (100% non-rebreather)
    - ☐ Lateral decubitis position
    - ☐ Bag-mask ventilation available
    - ☐ Suction available
- ☐ Continuous fetal monitoring
- ☐ Place IV; Draw preeclampsia labs
- ☐ Ensure medications appropriate given patient history
- ☐ Administer magnesium sulfate
- ☐ Administer antihypertensive therapy if appropriate
- ☐ Develop delivery plan, if appropriate
- ☐ Debrief patient, family, and obstetric team

† "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
Ⓒ any history of intubation or hospitalization for asthma.

Magnesium Sulfate

Contraindications: Myasthenia gravis; avoid with pulmonary edema, use caution with renal failure

IV access:

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Antihypertensive Medications

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- ☐ **Labetalol** (initial dose: 20mg); **Avoid parenteral labetalol with active asthma, heart disease, or congestive heart failure; use with caution with history of asthma**
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- ☐ **Oral Nifedipine** (10 mg capsules); Capsules should be administered orally, not punctured or otherwise administered sublingually

** Maximum cumulative IV-administered doses should not exceed 220 mg labetalol or 25 mg hydralazine in 24 hours*

Note: *if persistent seizures, consider anticonvulsant medications and additional workup*

Anticonvulsant Medications

For recurrent seizures or when magnesium sulfate contraindicated

- ☐ **Lorazepam (Ativan)**: 2-4 mg IV x 1, may repeat once after 10-15 min
- ☐ **Diazepam (Valium)**: 5-10 mg IV q 5-10 min to maximum dose 30 mg

For Persistent Seizures

- ☐ Neuromuscular block and intubate
- ☐ Obtain radiographic imaging
- ☐ ICU admission
- ☐ Consider anticonvulsant medications

Obstetric Team Debriefing Form

Remember: Debriefing is meant to be a learning experience and a way to address both human factors and systems issues to improve the response for next time. There is to be no blaming/finger-pointing.

Type of event: _____ **Date of event:** _____

Location of event: _____

Members of team present: (check all that apply)

- ☐ Primary RN
- ☐ Primary MD
- ☐ Charge RN
- ☐ Resident(s)
- ☐ Anesthesia personnel
- ☐ Neonatology personnel
- ☐ MFM leader
- ☐ Patient Safety Officer
- ☐ Nurse Manager
- ☐ OB/Surgical tech
- ☐ Unit Clerk
- ☐ Other RNs

Thinking about how the obstetric emergency was managed,

Identify what went well: (Check if yes)

- ☐ Communication
- ☐ Role clarity (leader/supporting roles identified and assigned)
- ☐ Teamwork
- ☐ Situational awareness
- ☐ Decision-making
- ☐ Other: _____

_____

Identify opportunities for improvement: "human factors" (Check if yes)

- ☐ Communication
- ☐ Role clarity (leader/supporting roles identified and assigned)
- ☐ Teamwork
- ☐ Situational awareness
- ☐ Decision-making
- ☐ Other: _____

_____

Identify opportunities for improvement: "systems issue" (Check if yes)

- ☐ Equipment
- ☐ Medication
- ☐ Blood product availability
- ☐ Inadequate support (in unit or other areas of the hospital)
- ☐ Delays in transporting the patient (within hospital or to another facility)
- ☐ Other: _____

_____

Obstetric Team Debriefing Form

For identified issues, fill in table below

Issue	Actions to be Taken	Person Responsible
	1	
	2	
	3	
	4	

Grab and Go Drill Log Information

(to be utilized by drill facilitators)

Date:

Time:

Scenario:

Location (ex. M7, B7, OR):

Participants:

Facilitator:

General Simulation Instructions:

General Principles during the Simulation:

We recommend that the team run the scenario as if they were addressing the care of a real patient. This means obtaining all adjunct supplies and calling ancillary services as they would in a real-life emergent situation. If medications are needed, those should be retrieved – but not opened – to prevent waste.

The team should assign a member to write down the desired orders as if they were ordering them in the electronic medical record (if applicable). Using this approach provides an opportunity to both observe the teamwork and communication and identify any potential facilities or systems issues that arise.

If you have little time, specifically state where each needed cart/equipment/medication is and how it will be used/administered.

Case 3: Superimposed Preeclampsia with Progression to Eclampsia

Learning Objectives

By the end of this scenario, each care team member should be able to successfully do the following:

- Be able to recognize risk factors for eclampsia.
- Identify severe range hypertension, superimposed preeclampsia/HELLP syndrome, and eclamptic seizure, and be able to treat with appropriate medications in a timely manner.
- Demonstrate teamwork and communication skills during a simulated hypertensive emergency simulation progressing to eclamptic seizure.

2.0 Pre-Simulation Briefing/Orientation:

Prior to the simulation, you should brief the team on the drill. Begin by orienting them to the simulator and its capabilities and limitations.

Then, explain the following:

- Emphasize that the drill is meant for training and it is not a test.
- Treat the simulator/standardized patient as they would a real patient.

- If the team needs additional supplies or instruments, they should go and obtain them or state where they are
- Call for assistance and other providers (anesthesia, etc.) as they would in a real emergency.
- If they feel they need to take the patient to the operating room, they should physically move the “patient” to that location or state exactly the steps to get the pt into the OR
- Medications, if needed, should be obtained in the normal manner or stated where they are located and how to access (ie: Pyxis override) but not opened or used during the drill.
- Depending on how you will demonstrate eclamptic seizure and vital signs, explain this will occur (displayed on cards).

3.0 Basic Scenario Management and Tips:
Beginning the Simulation Scenario: After you have conducted your pre-simulation briefing/orientation, have the participant who will be the primary OB nurse come with you to the simulated patient’s room.

To begin the scenario, read the scenario to primary OB nurse and then have them enter the room. With the Simulation Leader acting as the patient, tell the nurse about the patient’s complaint: she is feeling “really terrible…something is not OK.”

Patient’s blood pressure will remain elevated in the severe range until two doses of an antihypertensive medication are given. Once the team orders serial blood pressure measurements, you may display a new blood pressure every 2 minutes. Allow time for team to discuss initiating anti-hypertensive therapy and answer patient/family questions.

Once an antihypertensive medication is given, the faculty proctor will need to do the following:

1. State that “15 minutes have elapsed”
2. Display a new blood pressure in order to prompt additional discussion by the team and at that time they should order/administer another dose of an antihypertensive medication. Initial laboratory values are available for the team to review.
3. The scenario should end when the team reaches the Completion Points below.

Case Scenario:

Patient Information:

Eunice Joseph:

- Ms. Joseph is a 34 y/o G3P2002 at 27 weeks brought in by a family member to OB triage for an elevated blood pressure reading at home. The patient has chronic hypertension and gestational diabetes in this pregnancy. Patient stated she felt her "head was heavy" all day and took her blood pressure at home with the blood pressure cuff her PCP gave her before pregnancy and the reading was 200/110. She already took her morning dose of labetalol today.
- She has an obstetrical history of an uncomplicated vaginal delivery 5 years ago and a primary cesarean section for a placenta previa 2 years ago. Her second pregnancy was also complicated by postpartum preeclampsia with severe features.

- Medications: Metformin 1000 mg BID, Labetalol 600 mg BID, Aspirin 81mg daily, Prenatal vitamins.
- She has no known drug allergies
- Baseline HTN labs: baseline Creatinine- 0.78 mg/dL, baseline Protein/Creatinine ratio- 0.1 mg/g Creat,
- baseline platelet count- 230 K/uL, baseline AST- 22 IU/L, baseline ALT- 40 IU/L
- Last ultrasound was done 3 weeks ago, and fetus was AGA, although you do not have the EFW from that report.
- Your intake nurse went ahead and placed an IV given patient's initial history and drew Type and Screen, Complete Blood Count, and Comprehensive Metabolic Panel, sending them stat to the lab.

Laboratory Data (on admission):

- MBT: B positive
- Hemoglobin: 13.0 g/dL
- Hematocrit: 40.1 %
- WBC: 12,000 K/uL
- Platelets: 123 K/uL
- AST 1334 IU/L
- ALT 1355 IU/L
- Cr 0.8 mg/dL

Information includes:

- The patient has a heplock IV line in place.
- Initial vital signs: BP 220/112, HR 105, RR 18 O2 sat 97% on room air. o If vital signs are repeated they will remain in the severe HTN range
- FHR Tracing: Baseline 130, minimal variability, no accelerations, no decelerations. Toco shows irritability.
- Limited bedside US: Complete breech, EFW 1300 grams, Amniotic Fluid Index = 3cm

PT HAS A SEIZURE

During seizure:

- Vital signs: BP 220/112, HR 110, RR 8, O2 sat 93% (no change in O2 saturation regardless of supplemental oxygen) ▪ FHR Tracing: Fetal bradycardia to 80s with minimal variability.

After seizure resolves:

Vital signs:

- If antihypertensives given: BP 149/92, HR 95, RR 14, O2 sat 96% on room air
- If antihypertensives NOT given: BP 179/107, HR 95, RR 14, O2 sat 96% on room air

FHR Tracing: Baseline of 180s, minimal variability, no accelerations, no decelerations.

Answers to frequent questions that come up:

- The team can order labs during the simulation, but they will not come back during the simulation.
- The FHR tracing will demonstrate fetal bradycardia during the eclamptic seizure and will slowly recover after the seizure ends.
- If asked additional questions, try and redirect and not answer specifics so as not to introduce things that might confuse the scenario (i.e. don't say that she has a recent head trauma or family history of seizure disorder

5.0 Case Flow/Algorithm with branch point and completion criteria:

Simulation facilitator will introduce the scenario to the team outside the room and then bring primary bedside provider to the patient's room and then read them the patient scenario. The OB Nurse should then enter the room, assess the patient, and then call for assistance as seizure begins.

"Initial" Vital Signs and FHR tracing should be on monitor. Vital signs may be repeated but will remain in the severe HTN range.

Patient should explain symptoms and after a brief history is taken will begin to have an eclamptic seizure.

↓

OB Provider/team enters room when called and are briefed by OB Nurse

"During seizure" Vital Signs and FHR tracing should be available

↓

OB Team should care for patient (put up handrails/place patient in left lateral position/continuous maternal pulse oximeter in place)

IV magnesium sulfate should be initiated

IV antihypertensives should be administered for severe range HTN

↓

After approximately 2 minutes, the patient will stop seizing.
"After seizure" Vital Signs and FHR tracing should be on monitor.

↓

Team should discuss the delivery plan and further management. They may talk with the patient / family members about additional care and delivery.

VITAL SIGNS
START
BP: 220/112
HR: 100 bpm
O2 sat: 98% on RA
RR: 18
VITALS DURING SEIZURE
BP: 220/112
HR: 110 bpm
O2 sat: 93%
RR: 8
VITALS AFTER SEIZURE ENDS
BP: 149/92 (if antihypertensive given) **OR** 179/107 (if no antihypertensives were given)
HR: 95 bpm
O2 sat: 96% on RA
RR: 14

Planned Completion Points

In order to successfully complete this scenario, the care team should do the following:

- Recognize severe range hypertension.
- Make the diagnosis of superimposed preeclampsia/HELLP syndrome based upon blood pressures and laboratory values.
- Make the diagnosis of eclamptic seizure.
- Administer antihypertensive medications and IV magnesium correctly and efficiently.
- Appropriately stabilize a patient having a presumed eclamptic seizure.
- Counsel the patient regarding delivery recommendations after an eclamptic seizure

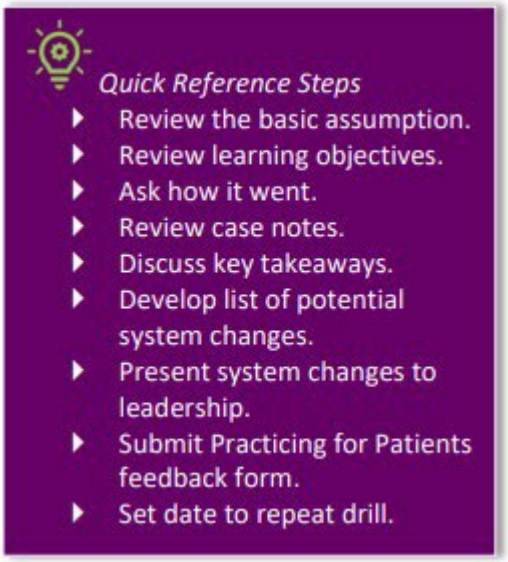
Scenario ends when the team has done the following:

- Diagnosed the patient with eclampsia
- Administered at least one dose of an appropriate antihypertensive medication
- Initiated IV magnesium sulfate therapy
- Discuss delivery plan once patient is stabilized

OR

- If 10 minutes have elapse and the above steps have not been taken

DEBRIEF:



Complete debrief form with focus on educational issues and system improvements

Fill out drill log and give to RN Manager/Educator

Case Study #3

Case Study #3 Scenario:

Patient Information:

Eunice Joseph:

- Ms. Joseph is a 34 y/o G3P2002 at 27 weeks brought in by a family member to OB triage for an elevated blood pressure reading at home. The patient has chronic hypertension and gestational diabetes in this pregnancy. Patient stated she felt her "head was heavy" all day and took her blood pressure at home with the blood pressure cuff her PCP gave her before pregnancy and the reading was 200/110. She already took her morning dose of labetalol today.
- She has an obstetrical history of an uncomplicated vaginal delivery 5 years ago and a primary cesarean section for a placenta previa 2 years ago. Her second pregnancy was also complicated by postpartum preeclampsia with severe features.

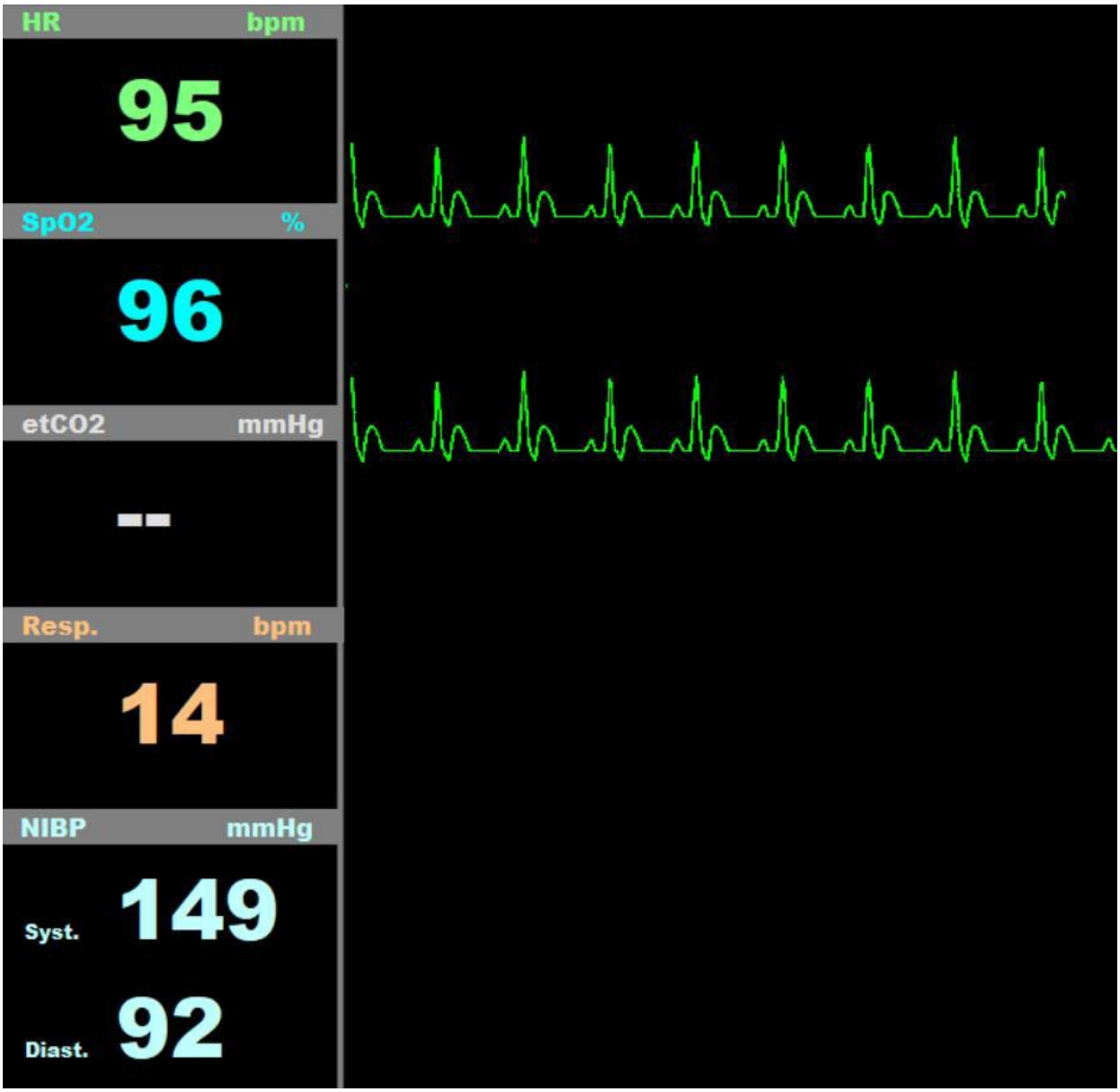
- Medications: Metformin 1000 mg BID, Labetalol 600 mg BID, Aspirin 81mg daily, Prenatal vitamins.
- She has no known drug allergies
- Baseline HTN labs: baseline Creatinine- 0.78 mg/dL, baseline Protein/Creatinine ratio- 0.1 mg/g Creat,
- baseline platelet count- 230 K/uL, baseline AST- 22 IU/L, baseline ALT- 40 IU/L
- Last ultrasound was done 3 weeks ago, and fetus was AGA, although you do not have the EFW from that report.
- Your intake nurse went ahead and placed an IV given patient's initial history and drew Type and Screen, Complete Blood Count, and Comprehensive Metabolic Panel, sending them stat to the lab.

Laboratory Data (on admission):

- MBT: B positive
- Hemoglobin: 13.0 g/dL
- Hematocrit: 40.1 %
- WBC: 12,000 K/uL
- Platelets: 123 K/uL
- AST 1334 IU/L
- ALT 1355 IU/L
- Cr 0.8 mg/dL

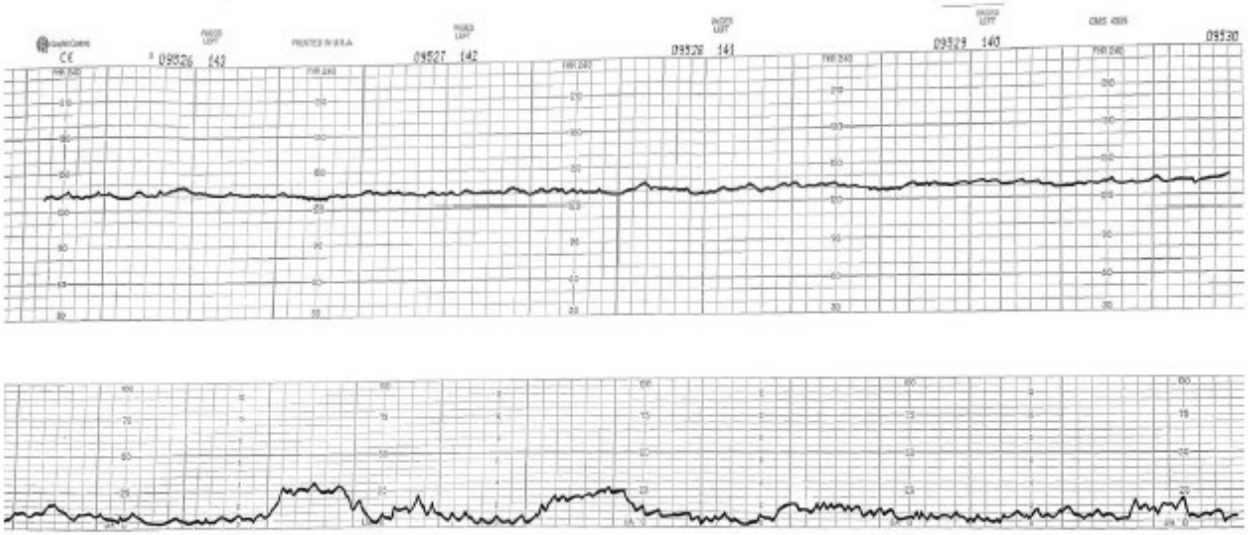

HR
bpm
100
SpO2
%
98
etCO2
mmHg
--
Resp.
bpm
18
NIBP
mmHg
Syst.
220
Diast.
112

V1 MAR 2021
Made utilizing the SourceForge Vital Sign Simulator (here). CASE #3

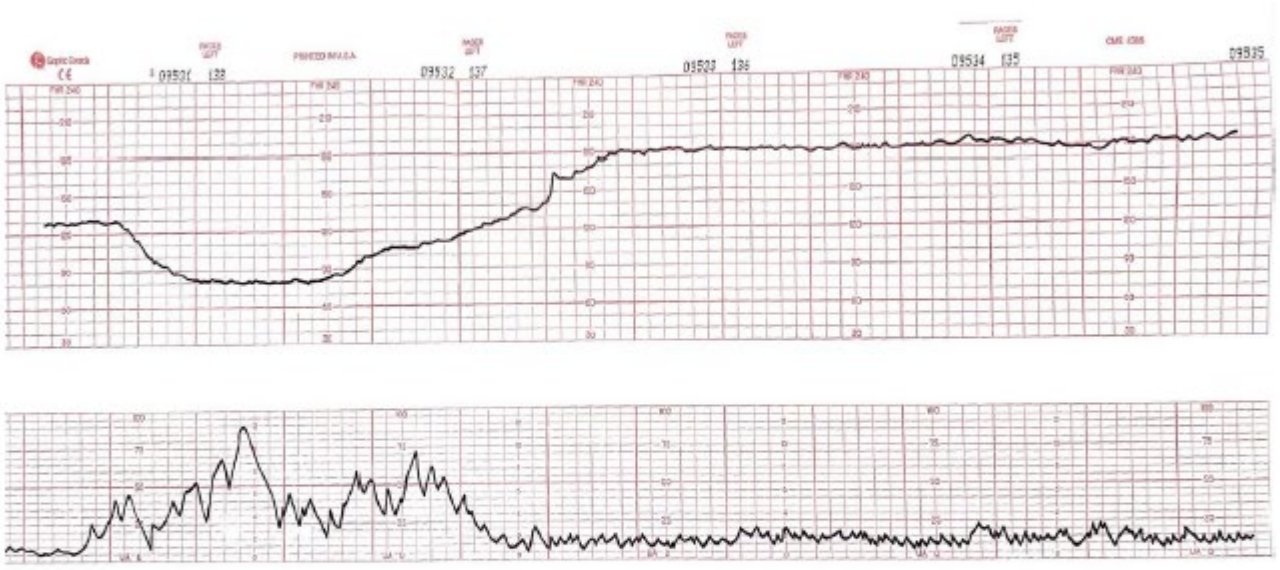

HR
bpm
95
SpO2
%
96
etCO2
mmHg
--
Resp.
bpm
14
NIBP
mmHg
Syst.
149
Diast.
92

V1 MAR 2021
Made utilizing the SourceForge Vital Sign Simulator (here). CASE #3

Case #3 Initial Fetal Heart Rate Tones



Case #3 Eclampsia Fetal Heart Rate Tones



HTN Crisis Role Card – RN

RN – This encompasses the RN role and could be divided up amongst multiple RNs (i.e. Primary, Secondary, Charge) based on how your team functions:

- Notify Provider with BP > 160/110 and repeat in 15 minutes
- Obtain IV access or flush SL
- Initiate continuous EFM (if still pregnant)
- Send labs (if indicated)
    - PEC labs and urine sample
- Obtain HTN medication kit from Pyxis
- Obtain HTN Crisis and medication algorithms
- Administer antihypertensive medication ordered based on elevated repeat BP, IV access, and maternal HR
    - Follow medication algorithms and VS parameters as indicated
- Administer magnesium sulfate if ordered
    - Insert foley
- Administer BMZ if ordered
- Assist in transfer of care if indicated
- Discuss delivery plan of care with team and patient/family
- Communicate with family
- Complete debrief form with OB provider
- If in the event of Eclamptic seizure
    - Side rails up
    - Protect airway
    - Apply oxygen

HTN Crisis Role Card – LNA/Support Staff

LNA –

- Provide support in covering lights/completing hourlies in other patient rooms
- Complete VS as delegated by RN
- If delegated, assist with transfer to higher level of care
- If patient is postpartum, provide support to support person or newborn as needed

HTN Crisis Role Card – Resident Provider

Systolic blood pressure ≥ 160, diastolic blood pressure ≥ 110; repeat in 15 minutes & Notify Provider

Goal: Initiate medication within 30-60 minutes to achieve BP of 140-150/90-100

If AP: Initiate and maintain Continuous Fetal Monitoring throughout treatment and during recovery

Obtain IV access

- Call senior OB resident and/or attending
- Order labs and monitoring
- Decide medication start:
- Nifedipine (if no IV access)
- Consider Labetalol (if HR > 80)
- Consider hydralazine (if HR < 80)
- Assess Patient & Remain at the bedside for Med Administration
- Consider initiating Mag

HTN Crisis Role Card – Attending Provider

Systolic blood pressure ≥ 160, diastolic blood pressure ≥ 110; repeat in 15 minutes & Notify Provider

Goal: Initiate medication within 30-60 minutes to achieve BP of 140-150/90-100

If AP: Initiate and maintain Continuous Fetal Monitoring throughout treatment and during recovery

Obtain IV access

HTN Crisis Role Card – Anesthesia Provider

Systolic blood pressure ≥ 160, diastolic blood pressure ≥ 110; repeat in 15 minutes & Notify Provider

Goal: Initiate medication within 30-60 minutes to achieve BP of 140-150/90-100

If AP: Initiate and maintain Continuous Fetal Monitoring throughout treatment and during recovery

Obtain IV access

- Induction of general anesthesia and intubation should never be undertaken without first taking steps to eliminate or minimize the hypertensive response to intubation

EXAMPLE

Hypertensive Emergency Checklist

HYPERTENSIVE EMERGENCY:

- Two severe BP values (≥160/110) taken 15-60 minutes apart. Values do not need to be consecutive.
- May treat within 15 minutes if clinically indicated

- ☐ Call for Assistance
- ☐ Designate:
  - ◯ Team leader
  - ◯ Checklist reader/recorder
  - ◯ Primary RN
- ☐ Ensure side rails up
- ☐ Ensure medications appropriate given patient history
- ☐ Administer seizure prophylaxis (magnesium sulfate first line agent, unless contraindicated)
- ☐ Antihypertensive therapy within 1 hour for persistent severe range BP
- ☐ Place IV; Draw preeclampsia labs
- ☐ Antenatal corticosteroids (if <34 weeks of gestation)
- ☐ Re-address VTE prophylaxis requirement
- ☐ Place indwelling urinary catheter
- ☐ Brain imaging if unremitting headache or neurological symptoms
- ☐ Debrief patient, family, and obstetric team

† "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
Ⓒ any history of intubation or hospitalization for asthma.

Magnesium Sulfate

Contraindications: Myasthenia gravis; avoid with pulmonary edema, use caution with renal failure

IV access:

- ☐ Load 4-6 grams 10% magnesium sulfate in 100 mL solution over 20 min
- ☐ Label magnesium sulfate; Connect to labeled infusion pump
- ☐ Magnesium sulfate maintenance 1-2 grams/hour

No IV access:

- ☐ 10 grams of 50% solution IM (5 g in each buttock)

Antihypertensive Medications

For SBP ≥ 160 or DBP ≥ 110
(See SMI algorithms for complete management when necessary to move to another agent after 2 doses.)

- ☐ **Labetalol** (initial dose: 20mg); **Avoid parenteral labetalol with active asthma, heart disease, or congestive heart failure; use with caution with history of asthma**
- ☐ **Hydralazine** (5-10 mg IV* over 2 min); **May increase risk of maternal hypotension**
- ☐ **Oral Nifedipine** (10 mg capsules); Capsules should be administered orally, not punctured or otherwise administered sublingually

** Maximum cumulative IV-administered doses should not exceed 220 mg labetalol or 25 mg hydralazine in 24 hours*

***Note:** If first line agents unsuccessful, emergency consult with specialist (MFM, internal medicine, OB anesthesiology, critical care) is recommended*

Anticonvulsant Medications

For recurrent seizures or when magnesium sulfate contraindicated

- ☐ **Lorazepam (Ativan)**: 2-4 mg IV x 1, may repeat once after 10-15 min
- ☐ **Diazepam (Valium)**: 5-10 mg IV q 5-10 min to maximum dose 30 mg

EXAMPLE

Eclampsia Checklist

- ☐ Call for Assistance
- ☐ Designate
  - ◯ Team leader
  - ◯ Checklist reader/recorder
  - ◯ Primary RN
- ☐ Ensure side rails up
- ☐ Protect airway and improve oxygenation:
  - ◯ Maternal pulse oximetry
  - ◯ Supplemental oxygen (100% non-rebreather)
    - ☐ Lateral decubitis position
    - ☐ Bag-mask ventilation available
    - ☐ Suction available
- ☐ Continuous fetal monitoring
- ☐ Place IV; Draw preeclampsia labs
- ☐ Ensure medications appropriate given patient history
- ☐ Administer magnesium sulfate
- ☐ Administer antihypertensive therapy if appropriate
- ☐ Develop delivery plan, if appropriate
- ☐ Debrief patient, family, and obstetric team

† "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
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No IV access:

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Antihypertensive Medications

For SBP ≥ 160 or DBP ≥ 110
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** Maximum cumulative IV-administered doses should not exceed 220 mg labetalol or 25 mg hydralazine in 24 hours*

Note: *if persistent seizures, consider anticonvulsant medications and additional workup*

Anticonvulsant Medications

For recurrent seizures or when magnesium sulfate contraindicated

- ☐ **Lorazepam (Ativan)**: 2-4 mg IV x 1, may repeat once after 10-15 min
- ☐ **Diazepam (Valium)**: 5-10 mg IV q 5-10 min to maximum dose 30 mg

For Persistent Seizures

- ☐ Neuromuscular block and intubate
- ☐ Obtain radiographic imaging
- ☐ ICU admission
- ☐ Consider anticonvulsant medications

Obstetric Team Debriefing Form

Remember: Debriefing is meant to be a learning experience and a way to address both human factors and systems issues to improve the response for next time. There is to be no blaming/finger-pointing.

Type of event: _____ **Date of event:** _____

Location of event: _____

Members of team present: (check all that apply)

- ☐ Primary RN
- ☐ Primary MD
- ☐ Charge RN
- ☐ Resident(s)
- ☐ Anesthesia personnel
- ☐ Neonatology personnel
- ☐ MFM leader
- ☐ Patient Safety Officer
- ☐ Nurse Manager
- ☐ OB/Surgical tech
- ☐ Unit Clerk
- ☐ Other RNs

Thinking about how the obstetric emergency was managed,

Identify what went well: (Check if yes)

- ☐ Communication
- ☐ Role clarity (leader/supporting roles identified and assigned)
- ☐ Teamwork
- ☐ Situational awareness
- ☐ Decision-making
- ☐ Other: _____

_____

Identify opportunities for improvement: "human factors" (Check if yes)

- ☐ Communication
- ☐ Role clarity (leader/supporting roles identified and assigned)
- ☐ Teamwork
- ☐ Situational awareness
- ☐ Decision-making
- ☐ Other: _____

_____

Identify opportunities for improvement: "systems issue" (Check if yes)

- ☐ Equipment
- ☐ Medication
- ☐ Blood product availability
- ☐ Inadequate support (in unit or other areas of the hospital)
- ☐ Delays in transporting the patient (within hospital or to another facility)
- ☐ Other: _____

_____

Obstetric Team Debriefing Form

For identified issues, fill in table below

Issue	Actions to be Taken	Person Responsible
	1	
	2	
	3	
	4	

Grab and Go Drill Log Information

(to be utilized by drill facilitators)

Date:

Time:

Scenario:

Location (ex. M7, B7, OR):

Participants:

Facilitator:

Scavenger Hunt - Hypertensive Crisis

A fun activity to get your staff moving around the unit to ensure they know the locations of reference documents needed in a HTN Crisis. We focused on: notifying the Charge RN, knowing how to page a Provider, how to access the meds, where to find the checklist/med algorithms/debrief forms, and reminding them to place an AP pa- tient on the monitor.

Instructions:

1. Hand laminated case study to participant.
2. They read the case study and work through the scenario by visiting all the places they would find resources. Laminated clue cards are found at each designated place. For a visual clue use colored paper to print off clue cards.

Set-Up:

Laminated Clues & Their Location

Clue	Location
Case Study	Give to participant
Clue #1	At Charge RN station (Charge RN can hand them the card)
Clue #2	On the back of the Resident name on the CallBoard
Clue #3	Near the phone/computer where you would initiate the page. We had a reference sheet here to review paging and how to indicate level of urgency in the page
Clue #4	We had laminated screen shots of the pyxis machine and people had to place the cards in the correct order in which you pull out meds and then flip the cards over to get the next clue
Clue #5	On the back of the clipboard that is on the Pyxis fridge that has the HTN Checklist, medication algorithms, and Debrief forms
Clue #6	On NST Machine with a bowl of candy

Clue Cards

Clue #1

You attempt to relay the information to the charge RN, but she is too busy to call the Provider at this time and asks you to page the MD yourself. You will find your next clue on the back of the correct MD card.

Clue #2

Find the closest phone/computer to find the paging instructions. Read through the instructions on paging the provider.

Clue #3

The High Risk Resident calls back and says “I’ll be right over to give meds”. You will find your next clue with your next action.

Simulated Pyxis Puzzle

Place the images in the order that you would find in the pyxis for removing the HTN Crisis Systems Kit. Once in the correct order flip the pages to find your next clue.

You will find

your next clue

on the back

of the tool

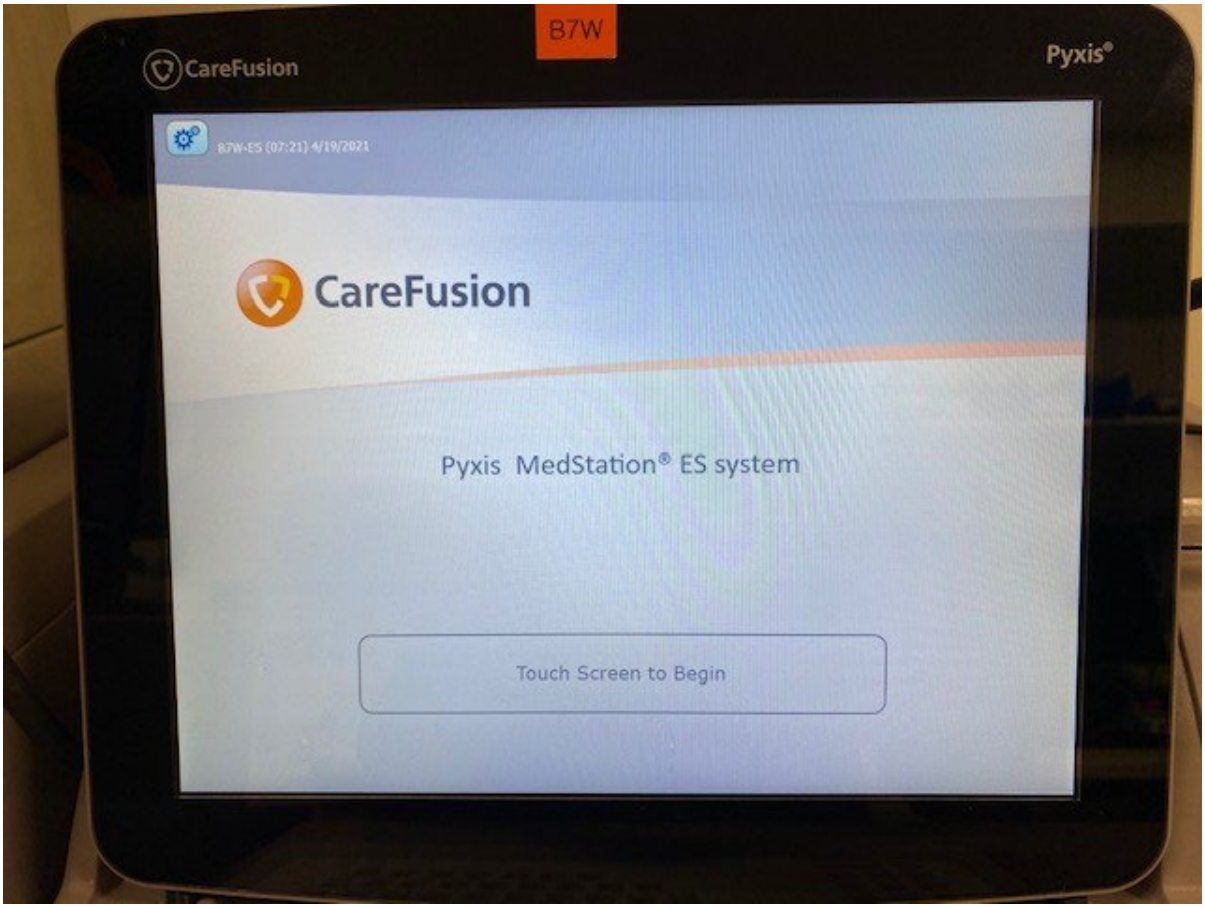
bring with you.

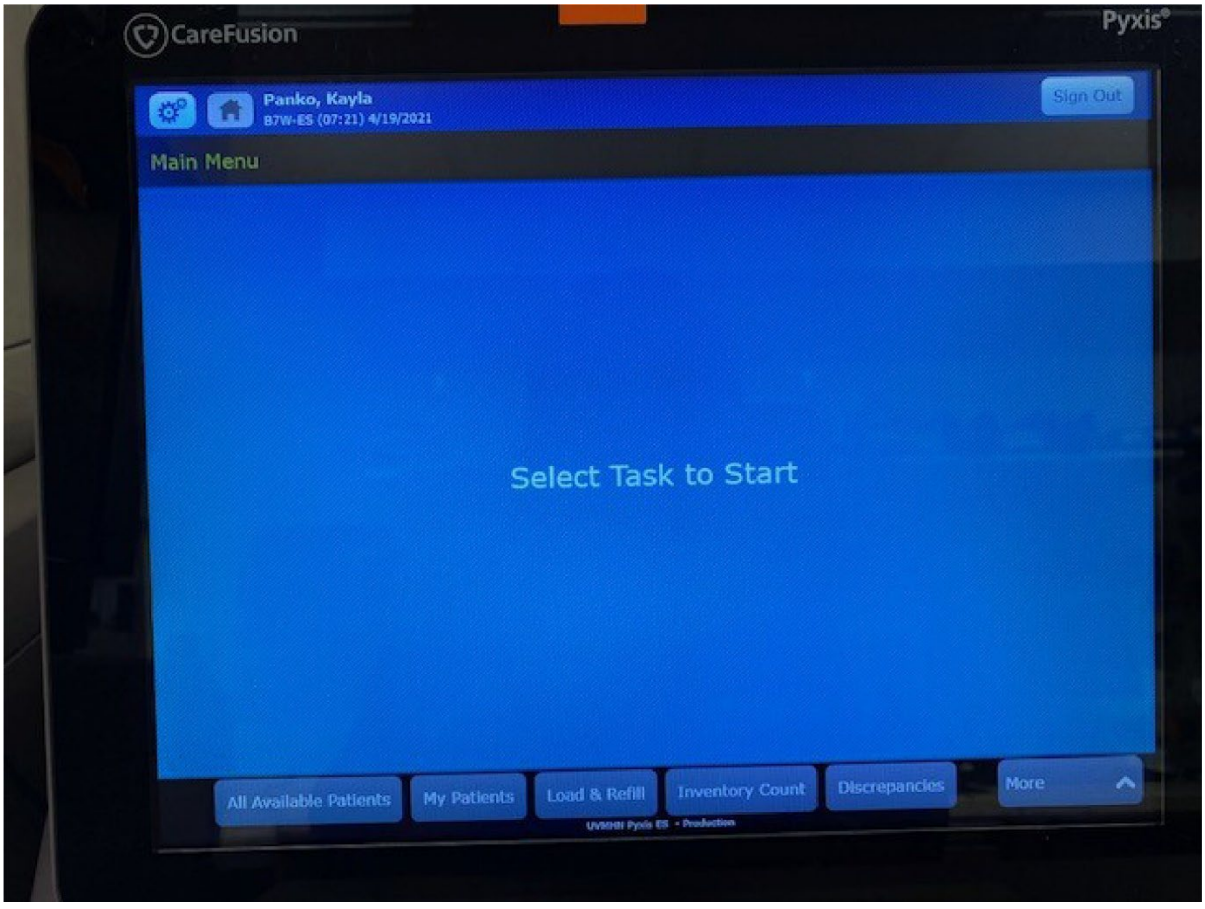
you need to

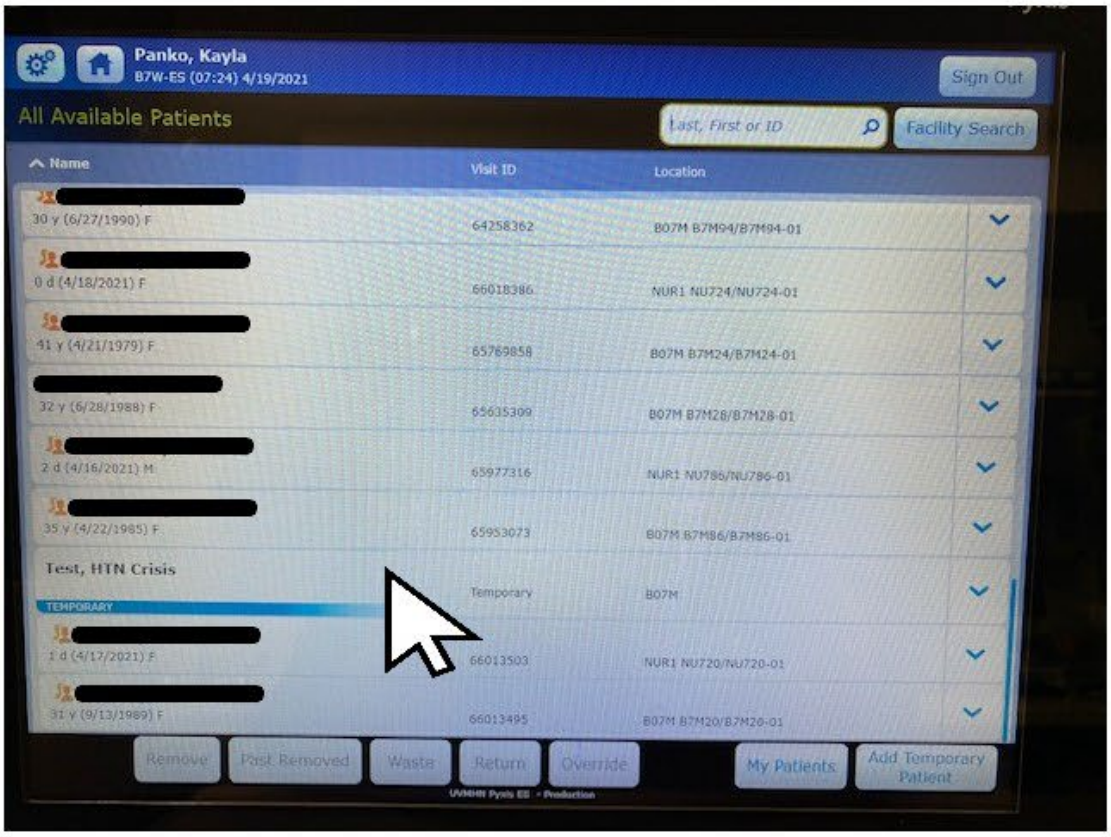
Clue #5

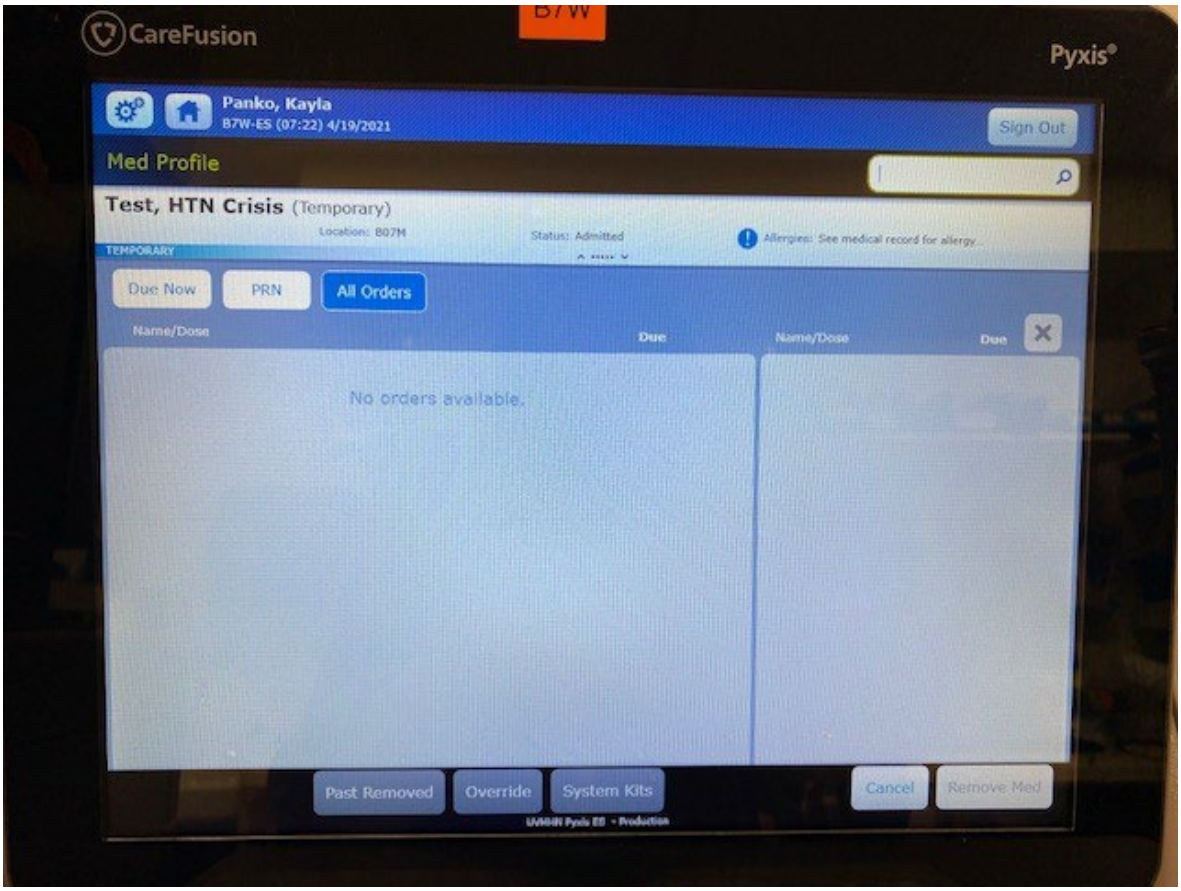
Remember you really have 2 patients. You will find your next clue on your necessary piece of equipment.

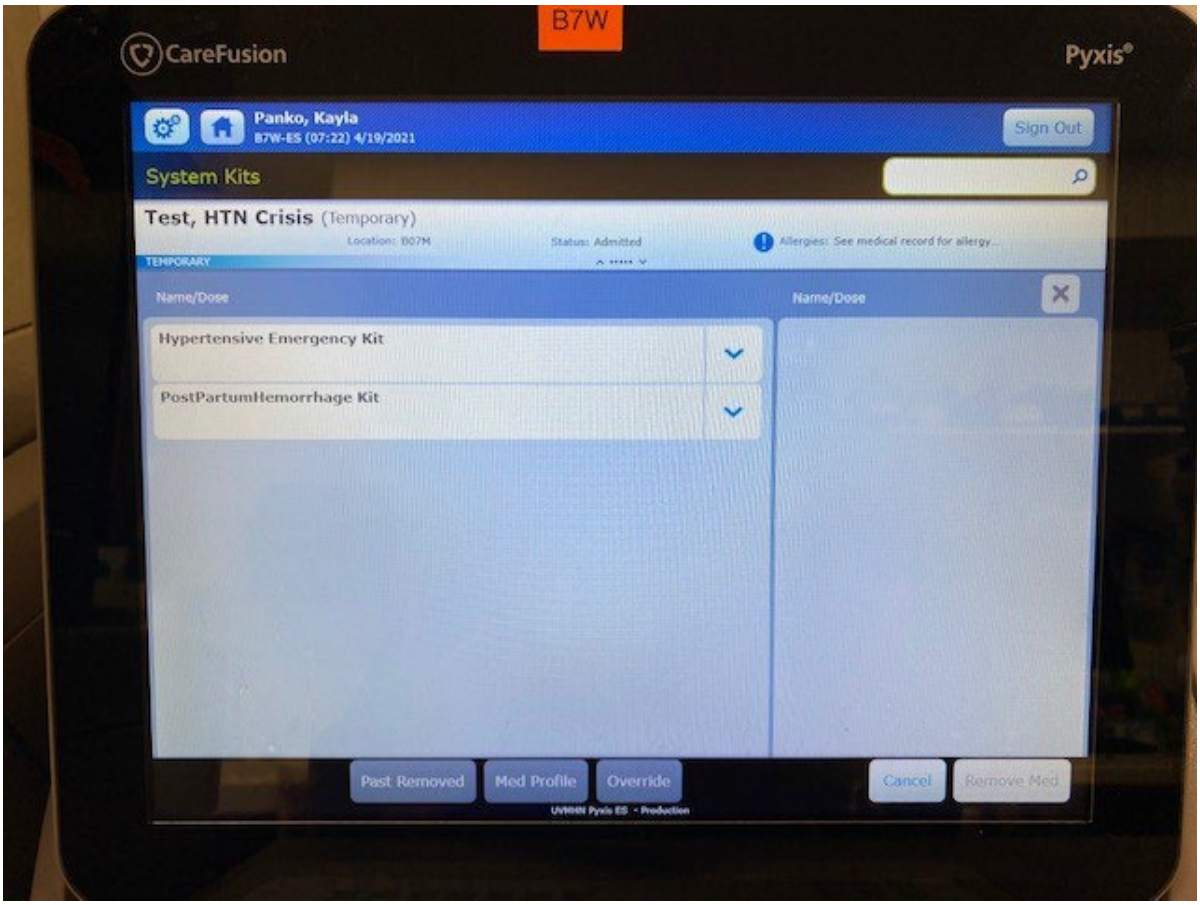
Congrats! You've completed the Scavenger Hunt!


B7W
CareFusion
Pyxis®
B7W-ES (07:21) 4/19/2021
CareFusion
Pyxis MedStation® ES system
Touch Screen to Begin


CareFusion
Pyxis®
Panko, Kayla
B7W-ES (07:21) 4/19/2021
Sign Out
Main Menu
Select Task to Start
All Available Patients
My Patients
Load & Refill
Inventory Count
Discrepancies
More


Panko, Kayla
B7W-ES (07:24) 4/19/2021
Sign Out
All Available Patients
Last, First or ID
Facility Search
Name
Visit ID
Location
30 y (6/27/1990) F
64258362
B07M B7M94/B7M94-01
0 d (4/18/2021) F
66018386
NUR1 NU724/NU724-01
41 y (4/21/1979) F
65769858
B07M B7M24/B7M24-01
32 y (6/28/1988) F
65635309
B07M B7M28/B7M28-01
2 d (4/16/2021) M
65977316
NUR1 NU786/NU786-01
35 y (4/22/1985) F
65953073
B07M B7M86/B7M86-01
Test, HTN Crisis
TEMPORARY
Temporary
B07M
1 d (4/17/2021) F
66013503
NUR1 NU720/NU720-01
31 y (9/13/1989) F
66013485
B07M B7M20/B7M20-01
Remove
Past Removed
Waste
Return
Override
My Patients
Add Temporary Patient


CareFusion
Pyxis
Panko, Kayla
B7W-ES (07:22) 4/19/2021
Sign Out
Med Profile
Test, HTN Crisis (Temporary)
Location: B07M
Status: Admitted
Allergies: See medical record for allergy...
TEMPORARY
Due Now
PRN
All Orders
Name/Dose
Due
Name/Dose
Due
No orders available.
Past Removed
Override
System Kits
Cancel
Remove Med


B7W
CareFusion
Pyxis®
Panko, Kayla
B7W-ES (07:22) 4/19/2021
Sign Out
System Kits
Test, HTN Crisis (Temporary)
Location: B07M
Status: Admitted
Allergies: See medical record for allergy...
TEMPORARY
Name/Dose
Name/Dose
Hypertensive Emergency Kit
PostPartumHemorrhage Kit
Past Removed
Med Profile
Override
Cancel
Remove Med
UVMHN Pyxis ES - Production

HTN Resources

This section is to provide you with additional copies of the case studies and examples of different resources to supplement, replace, or add to your existing documents for your facility. You should replace you institution specific copies into each case study packet OR have staff retrieve the resources from their original location as part of the drill.

Included Documents:

- Checklist
- Medication Algorithms: Hydralazine, Nifedipine, Labetalol
- Medication Doses & Treatment of Seizure
- Debrief Form
- HTN Response by Role Algorithm
- Role Cards
- Case #1
- Case #2
- Case #3
- Scavenger Hunt Instructions
- Copies of Grab & Go Drill Log Sheet

EXAMPLE

Hypertensive Emergency Checklist

HYPERTENSIVE EMERGENCY:

- Two severe BP values (≥160/110) taken 15-60 minutes apart. Values do not need to be consecutive.
- May treat within 15 minutes if clinically indicated

- ☐ Call for Assistance
- ☐ Designate:
  - ◯ Team leader
  - ◯ Checklist reader/recorder
  - ◯ Primary RN
- ☐ Ensure side rails up
- ☐ Ensure medications appropriate given patient history
- ☐ Administer seizure prophylaxis (magnesium sulfate first line agent, unless contraindicated)
- ☐ Antihypertensive therapy within 1 hour for persistent severe range BP
- ☐ Place IV; Draw preeclampsia labs
- ☐ Antenatal corticosteroids (if <34 weeks of gestation)
- ☐ Re-address VTE prophylaxis requirement
- ☐ Place indwelling urinary catheter
- ☐ Brain imaging if unremitting headache or neurological symptoms
- ☐ Debrief patient, family, and obstetric team

† "Active asthma" is defined as:
Ⓐ symptoms at least once a week, or
Ⓑ use of an inhaler, corticosteroids for asthma during the pregnancy, or
Ⓒ any history of intubation or hospitalization for asthma.

Magnesium Sulfate

Contraindications: Myasthenia gravis; avoid with pulmonary edema, use caution with renal failure

IV access:

- ☐ Load 4-6 grams 10% magnesium sulfate in 100 mL solution over 20 min
- ☐ Label magnesium sulfate; Connect to labeled infusion pump
- ☐ Magnesium sulfate maintenance 1-2 grams/hour

No IV access:

- ☐ 10 grams of 50% solution IM (5 g in each buttock)

Antihypertensive Medications

For SBP ≥ 160 or DBP ≥ 110
(See SMI algorithms for complete management when necessary to move to another agent after 2 doses.)

- ☐ **Labetalol** (initial dose: 20mg); **Avoid parenteral labetalol with active asthma, heart disease, or congestive heart failure; use with caution with history of asthma**
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** Maximum cumulative IV-administered doses should not exceed 220 mg labetalol or 25 mg hydralazine in 24 hours*

***Note:** If first line agents unsuccessful, emergency consult with specialist (MFM, internal medicine, OB anesthesiology, critical care) is recommended*

Anticonvulsant Medications

For recurrent seizures or when magnesium sulfate contraindicated

- ☐ **Lorazepam (Ativan)**: 2-4 mg IV x 1, may repeat once after 10-15 min
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Safe Motherhood Initiative

ACOG

Revised January 2019

EXAMPLE

Eclampsia Checklist

- ☐ Call for Assistance
- ☐ Designate
  - ◯ Team leader
  - ◯ Checklist reader/recorder
  - ◯ Primary RN
- ☐ Ensure side rails up
- ☐ Protect airway and improve oxygenation:
  - ◯ Maternal pulse oximetry
  - ◯ Supplemental oxygen (100% non-rebreather)
    - ☐ Lateral decubitis position
    - ☐ Bag-mask ventilation available
    - ☐ Suction available
- ☐ Continuous fetal monitoring
- ☐ Place IV; Draw preeclampsia labs
- ☐ Ensure medications appropriate given patient history
- ☐ Administer magnesium sulfate
- ☐ Administer antihypertensive therapy if appropriate
- ☐ Develop delivery plan, if appropriate
- ☐ Debrief patient, family, and obstetric team

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Note: *If persistent seizures, consider anticonvulsant medications and additional workup*

Anticonvulsant Medications

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For Persistent Seizures

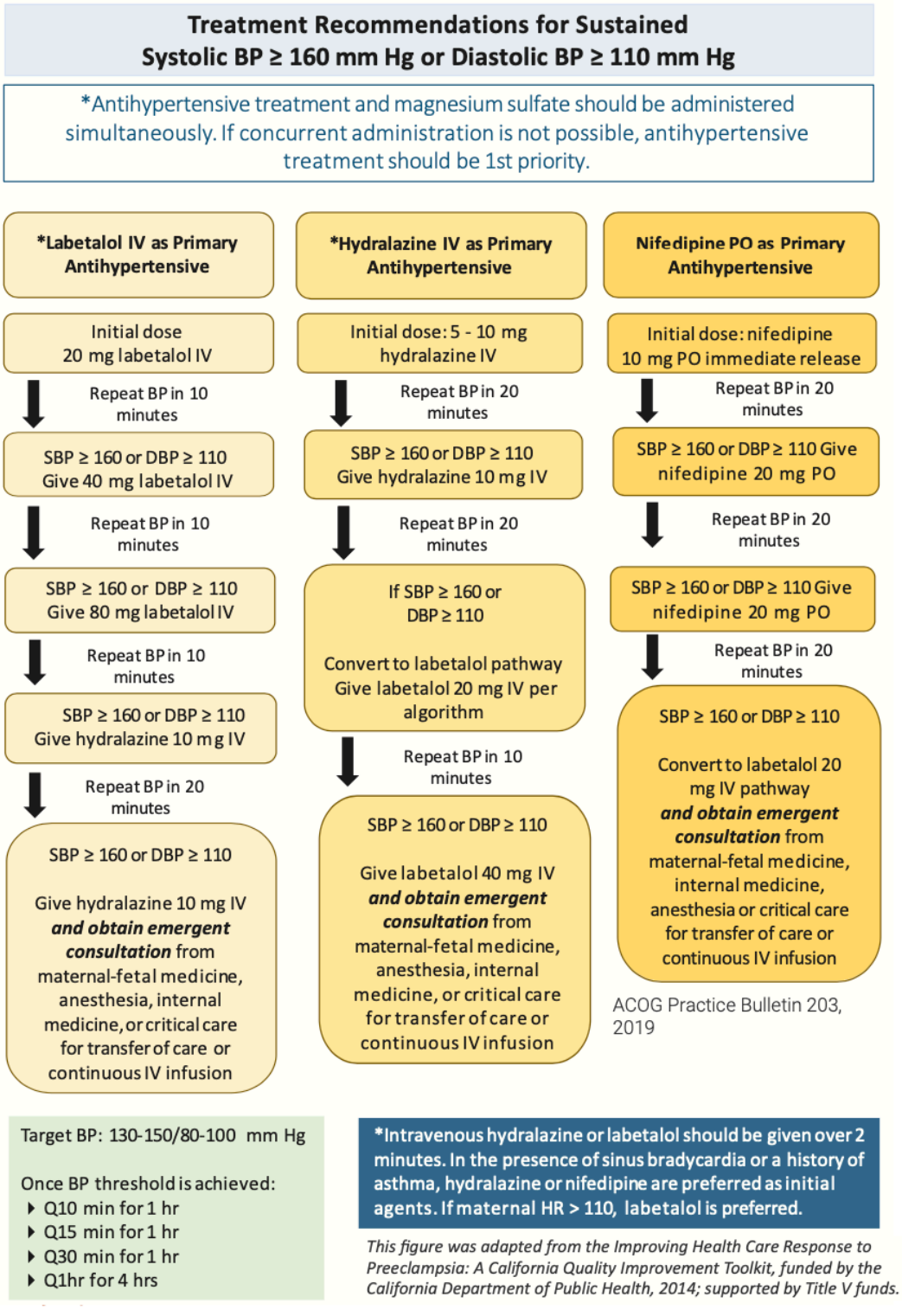
- ☐ Neuromuscular block and intubate
- ☐ Obtain radiographic imaging
- ☐ ICU admission
- ☐ Consider anticonvulsant medications

Safe Motherhood Initiative

ACOG

Revised January 2019

Part 2: Antihypertensive Treatment Algorithm for Hypertensive Emergencies



This figure was adapted from the Improving Health Care Response to Preeclampsia: A California Quality Improvement Toolkit, funded by the California Department of Public Health, 2014; supported by Title V funds.

Part 3: Magnesium Dosing and Treatment Algorithm for Refractory Seizures

Magnesium: Initial Treatment

1. Loading Dose: 4-6 gm over 20-30 minutes (6 gm for BMI > 35)
2. Maintenance Dose: 1-2 gm per hour
3. Close observation for signs of toxicity
   - Disappearance of deep tendon reflexes
   - Decreased RR, shallow respirations, shortness of breath
   - Heart block, chest pain
   - Pulmonary edema
4. Calcium gluconate or calcium chloride should be readily available for treatment of toxicity

For recurrent seizures while on magnesium

1. Secure airway and maintain oxygenation
2. Give 2nd loading dose of 2-4 gm Magnesium over 5 minutes
3. If patient still seizing 20 minutes after 2nd magnesium bolus, consider one of the following:
   - Midazolam 1-2 mg IV; may repeat in 5-10 min
     OR
   - Diazepam 5-10 mg IV slowly; may repeat q15 min to max of 30 mg
     OR
   - Phenytoin 1,250 mg IV at a rate of 50 mg/min
   - Other medications have been used with the assistance of anesthesia providers such as:
     - Sodium thiopental
     - Sodium amobarbital
     - Propofol
4. Notify anesthesia
5. Notify neurology and consider head imaging

Seizures Resolve

1. Maintain airway and oxygenation
2. Monitor vital signs, cardiac rhythm/EKG for signs of medication toxicity
3. Consider brain imaging for:
   - Head trauma
   - Focal seizure
   - Focal neurologic findings
   - Other suspected neurologic diagnosis
4. Reassure patient with information, support
5. Debrief with team before shift end

This figure was adapted from the Improving Health Care Response to Preeclampsia: A California Quality Improvement Toolkit, funded by the California Department of Public Health, 2014; supported by Title V funds.

Obstetric Team Debriefing Form

Remember: Debriefing is meant to be a learning experience and a way to address both human factors and systems issues to improve the response for next time. There is to be no blaming/finger-pointing.

Type of event: _____ **Date of event:** _____

Location of event: _____

Members of team present: (check all that apply)

- ☐ Primary RN
- ☐ Primary MD
- ☐ Charge RN
- ☐ Resident(s)
- ☐ Anesthesia personnel
- ☐ Neonatology personnel
- ☐ MFM leader
- ☐ Patient Safety Officer
- ☐ Nurse Manager
- ☐ OB/Surgical tech
- ☐ Unit Clerk
- ☐ Other RNs

Thinking about how the obstetric emergency was managed,

Identify what went well: (Check if yes)

- ☐ Communication
- ☐ Role clarity (leader/supporting roles identified and assigned)
- ☐ Teamwork
- ☐ Situational awareness
- ☐ Decision-making
- ☐ Other: _____

_____

Identify opportunities for improvement: "human factors" (Check if yes)

- ☐ Communication
- ☐ Role clarity (leader/supporting roles identified and assigned)
- ☐ Teamwork
- ☐ Situational awareness
- ☐ Decision-making
- ☐ Other: _____

_____

Identify opportunities for improvement: "systems issue" (Check if yes)

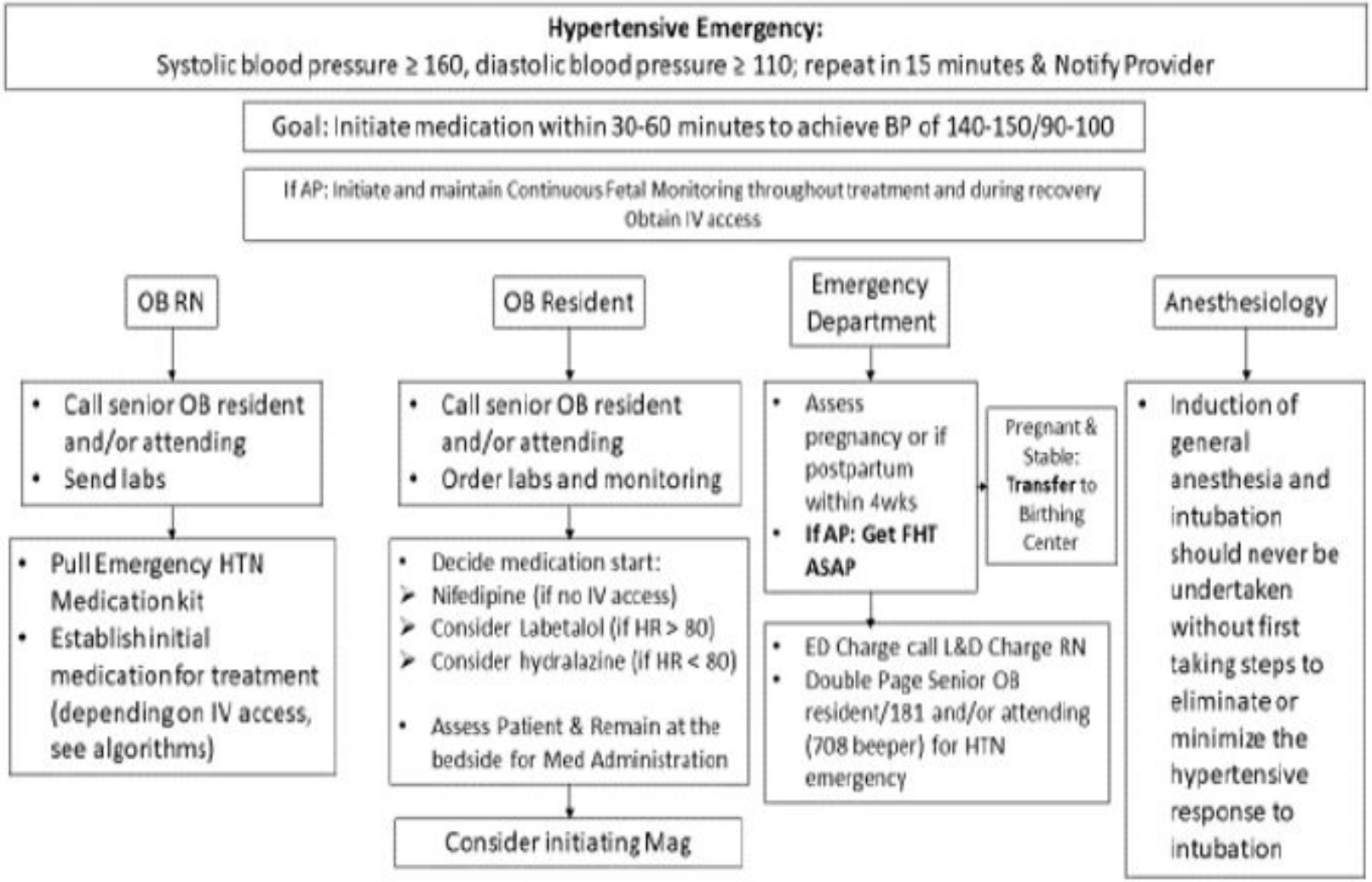
- ☐ Equipment
- ☐ Medication
- ☐ Blood product availability
- ☐ Inadequate support (in unit or other areas of the hospital)
- ☐ Delays in transporting the patient (within hospital or to another facility)
- ☐ Other: _____

_____

Obstetric Team Debriefing Form

FOR IDENTIFIED ISSUES, FILL IN TABLE BELOW

ISSUE	ACTIONS TO BE TAKEN	PERSON RESPONSIBLE
	1	
	2	
	3	
	4	


Hypertensive Emergency:
Systolic blood pressure ≥ 160, diastolic blood pressure ≥ 110; repeat in 15 minutes & Notify Provider
Goal: Initiate medication within 30-60 minutes to achieve BP of 140-150/90-100
If AP: Initiate and maintain Continuous Fetal Monitoring throughout treatment and during recovery
Obtain IV access
OB RN
Call senior OB resident and/or attending
Send labs
Pull Emergency HTN Medication kit
Establish initial medication for treatment (depending on IV access, see algorithms)
OB Resident
Call senior OB resident and/or attending
Order labs and monitoring
Decide medication start:
Nifedipine (if no IV access)
Consider Labetalol (if HR > 80)
Consider hydralazine (if HR < 80)
Assess Patient & Remain at the bedside for Med Administration
Consider initiating Mag
Emergency Department
Assess pregnancy or if postpartum within 4wks
If AP: Get FHT ASAP
Pregnant & Stable: Transfer to Birthing Center
ED Charge call L&D Charge RN
Double Page Senior OB resident/181 and/or attending (708 beeper) for HTN emergency
Anesthesiology
Induction of general anesthesia and intubation should never be undertaken without first taking steps to eliminate or minimize the hypertensive response to intubation

HTN Crisis Role Card – RN

RN – This encompasses the RN role and could be divided up amongst multiple RNs (i.e. Primary, Secondary, Charge) based on how your team functions:

- Notify Provider with BP > 160/110 and repeat in 15 minutes
- Obtain IV access or flush SL
- Initiate continuous EFM (if still pregnant)
- Send labs (if indicated)
    - PEC labs and urine sample
- Obtain HTN medication kit from Pyxis
- Obtain HTN Crisis and medication algorithms
- Administer antihypertensive medication ordered based on elevated repeat BP, IV access, and maternal HR
    - Follow medication algorithms and VS parameters as indicated
- Administer magnesium sulfate if ordered
    - Insert foley
- Administer BMZ if ordered
- Assist in transfer of care if indicated
- Discuss delivery plan of care with team and patient/family
- Communicate with family
- Complete debrief form with OB provider
- If in the event of Eclamptic seizure
    - Side rails up
    - Protect airway
    - Apply oxygen

HTN Crisis Role Card – LNA/Support Staff

LNA –

- Provide support in covering lights/completing hourlies in other patient rooms
- Complete VS as delegated by RN
- If delegated, assist with transfer to higher level of care
- If patient is postpartum, provide support to support person or newborn as needed

HTN Crisis Role Card – Resident Provider

Systolic blood pressure ≥ 160, diastolic blood pressure ≥ 110; repeat in 15 minutes & Notify Provider

Goal: Initiate medication within 30-60 minutes to achieve BP of 140-150/90-100

If AP: Initiate and maintain Continuous Fetal Monitoring throughout treatment and during recovery

Obtain IV access

- Call senior OB resident and/or attending
- Order labs and monitoring
- Decide medication start:
- Nifedipine (if no IV access)
- Consider Labetalol (if HR > 80)
- Consider hydralazine (if HR < 80)
- Assess Patient & Remain at the bedside for Med Administration
- Consider initiating Mag

HTN Crisis Role Card – Attending Provider

Systolic blood pressure ≥ 160, diastolic blood pressure ≥ 110; repeat in 15 minutes & Notify Provider

Goal: Initiate medication within 30-60 minutes to achieve BP of 140-150/90-100

If AP: Initiate and maintain Continuous Fetal Monitoring throughout treatment and during recovery

Obtain IV access

HTN Crisis Role Card – Anesthesia Provider

Systolic blood pressure ≥ 160, diastolic blood pressure ≥ 110; repeat in 15 minutes & Notify Provider

Goal: Initiate medication within 30-60 minutes to achieve BP of 140-150/90-100

If AP: Initiate and maintain Continuous Fetal Monitoring throughout treatment and during recovery

Obtain IV access

- Induction of general anesthesia and intubation should never be undertaken without first taking steps to eliminate or minimize the hypertensive response to intubation

General Simulation Instructions:

General Principles during the Simulation:

We recommend that the team run the scenario as if they were addressing the care of a real patient. This means obtaining all adjunct supplies and calling ancillary services as they would in a real-life emergent situation. If medications are needed, those should be retrieved – but not opened – to prevent waste.

The team should assign a member to write down the desired orders as if they were ordering them in the electronic medical record (if applicable). Using this approach provides an opportunity to both observe the teamwork and communication and identify any potential facilities or systems issues that arise.

If you have little time, specifically state where each needed cart, equipment, and medication is and how it will be used/administered.

Case 1: Preeclampsia with Severe Features in a Full-Term Pregnancy

Learning Objectives

By the end of this scenario, each care team member should be able to do the following:

- Recognize risk factors for preeclampsia
- Identify severe hypertension as an early warning sign for preeclampsia
- Identify preeclampsia with severe features and treat with appropriate medication(s)
- Demonstrate teamwork and communication skills during a simulated hypertensive emergency

Pre-Simulation Briefing/Orientation

Prior to the simulation, you should brief the team on the drill. Begin by orienting them to the simulator and its capabilities and limitations.
Then, explain the following:

- Emphasize that the drill is meant for training and it is not a test.
- Treat the simulator/standardized patient as they would a real patient
- If the team needs additional supplies or instruments, they should go and obtain them or state where they are
- Call for assistance and other providers (anesthesia, etc.) as they would in a real emergency.
- If they feel they need to take the patient to the operating room, they should physically move the “patient” to that location or state exactly the steps to get the pt into the OR
- Medications, if needed, should be obtained in the normal manner or stated where they are located and how to access (ie: Pyxis override) but not opened or used during the drill.

Basic Scenario Management and Tips

Beginning the Simulation Scenario:

After you have conducted your pre-simulation briefing/orientation, have the participant who will be the primary OB nurse come with you to the simulated patient's room.

To begin the scenario, read the scenario to primary OB nurse and then have them enter the room. With the Simulation Leader acting as the patient, tell the nurse about the patient's complaint of a headache.

Patient's blood pressure will remain elevated in the severe range until two doses of an antihypertensive medication are given. Once the team orders serial blood pressure measurements, you may display a new blood pressure every 2 minutes. Allow time for team to discuss initiating anti-hypertensive therapy and answer patient/family questions.

Once an antihypertensive medication is given, the faculty proctor will need to do the following:

1. State that "15 minutes have elapsed"
2. Display a new blood pressure in order to prompt additional discussion by the team and at that time they should order/administer another dose of an antihypertensive medication. Initial laboratory values are available for the team to review.

The scenario should end when the team reaches the Completion Points below.

Case Scenario:

Patient Information:

Heidi P. Tension:

- The patient is a 27y/o G2P1001 37+4wks.
- Her first pregnancy was complicated by preeclampsia at 36wks gestation.
- The patient complains of a frontal headache that is a 7 out of 10 in severity.
- She has had an uncomplicated prenatal course and has no known drug allergies
- BMI: 32.5

Laboratory Data:

- Hemoglobin: 12.2 g/dL
- Hematocrit: 36.6 %
- WBC: 12,000 K/uL
- Platelets: 218,000
- Serum creatinine: 0.68 mg/dL
- AST- 23 IU/L
- ALT- 18 IU/L
- Urine Protein/Creatinine ratio – 0.18

Clinical Information includes:

- First Blood pressure 188/115 and repeat will be 180/110, RR 18, O2 Sat 96% on room air.
- The patient has an IV line in place with NS running.
- FHR: Baseline 150s, moderate variability, accelerations present, no decelerations.
- Tocodynamometer: Contractions approximately every 10 min

Answers to frequent questions that come up:

- The team can order labs during the simulation, but they will not return during the simulation
- The patient has a history of preeclampsia in her first pregnancy
- The patient does not have asthma
- If asked additional questions, try to redirect and not answer specifics so as to avoid topics that might complicate the scenario (i.e., do not say that the patient has migraines).

5.0 Case Flow/Algorithm with branch point and completion criteria:

Simulation facilitator will introduce the scenario to the team outside the room and then bring the participant who will be the initial provider (OB Nurse) into the patient's room.
The patient and/or family member will greet the nurse and express concern regarding a headache and that her BP is high (188/115)

↓

The OB nurse will assess the patient and may obtain a repeat blood pressure or call for assistance.
The proctor will produce the repeat blood pressure (180/110)
The OB nurse should identify severe hypertension and call for assistance.

↓

OB Provider/team as called enters room and is briefed by OB Nurse. The patient continues to complain of a headache.
(*Magnesium sulfate may be ordered/given at any time but will not affect BP readings.)

↓

The patient should be examined by the team and an antihypertensive should be ordered. The patient or family member should have questions about the medication and about the plan of care.
After the first dose of an antihypertensive is given. The proctor will:

- Inform the team that time has elapsed*

*The amount of time you tell the team has elapsed depends on the medication given:
Labetalol: 10 minutes
Hydralazine: 20 minutes
Nifedipine: 20 minutes

- Display a new blood pressure (BP range 175/115).

↓

Team should recognize continued severe range hypertension and administer a second dose of antihypertensive medication.

↓

After the second dose antihypertensive is given. The proctor will display a new blood pressure (BP range 145/95).

↓

VITAL SIGNS

START

BP 188/115
HR- 98
O2 sat 96%
RR-18

REPEAT VITAL SIGNS

BP 180/110
HR- 101
O2 sat 96%
RR-20

REPEAT VITAL SIGNS BELOW UNTIL HYPERTENSIVE DOSE #1 IS GIVEN

BP 175/110
HR 95
O2 sat 96%
RR- 19

ANTIHYPERTENSIVE DOSE #1 GIVEN

BP range
Systolic- 175
Diastolic- 115

HR- 95
O2 sat 96%
RR- 19

ANTIHYPERTENSIVE DOSE #2 GIVEN

BP range
Systolic- 145
Diastolic- 95

HR- 95
O2 sat 96%
RR- 19

Prompt the team to discuss diagnosis of preeclampsia with severe features to the patient and confirm a delivery plan with the patient.

Scenario ends when the team has done the following:

Recognized and treated severe hypertension with two doses of an appropriate antihypertensive medication

Diagnose preeclampsia with severe features and order magnesium sulfate

Counsel the patient regarding preeclampsia and provide delivery recommendation

OR

If the team does not correct the hypertension or fails to recognize preeclampsia with severe features and initiate magnesium sulfate within 10 minutes

At the end of the scenario, clearly state the simulation is over and then gather the team for the review and debriefing.

Planned Completion Points

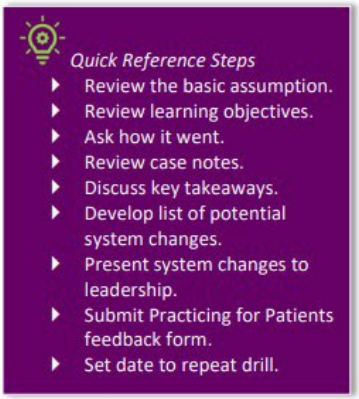
In order to successfully complete this scenario, the care team should do the following:

- Recognize severe hypertension
- Diagnose preeclampsia with severe features
- Administer antihypertensive medications correctly and in a timely manner
- Order/administer magnesium sulfate correctly and in a timely manner
- Counsel the patient regarding the diagnosis of preeclampsia with severe features and provide delivery recommendations

OR

- If 10 minutes have elapsed since the recognition of severe hypertension and the team has not initiated anti-hypertensive medications
- If 10 minutes have elapsed and magnesium sulfate has not been initiated

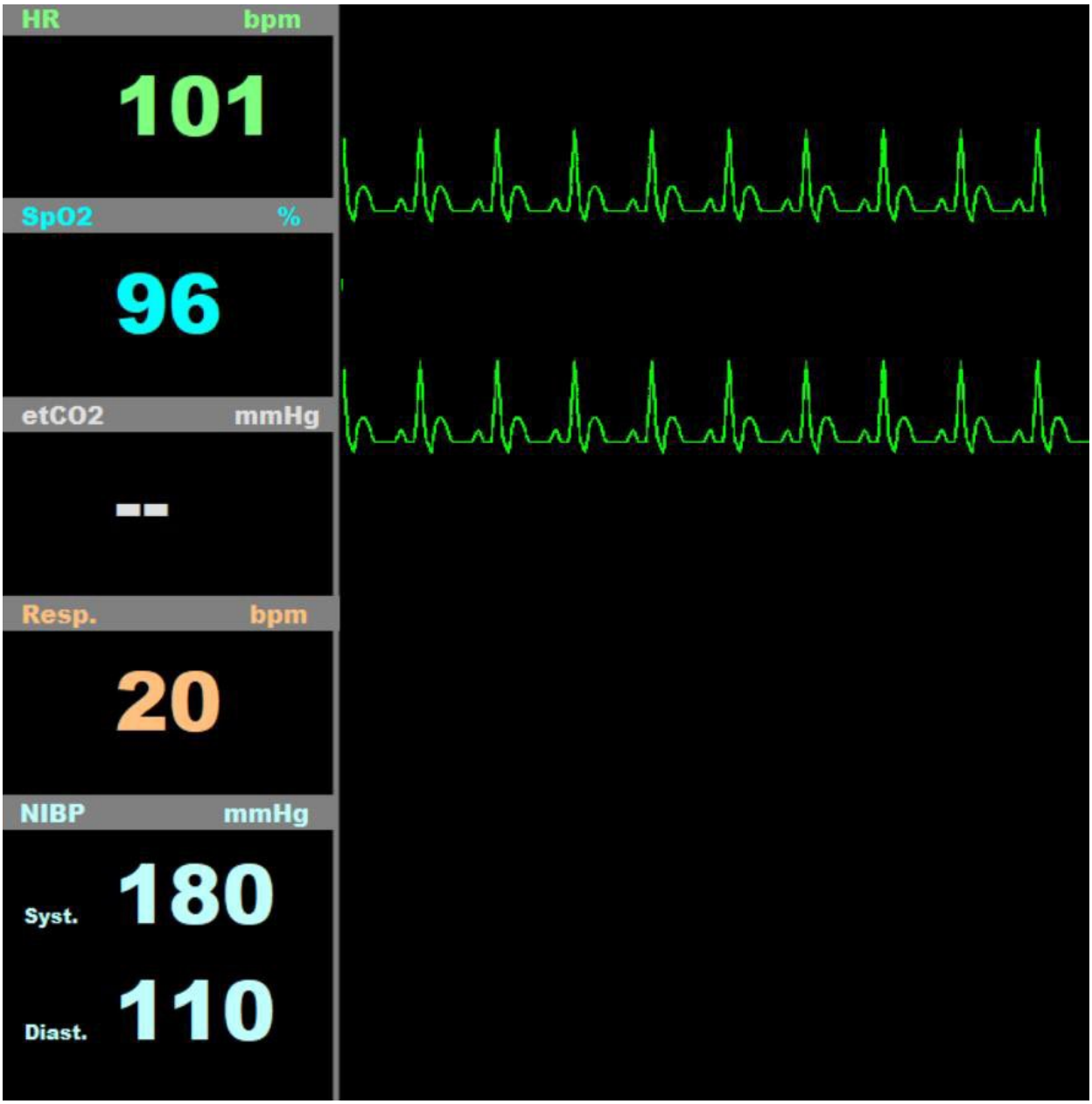
Debrief

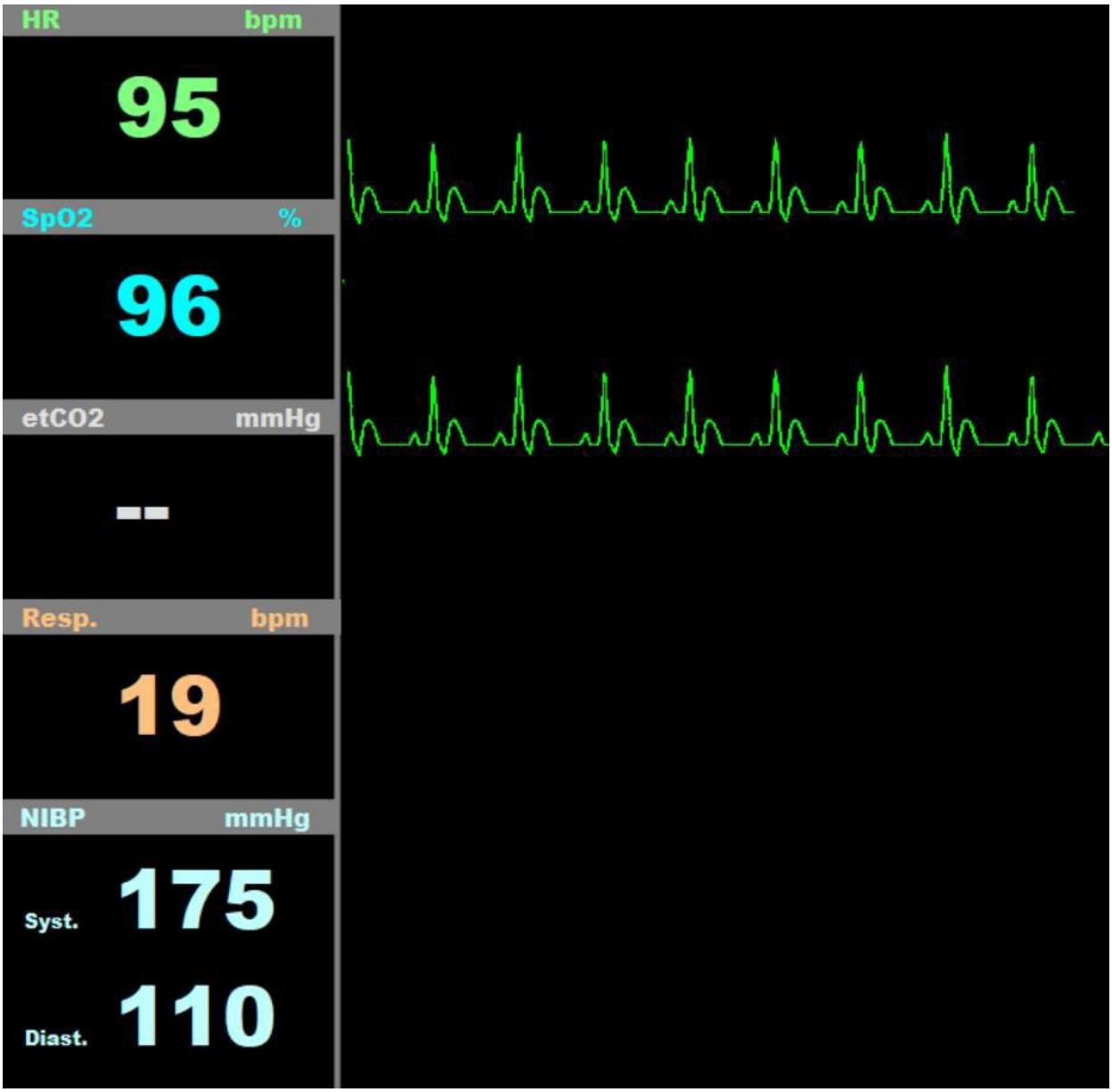


Complete debrief form with focus on educational issues and system improvements

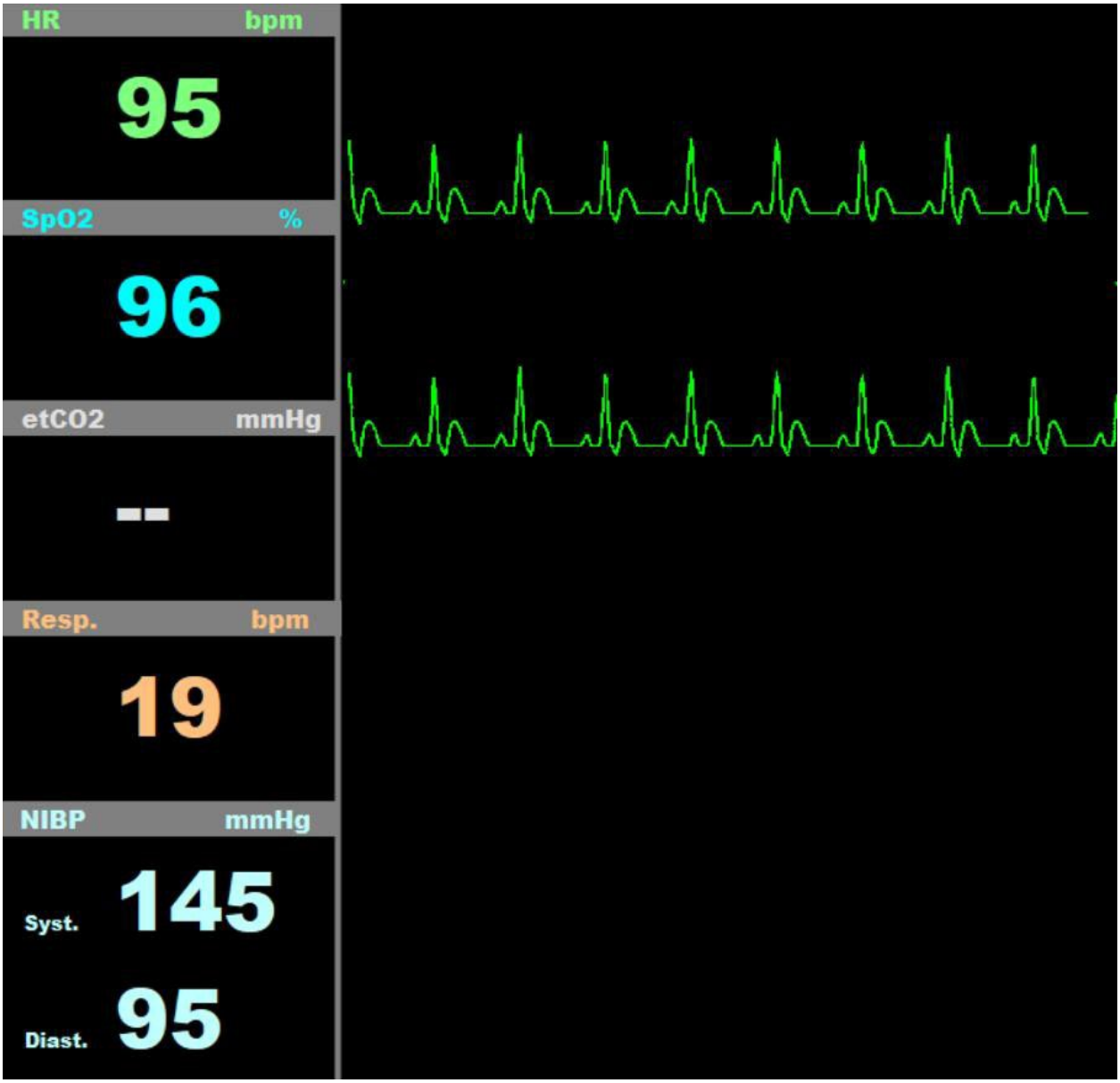
Fill out drill log and give to RN Manager/Educator


HR
bpm
98
SpO2
%
96
etCO2
mmHg
--
Resp.
bpm
18
NIBP
mmHg
Syst.
188
Diast.
115


HR
bpm
101
SpO2
%
96
etCO2
mmHg
--
Resp.
bpm
20
NIBP
mmHg
Syst.
180
Diast.
110


HR
bpm
95
SpO2
%
96
etCO2
mmHg
--
Resp.
bpm
19
NIBP
mmHg
Syst.
175
Diast.
110


HR
bpm
95
SpO2
%
96
etCO2
mmHg
--
Resp.
bpm
19
NIBP
mmHg
Syst.
175
Diast.
115



V1 MAR 2021
Made utilizing the SourceForge Vital Sign Simulator (here). CASE #1

General Simulation Instructions:

General Principles during the Simulation:

We recommend that the team run the scenario as if they were addressing the care of a real patient. This means obtaining all adjunct supplies and calling ancillary services as they would in a real-life emergent situation. If medications are needed, those should be retrieved – but not opened – to prevent waste.

The team should assign a member to write down the desired orders as if they were ordering them in the electronic medical record (if applicable). Using this approach provides an opportunity to both observe the teamwork and communication and identify any potential facilities or systems issues that arise.

If you have little time, specifically state where each needed cart/equipment/medication is and how it will be used/administered.

Case 2: Preeclampsia with Development of Eclampsia

Learning Objectives

By the end of this scenario, each care team member should be able to successfully do the following:

- Identify hypertension in pregnancy as a risk factor for eclampsia
- Initiate rapid stabilization and treatment of a patient with eclamptic seizure
- Demonstrate teamwork and communication skills during a simulated hypertensive emergency simulation

2.0 Pre-Simulation Briefing/Orientation:

Prior to the simulation, you should brief the team on the drill. Begin by orienting them to the simulator and its capabilities and limitations.
Then, explain the following:

- Emphasize that the drill is meant for training and it is not a test.
- Treat the simulator/standardized patient as they would a real patient.
- If the team needs additional supplies or instruments, they should go and obtain them or state where they are

Call for assistance and other providers (anesthesia, etc.) as they would in a real emergency.

- If they feel they need to take the patient to the operating room, they should physically move the “patient” to that location or state exactly the steps to

get the pt into the OR
- Medications, if needed, should be obtained in the normal manner or stated where they are located and how to access (ie: Pyxis override) but not opened or used during the drill.

3.0 Basic Scenario Management and Tips:

Beginning the Simulation Scenario: After you have conducted your pre-simulation briefing/orientation, have the participant who will be the primary OB nurse come with you to the simulated patient's room.

To begin the scenario, read the scenario to primary OB nurse and then have them enter the room. With the Simulation Leader acting as the patient, tell the nurse about the patient's complaint of a headache.

Patient's blood pressure will remain elevated in the severe range until two doses of an antihypertensive medication are given. Once the team orders serial blood pressure measurements, you may display a new blood pressure every 2 minutes. Allow time for team to discuss initiating anti-hypertensive therapy and answer patient/family questions.

Once an antihypertensive medication is given, the faculty proctor will need to do the following:

1. State that "15 minutes have elapsed"
2. Display a new blood pressure in order to prompt additional discussion by the team and at that time they should order/administer another dose of an antihypertensive medication. Initial laboratory values are available for the team to review.

The scenario should end when the team reaches the Completion Points below.

Case Scenario

Patient Information:

Courtney Davis:

- The patient is a 36yo G2P1001 at 34w2d presenting for headache and blurry vision. Her medical history is uncomplicated. Her previous pregnancy was complicated by gestational hypertension at 38 weeks, resulting in induction of labor and uncomplicated spontaneous vaginal delivery.
- She has no known drug allergies
- She has been taking Aspirin 81mg daily during pregnancy.

Laboratory Data (on admission):

- Hemoglobin: 12.2 g/dL
- Hematocrit: 36.6 %
- WBC: 12,000 K/uL
- Platelets: 218,000 K/uL
- AST: 22 IU/L,
- ALT: 32 IU/L
- Serum Creatinine: 0.7 mg/dL
- Urine Protein/Creatinine Ratio: pending (this will not become available during the simulation)

- Last ultrasound performed at 32 weeks for advanced maternal age with fetus measuring appropriate for gestational age.

Information includes:

- The patient has an IV line in place with a heplock.
- Initial vital signs taken 15 minutes prior were: BP 145/99, HR 81, RR 18, O2 Sat 98% on room air.
- FHR Tracing (if available): Baseline 140, moderate variability, no accelerations, no decelerations. Tocodynamometer: flat.
- Available medications will depend on what is on the actual unit. The team should be instructed to go and physically obtain any medications or supplies but should be told not to actually open them during the simulation.

During seizure:

- Vital signs: 170/105, O2 sat 993 (no changes if supplemental O2 is provided), RR 6, HR 110. 4
- FHR Tracing: Maintain bradycardia to 80s with minimal variability.
- After seizure concludes vital signs will depend on whether antihypertensive medications were given. The FHR tracing should slowly recover back to baseline over 5-10 minutes

Answers to frequent questions that come up:

- The team can order labs during the simulation, but they will not return during the simulation
- The urine protein/creatinine ratio results will not return during simulation but is not necessary for diagnostic purposes.
- The FHR tracing will demonstrate fetal bradycardia during the eclamptic seizure and will slowly recover after the seizure ends.
- If asked additional questions, try to redirect and not answer specifics so as not to introduce things that might complicate the scenario (i.e., do not say that she has a recent head trauma or family history of seizure disorder)

5.0 Case Flow/Algorithm with branch point and completion criteria:

Simulation facilitator will introduce the scenario to the team outside the room and then bring primary bedside provider to the patient's room and then read them the patient scenario.

The OB Nurse should then enter the room, assess the patient, and then call for assistance as seizure begins.

"Initial" Vital Signs and FHR tracing should be on monitor. Vital signs may be repeated but will remain in mild HTN range.

Patient should explain symptoms (headache and blurry vision). After brief history is taken she will begin to have an eclamptic seizure.

↓

OB Provider/team enters room when called and are briefed by OB Nurse
"During seizure" Vital Signs and FHR tracing should be available

↓

OB Team should care for patient (put up handrails/place patient in left lateral position/continuous maternal pulse oximeter in place)
IV magnesium sulfate should be initiated.
IV antihypertensives should be administered for severe range HTN

↓

After approximately 2 minutes, the patient will stop seizing.
"After seizure" Vital Signs and FHR tracing should be on monitor*

* The vitals shown will depend on whether or not antihypertensive medications were administered

↓

Team should discuss the delivery plan and further management. They may talk with the patient/ family members about additional care and delivery.

VITAL SIGNS
START
BP: 145/99
HR: 81 bpm
O2 sat: 98% on RA
RR: 18
VITALS DURING SEIZURE
BP: 170/105
HR: 110 bpm
O2 sat: 93%
RR: 6
VITALS AFTER SEIZURE ENDS
BP: 155/92 (if antihypertensive given) **OR** 179/107 (if no antihypertensives were given)
HR: 100 bpm
O2 sat: 98% on RA
RR: 18

Scenario ends when the team has done the following:

Diagnosed the patient with eclampsia
Administered at least one dose of an appropriate antihypertensive medication
Initiated IV magnesium therapy
Discuss delivery plan once patient is stabilized

OR

If 10 minutes have elapsed and above steps have not been taken

At the end of the scenario, clearly state the simulation is over and then gather the team for the review and debriefing.

Planned Completion Points

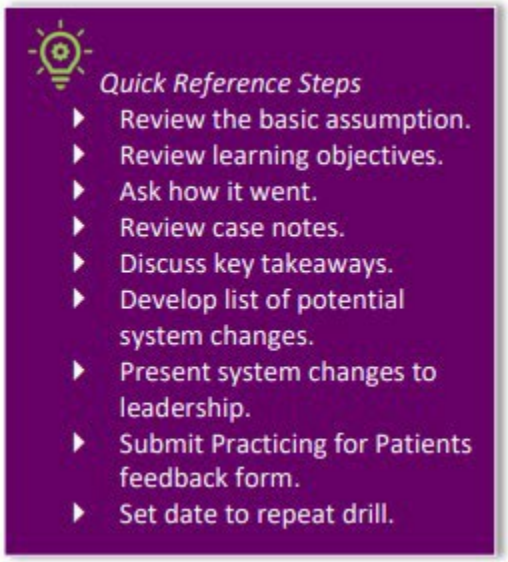
In order to successfully complete this scenario, the care team should do the following:

- Recognize severe range hypertension
- Make the diagnosis of eclampsia
- Demonstrate the "ABC's" in stabilizing a patient with eclampsia
- Administer IV magnesium and antihypertensive medications correctly and in a timely manner
- Counsel the patient regarding the need to move towards delivery

OR

- If 10 minutes have elapsed after beginning simulation and team has not recognized eclampsia or stabilized the patient by demonstrating "ABC's" and initiating magnesium sulfate

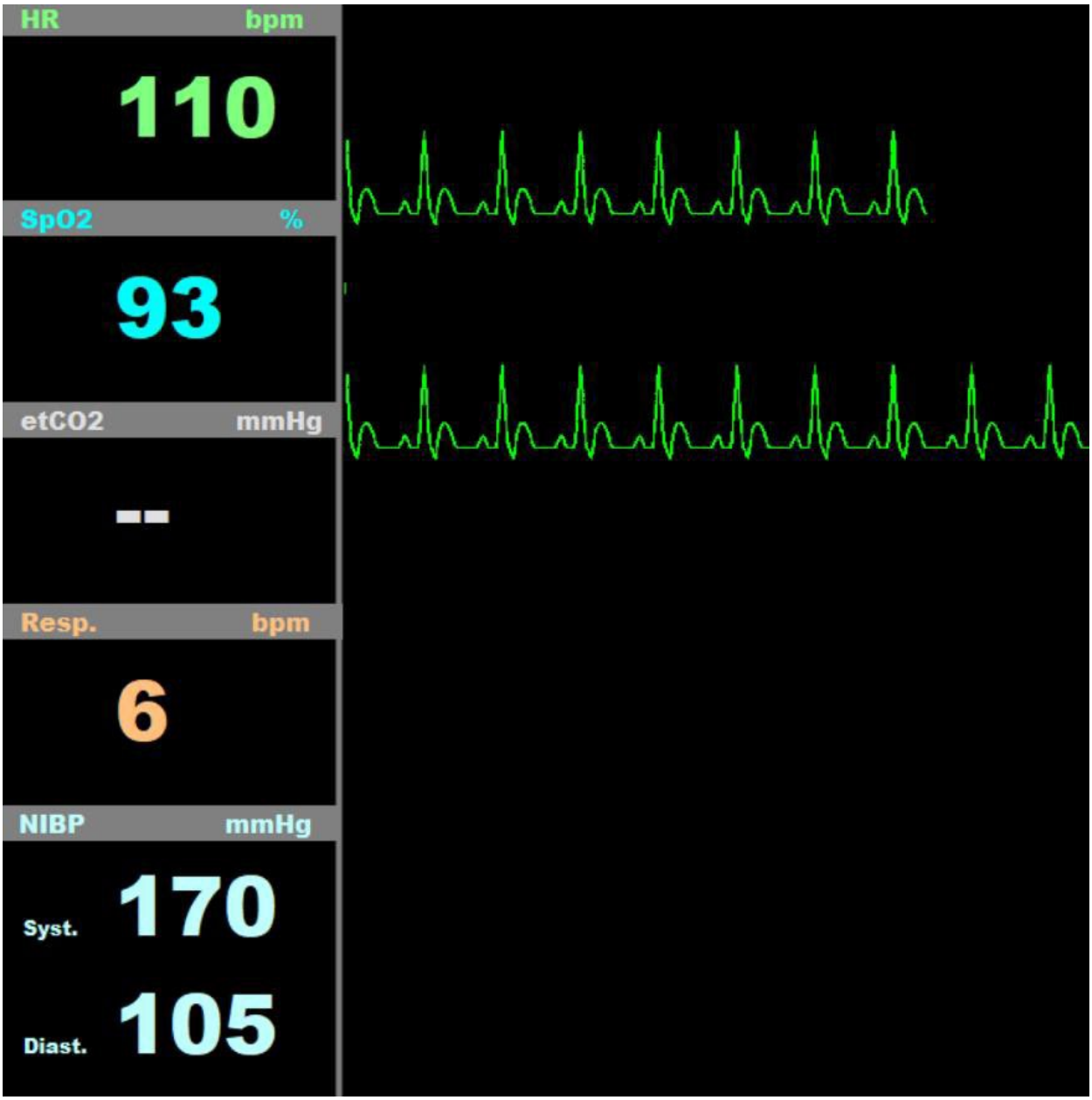
Debrief

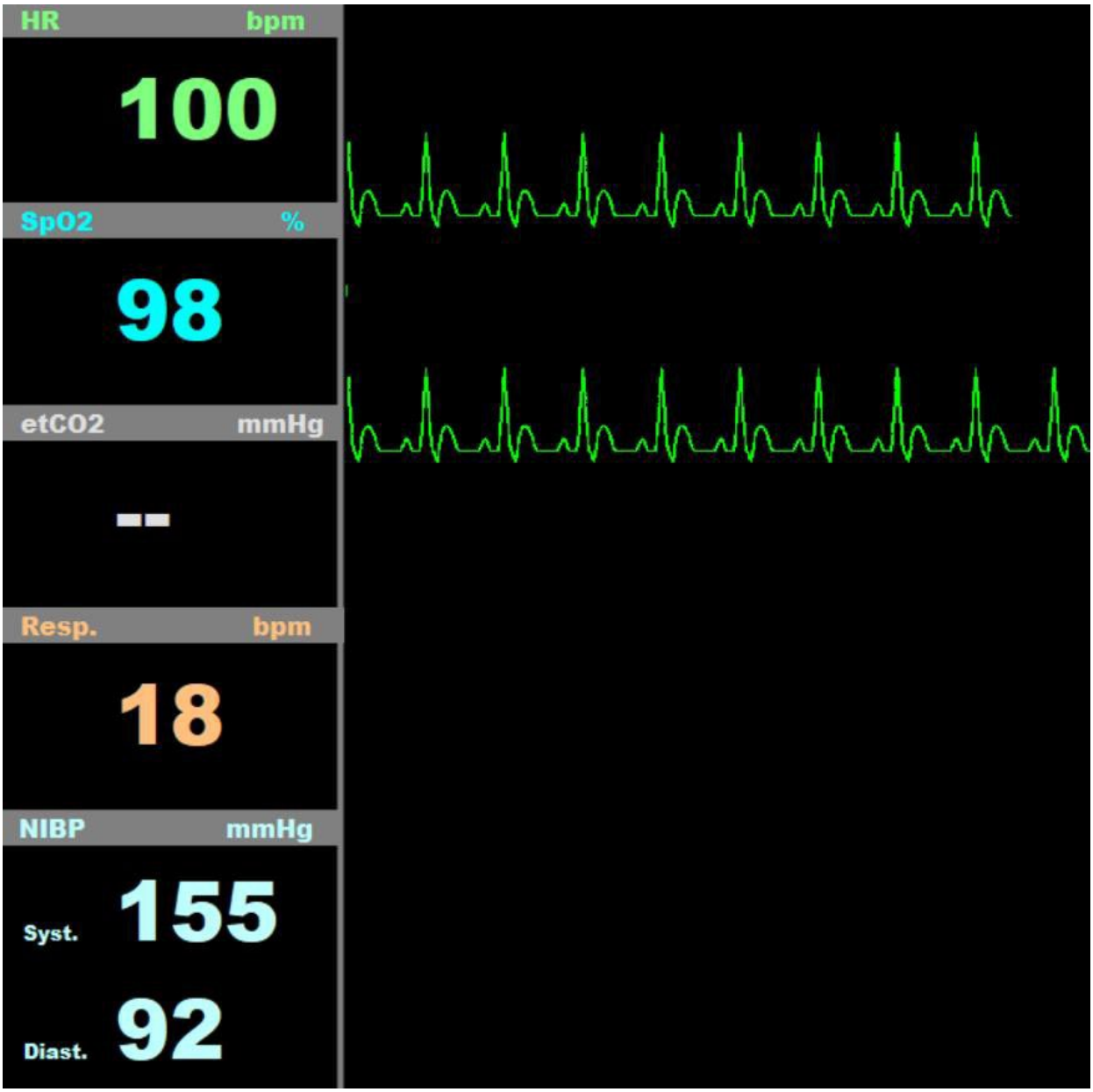


Complete debrief form with focus on educational issues and system improvements

Fill out drill log and give to RN Manager/Educator


HR
bpm
81
SpO2
%
98
etCO2
mmHg
--
Resp.
bpm
18
NIBP
mmHg
Syst.
145
Diast.
99


HR
bpm
110
SpO2
%
93
etCO2
mmHg
--
Resp.
bpm
6
NIBP
mmHg
Syst.
170
Diast.
105


HR
bpm
100
SpO2
%
98
etCO2
mmHg
--
Resp.
bpm
18
NIBP
mmHg
Syst.
155
Diast.
92


HR
bpm
100
SpO2
%
98
etCO2
mmHg
--
Resp.
bpm
18
NIBP
mmHg
Syst.
179
Diast.
107

ALLIANCE FOR INNOVATION ON MATERNAL HEALTH

General Simulation Instructions:

General Principles during the Simulation:

We recommend that the team run the scenario as if they were addressing the care of a real patient. This means obtaining all adjunct supplies and calling ancillary services as they would in a real-life emergent situation. If medications are needed, those should be retrieved – but not opened – to prevent waste.

The team should assign a member to write down the desired orders as if they were ordering them in the electronic medical record (if applicable). Using this approach provides an opportunity to both observe the teamwork and communication and identify any potential facilities or systems issues that arise.

If you have little time, specifically state where each needed cart/equipment/medication is and how it will be used/administered.

Case 3: Superimposed Preeclampsia with Progression to Eclampsia

Learning Objectives

By the end of this scenario, each care team member should be able to successfully do the following:

- Be able to recognize risk factors for eclampsia.
- Identify severe range hypertension, superimposed preeclampsia/HELLP syndrome, and eclamptic seizure, and be able to treat with appropriate medications in a timely manner.
- Demonstrate teamwork and communication skills during a simulated hypertensive emergency simulation progressing to eclamptic seizure.

2.0 Pre-Simulation Briefing/Orientation:

Prior to the simulation, you should brief the team on the drill. Begin by orienting them to the simulator and its capabilities and limitations.

Then, explain the following:

- Emphasize that the drill is meant for training and it is not a test.
- Treat the simulator/standardized patient as they would a real patient.

- If the team needs additional supplies or instruments, they should go and obtain them or state where they are
- Call for assistance and other providers (anesthesia, etc.) as they would in a real emergency.
- If they feel they need to take the patient to the operating room, they should physically move the "patient" to that location or state exactly the steps to get the pt into the OR
- Medications, if needed, should be obtained in the normal manner or stated where they are located and how to access (ie: Pyxis override) but not opened or used during the drill.
- Depending on how you will demonstrate eclamptic seizure and vital signs, explain this will occur (displayed on cards).

3.0 Basic Scenario Management and Tips:
Beginning the Simulation Scenario: After you have conducted your pre-simulation briefing/orientation, have the participant who will be the primary OB nurse come with you to the simulated patient's room.

To begin the scenario, read the scenario to primary OB nurse and then have them enter the room. With the Simulation Leader acting as the patient, tell the nurse about the patient's complaint: she is feeling "really terrible…something is not OK." .

Patient's blood pressure will remain elevated in the severe range until two doses of an antihypertensive medication are given. Once the team orders serial blood pressure measurements, you may display a new blood pressure every 2 minutes. Allow time for team to discuss initiating anti-hypertensive therapy and answer patient/family questions.

Once an antihypertensive medication is given, the faculty proctor will need to do the following:

1. State that "15 minutes have elapsed"
2. Display a new blood pressure in order to prompt additional discussion by the team and at that time they should order/administer another dose of an antihypertensive medication. Initial laboratory values are available for the team to review.
3. The scenario should end when the team reaches the Completion Points below.

Case Scenario:
Patient Information:

Eunice Joseph:

- Ms. Joseph is a 34 y/o G3P2002 at 27 weeks brought in by a family member to OB triage for an elevated blood pressure reading at home. The patient has chronic hypertension and gestational diabetes in this pregnancy. Patient stated she felt her "head was heavy" all day and took her blood pressure at home with the blood pressure cuff her PCP gave her before pregnancy and the reading was 200/110. She already took her morning dose of labetalol today.
- She has an obstetrical history of an uncomplicated vaginal delivery 5 years ago and a primary cesarean section for a placenta previa 2 years ago. Her second

pregnancy was also complicated by postpartum preeclampsia with severe features.

- Medications: Metformin 1000 mg BID, Labetalol 600 mg BID, Aspirin 81mg daily, Prenatal vitamins.
- She has no known drug allergies
- Baseline HTN labs: baseline Creatinine- 0.78 mg/dL, baseline Protein/Creatinine ratio- 0.1 mg/g Creat,
- baseline platelet count- 230 K/uL, baseline AST- 22 IU/L, baseline ALT- 40 IU/L
- Last ultrasound was done 3 weeks ago, and fetus was AGA, although you do not have the EFW from that report.
- Your intake nurse went ahead and placed an IV given patient's initial history and drew Type and Screen, Complete Blood Count, and Comprehensive Metabolic Panel, sending them stat to the lab.

Laboratory Data (on admission):

- MBT: B positive
- Hemoglobin: 13.0 g/dL
- Hematocrit: 40.1 %
- WBC: 12,000 K/uL
- Platelets: 123 K/uL
- AST 1334 IU/L
- ALT 1355 IU/L
- Cr 0.8 mg/dL

Information includes:

- The patient has a heplock IV line in place.
- Initial vital signs: BP 220/112, HR 105, RR 18 O2 sat 97% on room air. o If vital signs are repeated they will remain in the severe HTN range
- FHR Tracing: Baseline 130, minimal variability, no accelerations, no decelerations. Toco shows irritability.
- Limited bedside US: Complete breech, EFW 1300 grams, Amniotic Fluid Index = 3cm

PT HAS A SEIZURE

During seizure:

- Vital signs: BP 220/112, HR 110, RR 8, O2 sat 93% (no change in O2 saturation regardless of supplemental oxygen) ▪ FHR Tracing: Fetal bradycardia to 80s with minimal variability.

After seizure resolves:

Vital signs:

- If antihypertensives given: BP 149/92, HR 95, RR 14, O2 sat 96% on room air
- If antihypertensives NOT given: BP 179/107, HR 95, RR 14, O2 sat 96% on room air

FHR Tracing: Baseline of 180s, minimal variability, no accelerations, no decelerations.

Answers to frequent questions that come up:

- The team can order labs during the simulation, but they will not come back during the simulation.
- The FHR tracing will demonstrate fetal bradycardia during the eclamptic seizure and will slowly recover after the seizure ends.
- If asked additional questions, try and redirect and not answer specifics so as not to introduce things that might confuse the scenario (i.e. don't say that she has a recent head trauma or family history of seizure disorder

5.0 Case Flow/Algorithm with branch point and completion criteria:

Simulation facilitator will introduce the scenario to the team outside the room and then bring primary bedside provider to the patient's room and then read them the patient scenario. The OB Nurse should then enter the room, assess the patient, and then call for assistance as seizure begins.

"Initial" Vital Signs and FHR tracing should be on monitor. Vital signs may be repeated but will remain in the severe HTN range.

Patient should explain symptoms and after a brief history is taken will begin to have an eclamptic seizure.

↓

OB Provider/team enters room when called and are briefed by OB Nurse

"During seizure" Vital Signs and FHR tracing should be available

↓

OB Team should care for patient (put up handrails/place patient in left lateral position/continuous maternal pulse oximeter in place)

IV magnesium sulfate should be initiated

IV antihypertensives should be administered for severe range HTN

↓

After approximately 2 minutes, the patient will stop seizing.
"After seizure" Vital Signs and FHR tracing should be on monitor.

↓

Team should discuss the delivery plan and further management. They may talk with the patient / family members about additional care and delivery.

VITAL SIGNS
START
BP: 220/112
HR: 100 bpm
O2 sat: 98% on RA
RR: 18
VITALS DURING SEIZURE
BP: 220/112
HR: 110 bpm
O2 sat: 93%
RR: 8
VITALS AFTER SEIZURE ENDS
BP: 149/92 (if antihypertensive given) **OR** 179/107 (if no antihypertensives were given)
HR: 95 bpm
O2 sat: 96% on RA
RR: 14

Planned Completion Points

In order to successfully complete this scenario, the care team should do the following:

- Recognize severe range hypertension.
- Make the diagnosis of superimposed preeclampsia/HELLP syndrome based upon blood pressures and laboratory values.
- Make the diagnosis of eclamptic seizure.
- Administer antihypertensive medications and IV magnesium correctly and efficiently.
- Appropriately stabilize a patient having a presumed eclamptic seizure.
- Counsel the patient regarding delivery recommendations after an eclamptic seizure

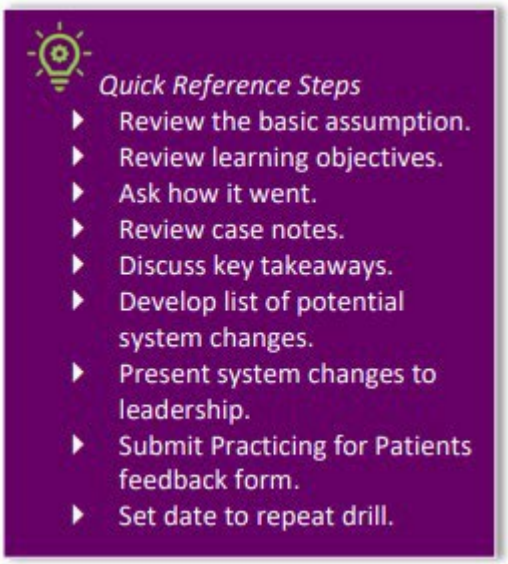
Scenario ends when the team has done the following:

- Diagnosed the patient with eclampsia
- Administered at least one dose of an appropriate antihypertensive medication
- Initiated IV magnesium sulfate therapy
- Discuss delivery plan once patient is stabilized

OR

- If 10 minutes have elapse and the above steps have not been taken

DEBRIEF:

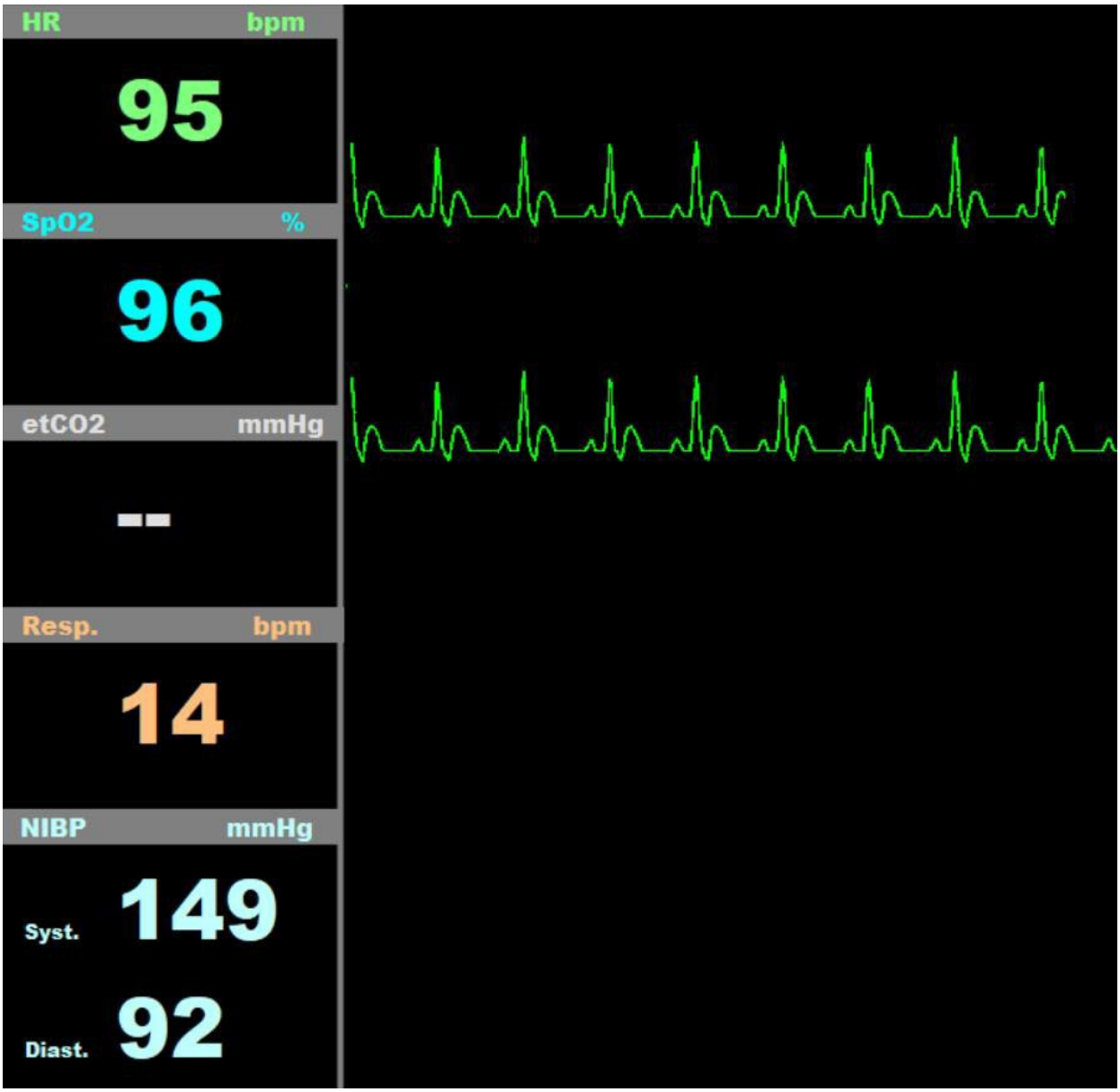


Complete debrief form with focus on educational issues and system improvements

Fill out drill log and give to RN Manager/Educator


HR
bpm
100
SpO2
%
98
etCO2
mmHg
--
Resp.
bpm
18
NIBP
mmHg
Syst.
220
Diast.
112


HR
bpm
110
SpO2
%
93
etCO2
mmHg
--
Resp.
bpm
8
NIBP
mmHg
Syst.
220
Diast.
112


HR
bpm
95
SpO2
%
96
etCO2
mmHg
--
Resp.
bpm
14
NIBP
mmHg
Syst.
149
Diast.
92


HR
bpm
95
SpO2
%
96
etCO2
mmHg
--
Resp.
bpm
14
NIBP
mmHg
Syst.
179
Diast.
107

Binder Copy

THE University of Vermont MEDICAL CENTER

Scavenger Hunt - Hypertensive Crisis

A fun activity to get your staff moving around the unit to ensure they know the locations of reference documents needed in a HTN Crisis. We focused on: notifying the Charge RN, knowing how to page a Provider, how to access the meds, where to find the checklist/med algorithms/debrief forms, and reminding them to place an AP pa- tient on the monitor.

Instructions:

1. Hand laminated case study to participant.
2. They read the case study and work through the scenario by visiting all the places they would find resources. Laminated clue cards are found at each designated place. For a visual clue use colored paper to print off clue cards.

Set-Up:

Laminated Clues & Their Location

Clue	Location
Case Study	Give to participant
Clue #1	At Charge RN station (Charge RN can hand them the card)
Clue #2	On the back of the Resident name on the CallBoard
Clue #3	Near the phone/computer where you would initiate the page. We had a reference sheet here to review paging and how to indicate level of urgency in the page
Clue #4	We had laminated screen shots of the pyxis machine and people had to place the cards in the correct order in which you pull out meds and then flip the cards over to get the next clue
Clue #5	On the back of the clipboard that is on the Pyxis fridge that has the HTN Checklist, medication algorithms, and Debrief forms
Clue #6	On NST Machine with a bowl of candy

Grab and Go Drill Log Information

(to be used by drill facilitator)

Date:

Time:

Scenario:

Location (ex. M7, B7, OR):

Participants:

Facilitator: