

PRONTOSM

Simulation and Team Training for Obstetric and Neonatal Emergencies





Simulation and Team Training for Obsetric and Neonatal Emergencies

Module II Participant Manual

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Introduction

Welcome back! This is the participant manual for to PRONTO Module II. A few months ago, you participated in the Module I PRONTO training. Module II will reinforce the topics covered in Module I: teamwork, postpartum hemorrhage, and neonatal resuscitation. Module II also introduces the topics of shoulder dystocia and pre-eclampsia/eclampsia. As in PRONTO Module I, your will actively participate in all segments of the program including interactive activities and simulations.

Let's get started!

Acronyms

MVA	Manual Vacuum Aspiration
PPH	Postpartum Hemorrhage
AMTSL	Active Management of the Third Stage of Labor
EBM	Evidence-Based Medicine
MDGs	Millennium Development Goals
DCC	Delayed Cord Clamping
PRONTO	The Program for Simulation and Team Training for Obstetric and Neonatal Emergencies
NR	Neonatal Resuscitation
SBAR	Situation/Background/Assessment/Recommendation (Communication Technique)
Team STEPPS	U.S. Government teamwork training curriculum

1. MODULE II

1.1 Schedule, Module II

Module II
Duration: 8 hours

Time (approx.)	Activities
10 min	Participant Registration
30 min	Evaluations
3 min	Welcome Ceremony
5 min	Interactive Activity: Leave Your Worries at the Door
30 min	Interactive Activity: Balls in the Air
5 min	Group Rules
45 min	Goals and Achievements
15 min	Break
45 min	Exercise 1: Shoulder Dystocia
45 min	Exercise 2: Pregnancy-Induced Hypertension
40 min	Interactive Activity: Skills Obstacle Course
20 min	Break and Snack
10 min	Change of Clothes
15 min	Interactive Introduction
60 min	Orientation to the Simulation Area Simulation 1
40 min	Simulation 2
10 min	Final Interactive Activity: Spiderweb
30 min	Evaluations

1.2 Group Rules

Group rules help create a safe environment within which team members can achieve their goals. Please take a moment to reflect on what rules will make you feel comfortable participating. Remember that:

1. This training should be a safe space for improving skills for working together as a team.
2. “What happens in simulation stays in simulation.” This allows people to grow and learn as a team, without having to consider repercussions. We encourage you to share your learning and insights with others. However, information about individual participant behavior or response is to stay within the group and not be shared. This is the concept of confidentiality.

1.
2.
3.
4.
5.
6.
7.
8.

1.3 Ground Rules for Simulations

For the PRONTO training to be successful, we ask that you:

1. Suspend your disbelief.
2. Have an open mind.
3. Promise to maintain confidentiality.
4. Allow mistakes to be made in order to learn from them.
5. Be open with the other participants.
6. Work as a team without worrying about personal ego.

1.4 10 Key Behavioral Skills

1. Know your environment.
2. Anticipate and plan for problems.
3. Assume a leadership role.
4. Communicate effectively with your team, the patient, and their family members.
5. Distribute workload and delegate responsibility optimally.
6. Allocate attention wisely.
7. Utilize all available information.
8. Utilize all available resources.
9. Recognize limitations and call for help early enough.
10. Maintain professional behavior.

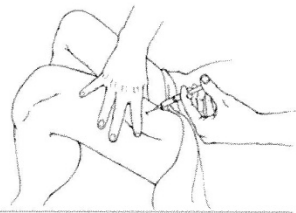
Stanford CAPE Center, Stanford University, 2008

1.5 Simulation Notes

Use the space below to take notes during the simulation and debrief. This will help you gather your thoughts for the debrief and also help you come back, at a later date, to the information that you learned in the simulations.

Simulation	Topic	Notes
1.		
2.		

Appendix 1: Active Management of the Third Stage of Labor (AMTSL) for All Women

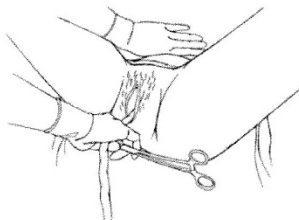


Administration of a uterotonic drug¹

1. **Administration of a uterotonic drug** (ten international units (IU) of oxytocin administered by intramuscular (IM) injection is the uterotonic of choice).

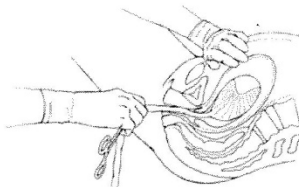
Before performing AMTSL, the provider will gently palpate the woman's abdomen to rule out the presence of another baby. At this point, the provider will NOT massage the uterus.

If there is not another baby, the provider will begin the procedure by giving the woman a uterotonic drug (oxytocin 10 IU IM, Syntometrine 1 mL IM, ergometrine 0.2 mg IM, or misoprostol 600 mcg orally). This should be done within one minute of childbirth.



Applying controlled cord traction with counter traction to support the uterus¹⁰

2. **Controlled cord traction (CCT):** Controlled traction on the cord during a contraction combined with counter-traction upward on the uterus with the provider's hand placed immediately above the symphysis pubis. CCT facilitates expulsion of the placenta once it has separated from the uterine wall.



Applying controlled cord traction with counter traction to support the uterus⁹

Countertraction (counter pressure): The action of lifting or elevating the uterus toward the mother's head during CCT to help prevent uterine inversion.



Massaging the uterus immediately after the placenta delivers¹¹

3. **Uterine massage:** An action used after the delivery of the placenta in which the provider places one hand on top of the uterus to rub or knead the uterus until it is firm. Sometimes blood and clots are expelled during uterine massage.

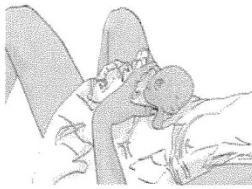


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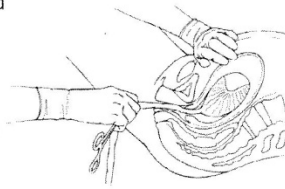
Appendix 2: Active Management of the Third Stage of Labor (AMTSL) With Delayed Cord Clamping



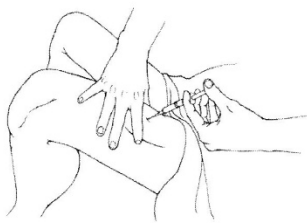
mother

1: Dry the baby, assess the baby's breathing and perform resuscitation if needed, and place the baby in skin-to-skin contact with the

5: Perform controlled cord traction while, at the same time, supporting the uterus by applying external pressure on the uterus in an upward direction towards the woman's head.



2: Administer a uterotonic (the uterotonic of choice is oxytocin 10 IU IM) immediately after birth of the baby, and after ruling out the presence of another baby.

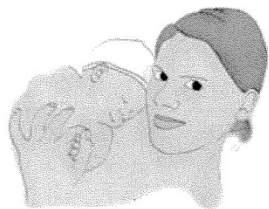


6. Massage the uterus immediately after delivery of the placenta and membranes until it is firm.

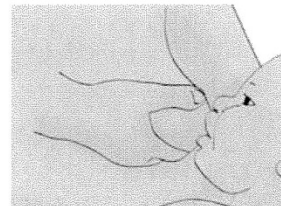
3: Clamp and cut the cord after cord pulsations have ceased or approximately 2-3 minutes after birth of the baby, whichever comes first.



4: Place the infant directly on the mother's chest, prone, with the newborn's skin touching the mother's skin. Cover the baby's head with a cap or cloth.



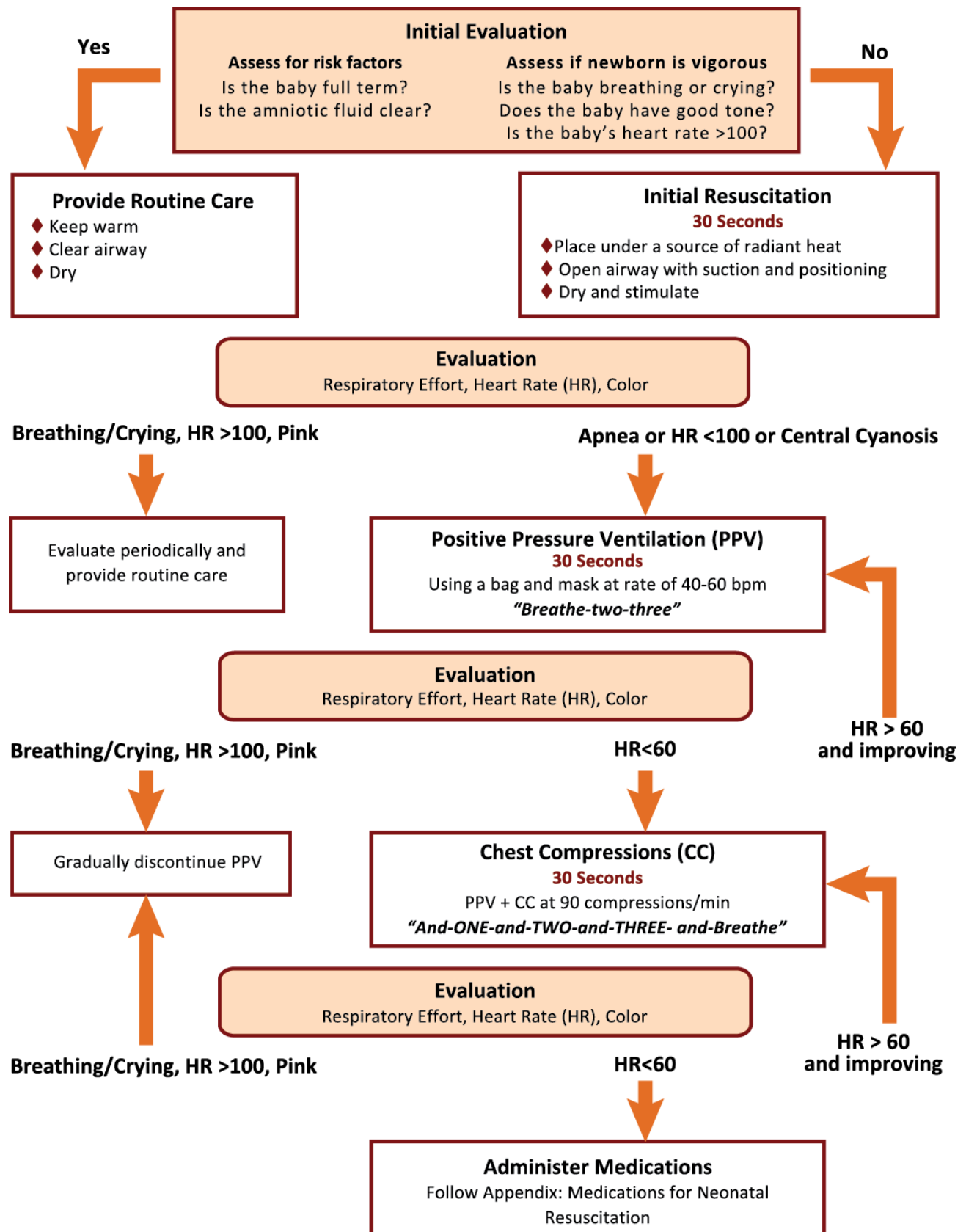
During recovery, assist the woman to breastfeed if this is her choice, monitor the newborn and woman closely, palpate the uterus through the abdomen every 15 minutes for two hours to make sure it is firm and monitor the amount of vaginal bleeding. Provide PMTCT care as needed.



...at every birth, by every skilled provider.



Appendix 3: Guide for Neonatal Resuscitation



Appendix 4: Communication Concepts

SBAR

SBAR is a technique for rapidly communicating critical patient information. Use the SBAR anytime a new member of the team enters the room, or when the patient situation changes. SBAR stands for:

Situation

Background

Assessment

Recommendation/Request

Situation: What is happening to the patient?

"Mrs. Kwamboka in bed 2 is bleeding and feels dizzy."

Background: The clinical context or relevant medical history of the patient.

"The patient is a 32-year-old Gravida 4 Para 3003, two hours status post a vaginal delivery complicated by a second degree laceration. She does not have any other problems."

Assessment: What do you think is the problem?

"I think her bleeding is caused by uterine atony."

Recommendation/Request: What can be done to intervene?

"I believe this patient needs to be evaluated right now. Are you available to come evaluate the patient?"

Now practice SBAR with your neighbor.

Call-Out

Call-Out is a quick way of communicating critical information. It enables the whole team to know the severity of the situation quickly and to begin to allocate attention appropriately. When the urgency of the situation is verbalized, everyone knows where the case is headed. It is also a way to keep a team apprised of key clinical information. Examples of call-out communication include:

- "The patient is bleeding!"
- "The baby has been born!"
- "The baby is not crying!"
- "There is meconium in the amniotic fluid!"

Check-Back

Unlike open-air orders, check-back ensures that the message reaches the appropriate person and that it is appropriately responded to. It is a strategy used to communicate critically important information, and assigns important responsibilities to a specific individual.

Using check-back to close the loop of communication ensures that the information expressed is understood by the person receiving it:

The transmitter sends the message.

The receiver accepts the message and provides feedback.

The transmitter verifies that the message was received correctly.

For example:

Doctor: "Administer 10 units of oxytocin IM."

Nurse: "10 units of oxytocin IM."

Doctor: "Correct."

Think Outloud

Think outloud means anyone on the team can verbalize his/her actions actions. Say outloud what you are doing, feeling, or seeing in order to:

- Inform all members of the team simultaneously of the state of the emergency.
- Help team members to anticipate the next steps.

For example: *“The bleeding continues and her blood loss is 1000 ml. I’m going to perform bimanual compression.... Her uterus does not have any clots and is firming up.”*

The Two-Challenge Rule

The Two-Challenge Rule is a communication tool adapted from the aviation industry and tested in medical centers by the program Team STEPPS. It is a good way to resolve conflicts and maintain patient safety. The Two-Challenge Rule states that if a subordinate detects an error or problem that could lead to a dangerous situation, he/she can challenge authority, repeating his/her concern two times. If the superior does not respond to the call on the second occasion, the subordinate can automatically request another person’s help in resolving the problem. This allows subordinates to protect the patient without fear of reproach.

It is your responsibility to firmly express your concern at least two times to make sure you have been heard. If the person still does not acknowledge your point or think twice about the order, you can speak more firmly. Say “I’m worried and I’m concerned. This is a patient safety issue.” If you are still ignored, you may go to a supervisor or superior in the chain-of-command.

If you are the leader in the situation and you hear your team member repeat his/her concern two times, you should stop and re-think your order or course of action, because it is a patient safety matter. This allows any member of the team to “break the chain” if he/she suspects or discovers any threat to patient safety.

For example:

Doctor: *“Administer 0.2 mg of ergonovine IM.”*

Nurse: *“Are you sure, Doctor? This woman is hypertensive and I believe you shouldn’t give ergonovine to a hypertensive woman.”*

If the superior does not respond, or if he/she asks that you proceed with the order, you ask for clarification again.

Doctor: *“I am the one who gives the orders, and I’m ordering 0.2 mg of ergonovine immediately! Can’t you see that she is bleeding?”*

Nurse: *“Yes, Doctor, but she is not bleeding heavily and I’m worried about giving her a medication that could be dangerous for her. I can obtain more oxytocin if you wish.”*

If the request is still denied, you can choose to go to a superior to contest the issue.

Questions for Immediate Debriefing:

- ___ Was our communication clear?
- ___ Were our roles and responsibilities understood?
- ___ Did we maintain situation awareness?
- ___ Did we distribute the work equally?
- ___ Did we call for help soon enough? Did help arrive?
- ___ Did we make any errors? Did we prevent any errors?
- ___ Did we have all the resources we needed?
- ___ What went well, what could have gone better, and what should we improve?



Basic Emergency Response

- ☐ Ask for help
- ☐ Check the airway/ Check breathing
- ☐ Administer oxygen (mask)
- ☐ Obtain IV Access with a #14 or #16 catheter
- ☐ Initiate and replace volume (crystalloids – 3 to 1)
 - *Caution in women with pre-eclampsia, anemia, cardiac disease
- ☐ Watch her vital signs (BP, temp, respirations, and pulse)
- ☐ Empty the bladder with an indwelling catheter: measure output
- ☐ Consider the need for a blood transfusion

- ☐ Send labs →

- CBC
- PT & PTT
- Fibrinogen
- Platelets
- Blood type & screen

Goals

Hemoglobin between 7-10 gr/dL
Platelets >100,000
INR <1.5
Fibrinogen >100m gr/dL
Mean arterial pressure \geq 65mm Hg
Urine output >30ml / hour

- ☐ Maintain body temperature

*If she is bleeding postpartum, initiate the Uterine Atony Algorithm

Obstetric Hemorrhage

≥ 500 ml

Institute Basic Emergency Care

See Algorithm:
Basic
Emergency
Care

Diagnose the Problem

1st Trimester

- Abortion
- Ectopic
- Molar

2nd and 3rd Trimester

- Placenta Previa
- Uterine Rupture
- Placental Abruption

Postpartum

70%

Tone

- Uterine atony

20%

Trauma

- Lacerations
- Uterine Rupture

10%

Tissue

- Retained placental parts

1%

Thrombin

- Coagulation Alterations

Treat the Cause

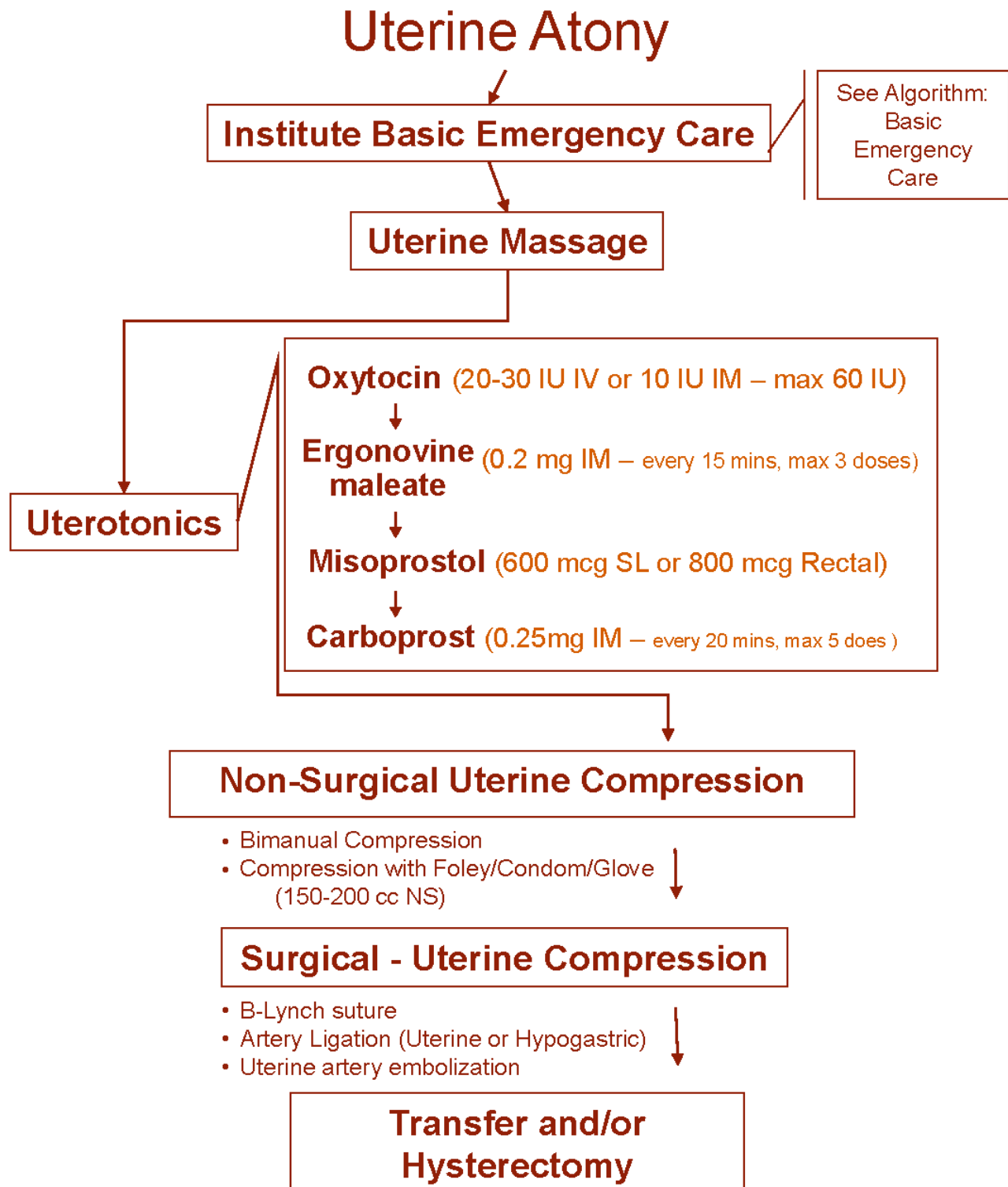
- Massage
- Uterotonics
- Compression
- Surgical

Uterine Atony
Algorithm

- Repair
- Surgical
- Transfer for surgical intervention

- Management of retained placenta
- Prophylactic Antibiotics

- Volume replacement
- Blood and blood product Transfusion
- Stabilize and Transfer



Appendix 8: Management of Hypovolemic Shock

Estimation of blood loss, according to the level of shock						
Volume loss (%) and mL, for a pregnant woman between 50-70Kg	Neurological Status	Perfusion	Pulse	Systolic blood pressure	Stage of Shock	Amount of IV crystalloid to replace in the 1st hour
10-15% 500-1000mL	Normal	Normal	60-90	Normal	Compensated	None
16-25% 1000-1500mL	Normal and or agitated	Pale/cold	91-100	80-90	Mild	3000 to 4500mL
26-35% 1500-2000mL	Agitated	Pale, cold and diaphoretic	101-120	70-80	Moderate	4500 to 6000mL
Greater than 35% 2000-3000mL	Lethargic, unconscious	Pale, cold and diaphoretic with prolonged capillary refill	Greater than 120	Less than 70	Severe	Greater than 6000mL

Modified from Baskett. PJF. ABC of major trauma. Management of hypovolemic shock. BMJ 1990;300: 1453-7.

Appendix 9: Uterotonic Medications

Medication	Route/Dose	Frequency	Observations	Requirements for storage
Oxytocin	IV: 10-40 units in 1 liter of Physiologic Solution or Normal Saline IM: 10 units	Continuous 60 units maximum	Effective within 2-3 minutes Can be used in all women Caution with using oxytocin with excessive amounts of IV fluids	Store between 15°C and 25°C Storage in the delivery room at room temperature (30°C) over a year's time leads to a 14% decrease in efficacy Not destabilized by light
Carboprost	IM: 0.25 mg	Every 20 minutes 5 dose maximum		
Ergonovine maleate	IM: 0.2 mg	Every 20-30 minutes 3 dose maximum	Effective within 2-5 minutes The effect lasts 2-4 hours Contraindicated in hypertension, eclampsia and migraine-sufferers	Store between 2°C and 8°C Protect from light and from freezing Requires strict conditions for storage and handling
Misoprostol	Sublingual: 600 mcg Rectal: 800-1000 mcg	Once	Effective within 9-12 minutes Side effects: shivering, nausea, fever, diarrhea	Keep in at room temperature in a closed container

Modified from Dildy G.A. Y Clark S.L. 1993; Velez-Alvarez, G.A, et al. 2009); Pathfinder, 2010.

Appendix 10: Instant coagulation test

Instant coagulation test
Place 2 ml of venous blood in a clean 10 mm test tube.
Hold the tube in a closed fist (+37° C).
After more than four minutes, turn the tube to the side to see if there are any clots that have formed.
Then check every minute until you can turn the tube upside down without the blood dripping down.

The absence of clot formation or a soft clot beyond 7 min indicates COAGULOPATHY.

Modified from Dildy G.A. Y Clark S.L. 1993; Velez-Alvarez, G.A, et al. 2009) ; Pathfinder, 2010.

Appendix 11: Assigning APGAR

APGAR

Apgar is a method used to evaluate the baby after birth to determine the degree to which it has adapted to the extrauterine environment.

The evaluation is done at the 1st and 5th minute of life. If the APGAR at the 5th minute of life is less than 7, you should continue to evaluate the baby every five minutes until you get to 7.

Sign	0 points	1 point	2 points
Respiratory Effort	Absent	Slow or irregular, gasping, weak cry	Strong cry
Heart Rate	Absent	≤ 100 beats per minute	> 100 beats per minute
Color	Pale or blue	Body pink with blue extremities	Pink throughout
Tone	Floppy and flaccid tone	Some tone	Active movement
Irritability/reflexes	Doesn't react to stimulation	Grimace	Strong cry

0 – 3 Severe neonatal depression

4 – 6 Moderate neonatal depression

7 – 10 Lack of problem in adjusting to the extrauterine environment

APGAR should not be used to guide steps related to neonatal resuscitation

Appendix 12: Medications for Neonatal Resuscitation

Medications for Neonatal Resuscitation				
Medications	Concentration	Route	Dose/Preparation	Speed/Precautions
Epinephrine Warning: 2 ROUTES 2 DOSES	1:10,000	Umbilical vein	0.1 to 0.3 mL/kg IV In 1 mL syringe	Give rapidly Flush with .5 to 1 ml of saline to ensure that the medication rapidly enters circulation
	1:10,000	OK to administer through ET tube while establishing IV access	0.3 a 1 mL/kg through endotracheal tube In a 3 or 5 mL syringe	Give rapidly Give directly through ET tube following various respirations with positive pressure ventilation.
Volume expanders	Normal Saline Acceptable to give Hartmann's Solution or packed red blood cells	Umbilical vein	10 mL/kg Load the estimated volume into a syringe	Give over 5 to 10 minutes. Use syringe or infusion pump.

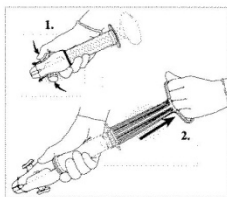
Modified from the American Academy of Pediatrics. NRP Trainer Guide. 2009

Appendix 13: Manual Vacuum Aspiration

Steps for Performing Manual Vacuum Aspiration (MVA) Using the Ipas MVA Plus® and Ipas EasyGrip® Cannulae

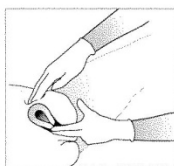
Step One: Prepare Instruments

- Position the plunger all the way inside the cylinder.
- Have collar stop in place with tabs in the cylinder holes.
- Push valve buttons down and forward until they lock (1).
- Pull plunger back until arms snap outward and catch on cylinder base (2).



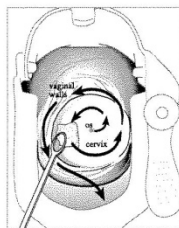
Step Two: Prepare the Patient

- Ask the woman to empty her bladder.
- Conduct a bimanual exam to confirm uterine size and position.
- Insert speculum and conduct speculum exam to confirm findings of clinical assessment.



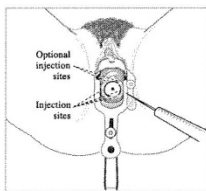
Step Three: Perform Cervical Antiseptic Prep

- Follow no-touch technique – no instrument that enters the uterus can contact contaminated surfaces before insertion through the cervix.
- Use antiseptic-soaked sponge to clean cervical os.
- Start at os and spiral outward without retracing areas.
- Continue until os has been completely covered by antiseptic.



Step Four: Perform Paracervical Block

- Paracervical block is recommended when mechanical dilatation is required with MVA.
- Using local protocols, administer paracervical block and place tenaculum.
- Use lowest anesthetic dose possible to avoid toxicity – for example, if using lidocaine, the recommended dose is less than 200mg/person.

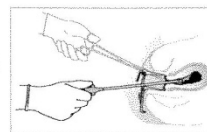


Step Five: Dilate Cervix

- If cervix is insufficiently dilated, use mechanical dilators or progressively larger cannulae to dilate.
- Dilate cervix to allow a cannula approximate to the uterine size to fit snugly through the os.

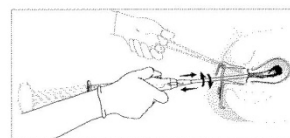
Step Six: Insert Cannula

- While applying traction to tenaculum, insert cannula through the cervix, just past the os and into the uterine cavity or until it touches the fundus, and then withdraw it slightly.
- Do not insert the cannula forcefully.



Step Seven: Suction Uterine Contents

- Attach the prepared aspirator to the cannula.
- Release the vacuum by pressing the buttons.
- Evacuate the contents of the uterus by gently and slowly rotating the cannula 180° in each direction, using an in-and-out motion.
- When finished, depress the buttons, detach cannula or withdraw.



Signs that indicate the uterus is empty:

- Red or pink foam without tissue is seen passing through the cannula.
- A gritty sensation is felt as the cannula passes over the surface of the evacuated uterus.
- The uterus contracts around or grips the cannula.
- The patient complains of cramping or pain, indicating that the uterus is contracting.

Step Eight: Inspect Tissue

- Empty the contents of the aspirator into a container.
- Inspect tissue for products of conception, complete evacuation and molar pregnancy.
- If inspection is inconclusive, strain material, float in water or vinegar and view with a light from beneath.



Step Nine: Perform Any Concurrent Procedures

- When procedure is complete, proceed with contraception or other procedures, such as IUD insertion or cervical tear repair.

Step Ten: Process Instruments

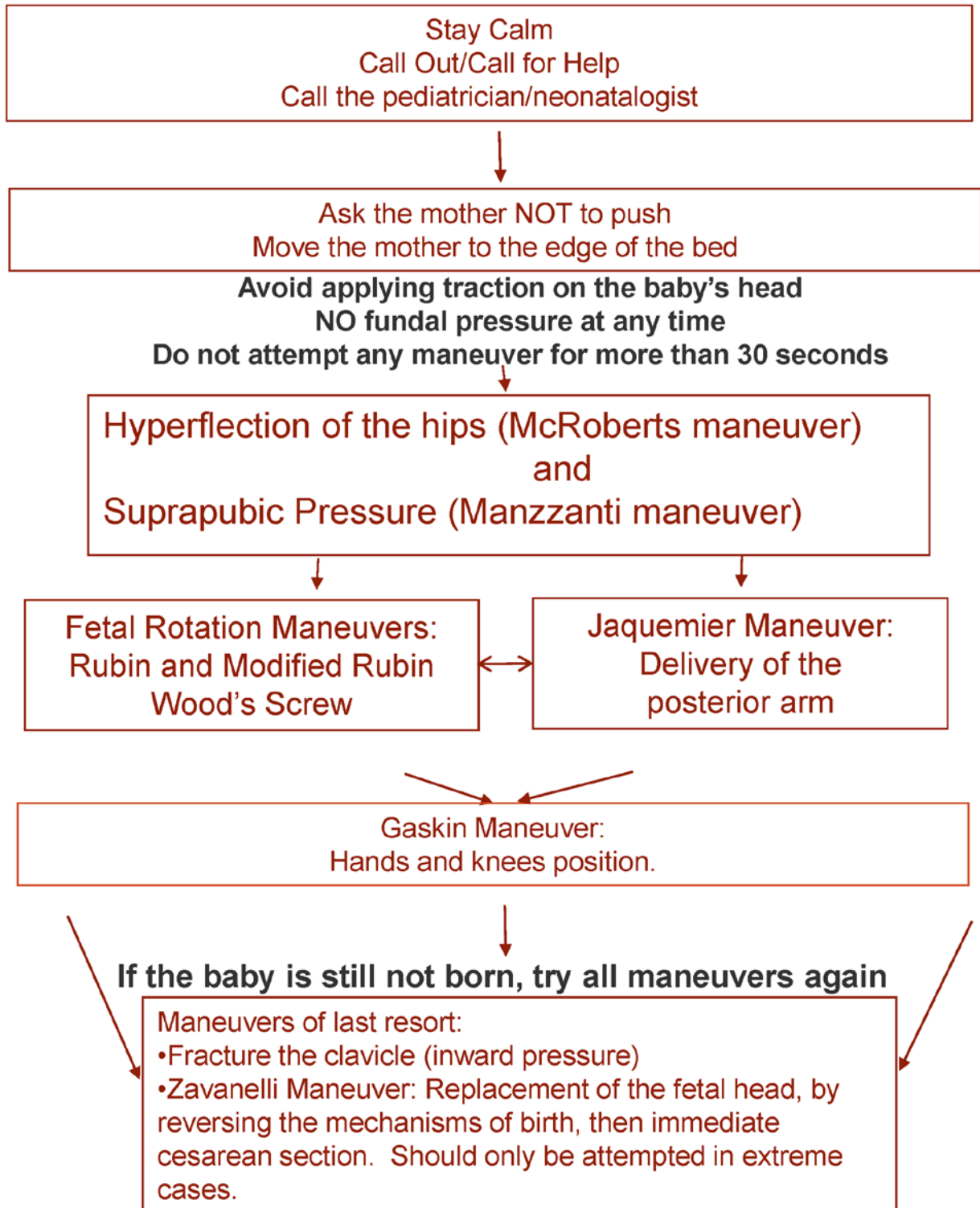
- When procedure is complete, immediately process or discard all instruments, including the aspirator and cannulae, according to local protocols.



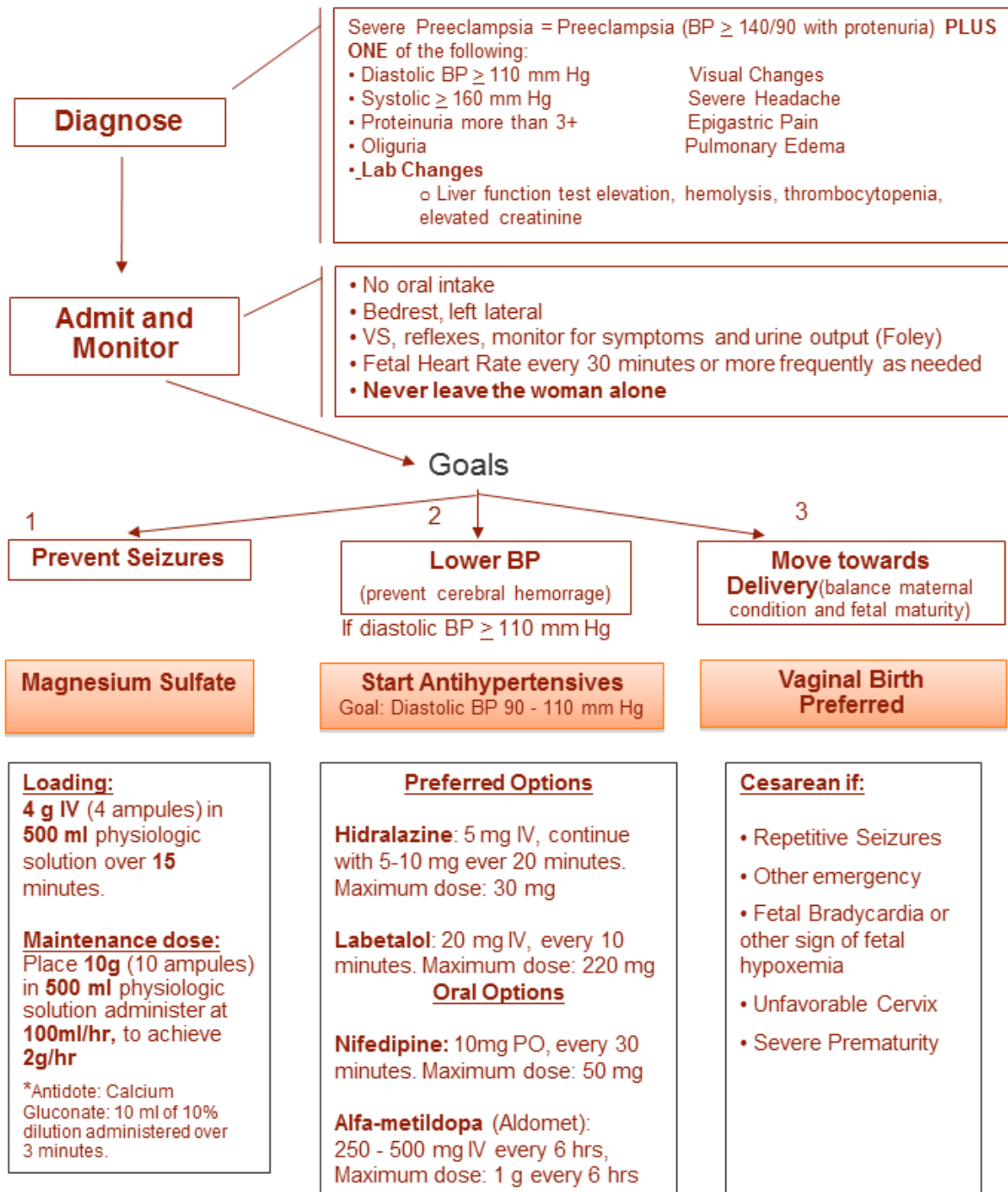
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U.S. Patent and Trademark Office Reg. No. *Ipas MVA Plus*® 2,907,186 *Ipas EasyGrip*® 2,768,302

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N-05-PLU-003
Rev. 1 02/2007

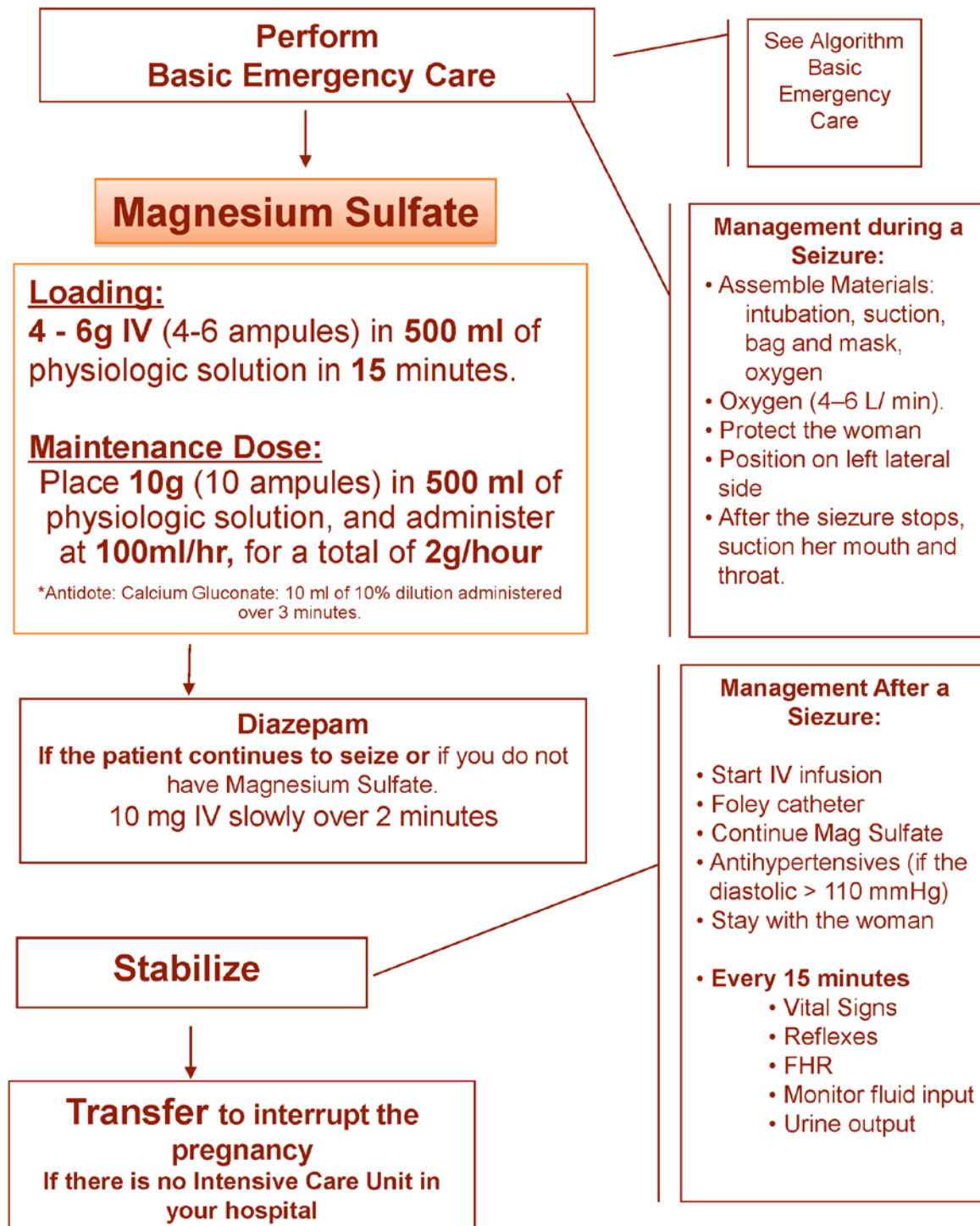
Shoulder Dystocia



Severe Preeclampsia



Eclampsia



Notes