

AHRQ Safety Program for Perinatal Care

https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/hais/tools/perinatal-care/sppc-summary_report.pdf

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Purpose of the tool: The Magnesium Toxicity In Situ Simulation tool provides a sample scenario for labor and delivery (L&D) staff to practice teamwork, communication, and technical skills in the unit where they work. Upon completion of the Magnesium Toxicity In Situ Simulation, participants will be able to do the following:

- Demonstrate effective communication with the patient and support person during an episode of patient care involving magnesium toxicity.
- Demonstrate effective teamwork and communication with clinical team members during assessment of the patient, changes in the patient's clinical status, and actions required for the optimum patient outcome.
- Demonstrate timely and accurate clinical assessment and intervention for magnesium toxicity.
- Demonstrate the efficient use of checklists, protocols, or similar cognitive aids for responding to magnesium toxicity.

Who should use this tool: Simulation facilitators

How to use this tool: This tool should be used in connection with the “Facilitation Instructions for Conducting In Situ Simulations” to prepare, conduct, assess, and debrief in situ simulations on L&D units. Simulation facilitators can adapt, modify, and further tailor this sample scenario to meet the training needs of their unit staff or resources available in their facility.



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Sample Scenario for Magnesium Toxicity *In Situ* Simulation

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Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

This document provides a sample scenario for an in situ simulation for magnesium toxicity. This document contains the following:

- Preparation Required
- Clinical Context, Triggers, Distractors, and Expected Behaviors for the Simulation
- Magnesium Toxicity Simulation Assessment Tool
- Clinical Context, Triggers, and Distractors Formatted for Printing

Refer to the document titled “Facilitation Instructions for Conducting In Situ Simulation” for general guidance and instructions regarding presimulation planning, presimulation briefing, simulation assessment, and simulation debriefing.

During the simulation, participants are encouraged to practice the use of protocols, checklists, or cognitive aids the unit has developed or adapted for responding to magnesium toxicity.

Preparation Required

This simulation requires people to play the roles of the patient and the patient’s support person:

- The actor playing the patient should wear a patient gown, padding (to simulate a postpartum belly), and a wrist identification band and should lie in bed. The simulated patient (“actor”) should wear scrubs under the gown to ensure her privacy.
- The actor playing the support person should be briefed on his or her disposition and how to interact with others in the simulation.

In addition, the following props (i.e., simulated equipment and materials) are required:

- Simulated intravenous (IV) fluids and medications (e.g., magnesium sulfate, calcium gluconate). The team should order and access simulated fluids and medication in the way it normally would order these items—for example, through electronic order entry, a Pyxis machine, or a rapid response kit or cart. This allows the team to experience the normal passage of time required to order and access necessary supplies for treatment. Prior planning and coordination with the pharmacy for these simulated items will help make the simulation as realistic as possible.
- Simulated urine in a Foley catheter bag.
- Oxygen mask and oxygen (O₂) saturation probe and any other related equipment for simulating use of oxygen.
- Lab result printouts or a simulated patient in the electronic medical record with the necessary lab results for the simulation.

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Clinical Context, Triggers, Distractors, and Expected Behaviors for the Simulation

The content of this simulation is divided into four parts: Clinical Context, Triggers, Distractors, and Expected Behaviors. The Clinical Context is provided at the beginning of the simulation in the form of a patient handoff and introduces that simulated patient and her clinical history. The handoff is followed by a series of Triggers and Distractors, events or actions that introduce new information and shape the context of the clinical response. The simulation facilitator introduces the Triggers and Distractors throughout the course of the simulation. A set of Expected Behaviors is also provided for the Clinical Context and each set of Triggers and Distractors. The Expected Behaviors offer a list of ideal actions that the clinical team might take in response to each set of events in the simulation with particular regard to those that foster effective teamwork and communication. The Expected Behaviors can also serve as a tool to use in evaluating the performance of the simulation participants.

Clinical Context

The facilitator provides the clinical context to person in the role of nurse. This can be done using a verbal report and handoff from one nurse to another nurse during change of shift.

"Suneeta Rao is a 20-year-old G1P1 who delivered vaginally at 37 weeks, a baby boy, 14 hours ago. She had no prenatal care. Baby is well and with grandma [patient's mother]. She had severe preeclampsia and is currently on 2 grams/hour of magnesium sulfate. Her main line fluid is running LR [Lactated Ringer's] at 125 ml/hr. Her urinary output had been WNL [within normal limits], but decreased to 20 ml in the last couple of hours. DTRs [deep tendon reflexes] are absent and no clonus was present at my last check about 15 minutes ago.

"Her labs were last drawn 2 hours ago, and her AST [aspartate aminotransferase] was 73, ALT [alanine transaminase] 82, Hgb [hemoglobin] was 8.5; platelets were fine at 175,000. Her last set of vitals were temp 98.4, HR [heart rate] of 70, Resp Rate of 14, BP [blood pressure] was 144/78, O₂ saturation was 96% on room air. The plan is to keep her on IV magnesium for 24 hours and recheck labs every 12 hours."

If asked, no magnesium level has been drawn.

Expected behavior/performance (not in any particular order):

- Nurse introduces self to the patient and begins assessment

Trigger #1

Patient wants to hold the baby, who is being held by patient's mother at present. Patient has slightly slurred speech and feels nauseated.

"I want to hold the baby, Mom," she says with slurred speech.

"I feel like I'm going to throw up."

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Clinical information provided on cards (one at a time) in response to assessment actions taken by team. For example, after team measures BP, the BP value is provided to team on a card.

BP 158/98

Pulse 100

Resp Rate 12

O₂ Saturation drops to 92%

DTRs absent

The facilitator may provide answers to team as needed to help maintain the flow of the simulation. Symptoms should continue while the nurse reassesses patient and determines next actions.

Distractors

Mother tells patient, “You get your sleep. I’ll take care of Alba.”

Mother tells patient and nurse her labor/delivery stories and that she was also nauseated after the birth of all five of her children and asks nurse where the diapers are stored.

Mother also asks nurse about getting baby’s photo taken.

Expected behavior/performance:

- Nurse reassures patient and support person.
- Nurse reassesses maternal and fetal status.
- Nurse calls for additional help, provider, or rapid response team.
- Situation-Background-Assessment-Recommendation (SBAR) is used to inform others of the situation when they arrive. Additional help might be attending physician, anesthesiology, nursing, or rapid response team.

Trigger #2

Patient’s mother rings call button or alerts nurse in the room that she can’t arouse her daughter.

“Help! My daughter is not talking.”

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Clinical information provided on cards (one at a time) in response to assessment actions taken by team. For example, after team measures BP, the BP value is provided to team on a card.

BP 128/90

Pulse 110

Resp Rate 8

O₂ Saturation 89%

Patient is extremely lethargic, not responding to questions.

The facilitator may provide answers to team as needed to help maintain the flow of the simulation. The facilitator allows the patient to remain unresponsive while the team attempts various measures to address. Oxygen saturation should remain low despite any supplemental oxygen provided.

Distractors

Patient's mother is extremely frightened and still holding the baby.

Mother asks questions about what is happening.

"Why is she behaving that way? This is not right."

Expected behavior/performance (not in any particular order):

- Nurse calls for additional help, provider, or rapid response team.
- Nurse, provider, or team member calls out concern for magnesium toxicity.
- SBAR is used to inform others of the situation when they arrive. Additional help might be attending physician, anesthesiology, nursing, or rapid response team.
- Provider speaks to patient and support person or delegates to another team member to inform and answer questions.
- Provider clearly demonstrates leadership role.
- All team members use closed-loop communication and provide mutual support to one another.
- Leader may call team huddle.
- All team members call out critical patient information.
- Team initiates appropriate clinical response for unresponsiveness and magnesium toxicity.

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Trigger #3

When appropriate during the unfolding scenario (after team has huddled, additional help has arrived):

O₂ saturation drops to 84%

Clinical information provided on cards (one at a time) in response to assessment actions taken by team. For example, after team measures BP, the BP value is provided to team on a card.

BP 120/85

Pulse 120

Resp Rate 6

O₂ saturation 80% to 83%

The facilitator may provide answers to team as needed to help maintain the flow of the simulation. This may include providing interval maternal assessments in response to team actions. The facilitator allows the patient to remain unresponsive with low oxygen saturation while the team attempts various measures to address.

Distractors

Patient's mother, still holding the baby, is continually asking, "What is happening?"

Expected behavior/performance (not in any particular order):

- Team initiates appropriate clinical response for unresponsiveness and magnesium toxicity.
- Call for advanced airway support (if not already available from staff members who have arrived to provide additional support).
- SBAR is used to inform others of the situation when they arrive. Additional help might be attending physician, anesthesiology, nursing, or rapid response team.
- All team members call out critical patient information.
- All team members use closed-loop communication and provide mutual support to one another.
- Leader may call a team huddle.

Trigger #4

When appropriate during the unfolding scenario (after team has huddled, additional help has arrived, and appropriate measures have been undertaken):

O₂ saturation increases to 93%, patient becomes somewhat responsive.

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Clinical information provided on cards (one at a time) in response to assessment actions taken by team. For example, after team measures BP, the BP value is provided to team on a card.

Pulse 60
BP 110/75
Temp 37.2
Resp Rate 8
O₂ Saturation 93%

The facilitator ends the simulation after no further opportunities for teamwork and communication are apparent, but aims to keep things going for some time after the patient becomes responsive to allow the team to regroup to the change in maternal status and determine next steps for care.

Expected behavior/performance (not in any particular order):

- Situation-Background-Assessment-Recommendation (SBAR) is used to inform others of the situation when they arrive. Additional help might be attending physician, anesthesiology, nursing, or rapid response team.
- All team members use closed-loop communication and provide mutual support to one another.
- Leader calls a team huddle to establish a plan of care.

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Magnesium Toxicity Assessment Tool (Optional)

This tool provides a list of expected behaviors in response to the Clinical Context and each set of Triggers and Distractors in the simulation and can be used as a tool in evaluating the performance of the simulation participants.

Targeted Behavioral Response	Observed	Not Observed	Notes
Trigger 1: Slurred Speech and Nausea			
Nurse reassures patient and support person.			
Nurse reassesses maternal and fetal status.			
Nurse calls for additional help, provider, or rapid response team.			
SBAR is used to inform others of the situation when they arrive.			
Trigger 2: Patient Becoming Unresponsive			
Nurse calls for additional help, provider, or rapid response team.			
Nurse, provider, or team member calls out concern for magnesium toxicity.			
SBAR is used to inform others of the situation when they arrive.			
Provider speaks to patient and support person or delegates to another team member to inform and answer questions.			
Provider clearly demonstrates leadership role.			
All team members use closed-loop communication and provide mutual support to one another.			
Leader may call team huddle.			
All team members call out critical patient information.			
Team initiates appropriate clinical response appropriate for unresponsiveness and magnesium toxicity.			
Trigger 3: No Response and Deteriorating			
Team initiates appropriate clinical response appropriate for unresponsiveness and magnesium toxicity.			

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Targeted Behavioral Response	Observed	Not Observed	Notes
Trigger 3: No Response and Deteriorating (continued)			
Call for advanced airway support (if not already available by staff that have arrived to provide additional support).			
SBAR is used to inform others of the situation when they arrive.			
All team members call out critical patient information.			
All team members use closed-loop communication and provide mutual support to one another.			
Leader may call team huddle.			
Trigger 4: Patient Rebounds			
SBAR is used to inform others of the situation when they arrive.			
All team members use closed-loop communication and provide mutual support to one another.			
Leader calls a team huddle to establish a plan of care.			

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Clinical Context, Triggers, and Distractors Formatted for Printing Separately

The clinical context, triggers, and distractors used in this simulation scenario are provided on the next several pages in a format suitable for printing on cardstock in preparation for facilitating this in situ simulation using printed cards. The printed cards can be handed to the simulated patient or participating staff members at appropriate intervals during the simulation.

Clinical Context

“Suneeta Rao is a 20-year-old G1P1 who delivered vaginally at 37 weeks, a baby boy, 14 hours ago. She had no prenatal care. Baby is well and with grandma [patient’s mother]. She had severe preeclampsia and is currently on 2 grams/hour of magnesium sulfate. Her main line fluid is running LR [Lactated Ringer’s] at 125 ml/hr. Her urinary output had been WNL [within normal limits], but decreased to 20 ml in the last couple of hours. DTRs [deep tendon reflexes] are absent and no clonus was present at my last check about 15 minutes ago.

"Her labs were last drawn 2 hours ago and her AST [aspartate aminotransferase] was 73, ALT [alanine transaminase] 82, Hgb [hemoglobin] was 8.5; platelets were fine at 175,000. Her last set of vitals were temp 98.4, HR [heart rate] of 70, Resp Rate of 14, BP [blood pressure] was 144/78, O₂ saturation was 96% on room air. The plan is to keep her on IV [intravenous] magnesium for 24 hours and recheck labs every 12 hours.”

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Trigger #1

Patient:

“I want to hold the baby, Mom,” she says with slurred speech.

“I feel like I’m going to throw up.”

Clinical information to be provided to team in response to their assessment after trigger #1

BP 158/98

Pulse 100

Resp Rate 12

O₂ Saturation drops to 92%

DTRs absent

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Distractors (Trigger #1)

- Mother tells patient, “You get your sleep. I’ll take care of Alba.”
- Mother tells patient and nurse her labor/delivery stories and that she was also nauseated after the birth of all five of her children and asks nurse where the diapers are stored.
- Mother also asks nurse about getting baby’s photo taken.

Trigger #2

Patient’s mother rings call button or alerts nurse in the room that she can’t arouse her daughter.

“Help! My daughter is not talking.”

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Clinical information to be provided to team in response to their assessment after trigger #2

BP 128/90

Pulse 110

Resp Rate 8

O₂ Saturation 89%

Patient is extremely lethargic, not responding to questions.

Distractors (Trigger #2)

- Patient's mother is extremely frightened and still holding the baby.
- Mother asks questions about what is happening.
- "Why is she behaving that way? This is not right."

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Trigger #3

O₂ Saturation drops to 84%.

Clinical information to be provided to team in response to their assessment after trigger #3

BP 120/85

Pulse 120

Resp Rate 6

O₂ Saturation 80% to 83%

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Distractors (Trigger #3)

- Patient's mother, still holding the baby, is continually asking, "What is happening?"

Trigger #4

O₂ saturation increases to 93%, patient becomes somewhat responsive.

Sample Scenario for Magnesium Toxicity *In Situ* Simulation

Clinical information to be provided to team in response to their assessment after trigger #4

Pulse 60

BP 110/75

Temp 37.2

Resp Rate 8

O₂ Saturation 93%