



**Maternity Education Program**

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# **Pre-eclampsia/ Eclampsia**

## **Participant Resource Kit**

## Maternity Education Program

The resources developed for MEP (Maternity Education Program) are designed for use in any Queensland Health facility that care for patients/women who are pregnant/birthing or postnatal. Each resource can be modified by the facilitator and scaled to the needs of the learner as well as the environment in which the education is being delivered, from tertiary to rural and remote facilities.



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### Pre-eclampsia/Eclampsia – Participant Resource Kit

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An electronic version of this document is available via <https://csds.qld.edu.au/mep>.

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## **Who is this resource kit for?**

This resource kit provides healthcare workers with knowledge and skills on assessing and managing a pre-eclampsia toxæmia (PET) and subsequent eclampsia.

### **Target audience**

Midwifery and medical staff providing maternity care

### **Duration**

45 mins – including simulation and debrief (15 mins for set up not included)

### **Group size**

Suited to small groups (6 – 8)

### **Learning objectives**

By the end of the session the learner should be able to:

- Identify the clinical features of PET and perform correct investigations to confirm the diagnosis of PET.
- Recognise and respond to a clinically deteriorating patient.
- Implement management of PET and eclampsia including hypertension and seizures.

### **Supporting documents**

1. 2D pictures
2. PET/Eclampsia flow diagram
3. Drug guide and observation during therapy
4. PET/Eclampsia simulation



# Overview

**Pre-eclampsia (PET)** is diagnosed in pregnancy when hypertension is associated with one or more accompanying features. These can be neurological symptoms such as a persistent headache, visual disturbances, stroke, convulsions; impaired kidney or liver function; fetal growth restriction; placental abruption; pulmonary oedema and haematological involvement<sup>1</sup>.

Pre-eclampsia is a progressive disorder that worsens as pregnancy continues. Delivery of the baby is the definitive treatment, which is followed by resolution, generally over a few days but sometimes it may take longer for full recovery. Decisions about the management of PET around timing of delivery and type of birth e.g., induction/caesarean section or continuation of the pregnancy are based on the maternal and fetal factors such as gestational age.

In Australia studies have estimated the incidence of pre-eclampsia is 3.0–3.3% overall, early onset pre-eclampsia < 34 weeks the incidence is 0.4% and onset ≥34 weeks of pre-eclampsia is 2.4%<sup>1</sup>.

Significant pre-eclampsia is associated with serious maternal morbidity and very rarely, with death. The number of deaths is low but prompt management and treatment can further reduce these numbers.

Women with significant pre-eclampsia are more likely to have a caesarean section and are also more at risk of stillbirth or neonatal death. Neonatal complications associated with pre-eclampsia are low Apgar scores, small for gestational age, acute

respiratory distress syndrome and postpartum neonatal hypoglycaemia<sup>2</sup>.

Pre-eclampsia is rarely associated with eclampsia. Eclampsia is a life-threatening condition for the mother but with improved detection and treatment of pre-eclampsia progression to eclampsia is uncommon. All maternity staff should be able to identify and manage eclampsia effectively.

**Obstetric emergency** is any clinical situation involving a maternity patient where immediate medical/ midwifery assistance is required.

## Further readings and resources

Hypertension disorders of pregnancy

Author      Queensland Clinical Guidelines

Link      [https://www.health.qld.gov.au/\\_data/assets/pdf\\_file/0034/139948/g-hdp.pdf](https://www.health.qld.gov.au/_data/assets/pdf_file/0034/139948/g-hdp.pdf)

Pre-eclampsia and High Blood Pressure During Pregnancy

Author      The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG)

Link      <https://ranzco.org.au/womens-health/patient-information-resources/pre-eclampsia-and-high-blood-pressure-during-pregn>

Pregnancy Care Guideline on the Risk of pre-eclampsia

Author      Australian Government Department of Health

Link      <https://www.health.gov.au/resources/pregnancy-care-guidelines/part-d-clinical-assessments/risk-of-pre-eclampsia>

Guideline on “Hypertension in pregnancy: diagnosis and management”

Author      National Institute for Health and Care Excellence (NICE)

Link      <https://www.nice.org.uk/guidance/ng133>



# Emergency Management

# Management of eclampsia

Flowchart on the management of eclampsia by Queensland Government, Queensland Maternity and Neonatal Clinical Guidelines



## Flowchart on the management of hypertension by Queensland Government, Queensland Maternity and Neonatal Clinical Guidelines



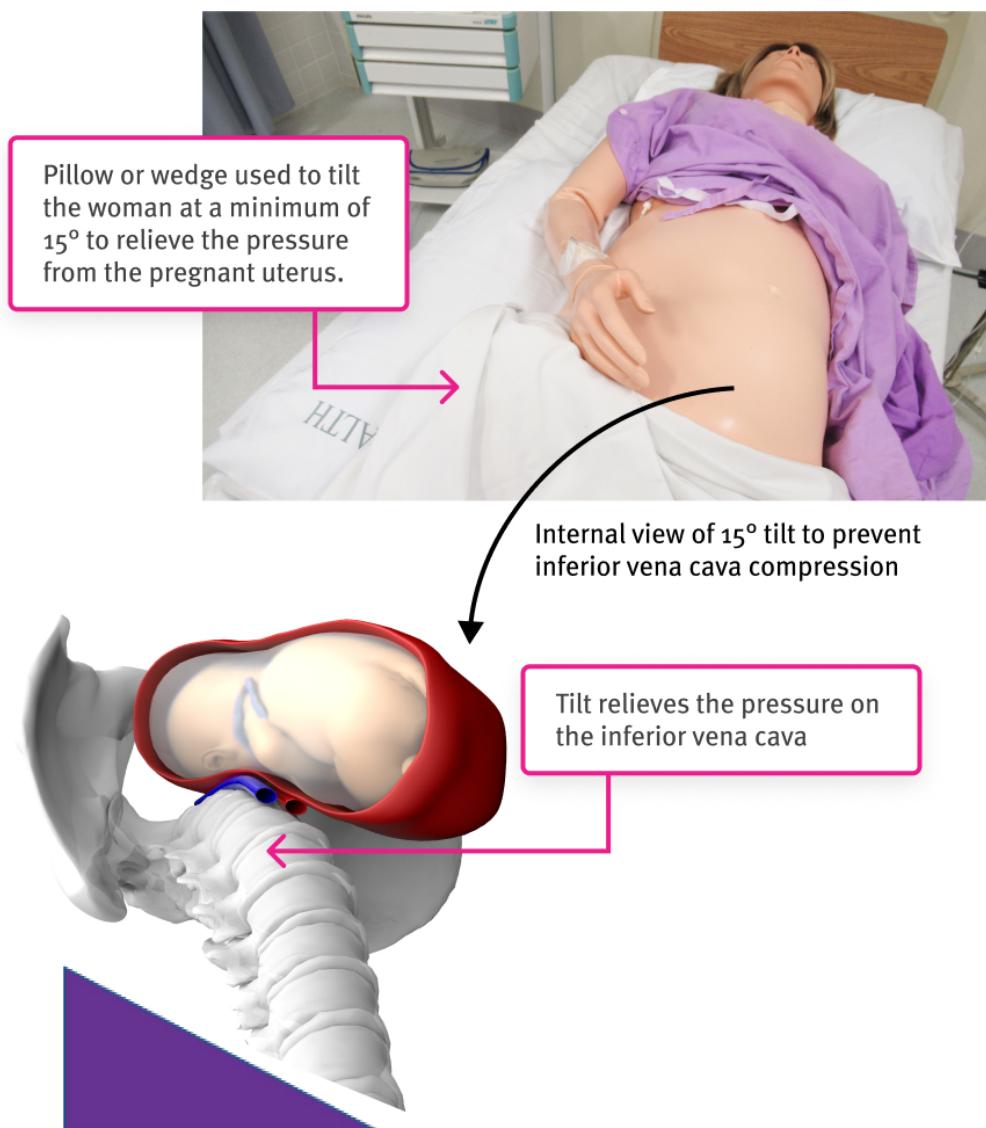
[https://www.health.qld.gov.au/\\_data/assets/pdf\\_file/0024/144168/f-hdp-summary.pdf](https://www.health.qld.gov.au/_data/assets/pdf_file/0024/144168/f-hdp-summary.pdf)



# Specific Management

## Left lateral 15° tilt

Left lateral 15° tilt used during maternal resuscitation to prevent vena cava compression.



**Manual displacement of the uterus**



## Medications for treatment of pre-eclampsia and eclampsia

View the table in PDF format via <https://bit.ly/3eLgB6A>.

Medications for treatment of pre-eclampsia and eclampsia			
<small>This table has been adapted from the Queensland Maternity and Neonatal Clinical Guidelines Hypertension disorders in pregnancy.</small>			
Drug/Product	Dose/Rate	Route	Additional information
Methyldopa	5-10mg cap/sig or 50mg tablet	Oral	Report after 10 minutes (if no change) Report after 45 minutes if no improvement *Should not be given if patient has had a stroke in the last 6 months
Methyldopa acetate (Dobutinac)	5-10mg tablets (long-acting)	Intravenous bolus injection	Report 10 minutes apart up to max (long-acting) Report if maternal pulse systolic > 140 mmHg *Report if no response if given for longer than 30 minutes *Report dose if no response if given for longer than 30 minutes
Methyldopa acetate (long-acting)	5-10mg ampoule with 2x 1ml vials	intramuscular injection – using 1ml vial (long-acting)	Report if no response if given for longer than 30 minutes *Report dose if no response if given for longer than 30 minutes
Magnesium Sulphate (loading dose)	10g (0.5g/kg) over 10 minutes	IV bolus	Report over 20 minutes *Report dose if no response if given for longer than 30 minutes *Report dose if no response if given for longer than 30 minutes
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## Observation management hypertension/pre-eclampsia

View the table in PDF format via <https://bit.ly/35hZhm>.

Observation management of hypertension/pre-eclampsia		
<small>This table was adapted from the Queensland Maternity and Neonatal Clinical Guidelines Hypertension disorders in pregnancy.</small>		
Measurement	Quintiles of blood pressure	Frequency
All women	<ul style="list-style-type: none"> <li>Blood pressure</li> <li>Rest &amp; pulse</li> </ul>	≥ 10 minutes for a known systolic hypertension ≥ 1 hour for a known systolic hypertension *Guideline cuts these frequencies off at this time
Women at risk	Measurements required	
Initial blood pressure	Guideline cuts CQI requirement	
Post delivery (not on drugs)	<ul style="list-style-type: none"> <li>Blood pressure</li> <li>Rest &amp; pulse</li> </ul>	≥ 10 minutes with double time for a known hypertension *Guideline cuts these frequencies off at this time
Initial blood pressure	Guideline cuts CQI requirement	
Post delivery (on antihypertensive drugs)	<ul style="list-style-type: none"> <li>Blood pressure</li> <li>Rest &amp; pulse</li> <li>Co-sat</li> </ul>	≥ 10 minutes during antihypertensive drugs being taken *Guideline cuts these frequencies off at this time
Initial blood pressure	Short blood pressure - known regular/digital	
Initial blood pressure	Guideline cuts CQI requirement	
Hypertension (multiple drugs)	<ul style="list-style-type: none"> <li>Blood pressure</li> <li>Rest &amp; pulse</li> <li>Rest &amp; pulse</li> <li>CQI</li> </ul>	≥ 10 minutes with double time of drug endings
Initial blood pressure	Guideline cuts CQI requirement	
Initial blood pressure	Documentation of floating doses - not EQ HCO if different	
Hypertension (multiple drugs)	<ul style="list-style-type: none"> <li>Blood pressure</li> <li>Rest &amp; pulse</li> <li>Rest &amp; pulse</li> <li>CQI</li> </ul>	≥ 10 minutes
Initial blood pressure	Guideline cuts CQI requirement	
Initial blood pressure	≥ hourly	
Deep breath reflexes	Readily accessible. Abdominal, ribcage	
BCG recommended	Readily accessible - reflect blood pressure	
Systolic blood pressure	Guideline cuts CQI requirement	

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**Hypertensive disorders of pregnancy – Queensland Clinical Guidelines**

View the presentation in PDF format via <https://bit.ly/3pfmmOX>.

The screenshot shows a presentation slide from the Queensland Clinical Guidelines. The title is "Hypertensive disorders of pregnancy". Below the title is the subtitle "Clinical Guideline Presentation v2.0". There is an image of a booklet titled "GUIDELINES". A small box in the bottom left corner says "45 minutes Towards CPD Hours". The Queensland Health logo is in the bottom right corner.

**Deep tendon reflex exam technique – Stanford Medicine**

During diagnosis of preeclampsia, testing of deep tendon reflexes is performed, in preeclampsia the reflexes tend to become 'brisk' hyperreflexia. In combination with other signs and symptoms this can be used as a diagnostic tool of the condition. If magnesium sulphate ( $MgSO_4$ ) treatment is used then regular deep tendon reflex testing is used to detect early signs of  $MgSO_4$  overdose, leading to hyporeflexia and central nervous system depression.

Below is a demonstration of how to perform deep tendon reflex testing. Watch the online video via <http://stanford.io/2UfM8UY>.

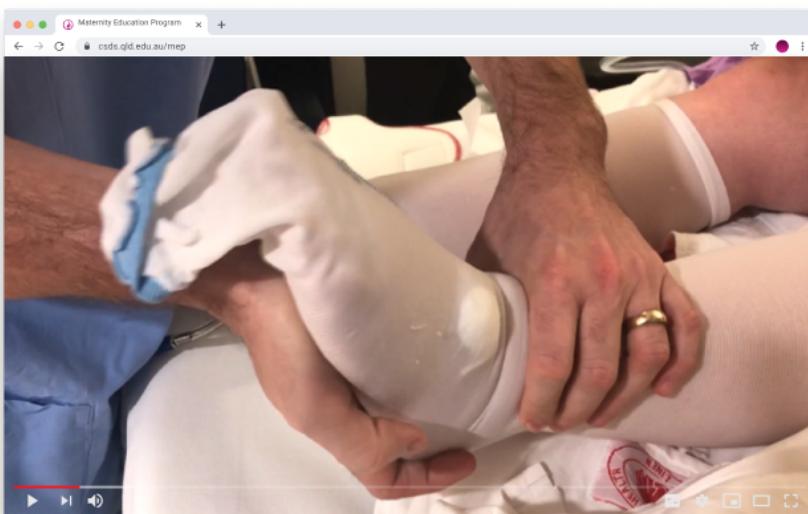
The screenshot shows a video player window. The title of the video is "Deep Tendon Reflexes (Stanford Medicine 25)". It features a doctor in a white coat demonstrating the reflex test on a patient's arm. The video player has standard controls like play, pause, and volume. The URL "csds.qld.edu.au/mep" is visible at the top of the player.



### Clonus demonstration

Clonus is a set of involuntary and rhythmic muscular contractions and relaxations. Clonus is a sign of certain neurological condition and can be associated with preeclampsia. Clonus causes large motions that are usually initiated by a reflex. Studies have shown that clonus beats frequency range from three to eight on average (normal = 5 beats) and may last a few seconds to several minutes. The term is from the Greek for "violent, confused motion".

The following video clip demonstrates clonus in a pregnant woman with preeclampsia. Watch the online video via <https://bit.ly/2lrZKdg>.



## References

This resource kit is inspired by the Optimus BONUS project of the Children's Health Queensland's "Simulation Training Optimising Resuscitation for Kids" service. To know more information about STORK and their Optimus project, visit their website at <https://bit.ly/3km1wcZ>.

1. Clinical Practice Guidelines: Pregnancy Care. 2019. *Risk Of Pre-Eclampsia*. [online] Available at: <<https://www.health.gov.au/resources/pregnancy-care-guidelines/part-d-clinical-assessments/risk-of-pre-eclampsia>> [Accessed 21 May 2020].
2. 2015. *Hypertensive Disorders Of Pregnancy*. [ebook] Queensland Clinical Guidelines. Available at: <[https://www.health.qld.gov.au/\\_data/assets/pdf\\_file/0034/139948/g-hdp.pdf](https://www.health.qld.gov.au/_data/assets/pdf_file/0034/139948/g-hdp.pdf)> [Accessed 28 May 2020].
3. Children's Health Queensland. 2020. Queensland Paediatric Emergency Care Education | CHQ. [online] Available at: <<https://www.childrens.health.qld.gov.au/research/education/queensland-paediatric-emergency-care-education/>> [Accessed 24 July 2020].

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<https://www.surveymonkey.com/r/Z8Q398N>



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