



Maternity Education Program

Pre-eclampsia/ Eclampsia

Participant Resource Kit

CSDS



Clinical Skills Development Service



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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Who is this resource kit for?

This resource kit provides healthcare workers with knowledge and skills on assessing and managing a pre-eclampsia toxaemia (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 involvement¹.

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%¹.

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 hypoglycaemia².

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

Pre-eclampsia and High Blood Pressure During Pregnancy	
Author	The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG)
Link	https://ranzocg.edu.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

	<p>Scan me on your phone</p>
<p>https://www.health.qld.gov.au/_data/assets/pdf_file/0029/146387/f-hdp-eclampsia.pdf</p>	

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

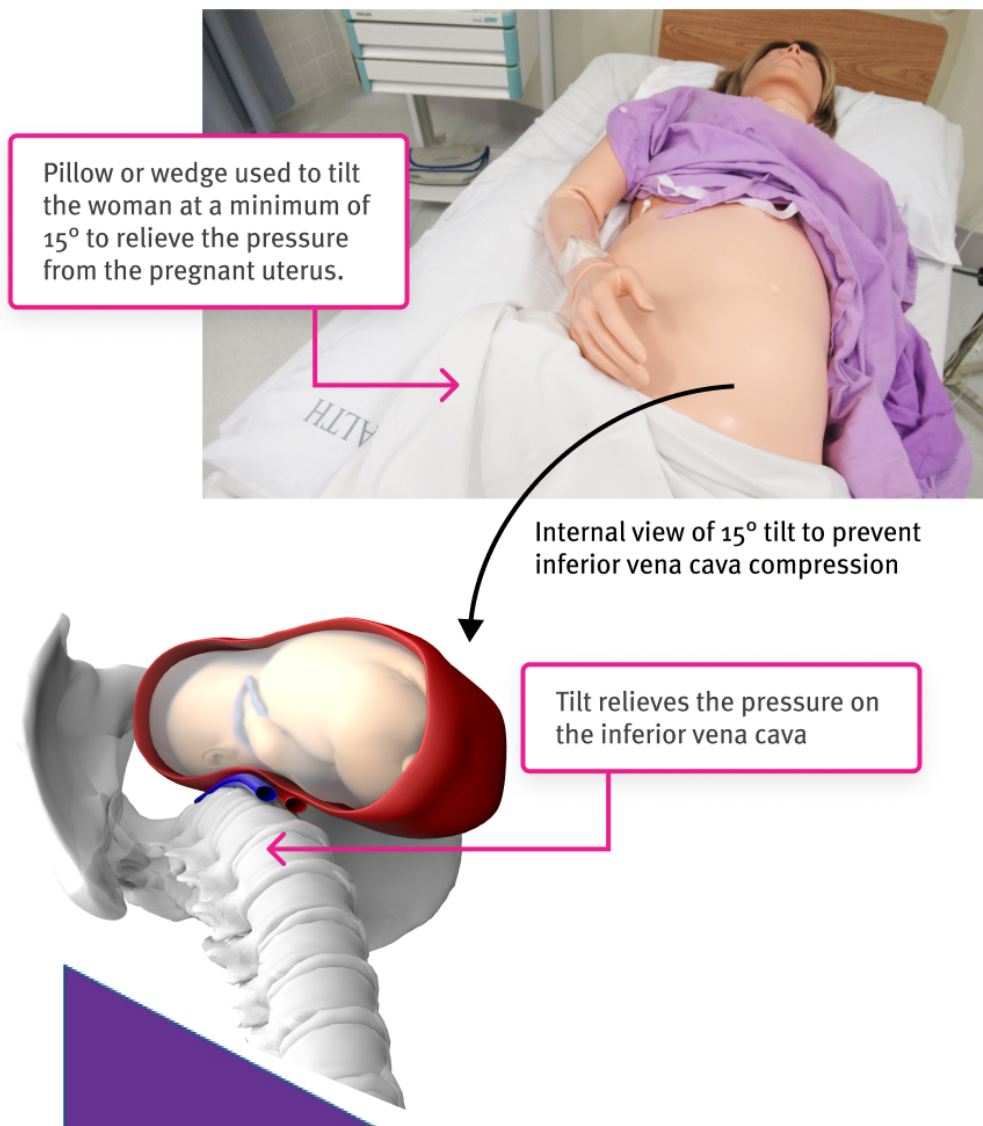
	<p>Scan me on your phone</p>
<p>https://www.health.qld.gov.au/_data/assets/pdf_file/0024/144168/f-hdp-summary.pdf</p>	



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>.

Pre-eclampsia/Eclampsia Maternity Education Program

Medications for treatment of pre-eclampsia and eclampsia

Pre-eclampsia/Eclampsia medication summary
This table has been adapted from the Queensland Maternity and Neonatal Clinical Guidelines: Hypertension disorders in pregnancy.

Drug/Product	Dose/Rate	Route	Additional information
Magnesium sulfate	2-4mg/kg bolus or 1-2mg/kg/hr	Oral	Repeat after 30 minutes (the 2-4mg/kg bolus) if seizure activity persists (the 2-4mg/kg/hr) if seizure activity persists. *Repeat if seizure activity persists.
Hydralazine (e.g. Hydralazine)	2-5mg/kg bolus (range 10-20mg)	Intravenous	Repeat after 30 minutes (the 2-4mg/kg bolus) if seizure activity persists (the 2-4mg/kg/hr) if seizure activity persists. *Repeat if seizure activity persists.
Hydralazine infusion (e.g. Hydralazine)	2-5mg/kg/hr (range 10-20mg/hr)	Intravenous	Repeat after 30 minutes (the 2-4mg/kg bolus) if seizure activity persists (the 2-4mg/kg/hr) if seizure activity persists. *Repeat if seizure activity persists.
Magnesium sulfate (e.g. Magnesium sulfate)	2-4mg/kg bolus (range 10-20mg)	Intravenous	Repeat after 30 minutes (the 2-4mg/kg bolus) if seizure activity persists (the 2-4mg/kg/hr) if seizure activity persists. *Repeat if seizure activity persists.
Magnesium sulfate (e.g. Magnesium sulfate)	2-4mg/kg/hr (range 10-20mg/hr)	Intravenous	Repeat after 30 minutes (the 2-4mg/kg bolus) if seizure activity persists (the 2-4mg/kg/hr) if seizure activity persists. *Repeat if seizure activity persists.

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Observation management hypertension/pre-eclampsia

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

Pre-eclampsia/Eclampsia Maternity Education Program

Observation management of hypertension/pre-eclampsia

This table was adapted from the Queensland Maternity and Neonatal Clinical Guidelines: Hypertension disorders in pregnancy.

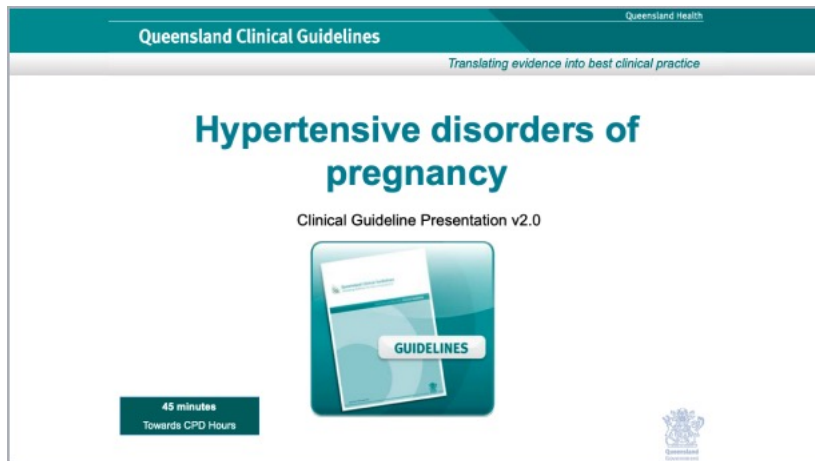
Medication	Observation required	Frequency
Hydralazine	Blood pressure Heart rate Pulse	1-2 hourly for 3 hours until blood pressure is stable Then 1-2 hourly for 3 hours until blood pressure is stable Then 1-2 hourly for 3 hours until blood pressure is stable
Magnesium sulfate	Blood pressure Heart rate Pulse	1-2 hourly for 3 hours until blood pressure is stable Then 1-2 hourly for 3 hours until blood pressure is stable Then 1-2 hourly for 3 hours until blood pressure is stable
Hydralazine (see observation above)	Blood pressure Heart rate Pulse	1-2 hourly for 3 hours until blood pressure is stable Then 1-2 hourly for 3 hours until blood pressure is stable Then 1-2 hourly for 3 hours until blood pressure is stable
Magnesium sulfate (see observation above)	Blood pressure Heart rate Pulse	1-2 hourly for 3 hours until blood pressure is stable Then 1-2 hourly for 3 hours until blood pressure is stable Then 1-2 hourly for 3 hours until blood pressure is stable
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Hypertensive disorders of pregnancy – Queensland Clinical Guidelines

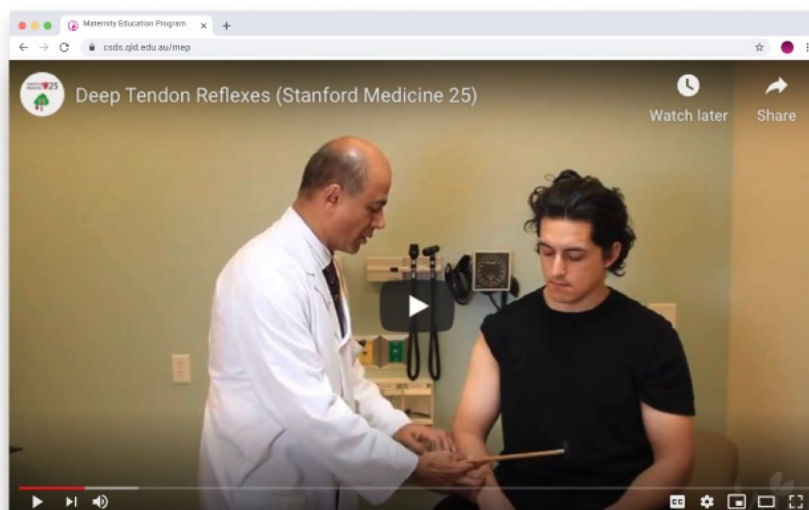
View the presentation in PDF format via <https://bit.ly/3pfmmOX>.



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.

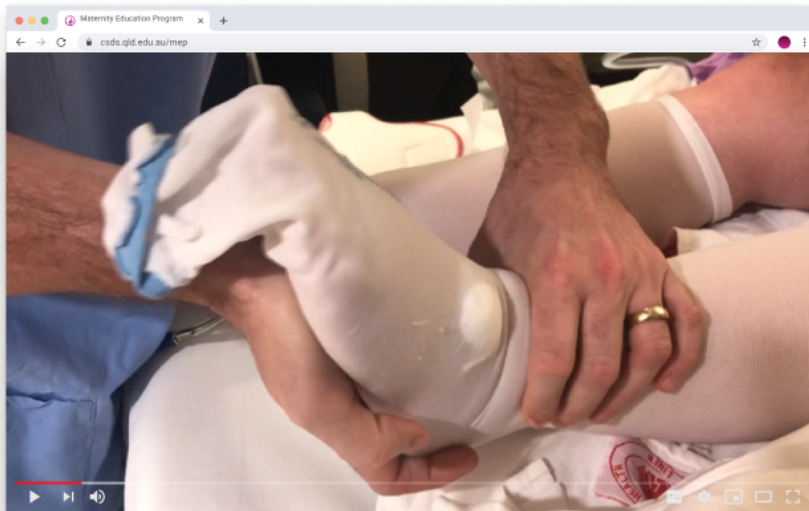
Below is a demonstration of how to perform deep tendon reflex testing. Watch the online video via <http://stanford.io/2UfM8UY>.



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> [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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