Supplement: Hypertensive disorders of pregnancy
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1 Introduction

This document is a supplement to the Queensland Maternity and Neonatal Clinical Guideline Hypertensive disorders of pregnancy. It provides supplementary information regarding guideline development, makes summary recommendations, suggests measures to assist implementation and quality activities and summarises changes (if any) to the guideline since original publication. Refer to the guideline for abbreviations, acronyms, flow charts and acknowledgements.

1.1 Funding

The development of this guideline was funded by Queensland Health. Working party members participated on a voluntary basis.

1.2 Conflict of interest

No conflict of interest was identified.

1.3 Guideline review

The Queensland Maternity and Neonatal Clinical Guidelines are reviewed every 5 years or earlier if significant new evidence emerges. Table 1 provides a summary of changes made to the guidelines since original publication.

Table 1. Summary of change

<table>
<thead>
<tr>
<th>Date</th>
<th>Identifier</th>
<th>Summary of major change</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2010</td>
<td>MN1008.13-V1-R13</td>
<td>• First publication</td>
</tr>
<tr>
<td>August 2011</td>
<td>MN10.13-V2-R15</td>
<td>• Review date extended. Identifier updated. Program name updated</td>
</tr>
</tbody>
</table>
| May 2012  | MN10.13-V3-R15     | • Section 1.1 Definition: Added requirement for clinical and laboratory assessment if rise in BP  
• Section 10 Postpartum: Specified observations. Added reduction in frequency of monitoring requires approval from obstetric/medical team  
• Appendix A: Reference to mercury sphygmomanometer deleted |
| June 2013 | MN10.13-V4-R15     | • Section 1.1.1 Definition of severe hypertension lowered from 170/110 mmHg to 160/110 mmHg  
• Section 6.1 Mild-moderate hypertension: BP levels for considering treatment with antihypertensive agents lowered from 140-169/90-109 mm Hg to 140-160/90-100 mmHg  
• Section 6.2 Heading changed from “Severe Hypertension” to “Hypertension requiring treatment”  
• Section 6.2 Hypertension requiring treatment: BP levels requiring treatment with antihypertensive agents lowered from >170/110 mmHg to >160/100 mmHg  
• Section 7.1 Reference to pre-mixed 20% magnesium sulphate removed  
• Flowcharts updated to reflect above  
• Flowchart: Eclampsia – route of administration added to Nifedipine (oral) and Clonazepam (IV)  
• References added (Ref 4 and 5) for lowering of severe hypertension definition  
• LAM listing of Labetolol updated (Appendix D, Table 4)  
• Section 7.1 Reference to premixed 20% Mag Sulfate removed.  
• Requirement for local preparation work instructions added to Appendix E Magnesium Sulfate protocol.  
• Acknowledgements: Clinical Lead updated to reflect Dr Karin Lust’s involvement |
2 Methodology
The Queensland Maternity and Neonatal Clinical Guideline Program (the Program) follows a rigorous process of guideline development. This process was endorsed by the Queensland Health Patient Safety and Quality Executive Committee in December 2009. The guidelines are best described as "evidence informed consensus guidelines" and draw from the evidence base, existing national and international guidelines and the expert opinion of the working party.

2.1 Topic identification
The topic was identified as a priority by the Statewide Maternity and Neonatal Clinical Network at a forum in 2009.

2.2 Scope
The scope of the guideline was determined using the PICO Framework (Population, Intervention, Comparison, Outcome) as outlined in Table 2.

Table 2. PICO Framework

<table>
<thead>
<tr>
<th>PICO</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Pregnant women with or at risk of developing hypertension</td>
</tr>
<tr>
<td>Intervention</td>
<td>Diagnosis, assessment and management of condition</td>
</tr>
<tr>
<td>Comparison</td>
<td>Pregnant women without hypertensive disorder of pregnancy</td>
</tr>
<tr>
<td>Outcome</td>
<td>Early identification of pregnant women with hypertension</td>
</tr>
<tr>
<td></td>
<td>Accurate assessment and correct diagnosis of condition</td>
</tr>
<tr>
<td></td>
<td>Best practice management during pregnancy, labour and postpartum</td>
</tr>
</tbody>
</table>

2.3 Clinical questions
The following clinical questions were generated to inform the guideline scope and purpose.
- How is hypertension in pregnancy defined?
- How should women be assessed for hypertension in pregnancy?
- In pregnant women with hypertension, what are the best practice management principles with regard to:
  - blood pressure control
  - inpatient/outpatient management/day stay options
  - management during birth
  - post partum management
  - follow-up

2.4 Exclusions
- Anaesthetic consideration in pre-eclampsia

2.5 Search strategy
A search of the literature was conducted during August 2009 using multiple techniques including search and review of:
- known guideline sites (e.g. Royal Australian and New Zealand College of Obstetricians and Gynaecologists, National Guideline Clearing House, Royal College of Obstetrician and Gynaecologists, Society of Obstetricians and Gynaecologists of Canada, American Academy of Pediatrics)
- synthesised evidence (for example UpToDate, Cochrane reviews)
- summaries of relevant literature (e.g. identified using Cinahl, PubMed)
- individual case reports, studies and trials identified in the literature
- relevant reference lists
2.6 Consultation
Major consultative and development processes occurred between September 2009 and May 2010. These are outlined in Table 3.

Table 3. Major guideline development processes

<table>
<thead>
<tr>
<th>Process</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical lead</td>
<td>• The clinical lead was nominated and approached by the Program Steering Committee</td>
</tr>
<tr>
<td>Consumer participation</td>
<td>• Consumer participation was invited from a range of consumer focused organisations who had previously accepted an invitation for on-going involvement with the Program</td>
</tr>
<tr>
<td>Working party</td>
<td>• An EOI for working party membership was distributed via email to Queensland clinicians and stakeholders (~1000) in September 2009</td>
</tr>
<tr>
<td></td>
<td>• The working party was recruited from responses received</td>
</tr>
<tr>
<td></td>
<td>• Working party members who participated in the working party consultation processes are acknowledged in the guideline</td>
</tr>
<tr>
<td></td>
<td>• Working party consultation occurred in a virtual group via email</td>
</tr>
<tr>
<td>Statewide consultation</td>
<td>• Consultation was invited from Queensland clinicians and stakeholders during December 2009</td>
</tr>
<tr>
<td></td>
<td>• Feedback was received primarily via email</td>
</tr>
<tr>
<td></td>
<td>• All feedback was compiled and provided to the clinical lead and working party members for review and comment</td>
</tr>
</tbody>
</table>

2.7 Endorsement
The guideline was endorsed by:
• The Program Steering Committee in May 2010
• Statewide Maternity and Neonatal Clinical Network in June 2010
• Queensland Health Patient and Safety Quality Committee in July 2010

2.8 Publication
The guideline and guideline supplement were published on the Program website in August 2010
The guideline can be cited as:

The guideline supplement can be cited as:
3 Levels of evidence

The levels of evidence identified in the Society of Obstetricians and Gynaecologists of Canada (SOGC) Guideline *Diagnosis, evaluation and management of the hypertensive disorders of pregnancy* (2008) were used to inform the recommendations. Additionally, recommendations made by the Queensland Maternity and Neonatal Clinical Guideline Working Party are classified as Good Practice Points. Levels of evidence are outlined in Table 4 and summary recommendations in Table 5.

Table 4. Levels of evidence

<table>
<thead>
<tr>
<th>SOGC levels of evidence</th>
<th>Quality of evidence assessment</th>
<th>Classification of recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Evidence obtained from at least one properly designed randomised controlled trial</td>
<td>A</td>
</tr>
<tr>
<td>II-1</td>
<td>Evidence obtained from well-designed controlled trials without randomisation</td>
<td>B</td>
</tr>
<tr>
<td>II-2</td>
<td>Evidence from well designed cohort (prospective or retrospective) or case control studies preferably from more than one centre or research group</td>
<td>C</td>
</tr>
<tr>
<td>II-3</td>
<td>Evidence obtained from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) cold also be included in this category</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E</td>
</tr>
<tr>
<td>III</td>
<td>Opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees</td>
<td>I</td>
</tr>
</tbody>
</table>

Queensland Maternity and Neonatal Clinical Guideline Working Party

GPP – Good practice point recommendation.
### 3.1 Summary recommendations

Summary recommendations and levels of evidence are outlined in Table 5.

**Table 5. Summary recommendations**

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Grading of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The definitions and classifications of hypertensive disorders of pregnancy provided by the Society of Obstetric Medicine of Australia and New Zealand should be used</td>
<td>GPP</td>
</tr>
<tr>
<td>2. Blood pressure should be measured in the sitting position, with the arm at the level of the heart. Korotokoff phase 5 should be used to designate diastolic BP</td>
<td>II-2A</td>
</tr>
<tr>
<td>3. Proteinuria should be strongly suspected when urinary dipstick proteinuria is ≥ “2+”</td>
<td>II-2A</td>
</tr>
<tr>
<td>4. In pre-eclampsia: Serial surveillance of maternal well-being is recommended both antenatally and post partum Serial surveillance of fetal well-being is recommended</td>
<td>II-3B</td>
</tr>
<tr>
<td>5. In-patient care should be provided for women with severe hypertension or severe pre-eclampsia</td>
<td>II-2B</td>
</tr>
<tr>
<td>6. Antihypertensive therapy should be commenced for severe hypertension</td>
<td>II-2B</td>
</tr>
<tr>
<td>7. Initial anti-hypertensive therapy can be with one of a variety of anti-hypertensive drugs</td>
<td>GPP</td>
</tr>
<tr>
<td>8. For women with any hypertensive disorders of pregnancy, vaginal birth should be considered unless a caesarean section, is required for the usual obstetric indications</td>
<td>II-2B</td>
</tr>
<tr>
<td>9. If vaginal delivery is planned and the cervix is unfavourable, then cervical ripening should be used to increase the chance of a successful vaginal delivery</td>
<td>I-A</td>
</tr>
<tr>
<td>10. Magnesium sulfate is the first–line treatment of eclampsia</td>
<td>I-A</td>
</tr>
<tr>
<td>11. Formal postnatal review for preconceptual advice, counselling, screening and lifestyle advice should be offered to women whose pregnancies have been complicated by hypertensive disorders of pregnancies</td>
<td>GPP</td>
</tr>
</tbody>
</table>
4 Implementation
This guideline is applicable to all Queensland public and private maternity facilities. It can be downloaded in Portable Document Format (PDF) from www.health.qld.gov.au/qcg

4.1 Guideline resources
The following guideline components are provided on the website as separate resources:
- Flow chart: Management of eclampsia
- Flow chart: Summary management of hypertensive disorders of pregnancy

4.2 Suggested resources
During the development process stakeholders identified additional resources with potential to compliment and enhance guideline implementation and application. The following resources have not been sourced or developed by the Program but are suggested as complimentary to the guideline:
- Work instruction for the preparation of Magnesium sulfate where pre-mixed solutions are not used

4.3 Implementation measures
Suggested activities to assist implementation of the guideline are outlined below.

4.3.1 Program measures
- Notify Chief Executive Officer and relevant stakeholders
- Monitor emerging new evidence to ensure guideline reflects contemporaneous practice
- Capture user feedback
- Record and manage change requests
- Conduct satisfaction survey within 2 years of publication
- Review guideline in 2013

4.3.2 District Health Service measures
- Table the guideline at the local Patient Safety and Quality Committee meeting
- Replace all other guidelines on this topic with the current version of this guideline
- Promote the introduction of the guideline to relevant health care professionals (e.g. at staff forums, clinical handovers, incorporate into orientation packages
- Provide education and training relevant to the guideline
- Develop or access suggested resources as identified in section 4.2 of this supplement

4.4 Clinical quality measures
The following clinical quality measures are suggested:
- Proportion of women with eclampsia treated with magnesium sulfate
- Initiate or promote regular multidisciplinary meetings to review obstetric cases and births