EVIDENCE BRIEF

Management late complications
(DCP4 ID: MNH04)

FairChoices
DCP Analytic Tool

Management of late pregnancy complications

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Description of condition and intervention

Antenatal care is an important facet for ensuring a positive pregnancy experience for women and their unborn children. Components of antenatal care propagate about the healthy behaviours, provide interventions targeting good health for the mother and the baby. The World Health Organization recommends at least four antenatal visits during the pregnancy. Comprehensive guidelines provided by WHO gives evidence-informed recommendations on the routine antenatal care. These guidelines are relevant to all the pregnant women in any healthcare or community (WHO 2021).

Specific interventions included as part of antenatal care in complicated cases of pregnancy and need timely management commencing from the antenatal care visit for better health outcomes for the mother and the baby. We assess the effects and costs of the following interventions as part of management if late pregnancy complications in this evidence brief.

1. *Management of hypertensive disorders in pregnancy*
2. *Antenatal corticosteroid for preterm labour*
3. *Antibiotics for preterm or prolonged PROM*
4. *Induction of labour (beyond 41 weeks)*

International guidelines

Organization	Indications/recommendations	Applicability

		in LIC & Lower MIC settings
World Health Organization 2016	Recommendations on Antenatal Care for a Positive Pregnancy Experience.	Yes

Intervention attributes

Type of interventions & Delivery platform

Table 1: Type of interventions & delivery platform

Intervention	Type	Delivery platform
1. Management of severe hypertension, pre-eclampsia and eclampsia with antihypertensives, anticonvulsants and magnesium sulfate, including initial stabilization at health centers	Curative	Health centre
2. Antenatal corticosteroid for preterm labour	Preventive	Health centre
3. Antibiotics for preterm or prolonged PROM	Curative	Health centre
4. Induction of labour (beyond 41 weeks)	Curative	Health centre

Equity

In addition to considerations like cost-effectiveness and health systems factors, dimensions of equity can be relevant for priority setting. The opportunity for a long and healthy life varies according to the severity of a health condition that individuals might have, so there are inequities in individuals' opportunities for long and healthy lives based on the health conditions they face. Metrics used to estimate the severity of illness at an individual level can be used to help prioritize those with less opportunity for lifetime health. FairChoices: DCP Analytics Tool uses Health adjusted age of death (HAAD), which is a metric that estimates the number of years lived from birth to death, discounting years lived with disability. A high HAAD thus represents a disease less severe in terms of lifetime health loss, while a low HAAD represents a disease that is severe on average, causing early death or a long period of severe

disability. It is also possible to estimate the distribution of HAAD across individuals with a health condition. FairChoices shows for each intervention an average HAAD value of the conditions that are affected by respective interventions that have health effects. Additionally, a plot shows HAAD values for around 290 conditions (Johansson KA et al 2020).

Time dependence

High level of urgency. Treatment outcomes could be highly affected by some days or hours of delay in some of interventions.

Population in need of interventions

Table 2: Population in need of interventions

Intervention	**Treated population**		**Affected population**		**Disease state addressed**
	Treated age	Treated fraction	Affected age	Affected fraction	
1. Management of severe hypertension, pre-eclampsia and eclampsia with antihypertensives, anticonvulsants and magnesium sulfate, including initial stabilization at health centers	Births	2.8% of live births			Maternal hypertensive disorders
2. Antenatal corticosteroid for preterm labour	0 to 0 year; both gender; incidence	1	0 to 0 year, both gender; incidence	0.8 (Appendix Guttmacher report 2014)	Neonatal preterm birth
3. Antibiotics for preterm or prolonged PROM	0 to 0 year; both gender; incidence	1	0 to 0 year; both gender; incidence	0.33 (LiST tool & Guttmacher report appendix 2014)	Neonatal preterm birth
4. Induction of labour (beyond 41 weeks)	Births; both gender	0.1	0 to 4 years both gender	0.061 (List module from OHT)	Neonatal encephalopathy due to birth asphyxia and trauma

Intervention effect and safety

Table 3: Effect and safety of interventions for management of late complications

Effect of intervention		Certainty of evidence
Mortality reduction (due to condition)		
Management of severe hypertension, pre-eclampsia and eclampsia with antihypertensives, anticonvulsants and magnesium sulfate, including initial stabilization at health centers	0.97 reduction in maternal mortality due to the intervention (Table 39, Appendix Guttmacher report 2014)	
Antenatal corticosteroid for preterm labour	0.53 reduction in newborn mortality due to antenatal corticosteroid for preterm labour (Table 40, Appendix Guttmacher report 2014)	See appendix
Antibiotics for preterm or prolonged PROM	0.12 reduction in newborn mortality due to antibiotics for preterm or prolonged PROM (Table 40, Appendix Guttmacher report 2014)	
Induction of labour (beyond 41 weeks)	0.7 reduction in newborn mortality (Table 40, Appendix Guttmacher report 2014)	

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Model assumptions

Table 4: Summary of model parameters and values used in FairChoices – DCP Analytical Tool

Category	Model parameter	Notes
Interventions	1.Management of severe hypertension, pre-eclampsia and eclampsia with antihypertensives, anticonvulsants and magnesium sulfate, including initial stabilization at health centers 2. Antenatal corticosteroid for preterm labour 3. Antibiotics for preterm or prolonged PROM 4. Induction of labour (beyond 41 weeks)	
Cost parameters		
Treated population	See Table 2	Global Burden of Disease Study 2019
Gender		
Age		
Treated fraction		
Effect parameters		
Affected population	Those with condition	
Affected gender	See Table 2	
Affected fraction age		
Affected fraction		
Comparison	No intervention	
Mortality Reduction (RRR) Management of severe hypertension, pre-eclampsia and eclampsia with antihypertensives, anticonvulsants and magnesium sulfate, including initial stabilization at health centers	See Table 3 0.97	

Antenatal corticosteroid for preterm labour	0.53	
Antibiotics for preterm or prolonged PROM	0.12	
Induction of labour (beyond 41 weeks)	0.7	

Intervention cost

The cost for managing severe hypertension, pre-eclampsia, and eclampsia with antihypertensives, anticonvulsants, and magnesium sulphate, including initial stabilization at health centers, is estimated to be 18.9 USD per average case in 2007 in low-income countries (LIC). The cost for antenatal corticosteroid for preterm labour is estimated to be 27.7 USD per average case in 2009 in LIC. The cost for Induction of labour (beyond 41 weeks) is estimated to be 0.45 USD per average case in 2014 in LIC. The cost of antibiotics for preterm or prolonged PROM is estimated to be 2.28 USD per average case per affected pregnancy in 2014 in LIC (Darroch, Sully, Biddlecom 2017).

Commented [SA1]: https://www.guttmacher.org/report/adding-it-costs-and-benefits-investing-sexual-and-reproductive-health-2014-methodology

References

WHO 2021: WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience. Geneva: World Health Organization; 2016. PMID: 28079998.

Johansson KA et al 2020: Johansson KA, Coates MM, Økland JM, Tsuchiya A, Bukhman G, Norheim OF, Haaland Ø. Health by disease categories. Distributional Cost-Effectiveness Analysis: Quantifying Health Equity Impacts and Trade-Offs. 2020 Sep 30:105.

OneHealth Tool: OneHealth Tool. Geneva: World Health Organization; 2021. Available from https://www.who.int/tools/onehealth

Table 40, Appendix Guttmacher report 2014: Darroch JE, Sully E, Biddlecom A. Adding it up: investing in contraception and maternal and newborn health, 2017—supplementary tables. New York, NY: The Guttmacher Institute. 2017

Darroch, Sully, Biddlecom 2017: Darroch JE, Sully E, Biddlecom A. Adding it up: investing in contraception and maternal and newborn health, 2017—supplementary tables. New York, NY: The Guttmacher Institute. 2017

Appendix

Literature Review for effectiveness & safety

This literature search is an example of Level 1 search for intervention inputs taken from DCP3 or generated in an ad hoc manner (e.g., quick google search found one study of cervical cancer screening cost-effectiveness that was used to create an effectiveness parameter for that intervention).

Level of evidence of efficacy studies:

1. low (expert opinions, case series, reports, low-quality case control studies)
2. moderate (high quality case control studies, low quality cohort studies)
3. high (high quality cohort studies, individual RCTs)
4. very high (multiple RCTs, meta-analysis, systematic review, clinical practice guidelines)