Ministry of Health

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- Acronyms:

AREDV	absent or reversed end-diastolic velocity
ARM	artificial rupture of membranes
CS	caesarean section
DVT	deep vein thrombosis
MCA	mild Cerebral Artery
IUFD	Intrauterine fetal demise
UV	ultraviolet light
SGA	small gestational age
SOS	if required

- **Definitions**

1. **Induction of labor** is techniques for artificially stimulating uterine contractions to accomplish delivery prior to the spontaneous onset of such contractions. Clinicians recommend induction to patients when they believe allowing the pregnancy to continue is at least as risky for the mother and/or fetus/newborn as delivery.

2. **Augmentation of labour** is the process of stimulating the uterus to increase the frequency, duration, and intensity of contractions after the onset of spontaneous labour. It has commonly been used to treat delayed labour when poor uterine contractions are assessed to be the underlying cause.

3. **. Uterine hyper-stimulation is** defined as a single contraction lasting 2 minutes or more, or more than 5 contractions in a 10-minute period, associated with an abnormal CTG.

Guidelines for Induction of Labour and Augmentation

Chapter 1

1. Introduction

Induction and augmentation of labor is a relatively common procedure. It has a large impact on the health of women and their babies and so needs to be clearly clinically justified. Induction of labour can place more strain on labour wards than spontaneous labour.

2. Purpose

The purpose for these guidelines is to provide a standards management of induction of labor (IOL) and augmentation in labor ward

3. Scope

These guidelines apply to all healthcare professionals providing care for pregnant women who are undergoing induction/augmentation of labour at DGKH.

Chapter 2

4. Structure:

4.1 Indications from induction and augmentation as the following:

4.1.1 Pregnancy lasting longer than 41 weeks, postdated pregnancy.

4.1.2 Preterm with premature of membranes.

4.1.3 Term with rupture of membrane.

4.1.4Preterm with premature of membranes from 34-36 weeks.

4.1.5Previous caesarean section birth.

4.1.6 Maternal conditions such as Diabetes, Hypertensive disorders, renal disease, autoimmune disease.

4.1.7 Fetal conditions for example fetal growth restriction, Oligohydramnios, Isoimmunisation, Intrauterine fetal death and suspected fetal macrosomia.

4.1.8 Pregnancy related diseases such as Pre-eclampsia, Intrahepatic cholestasis of pregnancy, Antepartum hemorrhage, Placental abruption, Chorioamnionitis

4.1.9. Maternal requests (social reasons)

4.2 Management before Induction and Augmentation of Labour:

4.2.1 Pregnant women who more than 41 weeks (Postdated pregnancy) should have completed assessment, If everything is fine, she can be induced at 41 weeks.

4.2.2 Pregnant women (**pre-term)** with pre-labour rupture of membranes the following should consider:

A. **should not** have induction of labour before 34 weeks
B. If there are obstetric indications (for example, chorioamnioitis or fetal compromise) should plan early induction until 37weeks.
C. If rupture of membranes after 34weeks, but before 37 weeks, discuss the options of expectant management until 37 weeks or induction of labour with her
D. If rupture of membranes after 34 weeks (but before 37weeks) and she has a positive group B streptococcus test at any time in the current pregnancy, offer immediate induction of labour or caesarean section birth.

4.2.3 Pregnant women (term) with pre-labour rupture of membrane the following should consider:

A. If women choose expectant management after prelabour rupture of the membranes at term (at or after 37weeks) to offer induction of labour, if labour has not started naturally after approximately 24 hours.
B. A woman has pre-labour rupture of membranes at term (at or after 37+0 weeks) and has had a positive group B streptococcus test at any time in their current pregnancy, offer immediate induction of labour or caesarean birth.

4.2.4 If the pregnant women had previous caesarean section birth the following should consider:

A. The obstetrician should counsel the pregnant women about induction of labour and explain to her the risk of emergency caesarean birth and risk of uterine rupture.

B. If birth needs to be expedited, the doctor should advised the pregnant women either a choice of induction of labour, or planned caesarean birth. This decision is based on the findings in the previous surgery, birth interval and associated comorbidities.

C. The obstetrician should document the plan clearly and in details in the Shifa system

D. The obstetrician should obtain of **E-consent for induction labour**.

4.2.5. In case of Intrauterine Fetal Death, the following should be consider;

A. The obstetrician should examine the pregnant woman if she is physically well, her membranes are intact and there is no evidence of infection or bleeding.

B. The obstetrician should discuss the plan of delivery (expectant management, induction of labour or caesarean section birth) and respect the client decision.

C. If there is evidence of ruptured membranes, infection, or bleeding, offer immediate induction of labour or caesarean section birth.

D. The obstetrician should obtain **E-consent for both induction of labour or caesarean birth** as per informed consent policy and procedure

4.2.6. In case of preterm small for gestational age, the following should be consider;

A. If the fetus with umbilical artery AREDV detected prior to 32 weeks of gestation, delivery is recommended when DV Doppler becomes abnormal or UV pulsations appear.

B. If the fetus is considered viable and after completion of steroids and the venous Doppler is normal, delivery is recommended by 32 weeks of gestation and should be considered between 30–32 weeks of gestation.

C. If MCA Doppler is abnormal, delivery should be recommended no later than 37 weeks of gestation.

D. If the SGA fetus detected after 32 weeks of gestation with an abnormal umbilical artery Doppler, delivery no later than 37 weeks of gestation is recommended.

E. If the SGA fetus detected after 32 weeks of gestation with normal umbilical artery Doppler, a senior obstetrician should be involved in determining the timing and mode of birth of these pregnancies. Delivery should be offered at 37 weeks of gestation.

F. The obstetrician should discussed with parents about delivery if the gestation age less than 34 weeks or if static growth over 3 weeks.

4. 2. **7** If the client with intrahepatic cholestasis during pregnancy the following should done:

A. If there is an increased of bile acids at 40 weeks of gestation and early IOL should be plan in these cases.

4.2.8 If the client with diabetes mellitus during pregnancy the following should done:

A. plan for induction of labour or (if indicated) caesarean section to pregnant women with type 1 or type 2 diabetes mellitus at 37- 38 weeks

B. Plan for induction of labour if the pregnant women with uncomplicated gestational diabetes to give birth no later than 40 weeks + 6 days.

4.2.9 If the client with hypertensive disorders during pregnancy the following should done:

A. For Gestational hypertension and Chronic hypertension if blood pressure is lower than 160/110 mmHg after 37 weeks, with or without antihypertensive treatment. The senior obstetrician should discussed with the client :

i. Timing of birth

ii. Maternal and fetal indications for birth

iii. Document the plan in the Shifa System

B. For client with chronic hypertension whose blood pressure is lower than 160/110 mmHg, with or without antihypertensive treatment, the senior obstetrician should not planned early birth before 37 weeks, unless there are other medical indications.

C. If the client with Pre-eclampsia:

i. The senior obstetrician should discuss the plan for early birth before 37 weeks if client with pre-eclampsia

ii. Initiate birth within 24–48 hours at gestational age 37 weeks onwards.

D. d. The client observed for the following features of severe pre-eclampsia:

i. inability to control maternal blood pressure despite using 3 or more classes of anti-hypertensives in appropriate doses

ii. maternal pulse oximetry less than 90%

iii. progressive deterioration in liver function, renal function, haemolysis, or platelet count ongoing neurological features, such as severe intractable headache, repeated visual scotomata, or eclampsia

iv. placental abruption

v. Reversed end-diastolic flow in the umbilical artery Doppler velocimetry, a non-reassuring cardiotocograph, or stillbirth.

4. 3) the obstetrician should counselling the client before induction and augmentation of labour, the following should be done:

A. E-consent should be taken before procedure
B. Explain the reason for the induction / augmentation
C. When, where and how the induction will be carried out
D. Arrangements for support and pain relief
E. Risks and benefits of IOL in specific circumstances and the proposed induction methods
F. If IOL may not be successful, and what the client's option would be - repeat induction, watchful expectancy / LSCS, depending on the clinical condition.
G. Alternative options if the client refuse induction of labour.
H. Clear documentation in the Alshifa system and maternal health card(green card)

5 Management before Induction of Labor and Augmentation:

5.1 Appointment for admission:

5.1.1 The obstetrician has to confirm the appointment for admission for IOL with antenatal ward staff

5.1.2 Staff nurse has to enter in the register book.

5.1.3 The obstetrician or staff nurse should give proper instructions to the client.

5.1.4 Antenatal ward staff will call the client for IOL on same day early morning depending on availability of bed.

5.2 Management during the Induction of Labor and Augmentation:

5.2.1 The client will be admitted in the antenatal ward and labour ward depending on the type of induction.

5.3 Assessment before induction:

5.3.1. Ensure that the indication for IOL persists

5.3.2. Whatever be the reason for induction, gestational age should be calculated accurately, so that appropriate resources can be provided, (e.g.inj. dexamethasone for preterm pregnant mother to promote fetus lung maturation, in utero transfer to a suitable unit if necessary)

5.3.3. Check the Parity and detailed history

5.3.1. Check that there is no evidence of a low-lying placenta on previous scars before membrane sweeping and before induction of labour.

5.3.2. Confirm the lie and presentation.

5.3.3. Abdominally assessing the level and stability of the fetal head in the lower part of the uterus at or near the pelvic brim.

5.3.4. An ultrasound scan should be done if there are any concerns about the presentation of the baby (for example, breech presentation).

5.3.5. Confirm a normal fetal heart rate pattern using antenatal Cardiotocograph interpretation.

5.3.6. Confirm the absence of significant uterine contractions using Cardiotocograph.

5.3.7. Assess and record the Bishop score, **see Table 1.**

5.3.8. Induction with Propess and intracervical foleys catheter will be undertaken in the antenatal ward

5.3.9. Induction with Prostin, artificial rupture of membranes (ARM), followed by oxytocin will be undertaken in the labour ward.

5.3.10. Any the client induced in the ward should be shifted to labour room once they are in active labour.

6. Methods of induction (Pharmacological and non-pharmacological):

6.1 **Membrane sweeping:**

6.1.2 It should be done at antenatal visits after 39 weeks

6.1.3 The obstetrician should discuss with the client if they would like a vaginal examination for membrane sweeping

6.1.4 The obstetrician should obtain verbal consent from the client before carrying out the membrane sweep.

6.1.5 The obstetrician should document every things done for the client in alshifa system

6.2 **Prostaglandin E2 – Dinoprostone** controlled-release vaginal delivery systems

6.2.1. For client with a Bishop score of 6 or less, plan induction of labour with Propess and Dinorpostone gel (Prostin).

6.2.2 Propess is vaginal delivery system which is inserted high into the posterior vaginal fornix.

6.2.3 The process should be removed after 24 hours of insertion or SOS earlier or if the client sets into active labour with regular contractions or if there is evidence of uterine hyperstimulation or fetal distress and in case of vaginal bleeding.

6.2.4 A dosing interval of at least **6 hours** is recommended for the sequential use of oxytocin following the removal of Propess.

6.2.5 Following removal of propess, subsequent induction with Prostin is planned for the next day, if Bishops score is still unfavourable.

6.3 Contraindications for the use of propess:

6.3.1 Active labour

6.3.2 Confirmed leaking

6.3.3 Previous major surgeries- CS, myomectomy, rupture of uterus/ cervix

6.3.4 More than 3 full term deliveries

6.3.5 Any contraindications for a vaginal delivery

6.4 Special mention:

6.4.1 In cases of SGA/ oligohydramnios, the decision may be taken after discussing with the unit consultant, regrading avoidance of Propess, in preference to prostin.

6.4.2 **Prostin:** it is vaginal gel is administered into the posterior fornix.

6.4.3 Dose: 2 mg is used as the first dose in Nulliparous women, followed by 1 mg subsequent doses.

6.4.4 Used for :If the client is Para 7 or more as well half dosage is recommended, i.e., 0.5 mg

6.4.5 Subsequent doses are administered at 6 hours interval, to a maximum of three dose as one cycle, any further dose should be decided for after discussion with the consultant.

6.4.6 If the client with previous CS, half dose of prostin is recommended, i.e., 0.5 mg, 6 hours apart, maximum 2 doses.

6.4.7 Any further dose should be decided for after discussion with the consultant and detailed review of the patient.

6.4.8 A 6 hours interval is recommended between subsequent administration of dinoprostin or oxytocin

6.5 Artificial Rupture of Membranes and Oxytocin infusion:

6.5.1 For the client with a Bishop score of more than 6, the obstetrician should plan to induction of labour with ARM and an intravenous oxytocin infusion if contractions are inadequate.

6.5.2 After ARM, the obstetrician should check the quantity and color of liquor, ensure the presentation, station and position of the presenting part, rule out cord prolapse, apply fetal scalp electrode if necessary.

6.5.3 The obstetrician should starts Oxytocin induction / augmentation only after artificial rupture of membranes after 1 hour, if client previous CS or the client getting mild contraction before ARM should starts after 2 hours

6.5.4 Oxytocin can be commenced a minimum of 6 hours after removal of Propess or balloon catheter or a minimum of 6 hours post Prostin.

6.5.5 Oxytocin **should not be** started if hyperstimulation, tachysystole or hypertonus are present.

6.5.6 Oxytocin should be used where the client is multiparous or had a previous caesarean section with continuous CTG till delivery

6.5.7 A CTG should be in progress for at least 20 minutes before started oxytocin to ensure optimal fetal wellbeing before start.

6.5.8 Oxytocin infusion protocol – Dilution- 10 units in 500 ml normal saline, **see Table 2.**

6.6 Augmentation infusion:

6.6.1. Augmentation of labour is the process of stimulating the uterus to increase the frequency, duration and intensity of contractions after the confirmed delay of established labour in the first or second stages.

Confirmation is achieved by cervical assessment and assessment of contractions frequency and duration.

6.6.2. If delay in the established first stage is suspected, obstetrician should assess all aspects of progress in labour when diagnosing delay:

A. Cervical dilatation of less than 2 cm in 4 hours for first labour
B. Cervical dilatation of less than 2 cm in 4 hours or a slowing in the progress of labour for second or subsequent labour
C. Started **IV** for client with intact membranes in whom delay in the established first stage of labour is confirmed
D. Advise the client to have ARM,
E. To a repeat vaginal examination 2 hours later whether her membranes are ruptured or intact.

6.7 For all pregnant women with confirmed delay in the established first stage of labour should explained to her the following:

6.7.1Using oxytocin after spontaneous or artificial rupture of the membranes will bring forward the time of birth but will not influence the mode of birth or other outcomes.

6.7.2 for a multiparous woman with confirmed delay in the established first stage of labour.

6.7.3 Obstetrician should perform a full assessment, including abdominal palpation and vaginal examination, before a decision is made about using oxytocin.

6.7.4 Inform the woman that oxytocin will increase the frequency and strength of her contractions and that its use will mean that her baby should be monitored continuously

6.7.5 If oxytocin is used, ensure that the time between increments of the dose is no more frequent than every 30 minutes.

6.7.6 The oxytocin infusion for low risk client is maximum of 60ml/hr and for previous CS and multiparous mother is miximum of 36ml /hr

6.7.7 Increase oxytocin until there are a minimum of 3 - 4 contractions in 10 minutes.

6.8. Others Methods for Inducing Labour:

6.8.1. Foleys catheter:

A. This method used for the client with history of previous caesarean section and a poor Bishops score.

B. The Foley's catheter is passed through the external and the internal cervical os and the balloon is inflated, with normal saline, between 30 milliliters (mL) to 80 mL so that lead to create pressure on the internal os to help with cervical dilation.

C. The plan for induction of labour with intra cervical Foleys catheter insertion for 24 hrs, followed by a day of rest.

D. After that, to inserted Prostin gel half dose- 0.5 mg 2 doses 6 hours apart according to Bishop's score**.(The use of third dose should be after discussion with the consultant)**

E. In case if the client with previous myomectomy, decision for induction of labor should be taken by the consultant after the following :

   i. Review the details of the surgery which include the site, the number of myomas removed and whether cavity was entered or not.

F. If the consultant plan for induction of labour with intra cervical Foleys catheter insertion for 24 hrs, than it should followed by a day of rest, and then by Prostin gel half dose- 0.5 mg 2 doses 6 hours apart according to Bishop's score.

G. Foleys catheter should be removed earlier than 24 hours if there is leaking or antepartum hemorrhage or fetal distress.

6.8.2 .contraindications for induction by Foleys catheter are:

A. Women with IUFD
B. Pregnancies with ruptured membranes

6.8.3 Monitoring after **administering Propess or Prostin:**

The client should be closed monitor for the following:

A. The client should be advised to remain on the bed for 1 hour
B. CTG should be taken after 1 hour after administration of Propess or Prostin.

6.8.4. When uterine contractions begin, the midwives or staff nurse should assess fetal wellbeing and uterine contractions with intrapartum cardiotocography interpretation as the following:

A. if the CTG is confirmed as normal, review the individual circumstances and, if considered low risk, use intermittent auscultation unless there are clear indications for further cardiotocography

B. During first stage, carry out intermittent auscultation immediately after a contraction for at least 1 minute, at least every 15 minutes, and record it as a single rate.

C. if the fetal heart rate is abnormal or there are excessive uterine contractions dis continue or restart continuous cardiotocography

    i. do not administer any more doses, and

    ii. remove any vaginal pessaries or delivery systems if possible.

D. Offer to reassess the wellbeing of the woman and baby and the Bishop score at appropriate intervals to monitor progress, depending on the method of induction being used, and the clinical condition of the woman.

E. Once active labour is established, carry out maternal and fetal monitoring as per guidelines and plot the progress of labour on a Partogram.

7. Management of complications:

7.1 Uterine hyper-stimulation:

7.1.1 Uterine hyper- stimulation causing a suspicious or pathological CTG trace should be treated initially by switching off the oxytocin infusion if in use, and by tocolysis (if hyper- stimulation is due to prostaglandins, spontaneous labour, or if switching off the oxytocin infusion proves insufficient)

7.1.2 If hyper-stimulation occurs immediately after prostaglandin administration, remove the propess or prostin gel from the vagina (May use a saline washout with a bladder syringe to attempt to remove prostin gel)

7.1.3 Salbutamol nebulization given subcutaneously is the first choice of tocolysis

7.1.4 Placental abruption should be ruled out in this case.

7.2 Cord prolapse:

The following precautions to avoid the adverse effects of cord prolapse, which may occur if labour is induced:

7.2.1. Before induction, abdominally assess the level and stability of the fetal head in the lower part of the uterus at or near the pelvic brim

7.2.2. during the preliminary vaginal examination, obstetricians and midwives should palpate for umbilical cord presentation and avoid dislodging the baby's head

7.2.3. Cardiotocograph should continue during induction after the membranes have ruptured if the presenting part is not stable and not well-applied to the cervix.

7.2.4. If the presenting part stabilizes and the cardiotocogram is normal, use intermittent auscultation unless there are clear indications for further cardiotocography.

7.2.5. During first stage, carry out intermittent auscultation immediately after a contraction for at least 1 minute, at least every 15 minutes, and record it as a single rate.

7.3. Uterine rupture:

7.3.1 Signs and symptoms of uterine rupture intrapartum as the following:-

A. Fetal heart rate changes. Bradycardia is the most common clinical manifestation of uterine rupture.

B. Loss of station.

C. Abdominal pain with/without hemodynamic changes.

D. Uterine tenderness, cessation of contractions, change in uterine shape.

E. Vaginal bleeding.

F. Haematuria.

7.3.2 If uterine rupture is suspected during induced labour the obstetrician or staff nurse and midwife should:

A. Get help
B. Arrange adequate blood and blood products
C. Inform consultant
D. Carry out an immediate category 1 caesarean birth.

7.4 Unsuccessful induction of labour:

If induction is unsuccessful, the subsequent management alternatives include:

7.4.1. offering a rest period if clinically appropriate and then re-assessing the woman
7.4.2. expectant management

7.4.3. further attempts to induce labour

7.4.4. Caesarean birth.

Noted: Decision is to be taken after discussion with the Obstetric Consultant

Chapter 3:

8. Responsibilities:

8.1**head of obstetrics and gynecology department shall:**

8.1.1 Ensure that all doctors are aware and adhere to the guideline

8.2 **Director of Nursing Affairs shall:**

8.2.1 Ensure that all head of departments and supervisor are aware and adhere to the guideline.

8.3 **ward In-charges in maternity departments shall:**

8.3.1 Ensure all staffs are aware and adhere to the guideline

8.4 **staff nurse and midwifery shall:**

8.4.1 Adhere to the guideline

8.4.2 Report any incident related to the guideline

Chapter 4:

9. Document History and Version Control

Version	Description	Review Date
1	Initial Release	2023

10. Related Documents:

10.1 Informed Consent Policy and Procedure MOH/DGQAC/P&P/005/ver0.01

10. References:

1. www.nice.org.uk/guidance/ng207
2. Guidelines and protocols for the labour Ward, Department of OBG, Khoula hospital
3. Intrapartum care for healthy women and babies ,Clinical guideline ,2014
4. www.nice.org.uk/guidance/cg190

Table 1: Bishops Score:

Score	0	1	2	3
Dilation (cm)	<1	1–2	2–4	>4
Length of cervix (cm)	>4	2–4	1–2	<1
Station (relative to ischial spines)	–3	–2	–1/0	+1/+2
Consistency	Firm	Average	Soft	–
Position	Posterior	Mid/anterior		

Bishops score:

1. Unfavorable 0-3
2. Intermediate- 4-7
3. Favorable - >7

Table 2: Oxytocin Infusion Protocol:(Dilution- 10 Units in 500 Ml Normal Saline):

Time after starting(Mts)	Oxytocin Mu/mt	Volume infused Ml/Hr
0	1	3
30	2	6
60	4	12
90	8	24

120	12	36
150	16	48
180	20	60