JSC “Astana Medical University”

Topic: “Unsatisfactory progress of labor (parturition)”

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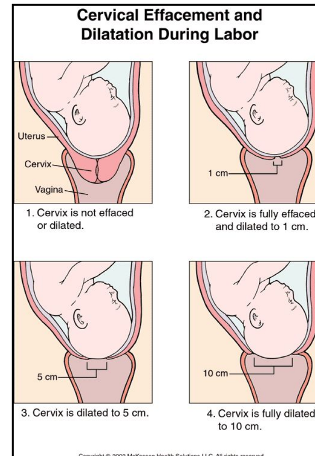
Astana 2018

Effective Perinatal Care (EPC)

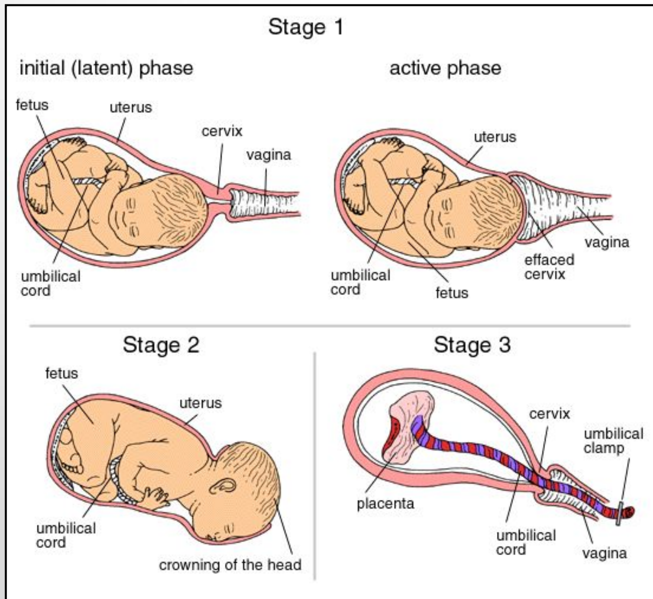
WORLD HEALTH ORGANIZATION EUROPE

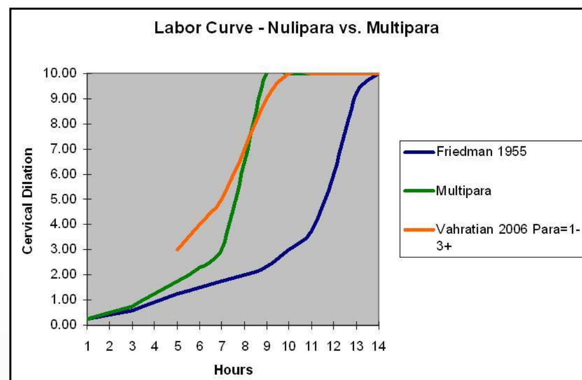
Content

- Diagnosis of unsatisfactory progress of labor
- Correct use of the partograph for assessing progress
- Modern approaches for labor
- Possible disadvantages and benefits of labor stimulation with oxytocin



PARTOGRAPH





Prevention of the first cesarean section

- Approximately one in three pregnancies ends with a cesarean section, amounting to more than 1 million operations each year in the US
- The increase in the cesarean section since 1995 was due to primary delivery by caesarean section.
- Caesarean section increases the risk of maternal complications and serious consequences for subsequent pregnancies.

SPONG 2012

- **The goal of WHO** is to reduce the frequency of the caesarean section. Taking into account the modern frequency of cesarean sections, it is essential **to increase the skills and experience of performing vaginal delivery operations.**
- Counseling for the first caesarean section should include information on its impact on risks in subsequent pregnancy **(uterine rupture, placental abnormalities, including placenta previa and ingrowth).**
- It is extremely important to provide recommendations on strategies to reduce the frequency of the first cesarean section.

Spong 2012

Periods of labor: Definitions

Childbirth is divided into **3 periods**

The first period: begins with regular painful contractions leading to changes in the cervix, ends with the full opening of the cervix.

The first period includes:

- latent phase
- active phase

The second period: from the full opening of the cervix to the birth of a child

The third period: from the birth of the child to the birth of the afterbirth

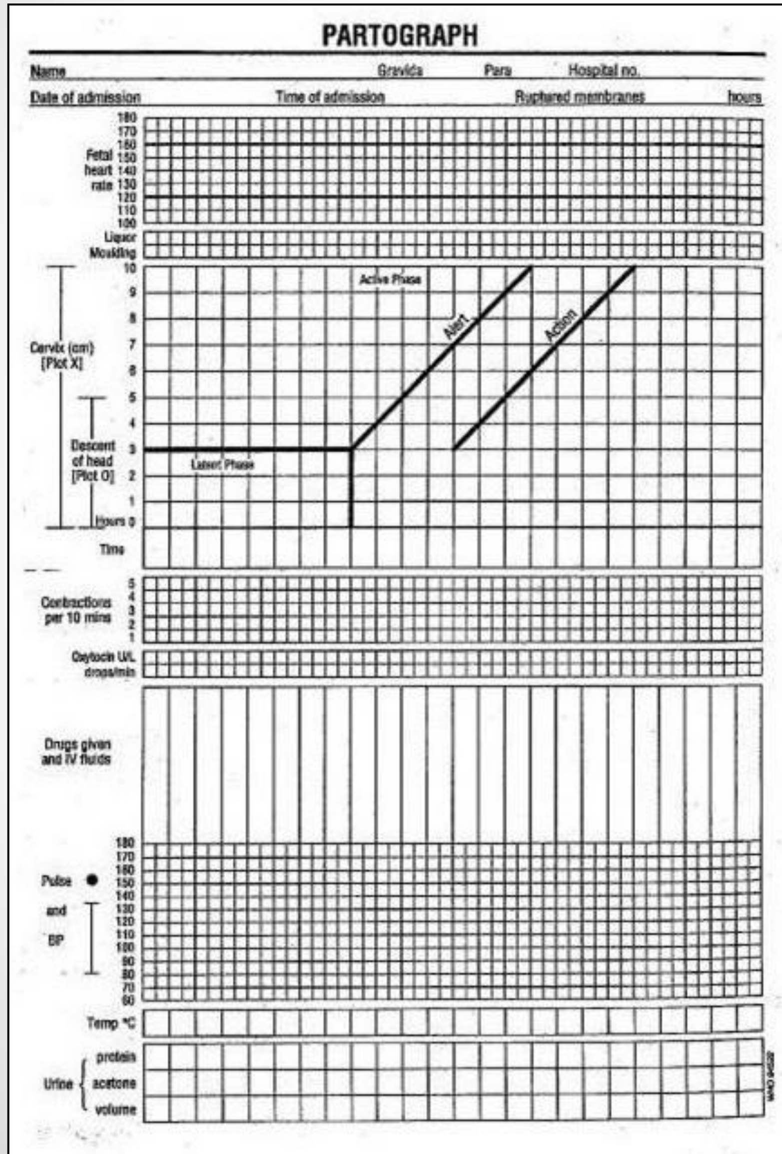
Progress in the first and second stages of labor can be unsatisfactory. It is important to distinguish birth pains from its precursors.

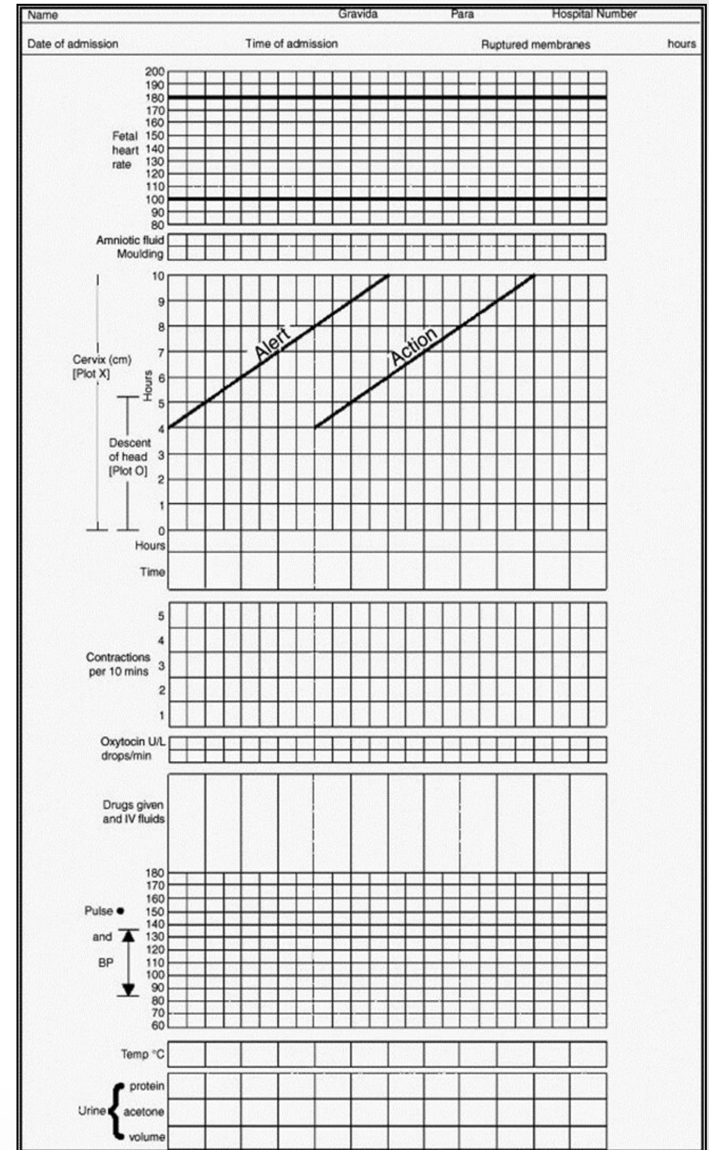
Unsatisfactory progress of labor: definition

- There is **no consensus** in determining the unsatisfactory progress of labor.
- "Anomalies of labor," "dystocia," "lack of progress," and "protracted labor" are traditional, but **inaccurate definitions** for describing deviations from the normal course of labor characteristic of most women in spontaneous childbirth.
- The partograph is used as an "early warning system" of unsatisfactory progress in childbirth.

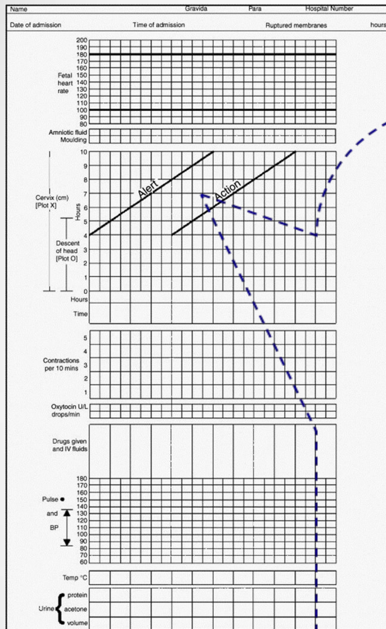
WHO 2014
Ehsanipoor 2014

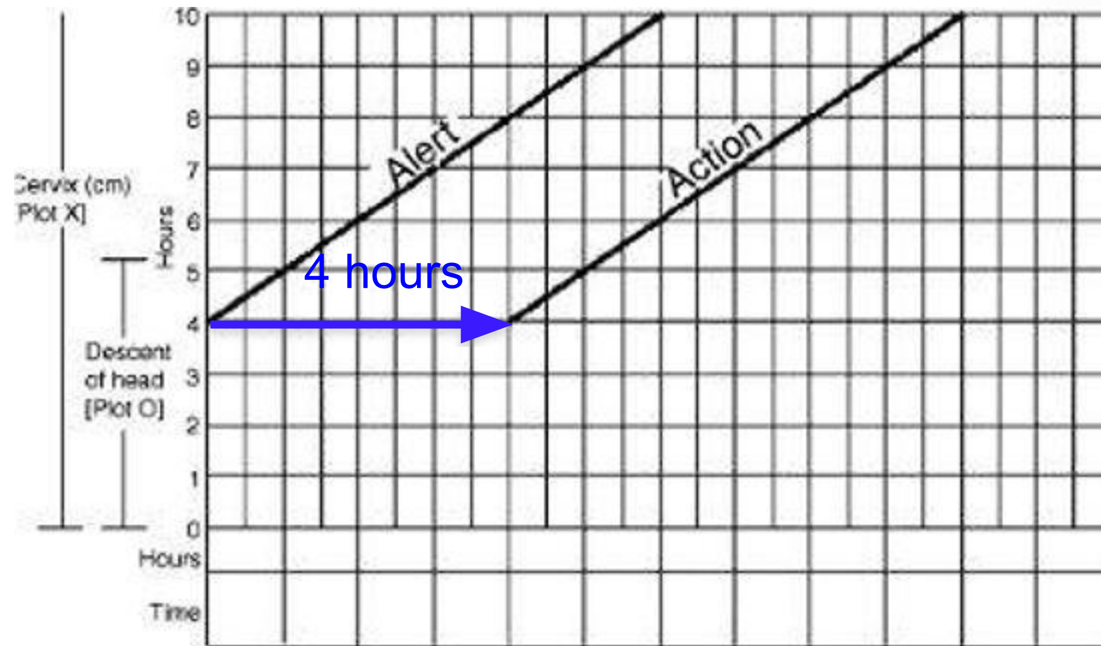
The WHO partograph: With and without a latent phase





How to recognize active phase: partograph - with 4-hour line of action or





BO3 2007

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Preventing Prolonged Labor by Using Partograph

G Dangal

Keywords

cephalopelvic disproportion, partograph, prolonged labor

Citation

G Dangal. *Preventing Prolonged Labor by Using Partograph*. The Internet Journal of Gynecology and Obstetrics. 2006 Volume 7 Number 1.

Abstract

The partograph can be used to assess the progress of labor and to identify when intervention is necessary. Studies have shown that using the partograph can be highly effective in reducing complications from prolonged labor for the mother (postpartum hemorrhage, sepsis, uterine rupture, etc.) and for the newborn (death, anoxia, infections, etc.). It has shown to be effective in preventing prolonged labour, in reducing operative intervention and in improving the neonatal outcome. Prolonged labour, augmented labor, caesarean sections and intrapartum fetal deaths were reduced with the use of the partograph.

Conclusion

The partograph is used to assess the progress of labor and to identify when intervention is necessary. Studies have shown that using the partograph can be highly effective in reducing complications from prolonged labor for the mother and for the newborn. Prolonged labour, augmented labor, caesarean sections/ operative interventions, neonatal morbidity and intrapartum fetal deaths were reduced with the use of the partograph. Easy and early recognition of poor progress of labour (with the use of partograph) and the prevention of prolonged labour significantly reduce the risk of postpartum haemorrhage and sepsis, and eliminate obstructed labour, uterine rupture and thereby reduce the maternal mortality

References

1. World Health Organization. Preventing Prolonged labor: A Practical Guide. The Partograph. Maternal Health and Safe Motherhood Programme, Geneva, 1993 , WHO document WHO/FHE/MSM/93.8.
2. Drouin B, Nasah BT, Nkounawa F. The value of the partogramme in the management of labour. Obstetrics and Gynecology. 1979. 53(6): 741-745

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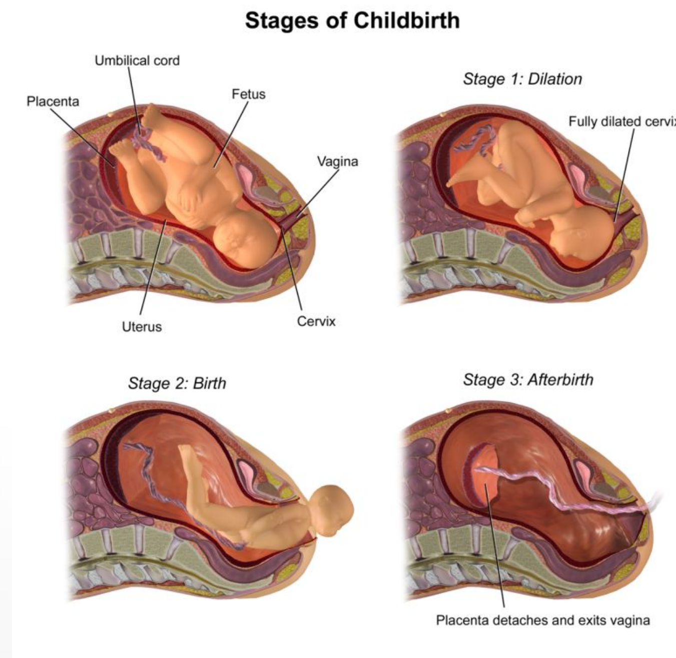
Causes : 3 P !

LABOR

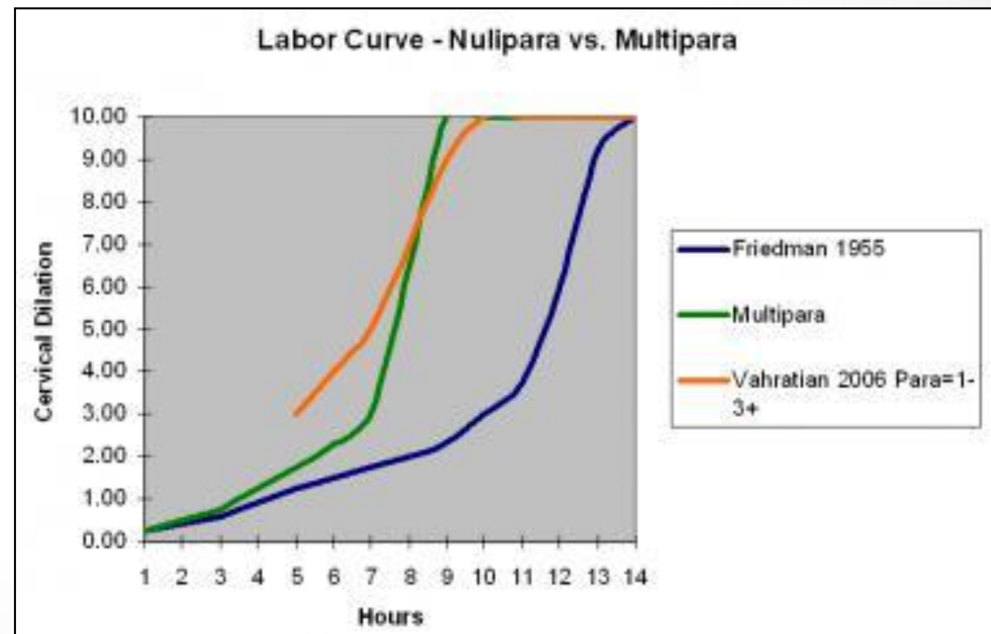
- **Power**: adequacy of uterine contractions
- **Passage** (birth canal): resistance to the tissues of the birth canal (anatomical changes in the pelvis, soft tissue anomalies)
- **Passenger**: mass of the fetus, position, degree of flexion of the head, etc.

NB! Recognition of the true cause of slowing the dynamics of labor can be difficult, because the causes that cause it are often **interrelated**.



Different reasons for the unsatisfactory dynamics of labor in stages:

- **False labor**
- **Prolonged latent phase**
- **Prolonged active phase**
- Clinically narrow pelvis / Mechanical obstruction
- Incorrect position or presentation of the fetus
- Insufficient contractile activity of the uterus
- **The prolonged period of exile**



WHO 2016

Harbinger (precursors) of birth: definition

Birth pains	Predictive (precursor) Birth pains
Uterine contractions occur at regular intervals	Uterine contractions occur at irregular intervals
The interval between contractions is gradually reduced	Intervals remain irregular
The intensity of pain gradually increases	The intensity of pain remains unchanged
The duration of bouts increases	The duration of contractions varies and tends to decrease
Progressive smoothing and cervical dilatation	No dynamics in smoothing and opening of the cervix
The progress of labor can not be stopped by sedation.	Usually painful contractions are stopped by sedation
	There is no progress in childbirth

Warren 2009

Diagnosis in childbirth can be made retrospectively after a series of vaginal examinations that reveal the progressive opening of the cervix.

Latent phase: determination

- Clinically latent phase of labor is difficult to recognize. Its duration can vary to a large extent, and therefore it is difficult to determine the limits of the norm.

Greulich 2007

- The latent phase occurs when a woman begins to feel regular contractions, and ends with the onset of accelerated cervical dilatation.

Friedman 1972

- **Many researchers prefer to ignore the latent phase, because its beginning can not be determined by any objective method. (partograph)**

Extended Latent Phase: Definition

- Many modern clinical guidelines and international communities do not provide a clear definition of an elongated latency phase, so the only available definition can be dated **1955 (Friedman).**

- The definition of an elongated latent phase is still based on the definition of Friedman

- "On the basis of the 95th centile, the **Extended latent phase is determined** when its duration is more than **20 hours** in primiparas (nulliparas) and more than **14 hours** in the multiparas "

Friedman 1963

Extended latent phase: maintenance

- There are differences in the tactics of conducting an Extended latent phase:
- Weakening of labor - stimulation
- While other authors do not recommend active action
- Informed discussion with a woman is of fundamental importance.
- **The elongated latent phase is not an indication for caesarean section.**

Extended active phase: determination (1)

- The opening of the cervix less than 0.5-1 cm (at the stage when the opening from 3-4 cm to 10 cm is considered the norm) is considered to be an unsatisfactory progress of labor and a starting point for subsequent interventions.

WHO 2014

- Disclosure of the cervix to the right of the "line of alert" on the partograph.

WHO 2002

- To diagnose the slowing of the active phase of the first period of labor, all aspects of the dynamics of labor should be taken into account:
- opening of the cervix less than 2 cm in 4 hours at the first birth
- opening of the cervix less than 2 cm in 4 hours or slowing the dynamics for the second and subsequent delivery
- lowering and turning of the fetal head
- changes in strength, duration and frequency of contractions.

NICE 2007

- The opening of the cervix in 6 cm should be considered the beginning of the active phase of labor in most women. Thus, before the opening of the cervix by 6 cm, the active phase dynamics standards are not applied.

- The threshold in which slowing the opening of the cervix causes the need for infusion of oxytocin in the primipara should be:
  - Properly individualized on the basis of informed communication between the patient and the health worker.
  - Usually, it corresponds to the opening of the cervix at 1 cm per hour for most women with spontaneous delivery, but can reach 1 cm in 2 hours in those women who prefer a minimum of interventions.

ACOG SMFM 2014

RANZCOG 2014

- Evaluation of contractions :
  - If they are effective, you should suspect a clinically narrow pelvis, a mechanical obstruction, an incorrect position or a presentation
  - If they are ineffective, anomaly of labor should be suspected

Warren 2009

Extended active phase: mismatch of the pelvis of the mother to the size of the fetus (clinically narrow pelvis)

- Definition
- Secondary stop of cervical dilatation and lowering of the presenting part of the fetus in effective bouts

- Doing
- If confirmed, cesarean delivery
- In case of fetal death, craniotomy

WHO 2007 & 2014

Extended active phase: Mechanical obstacle (1)

Identify

- Secondary cervical opening and lowering of the fetal part
- 3rd degree of displacement of fetal skull bones
- Lack of close contact between the cervix and the fetus
- Puffiness of the cervix
- Stretching of the lower uterine segment
- Formation of the contraction ring
- Distress of the fetus or mother

WHO 2007

Extended active phase: Mechanical obstacle (2)

Approach

- Vacuum extraction

The fetus is alive, the full opening of the cervix and the fetal head is at the level of "0" or lower.

- Cesarean section

The fetus is alive, but there is no complete opening of the cervix

OR

The fetal head is too high for vacuum extraction

- Craniotomy

fetus is dead

WHO 2007

Extended active phase: management of inadequate contractile activity of the uterus

- If the contractions are ineffective, and the clinical narrow pelvis and the presence of a mechanical obstruction are excluded, the most likely cause of lengthening of labor is an abnormality of labor
- Prevention of abnormalities of labor
- To Do: **stimulation**

Amniotomy

Infusion of oxytocin

WHO 2007
WHO 2014

Extended active phase: prevention of inadequate contractile activity of the uterus

- Comfort during childbirth, including:

Food

Drink

Separate delivery room, etc.

- The presence of a companion during childbirth
- Vertical position, especially walking during labor
- Intravenous administration of fluids to reduce the duration of labor is not recommended.

WHO 2014
Enkin 2000

Stimulation of labor

- It is performed only after a clinical examination, the exclusion of the clinically narrow pelvis, especially in the case of women with multiple generations.
- Performed only if there is clear medical evidence, and when the expected benefits outweigh the potential harm.
- It is carried out only in institutions where there is a possibility of correction of possible outcomes, in particular side effects or failure to reach spontaneous births through natural birth canals.
- In the institution, equipment should be available for continuous monitoring of the fetal heart rate and the frequency and intensity of contractions.
- It is performed with caution, since the procedure carries the risk of hyperstimulation of the uterus, with potential consequences in the form of fetal distress and rupture of the uterus.
- It is not recommended to use oral misoprostol to stimulate labor.

WHO 2014

Principles of active management

Active childbirth management includes:

- assistance in childbirth one on one;
- routine performance of amniotomy;
- intravenous administration of oxytocin;
- strict criteria for the diagnosis of labor;
- strict monitoring of childbirth dynamics;
- clear criteria for slowing the dynamics of childbirth and deterioration of the fetus;
- expert evaluation of obstetric care.

O'Driscoll 1973

Infusion of high doses of oxytocin in comparison with low doses

- High dose rate:
  - reduces the duration of childbirth
  - reduces the frequency of cesarean delivery
  - There is insufficient data on the risk of developing uterine hyperstimulation and unfavorable outcomes of labor for reproductive patients.
- A high initial dose and a gradual increase in the rate of oxytocin infusion is not recommended for stimulation of labor.

Kenyon 2013
NICE 2007/2014

Infusion of oxytocin

- The effective dose of oxytocin varies significantly **for each woman**
- In most cases, adequate contractions can be established at an infusion rate of 12 iU / min.
- Increase the dose of oxytocin should not be more than once in 30 minutes.
- The dose of oxytocin is increased until the appearance of 4-5 contractions in 10 minutes.
- The maximum injection rate, according to the manufacturer's instructions, is 20 iU / min.
- The maximum rate of administration should not exceed 32 iU / min.

WHO 2007

NICE 2007/20014

Preparation of oxytocin solution

Время после начала вливания (мин)	Доза окситоцина (мЕд/мин)	Объем инфузии (мл/час)		
		Разведение 30 МЕ в 500 мл	Разведение 10 МЕ в 500 мл	Разведение 5 МЕ в 500 мл
0	1	1	3	6
30	2	2	6	12
60	4	4	12	24
90	8	8	24	36
120	12	12	36	48
150	16	16	48	60
180	20	20	60	72
210	24	24	72	84
240	28	28	84	96
270	32	32	96	108

WHO 2005
RCOG 2001
SOGC 2001

Criteria for the effectiveness of rhythm stimulation

- 3-4 contractions in 10 minutes, each of which lasts more than 40 seconds
- Dynamics of cervical dilatation at least 1 cm per hour

After 2 hours after a series of effective contractions , an assessment of the dynamics of labor with a vaginal examination

AND / OR

Evaluation of the dynamics of the lowering of the fetal head

WHO 2002

Criteria of inefficiency of stimulation of patrimonial activity

- Absence of adequate fights at the maximum rate of oxytocin administration (32 mU / min)

- Absence of cervical dilatation dynamics, or opening less than 1 cm per hour

AND / OR

- The fetal head does not fall (if there are no signs of a clinically narrow pelvis or mechanical obstruction)

WHO 1994
WHO 2007

Complications of oxytocin infusion

- Tachysystole

More than 5 contractions within 10 minutes

- Hypertension of the uterus

Contraction lasting at least 2 minutes

- If normal fetal heart rate is observed, then:

Reduce the rate of oxytocin infusion

To reassess the uterine activity according to CTH data in order to clarify the further tactics of reference.

WHO 2002
RCOG 2001

Extended second stage of labor: definition

According to NICE:

- Primary: lack of dynamics for 3 hours (active and passive phases together) with regional anesthesia and within 2 hours without regional anesthesia.
- Repeated: no dynamics for 2 hours with regional anesthesia and within 1 hour without regional anesthesia.
- Maternal weakness / exhaustion.

NICE 2007/2014:

According to ACOG / SMFM:

- At least 2 hours of an exaggerated period in a woman with a malfunction
- At least 3 hours of an exaggerated period in primiparas
- In specific cases, a normal duration may be considered normal (for example, using epidural analgesia or an inappropriate fetal position).

ACOG/SMFM 2014 :

Extended second period of labor / insufficient dynamics (correction)

- Operative vaginal delivery in the second stage of labor with sufficient experience of the doctor should be considered safe and an acceptable alternative to cesarean section.
- The development and maintenance of practical skills in operative vaginal delivery should be encouraged.

ACOG/SMFM 2014

Summary of WHO recommendations

Context	Recommendation	Quality of evidence	Strength of recommendation
Diagnosis of delay in the first stage of labour	1. Active phase partograph with a four-hour action line is recommended for monitoring the progress of labour.	Very low	Strong
	2. Digital vaginal examination at intervals of four hours is recommended for routine assessment and identification of delay in active labour.	Very low	Weak
Prevention of delay in the first stage of labour	3. A package of care for active management of labour for prevention of delay in labour is not recommended.	Low	Weak
	4. The use of early amniotomy with early oxytocin augmentation for prevention of delay in labour is not recommended.	Very low	Weak
	5. The use of oxytocin for prevention of delay in labour in women receiving epidural analgesia is not recommended.	Low	Weak
	6. The use of amniotomy alone for prevention of delay in labour is not recommended.	Very low	Weak
	7. The use of antispasmodic agents for prevention of delay in labour is not recommended.	Very low	Weak
	8. Pain relief for preventing delay and reducing the use of augmentation in labour is not recommended.	Very low	Weak
	9. The use of intravenous fluids with the aim of shortening the duration of labour is not recommended.	Very low	Strong
	10. For women at low risk, oral fluid and food intake during labour is recommended.	Very low	Weak
	11. Encouraging the adoption of mobility and upright position during labour in women at low risk is recommended.	Very low	Strong
	12. Continuous companionship during labour is recommended for improving labour outcomes.	Moderate	Strong
	13. Administration of enema for reducing the use of labour augmentation is not recommended.	Very low	Strong
Treatment of delay in the first stage of labour with augmentation	14. The use of oxytocin alone for treatment of delay in labour is recommended.	Very low	Weak
	15. Augmentation with intravenous oxytocin prior to confirmation of delay in labour is not recommended.	Very low	Weak
	16. High starting and increment dosage regimen of oxytocin is not recommended for labour augmentation.	Very low	Weak
	17. The use of oral misoprostol for labour augmentation is not recommended.	Very low	Strong
	18. The use of amniotomy alone for treatment of delay in labour is not recommended.	Very low	Weak
	19. The use of amniotomy and oxytocin for treatment of confirmed delay in labour is recommended.	Very low	Weak
Care during labour augmentation	20. The use of internal tocodynamometry, compared with external tocodynamometry, with the aim of improving outcomes for augmented labour is not recommended.	Very low	Weak

Training package for effective perinatal care (EPP) 2nd edition

Unsatisfactory progress of childbirth Module 7MO