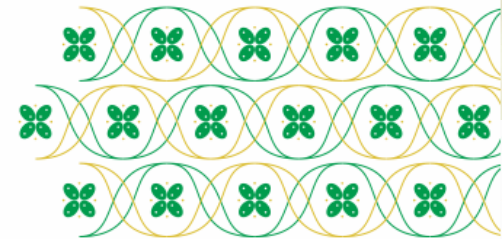




unisa
Universitas 'Aisyiyah
Yogyakarta



MEKANISME PERSALINAN DAN PEMERIKSAAN INTRAPARTUM





DOA BELAJAR

رَضِيتُ بِاللَّهِ رَبًّا وَبِالْإِسْلَامِ دِينًا وَبِمُحَمَّدٍ نَبِيًّا وَرَسُولًا
رَبِّي زِدْنِي عِلْمًا وَارْزُقْنِي فَهْمًا

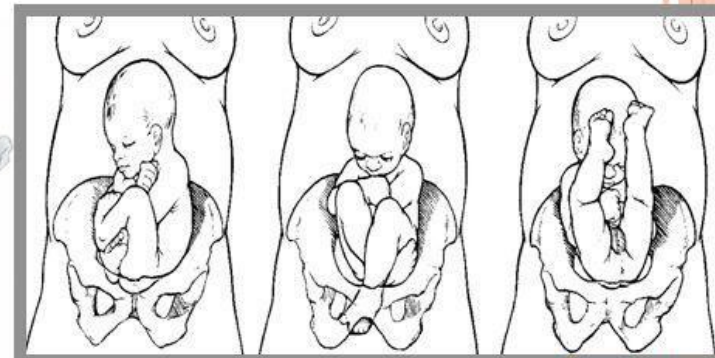
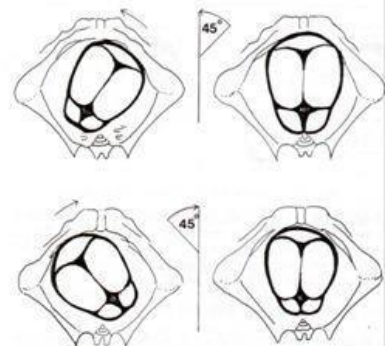
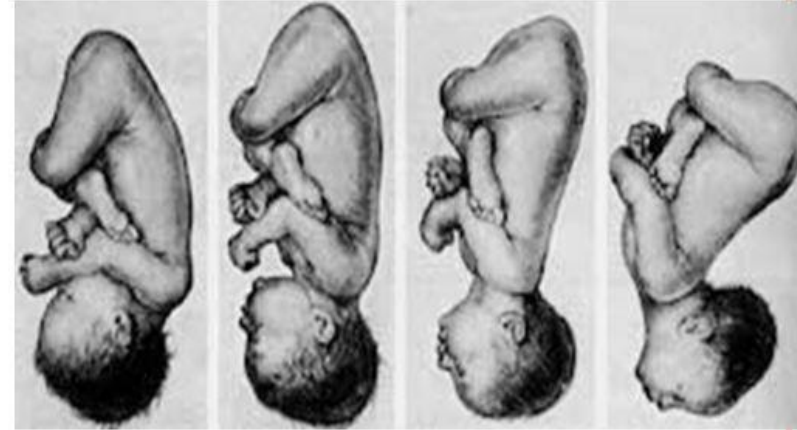
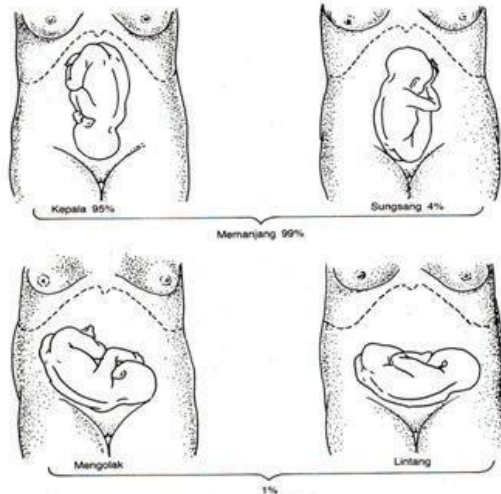
“Kami ridho Allah SWT sebagai Tuhanku, Islam sebagai agamaku, dan Nabi Muhammad sebagai Nabi dan Rasul, Ya Allah, tambahkanlah kepadaku ilmu dan berikanlah aku kefahaman”

APA YANG AKAN KITA PELAJARI?

1. Mekanisme persalinan
 - a. letak, presentasi, sikap dan posisi janin
 - b. mekanisme persalinan (7 tahap penurunan kepala)
2. Pemeriksaan Intrapartum
 - a. Pemantauan janin
 - b. Teknik pemeriksaan intrapartum lainnya
 - c. Distress janin
 - d. Pengamatan aktivitas uterus intrapartum

APA YANG KALIAN KETAHUI TENTANG ?

- LETAK JANIN
- PRESENTASI JANIN
- SIKAP JANIN
- POSISI JANIN



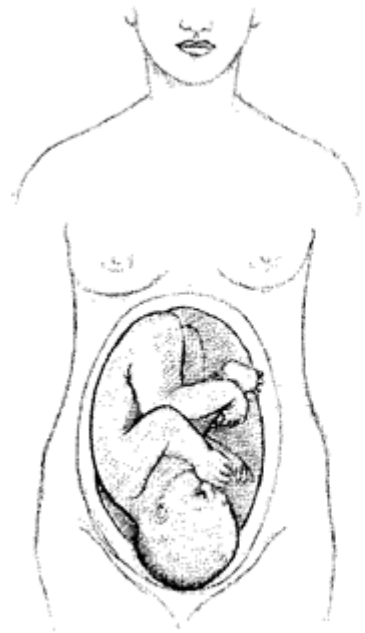
LETAK JANIN/SITUS

Hubungan antara sumbu Panjang janin terhadap ibu

1. Memanjang/ Longitudunal
2. Melintang / Transversal
3. Obliqua

99% letak memanjang

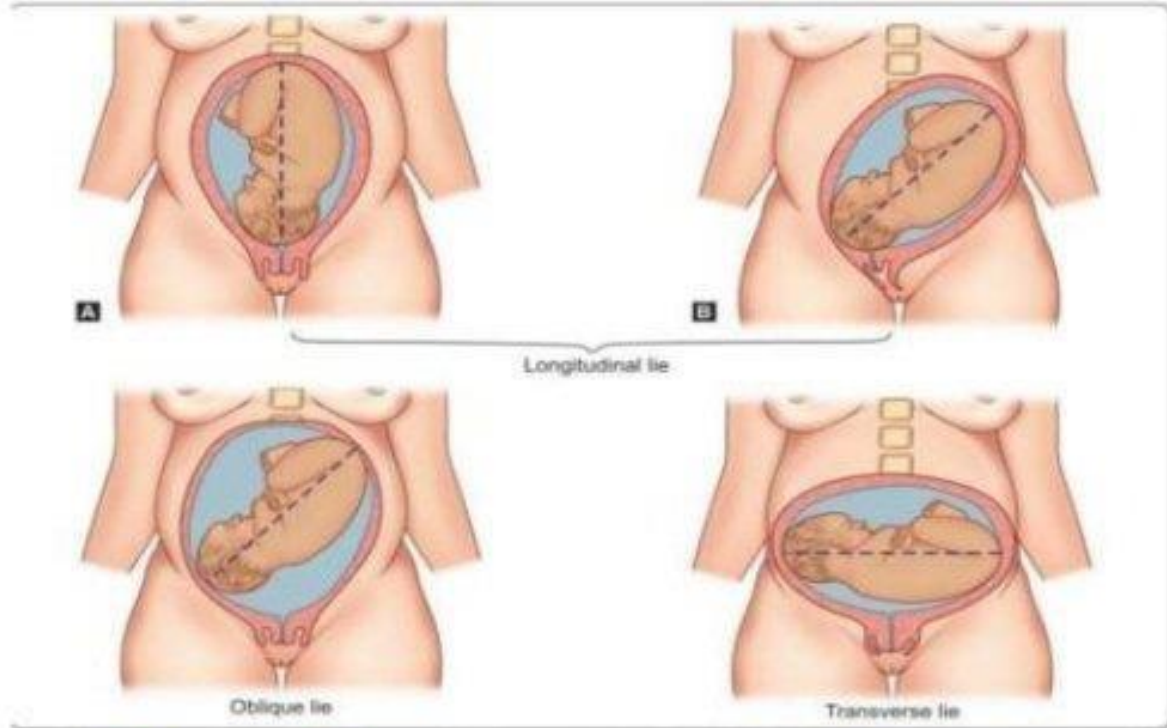
Faktor predisposisi letak melintang ⑦
multiparitas, placenta previa, hidramnion, anomaly uterus



A
Longitudinal lie



B
Transverse lie



Figs 8.1A and B: Fetal lie. (B), the fetus seems to lie in oblique position in relation to the maternal spine but remains in longitudinal lie in relation to uterine axis. Correction of the uterine obliquity rectifies apparent oblique lie of the fetus (A)

PRESENTASI

Bagian tubuh janin yang terendah
dibagian terdekat jalan lahir

Chepalic/head (96%)
Breech (3.5%)
Shoulder (0.5%)



head presentation

FETAL PRESENTATION



breech presentation



transverse presentation

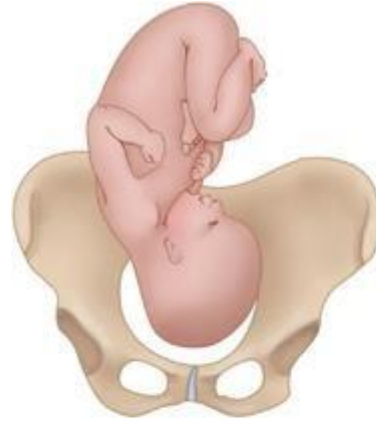
Variations of the breech presentation



Complete

Incomplete

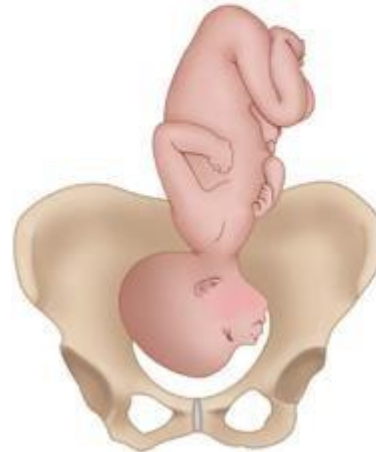
Frank



A. Flexion of head.



B. Military attitude.



C. Brow presentation, partial extension.



D. Face presentation, complete extension.

Variations in Presentation

Variaciones en presentación



Normal
Normal



Shoulder/
Transverse
Presentación de
hombros/
transversal



Face/Brow
Presentación de
cara/frente



Breech
(Complete)
Presentación de
nalgas (completa)



Breech
(Footling)
Presentación
portalira



Breech
(Frank)
Presentación de
nalgas (piñas)

Source: G. D. Posner, Jessica DY, A. Black, G. D. Jones: Human Labor & Birth, 6th Edition
www.obgyn.mhmedical.com
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SIKAP JANIN (HABITUS)

- Hubungan satu bagian janin dengan bagian yang lain
- Flexi
- Defleksi
- Ekstensi

SIKAP JANIN



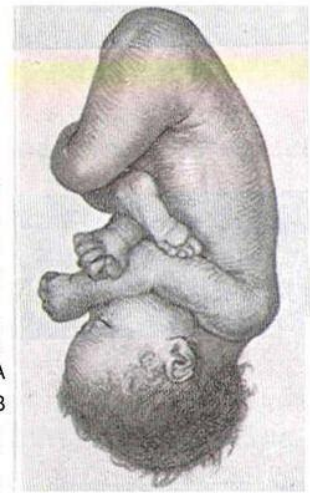
Fleksi



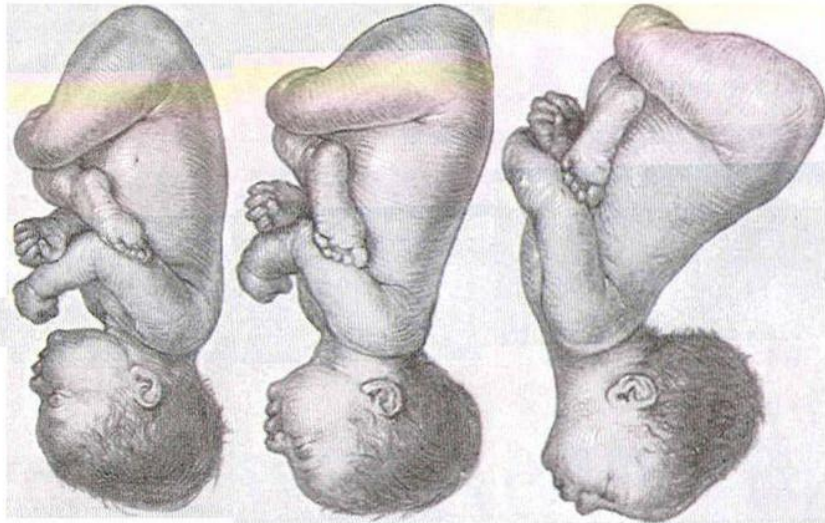
Defleksi



Ekstensi



(A) vertex

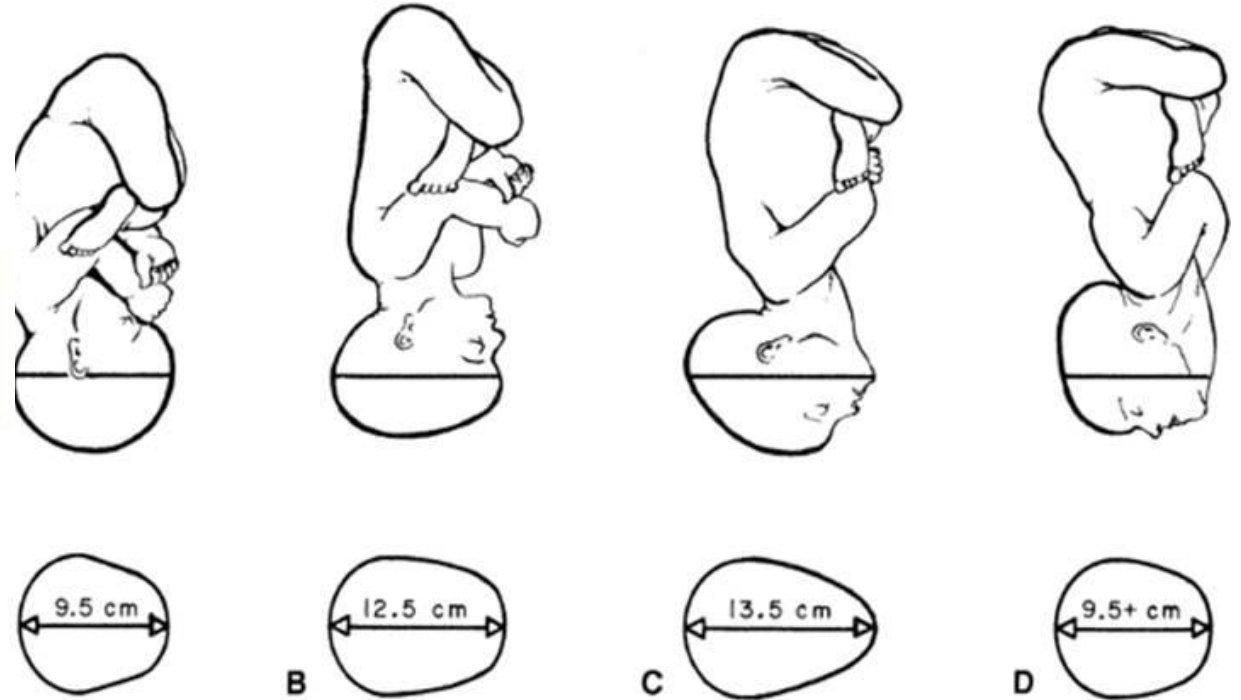


(B) sinciput

(C) brow

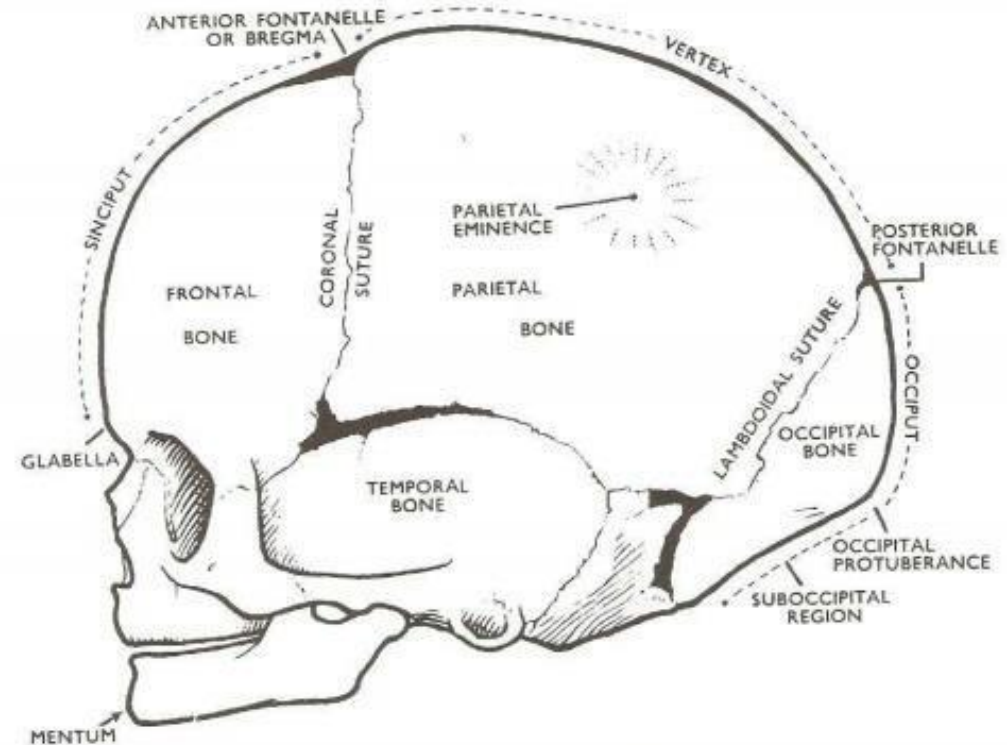
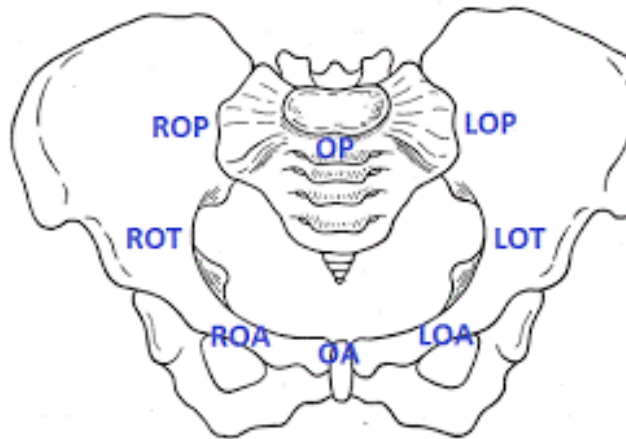
(D) face

Longitudinal lie. Cephalic presentation. Differences in attitude of fetal body.

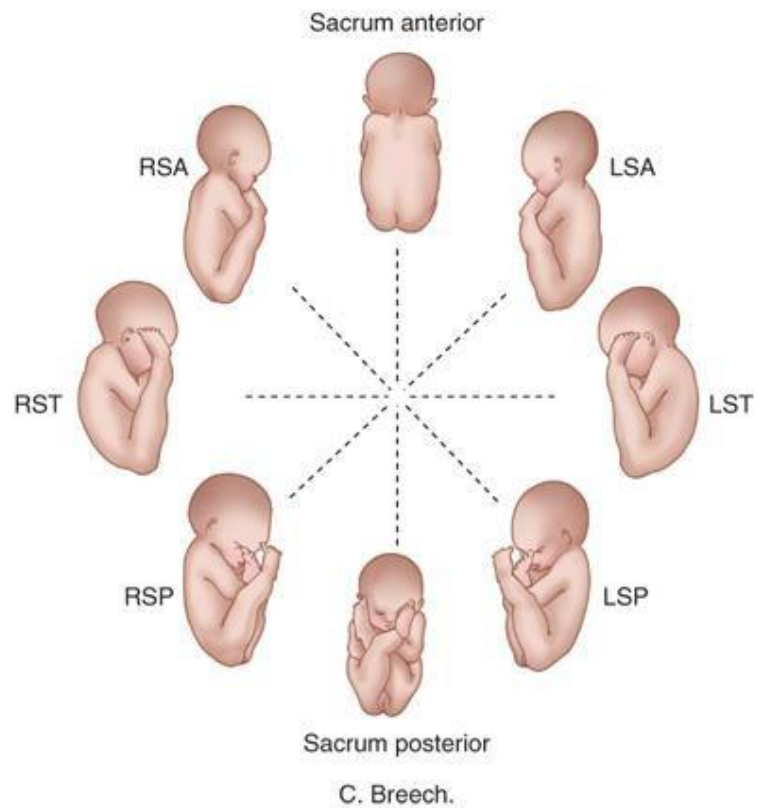
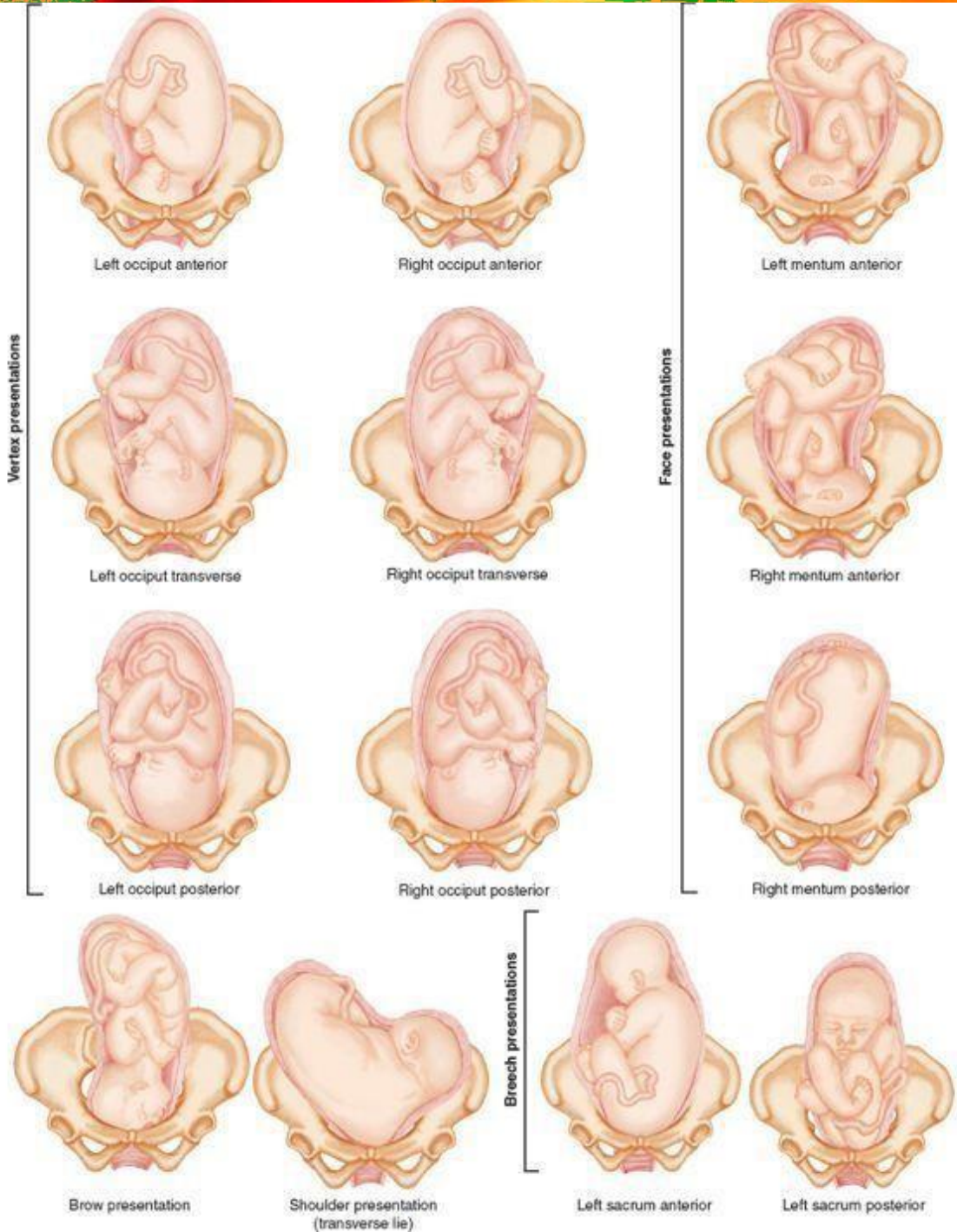
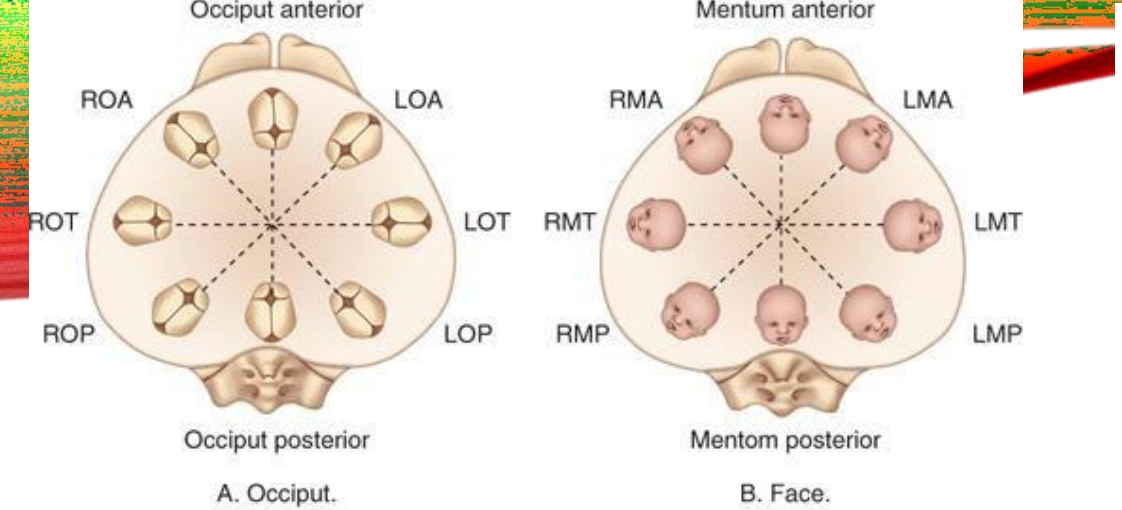


POSISI JANIN

- Hubungan antar bagian yang dianggap sebagai bagian presentasi terhadap sisi kanan atau kiri jalan lahir
- Kunci → penunjuk atau denominator
- Vertex → occiput
- ⑦ bregma
- ⑦ Glabella
- Muka → mentum
- Breech → sacrum
- Shoulder -->Scapula
- 2/3 dari seluruh presentasi vertek berada pada LOA dan 1/3 ROA



Fetal Skull



DIAGNOSIS PRESENTASI DAN POSISI JANIN

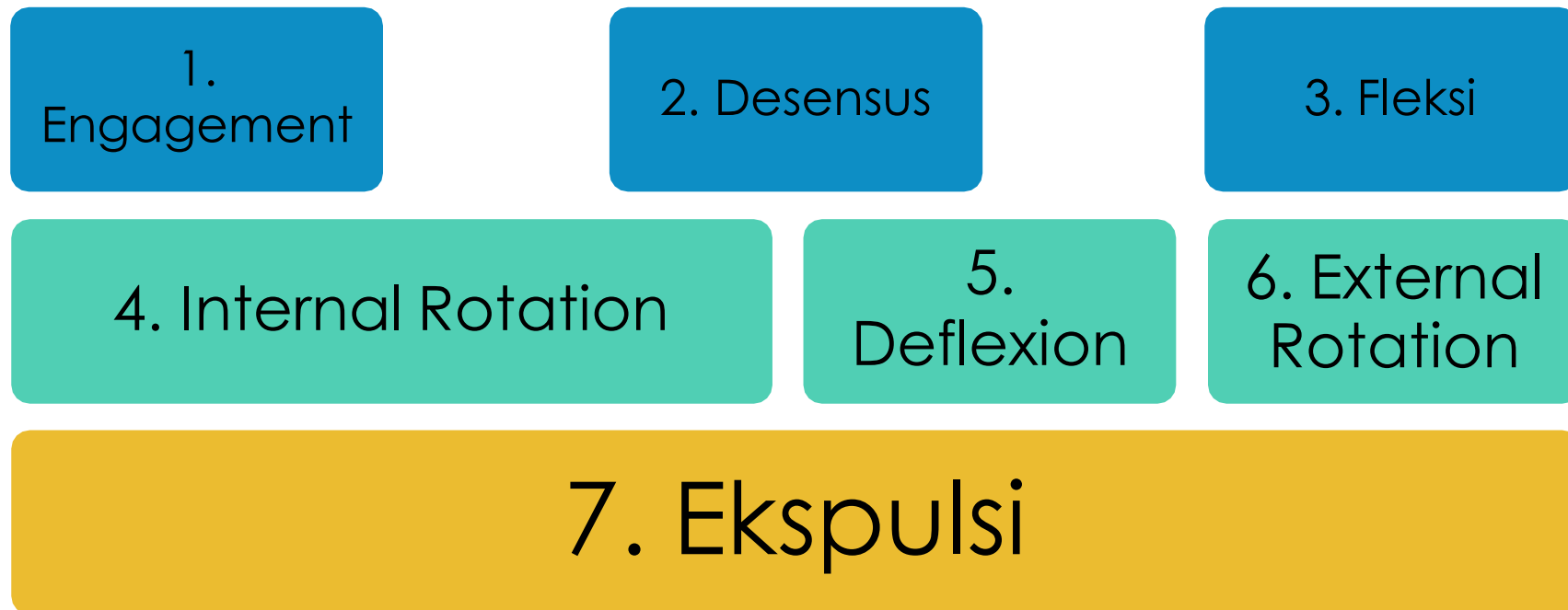
1. Pemeriksaan Leopold
bidan berpengalaman → dapat mengidentifikasi malpresentasi secara akurat
2. Pemeriksaan vagina
3. USG dan radiografi

MEKANISME PERSALINAN

- Pada sebagian besar kasus vertex memasuki pelvis dengan sutura sagitalis terletak di diameter transversal pelvis
- Janin memasuki pelvis dalam posisi LOT 40% dan ROT 20% (Caldwell dkk, 1934)
- Pada posisi oksiput anterior LOA atau ROA kepala memasuki pelvis baik melalui rotasi oksiput sebanyak 45° anterior dari posisi transversal atau baru melakukan rotasi sesudahnya
- Perubahan posisi terendah janin yang diperlukan untuk melalui canal pelvis disebut MEKANISME PERSALINAN

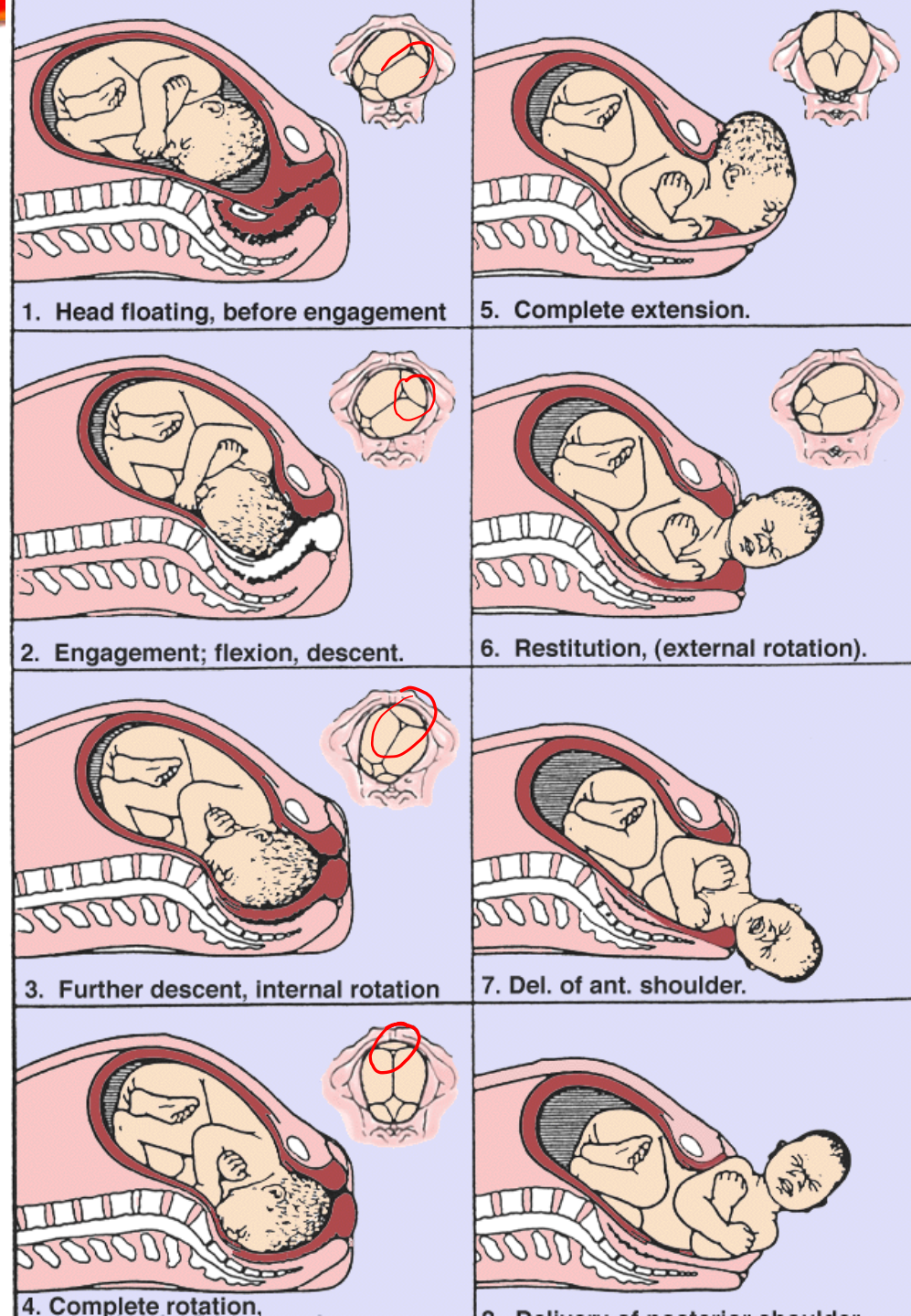
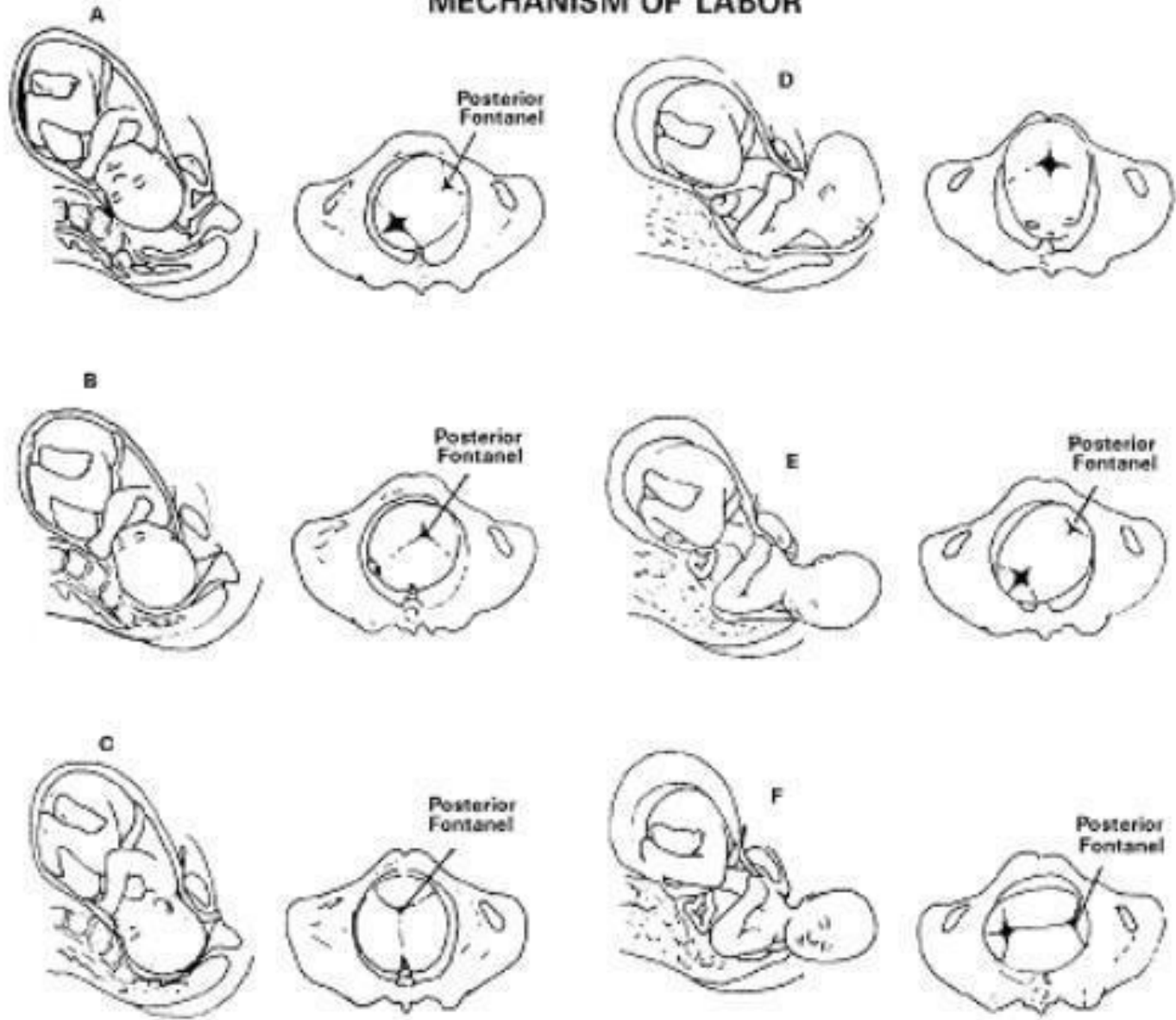
MEKANISME PERSALINAN

- Perubahan posisi bagian terendah janin yang diperlukan untuk melalui panggul



- Selama persalinan, Gerakan- Gerakan tersebut tidak hanya terjadi secara sekuensial tetapi juga menunjukkan tumpang tindih waktu
- Contoh : sebagai bagian dari engagement, terjadi fleksi sekaligus desensus kepala. Gerakan tersebut tidak dapat selesai kecuali bagian terendah janin berjalan turun secara simultan
- Secara bersamaan, kontraksi uterus mempengaruhi modifikasi penting pada sikap janin, terutama setelah kepala turun kedalam pelvis
- Perubahan ini terutama terdiri dari pelurusan janin, dengan menghilangnya konvksitas bagian dorsal dan pendekatan ekstermitas ke arah tubuh, akibatnya bentuk ovoid janin berubah menjadi bentuk silinder dengan garis tengah terkecil yang mungkin untuk melewati jalan lahir

MECHANISM OF LABOR

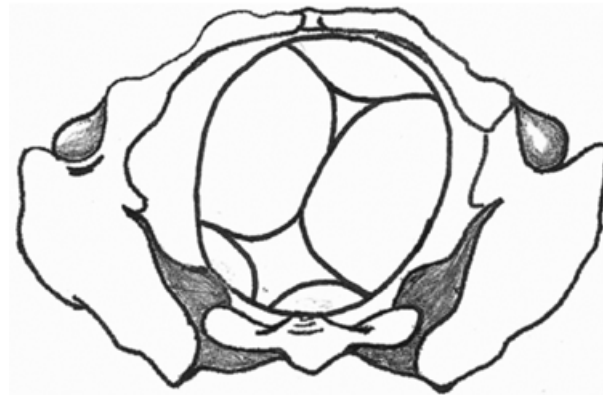




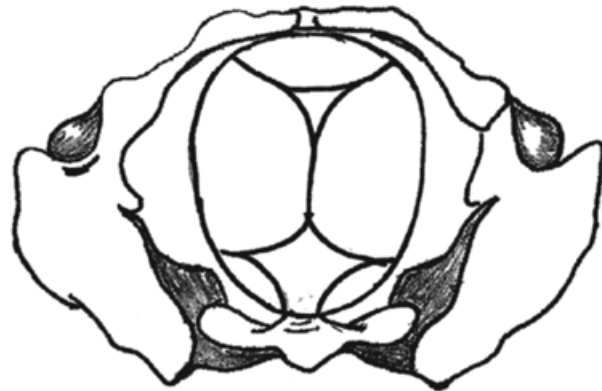
1 Unengaged



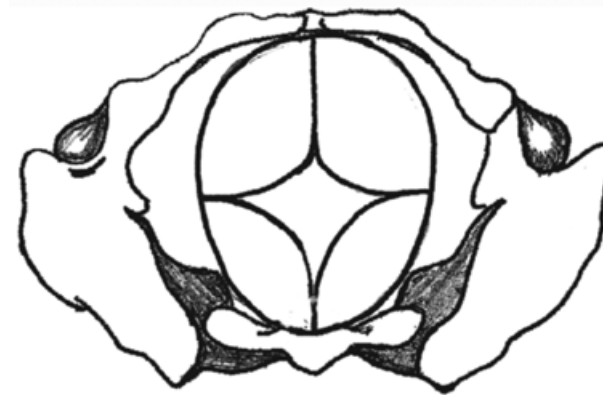
2 Engagement



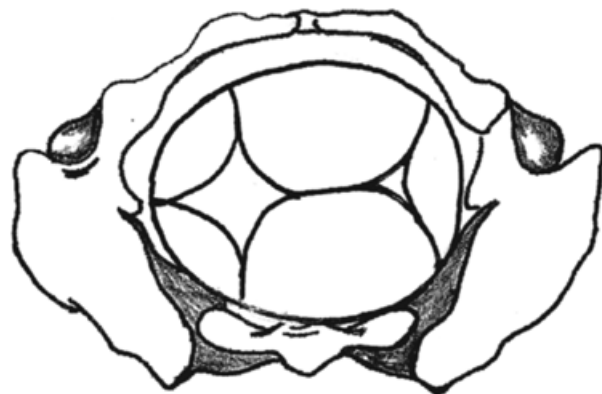
3 Descent with flexion



4 Further flexion & internal rotation



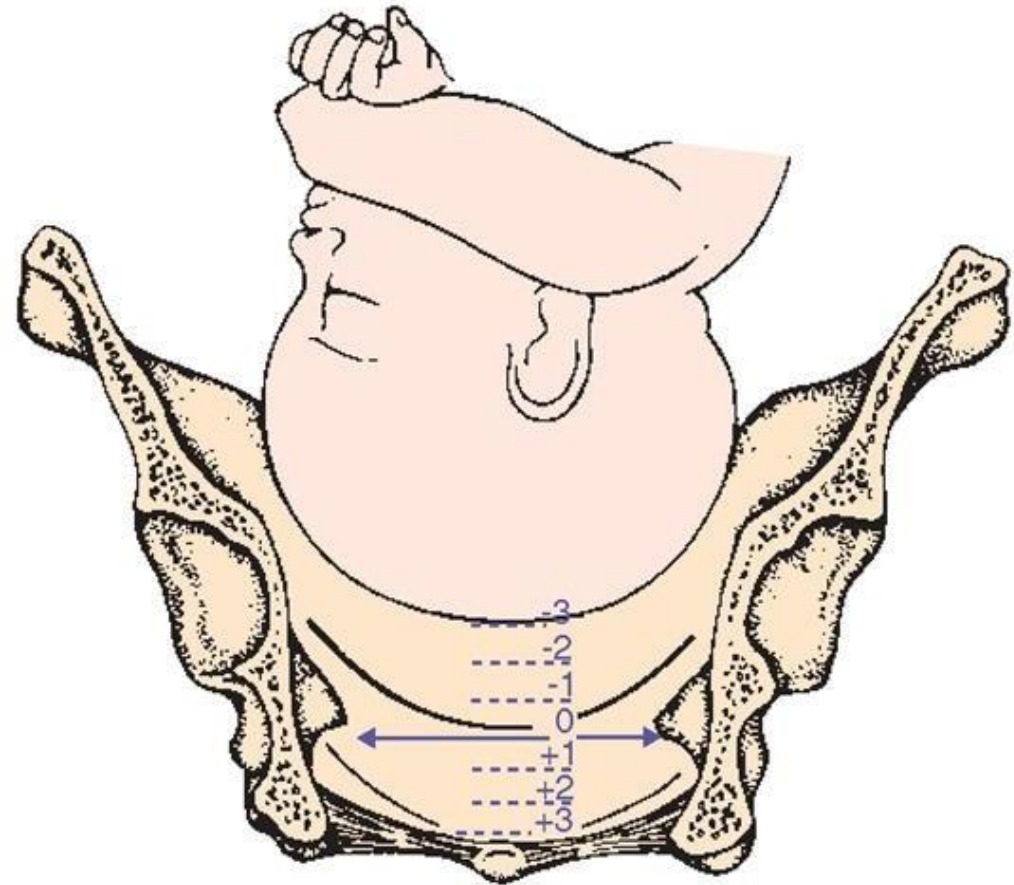
5 Extension



6 Restitution

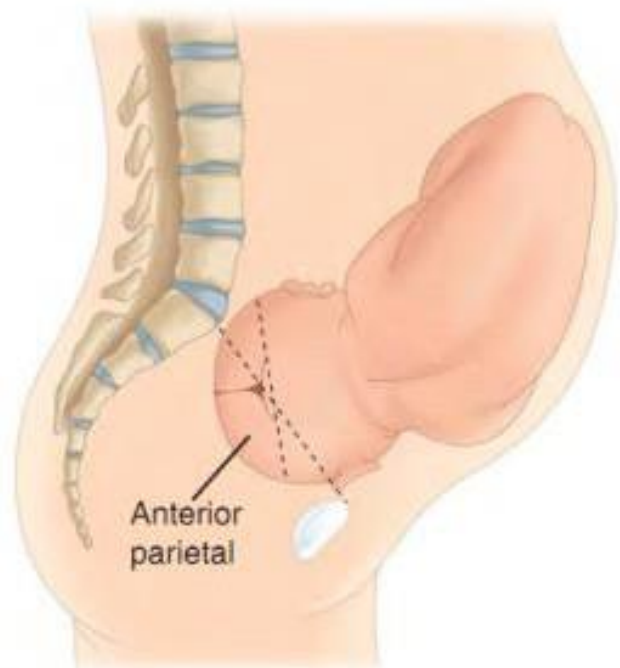
ENGAGEMENT

- Mekanisme ketika diameter biparietal – diameter transversal terbesar pada presentasi oksiput melewati apertura pelvis superior
- Kepala janin dapat mengalami engage selama beberapa minggu terakhir kehamilan atau tidak mengalami engage hingga setelah permulaan persalinan

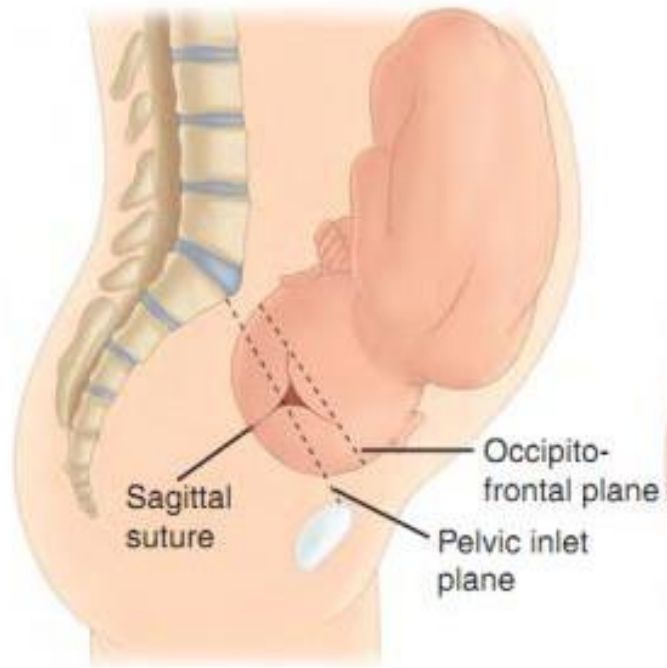


- Meskipun kepala janin cenderung terakomodasi dengan aksis transversal aperture pelvis superior
- Masuknya kepala janin melintasi pintu atas panggul dapat dalam keadaan **sinklitismus** yaitu apabila arah sumbu kepala janin tegak lurus dengan bidang pintu atas panggul → sutura sagitalis tepat berada diantara simphysis dan promontorium.
- Namun, Umumnya sutura sagitalis mengalami defleksi kearah posterior (promontorium) atau anterior (symphysis) → **Asinklitismus**
- **Asinklitismus anterior** → jika sutura sagitalis mendekati promontorium sehingga os parietal depan lebih rendah dari os parietal belakang (Naegle)
- **Asinklitismus posterior** → jika sutura sagitalis mendekati symphysis sehingga os parietal belakang lebih rendah dari os parietal depan (Litzman)
- Keadaan asinklitismus anterior lebih menguntungkan dikarenakan ruang pelvis posterior lebih luas dibandingkan ruang pelvis anterior

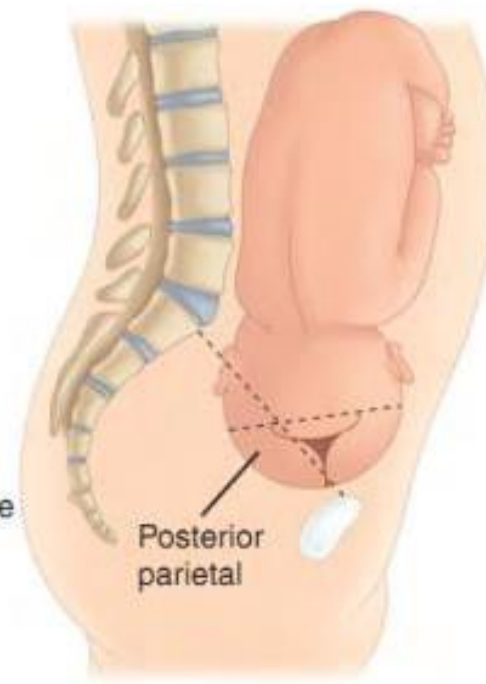
Anterior asynclitism



Normal synclitism



Posterior asynclitism

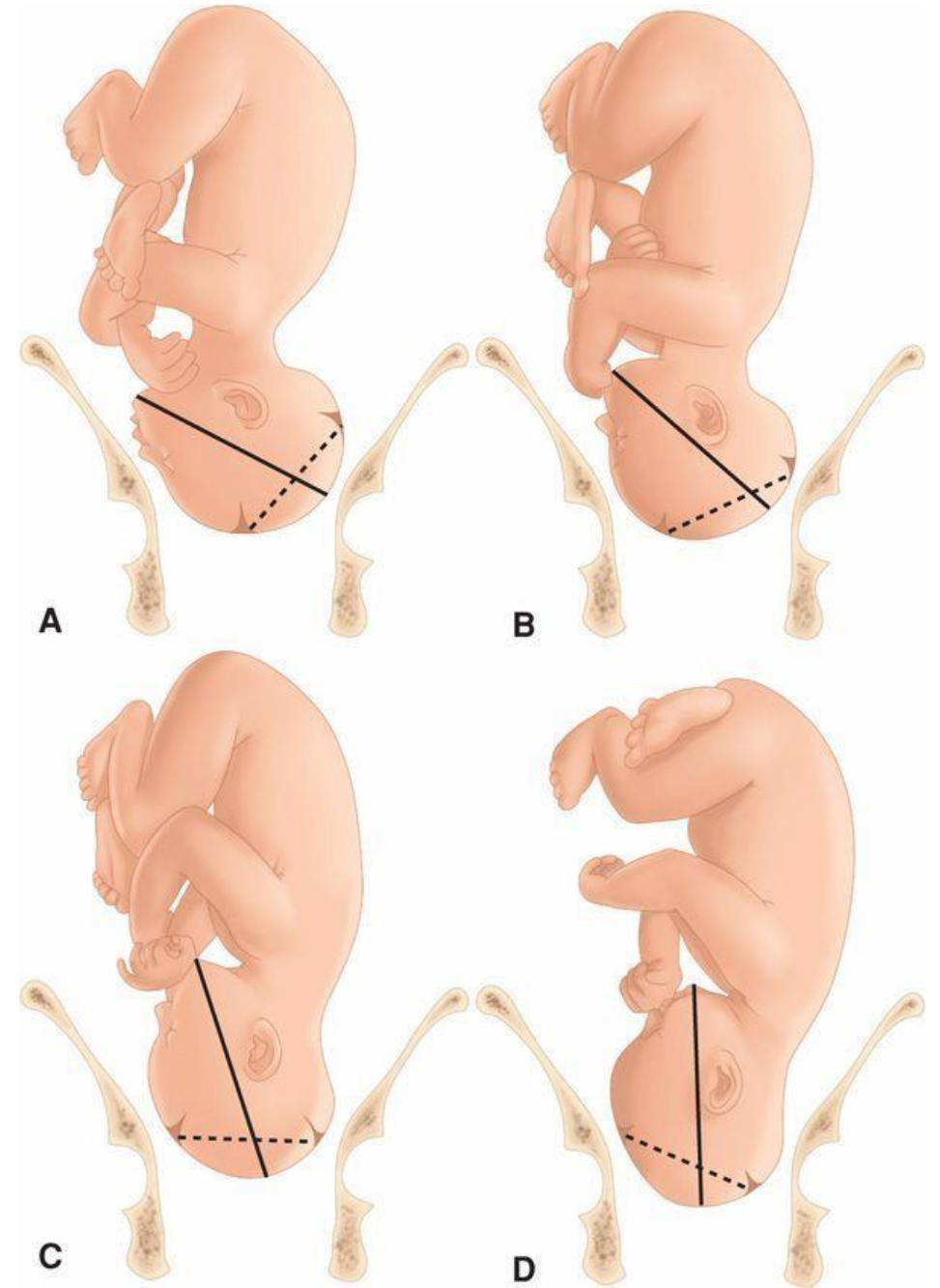
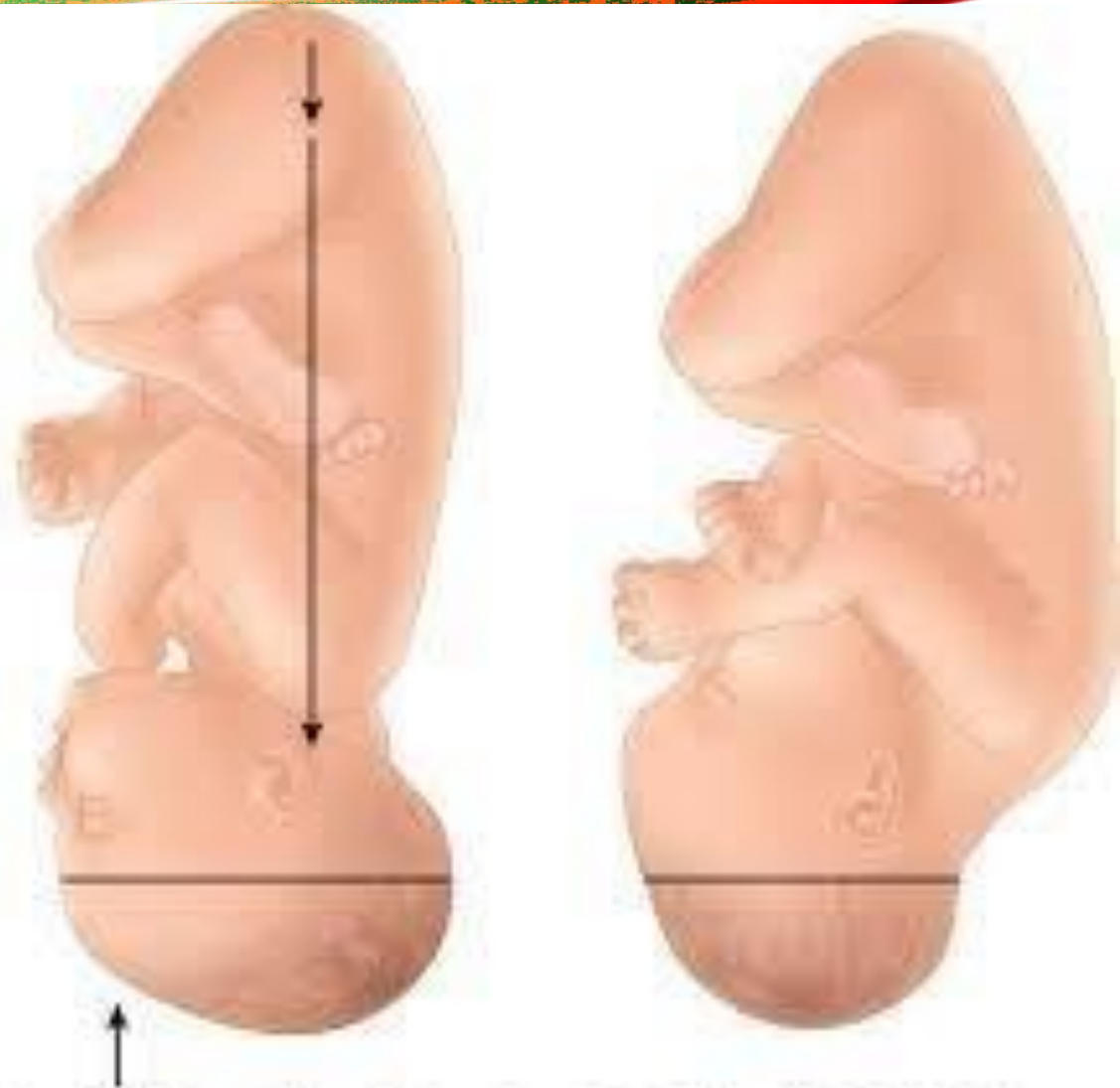


DESCENT

- Gerakan ini merupakan persyaratan pertama persalinan
- Pada nullipara engagement dapat berlangsung sebelum dimulai persalinan dan proses desensus selanjutnya dapat tidak terjadi hingga persalinan kala II
- Pada multipara desensus biasanya dimulai dengan proses engagement
- Desensus ditimbulkan oleh satu atau beberapa dari
 1. Tekanan cairan amnion
 2. Tekanan kontraksi pada fundus uteri
 3. Tekanan ke bawah otot abdomen
 4. Ekstensi dan pelurusan tubiuh janin

FLEKSI

- Segera setelah kepala yang sedang desensus mengalami hambatan, baik dari serviks, dinding pelvis atau dasar pelvis, normalnya kemudian terjadi fleksi kepala
- Pada Gerakan ini, dagu mengalami kontak lebih dekat dengan dada janin dan diameter suboksipitobregmatika yang lebih pendek menggantikan diameter oksipitofrontalis yang lebih panjang



Source: F. Gary Cunningham, Kenneth J. Leveno, Steven L. Bloom, Catherine Y. Spong, Jodi B. Dashe, Barbara L. Hoffman, Brian M. Casey, Jovanne S. Sheffield: *Williams Obstetrics*, 20th Edition
 Copyright © McGraw-Hill Education. All rights reserved.

INTERNAL ROTATION/PUTAR PAKSI DALAM

- Gerakan ini terdiri dari perputaran sedemikian rupa sehingga oksiput secara bertahap bergerak ke arah symphysis
- Internal rotation selesai saat kepala mencapai dasar pelvis

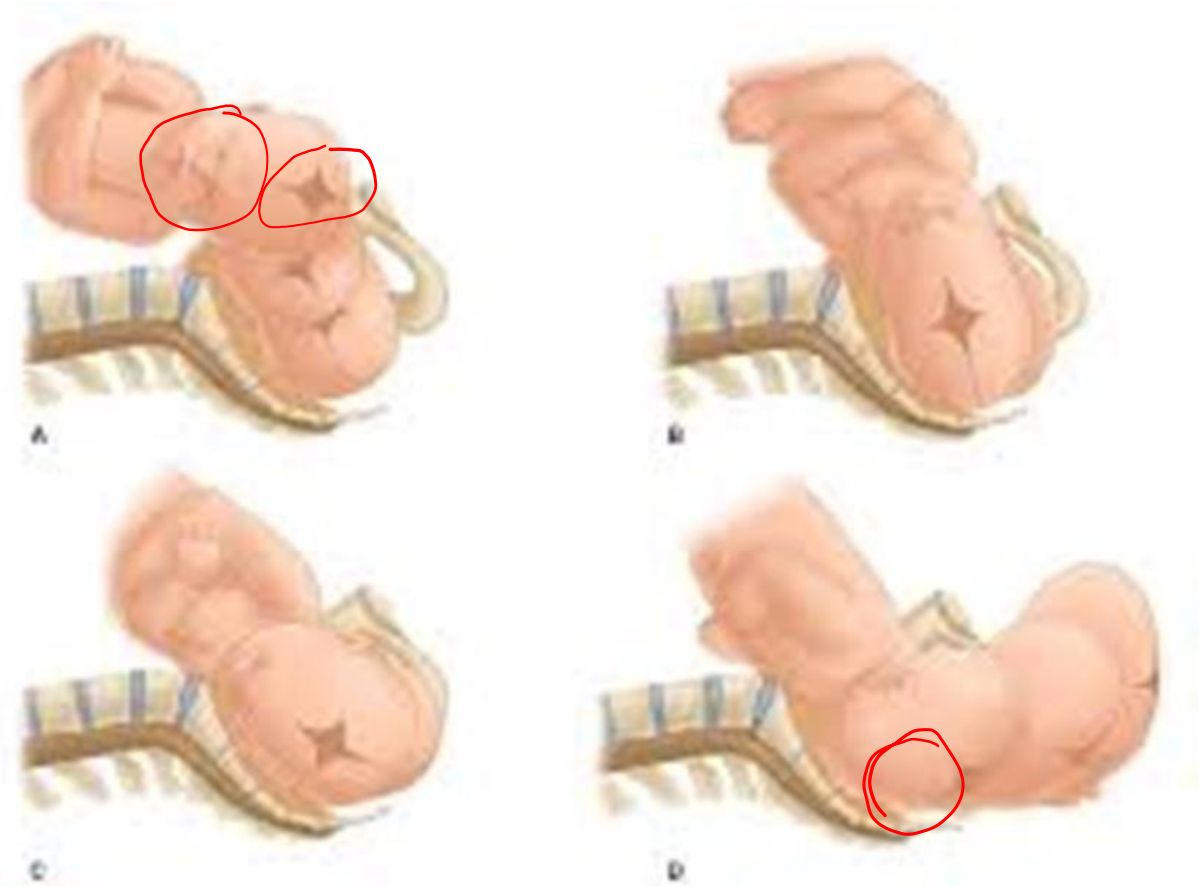
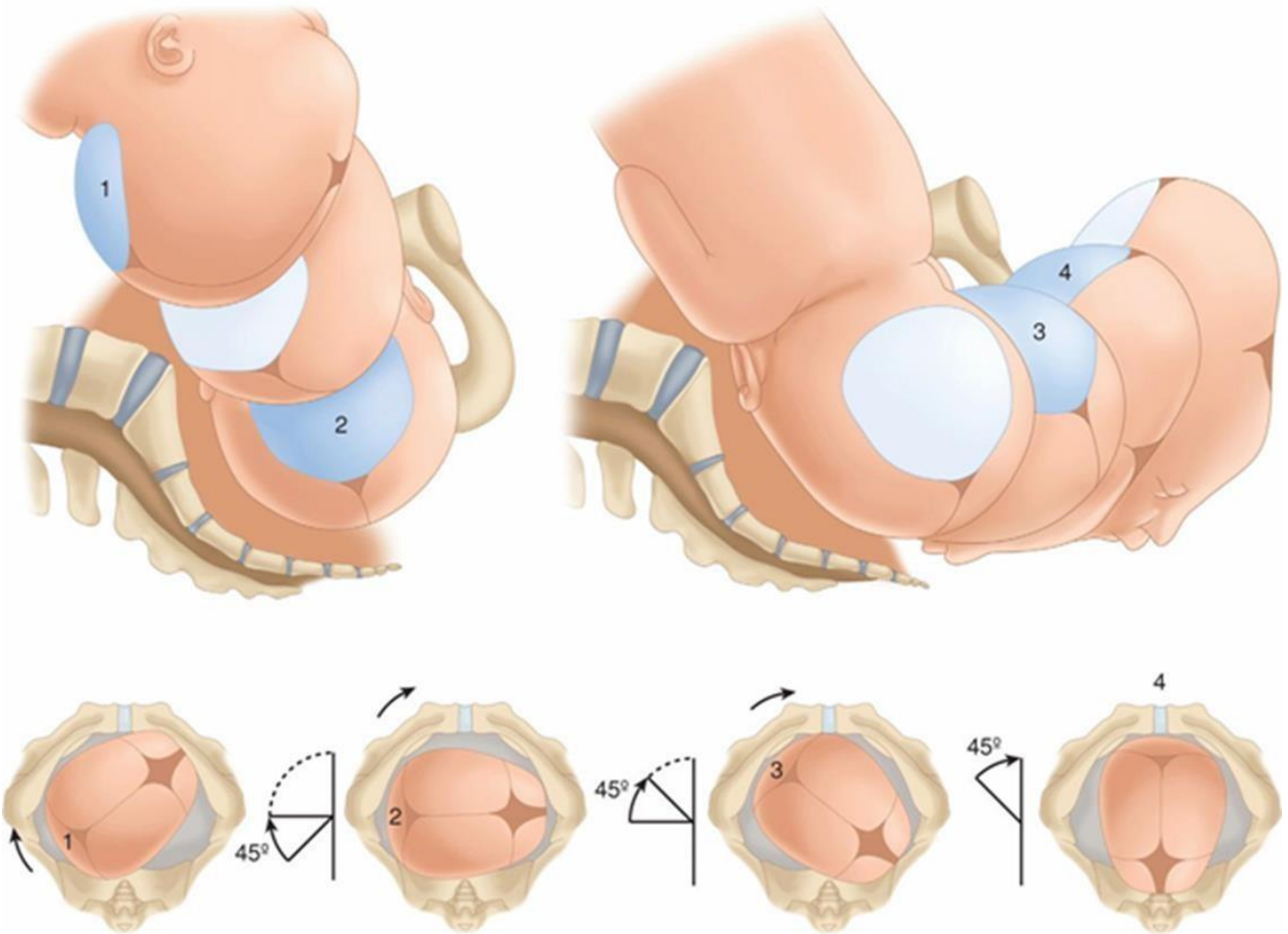


FIGURE 21-15 Flexion of the fetal head for the left occiput to deliver in position, fetal view. A. Engagement. B. Atlas engagement, further descent. C. Descent and initial internal rotation. D. Position and extension.

EKSTENSI/DEFLEKSI

- *Kepala janin mengadakan gerakan menengadah* dengan melepaskan diri dari fleksi maksimal. Hal ini disebabkan sumbu jalan lahir pada PBP mengarah ke depan dan atas maka berturut-turut lahir UUB, muka (dahi, hidung, mulut, dan akhirnya dagu) dan kepala seluruhnya
- Kekuatan ⑦ his yang bekerja ke arah posterior dan daya resistensi dasar pelvis dan symphysis bekerja lebih ke arah anterior



EKSTERNAL ROTATION/PUTAR PAKSI LUAR

- Kepala janin melakukan putaran paksi luar sebagai upaya janin (punggung) menyesuaikan dengan diameter terpanjang dari bawah panggul



D. Extension.



E. Restitution: OA to LOA.

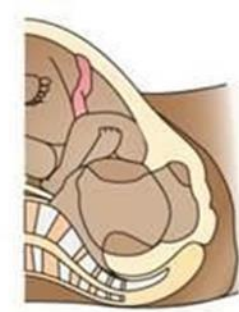


F. External rotation: LOA to LOT.

EKSPULSI

- setelah bahu depan sampai di bawah symphysis maka lahirlah bahu depan disusul bahu belakang dan selanjutnya seluruh badan janin.
- Kelahiran badan terjadi karena fleksi lateral, yang mengikuti lengkung normal jalan lahir

Engagement,
Descent,
Flexion



Internal Rotation



External Rotation (Restitution)



Extension Beginning (rotation complete)



External Rotation (Shoulder rotation)



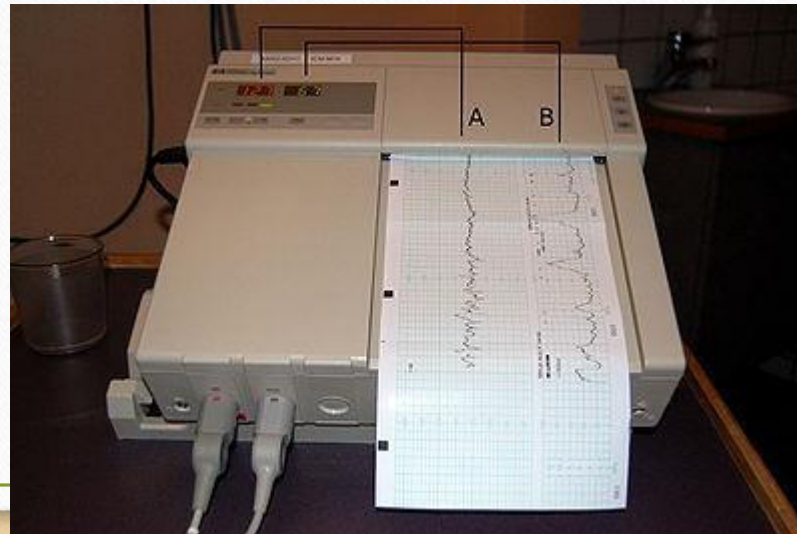
Extension Complete



Expulsion

Pemantauan Janin

- Denyut Jantung Janin
menggunakan Pinard atau Doppler atau CTG
- Gerakan Janin



Intermittent Auscultation For Intrapartum Fetal Heart Rate Surveillance

<https://onlinelibrary.wiley.com/doi/epdf/10.1111/jmwh.12372>

Table 1. Fetal Heart Rate Characteristics Determined via Auscultation versus Electronic Monitor

FHR Characteristic ^a	Fetoscope	Doppler without Paper Printout	Electronic FHR Monitor
Variability	No	No	Yes
Baseline rate	Yes	Yes	Yes
Accelerations	Detects increases ^b	Detects increases ^b	Yes
Decelerations	Detects decreases	Detects decreases	Differentiates types of decelerations
Rhythm ^c	Yes	Yes	Yes
Double counting or half-counting FHR	Can clarify	May double count or half count	May double count or half count
Differentiation of maternal and fetal heart rate	Yes	May detect maternal heart rate	May detect and record maternal heart rate

Abbreviation: FHR, fetal heart rate.

^aDefinitions of each FHR characteristic based on those reported in Macones et al.²⁰

^bPer method described by Paine et al¹² and Paine et al.¹³

^cDetermined as regular or irregular. None of these devices can diagnose the type of fetal arrhythmia.

Adapted from: Lyndon A, Ali LU, eds. *Fetal Heart Monitoring Principles and Practices*. 4th ed. Dubuque, IA: Kendall-Hunt Publishing Company; 2009. Used with permission from the Association of Women's Health, Obstetric and Neonatal Nurses.

RECOMMENDATION 18

Intermittent auscultation of the fetal heart rate with either a Doppler ultrasound device or a Pinard fetal stethoscope is recommended for healthy pregnant women in labour. (Recommended)

- The GDG acknowledged the lack of evidence of comparative benefits of different IA protocols and variations in protocols across health care settings. However, the group agreed that standardization of protocol is important for health care planning and medico-legal purposes and, therefore, adopted the following protocol (113).
 - Interval: Auscultate every 15–30 minutes in active first stage of labour, and every 5 minutes in the second stage of labour.
 - Duration: Each auscultation should last for at least 1 minute; if the FHR is not always in the normal range (i.e. 110–160 bpm), auscultation should be prolonged to cover at least three uterine contractions. Timing: Auscultate during a uterine contraction and continue for at least 30 seconds after the contraction.
 - Recording: Record the baseline FHR (as a single counted number in beats per minute) and the presence or absence of accelerations and decelerations.

Table 2. Recommendations of Professional Organizations for Frequency of Fetal Heart Rate Auscultation for Women who are Low Risk^a During Labor

Organization	Latent Phase	Active Phase	Second Stage
		Minutes	Minutes
American College of Nurse-Midwives		15-30	5
American College of Obstetricians and Gynecologists		30	15
American College of Obstetricians and Gynecologists and American Academy of Pediatrics Joint Guidelines for Perinatal Care		15	5
Association of Women's Health, Obstetric And Neonatal Nurses		15-30	5-15
Royal College of Obstetricians and Gynaecologists		15 ^d	5 ^d
Society of Obstetrics and Gynaecologists of Canada ^b	At time of assessment and approximately every hour	15-30	5 ^c

^aNone of the guidelines of the professional organizations included here specifically define *low risk*. For the purpose of this bulletin, low risk refers to women who have no medical or obstetric conditions that are associated with uteroplacental insufficiency or conditions that are associated with an increased incidence of umbilical artery pH of less than 7.1 at birth.

^bIntermittent auscultation should only be used by practitioners with experience in the technique of auscultation, palpation of contractions, and auditory recognition of pertinent fetal heart rate changes.

^cWhen pushing has been initiated.

^dFor a minimum of 60 seconds after a contraction.

Table 3. Technique for Performing Intermittent Auscultation

1. Perform Leopold's maneuvers to identify the fetal presentation and position.
2. Assist the laboring woman into a position that maximizes audibility and preserves comfort.
3. Assess frequency and duration of uterine contractions.
4. Determine the maternal pulse rate.
5. Place the fetoscope or Doppler over the fetal thorax or back.
6. Determine the baseline fetal heart rate by listening between contractions and when the fetus is not moving. Verify maternal pulse rate if necessary.
7. Subsequently, count the fetal heart rate starting at the peak of the uterine contraction and for a short period of time after the contraction resolves every 15 to 30 minutes in active labor and every 5 minutes in the second stage of labor.
8. Note increases (accelerations) or decreases (decelerations) from the baseline rate by counting and recording the fetal heart rate using a multiple-count strategy agreed upon by practice protocol.^a

^aSeveral multiple-count strategies have been tested in studies of auscultation. Note that in some of these studies, researchers evaluated FHR auscultation for nonstress tests and the particular technique has not been tested for intrapartum use: Paine et al,¹² Paine et al,¹³ Shifrin,¹⁴ Daniels and Boehm,¹⁵ and Miller et al.¹¹

Table 4. Interpretation of Auscultation Findings

Category I

Category I FHR characteristics by auscultation include the following:

Normal FHR baseline between 110 and 160 bpm and,
Regular rhythm and,

Absence of FHR decreases or decelerations from the baseline

Note: Presence of FHR increases or accelerations from the baseline may or may not be present in a FHR auscultated and determined to be Category I. Accelerations should be assessed for and documented if present. If present, FHR accelerations signify fetal well-being at the time they are noted.

Category II

Category II FHR characteristics by auscultation include any of the following:

Irregular rhythm

Presence of FHR decreases or decelerations from the baseline^a

Tachycardia (baseline >160 bpm >10 minutes in duration)

Bradycardia (baseline <110 bpm >10 minutes in duration)

Abbreviations: bpm, beats per minute; EFM, electronic fetal monitoring; FHR, fetal heart rate; NICHD, National Institute of Child Health and Human Development.

^aWhen recurrent decelerations are detected, a transfer to EFM is indicated. EFM will be able to determine if the decreases from baseline are early, late, or variable decelerations and a diagnostic category I, II, or III will then be assigned using NICHD criteria for EFM generated FHR tracings.

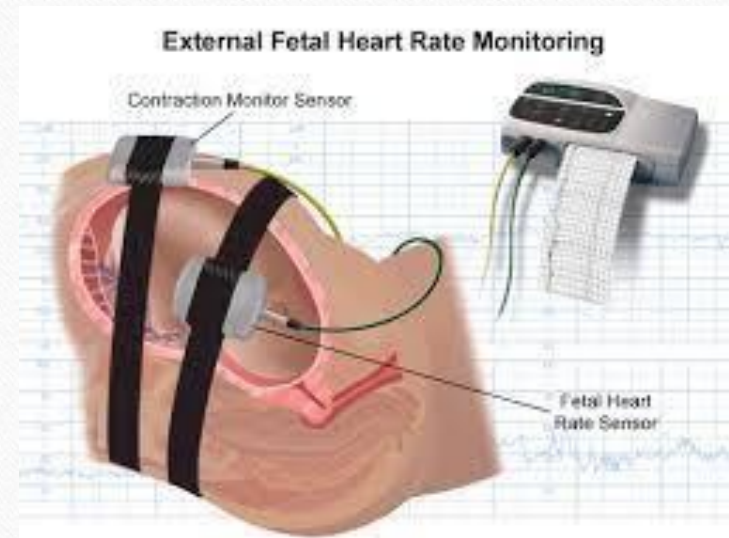
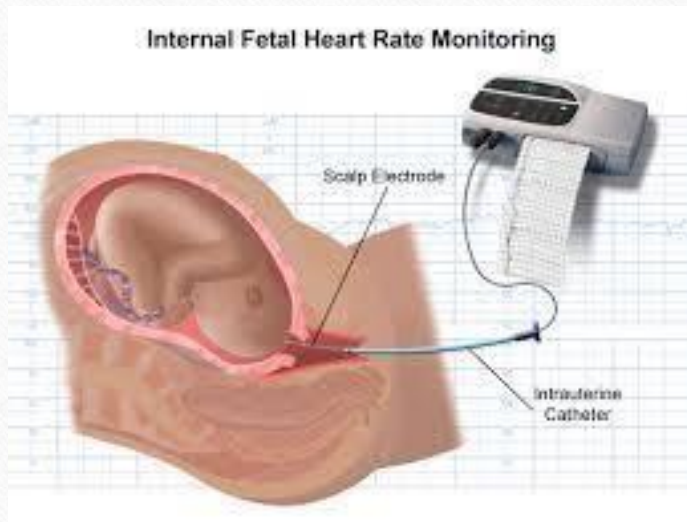
From Lyndon A, Ali LU, eds. *Fetal Heart Monitoring Principles and Practices*. 4th ed. Dubuque, IA: Kendall-Hunt Publishing Company; 2009. Used with permission from the Association of Women's Health, Obstetric and Neonatal Nurses.

Table 5. National Institute of Child Health and Human Development Terminology for Fetal Heart Rate Characteristics Determined By Electronic Fetal Heart Rate Monitoring

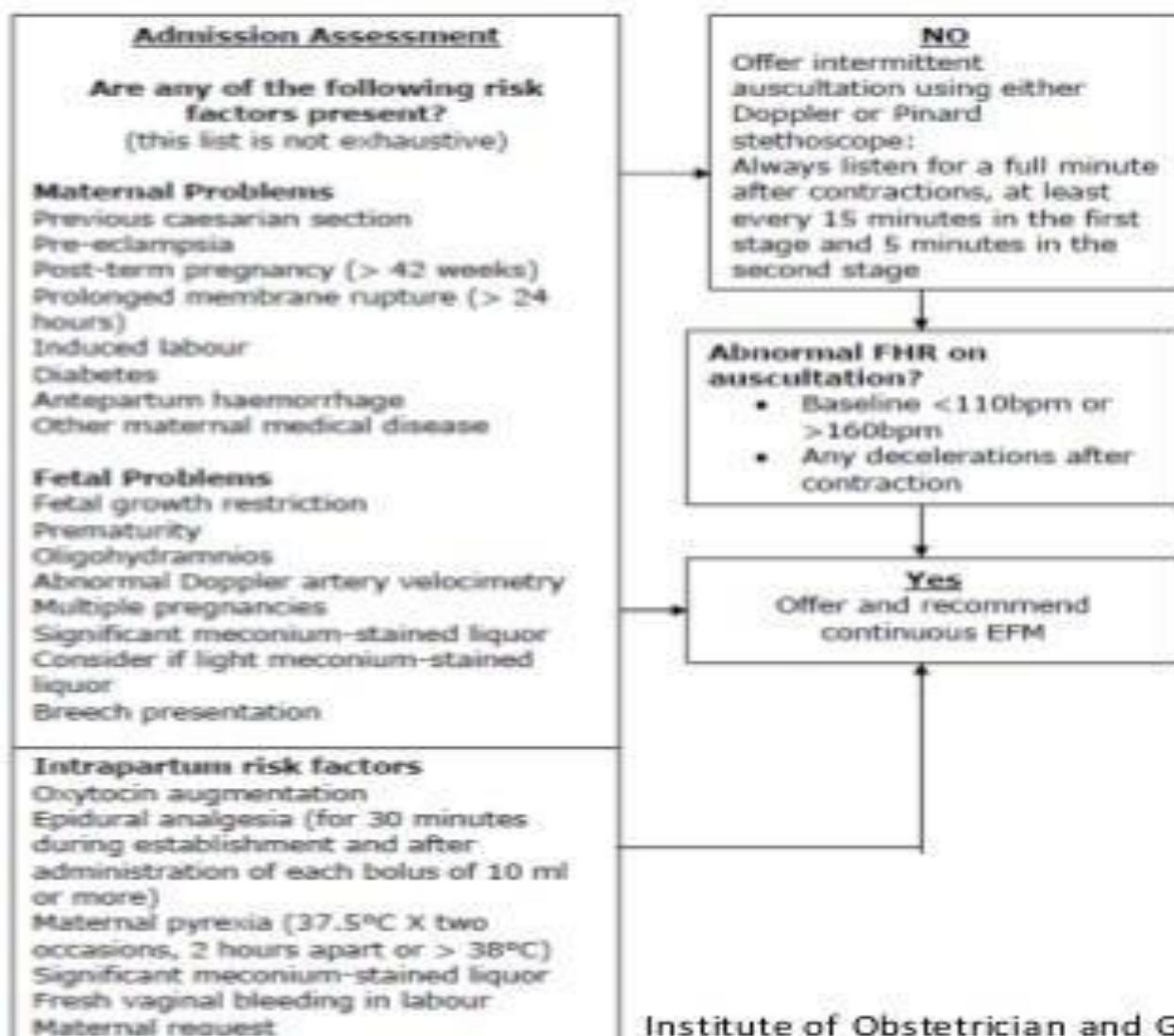
Term	Definition
Baseline rate	Mean FHR rounded to increments of 5 bpm during a 10-minute segment excluding periodic or episodic changes, periods of marked variability, and segments of baseline that differ by > 25 bpm. Duration must be ≥ 2 minutes.
Bradycardia	Baseline rate of < 110 bpm for ≥ 10 minutes
Tachycardia	Baseline rate of > 160 bpm for ≥ 10 minutes
Variability	Fluctuations in the baseline FHR of 2 cycles/minute or greater. Visually quantitated as the amplitude of the peak-to-trough in beats per minute
Absent	Amplitude from peak to trough undetectable.
Minimal	Amplitude from peak to trough $>$ undetectable and ≤ 5 bpm.
Moderate	Amplitude from peak to trough 6-25 bpm.
Marked	Amplitude from peak to trough > 25 bpm.
Acceleration	Visually apparent abrupt increase (onset to peak is < 30 seconds) of FHR above baseline. Peak is ≥ 15 bpm. Duration is ≥ 15 bpm and < 2 minutes. In gestations < 32 weeks, peak of 10 bpm and duration of 10 seconds is acceleration.
Prolonged	Acceleration > 2 minutes and < 10 minutes duration.
Early	Visually apparent gradual decrease (onset to nadir is ≥ 30 seconds) of FHR below baseline. Return to baseline associated with a uterine contraction. Nadir of deceleration occurs at the same time as the peak of the contraction. Generally, the onset, nadir, and recovery of the deceleration occur at the same time as the onset, peak and recovery of the contraction.
Late	Visually apparent gradual decrease (onset to nadir is ≥ 30 seconds) of FHR below baseline. Return to baseline associated with a uterine contraction. Nadir of deceleration occurs after the peak of the contraction. Generally, the onset, nadir, and recovery of the deceleration occur after same time as the onset, peak, and recovery of the contraction
Variable deceleration	Visually apparent abrupt decrease (onset to nadir is < 30 seconds) in FHR below baseline. Decrease is ≥ 15 bpm. Duration is ≥ 15 seconds and < 2 minutes.
Prolonged deceleration	Visually apparent abrupt decrease (onset to nadir is < 30 seconds) in FHR below baseline. Decrease is ≥ 15 bpm. Duration is ≥ 2 minutes but < 10 minutes.

Kardiotokografi

- Kardiotokografi merupakan salah satu alat elektronik yang digunakan untuk memantau kesejahteraan janin
- Menilai pola denyut jantung janin dalam hubungannya dengan adanya kontraksi ataupun aktivitas janin



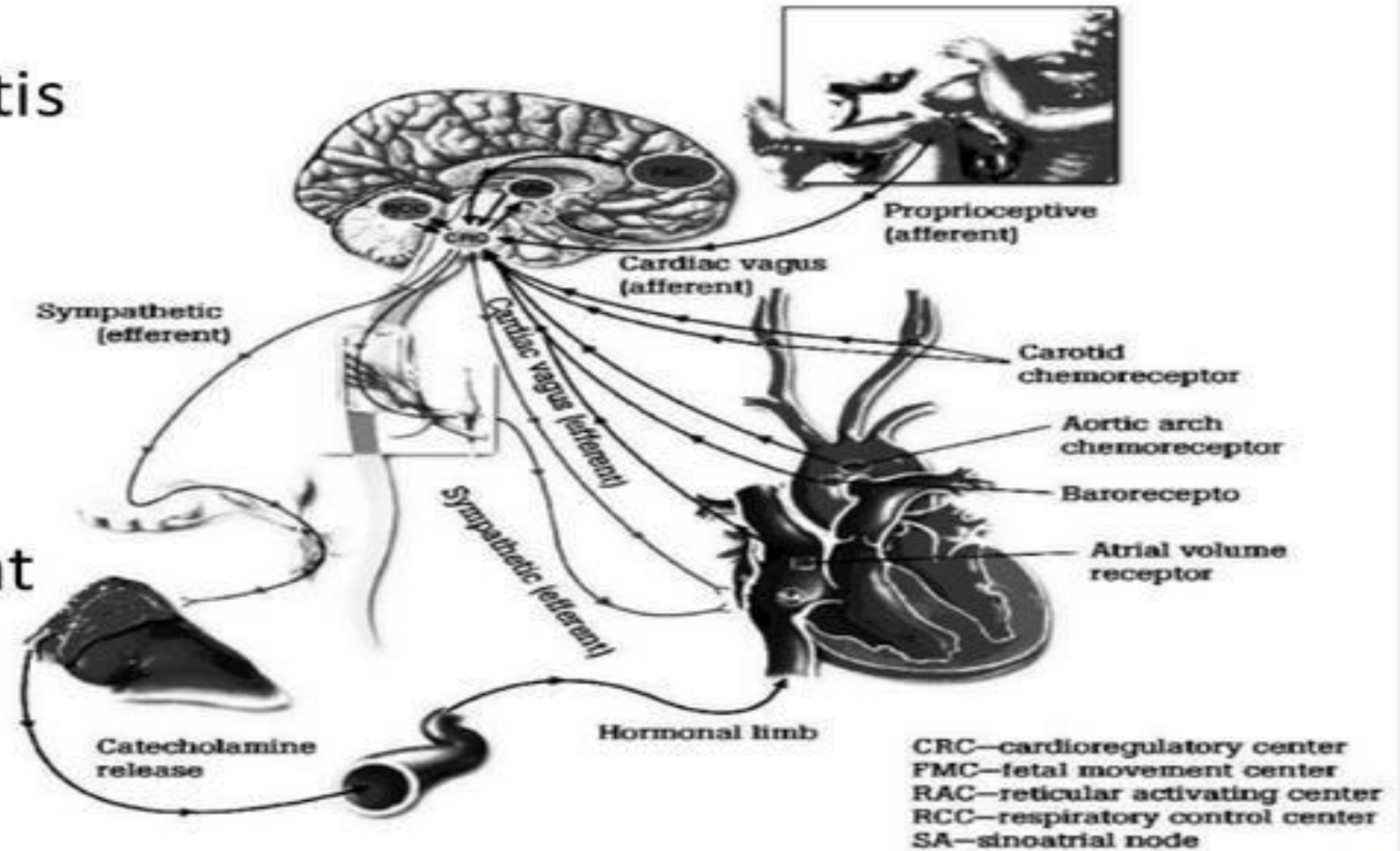
Prinsip dasar KTG



- Mesin telah di standarisasi
- Kecepatan kertas 1 cm permenit
- Alat KTG akan merekam 20 denyut dalam 1 menit/1 cm
- Kertas display yang digunakan memiliki kisaran djj antara 50-210 denyut
- Menghitung denyut jantung ibu
- Menuliskan nama ibu, tanggal dan waktu pemeriksaan pada kertas hasil pemeriksaan KTG

Mekanisme pengaturan DJJ

- Sistem saraf simpatis
- Sistem saraf parasimpatis
- Baroreseptor
- Kemoreseptor
- Susunan saraf pusat
- Sistem hormonal



BACK

Temuan Pada CTG

Baseline : 120 – 160
dpm
Takikardia >160 dpm
Brakikardia <120 dpm

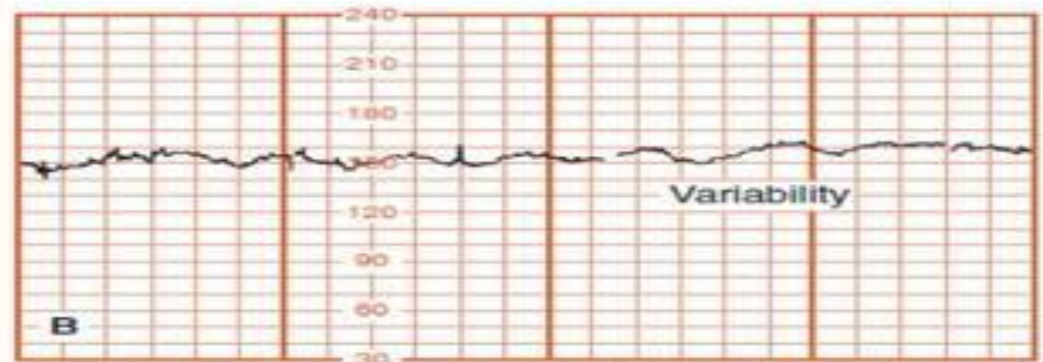
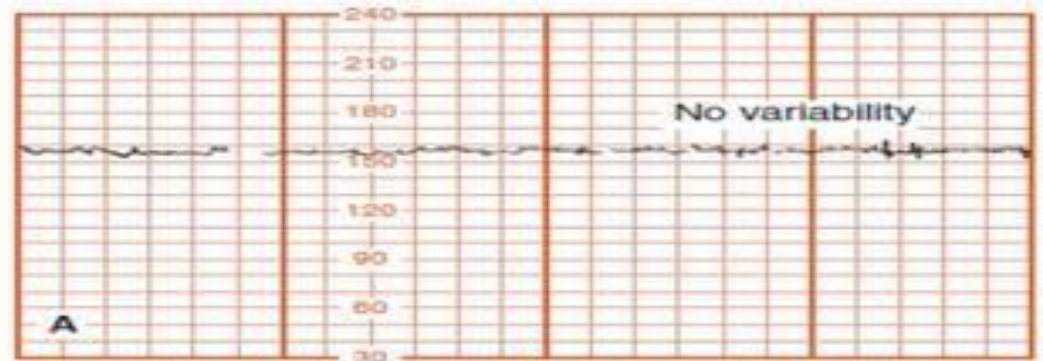
Variabilitas : 6 -25
dpm

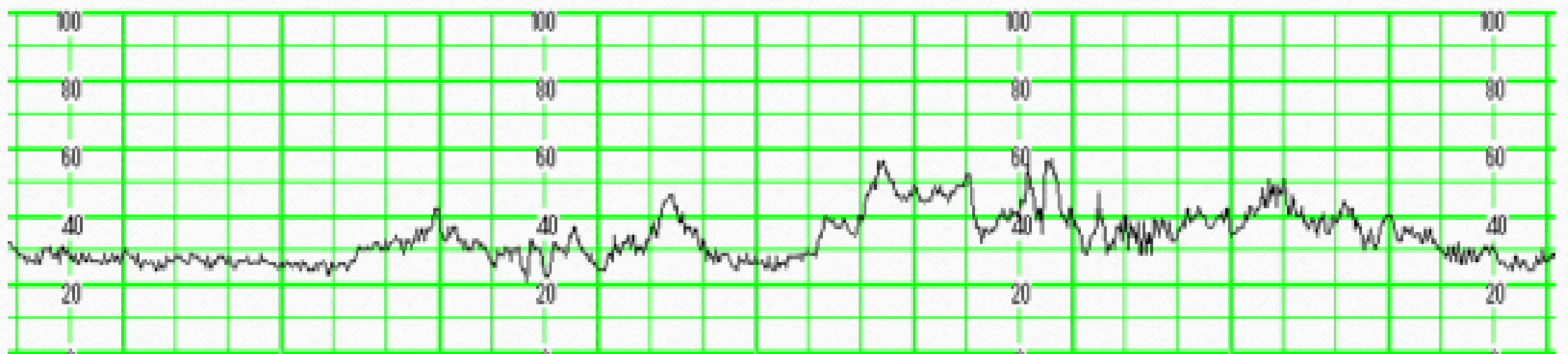
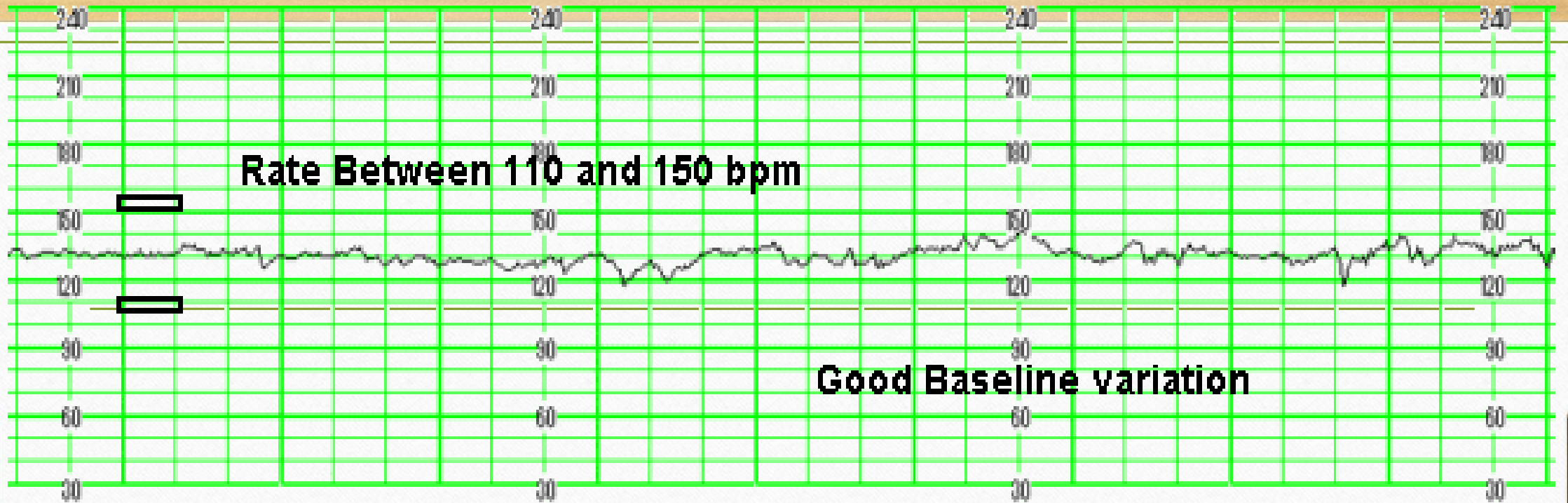
Akselerasi :
Normalnya ada
akselerasi

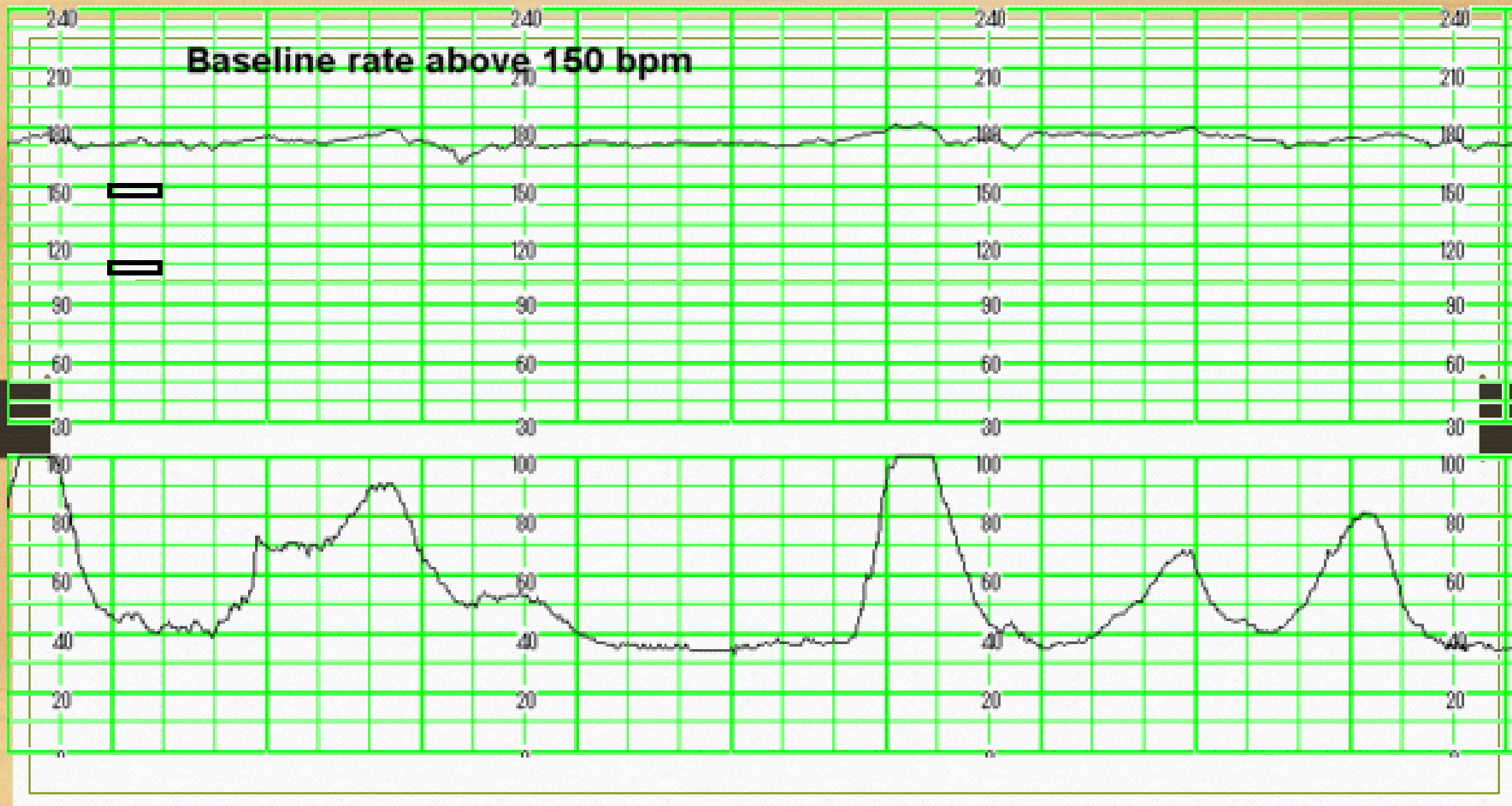
Deselerasi : tidak ada
deselerasi atau hanya
timbul deselerasi dini

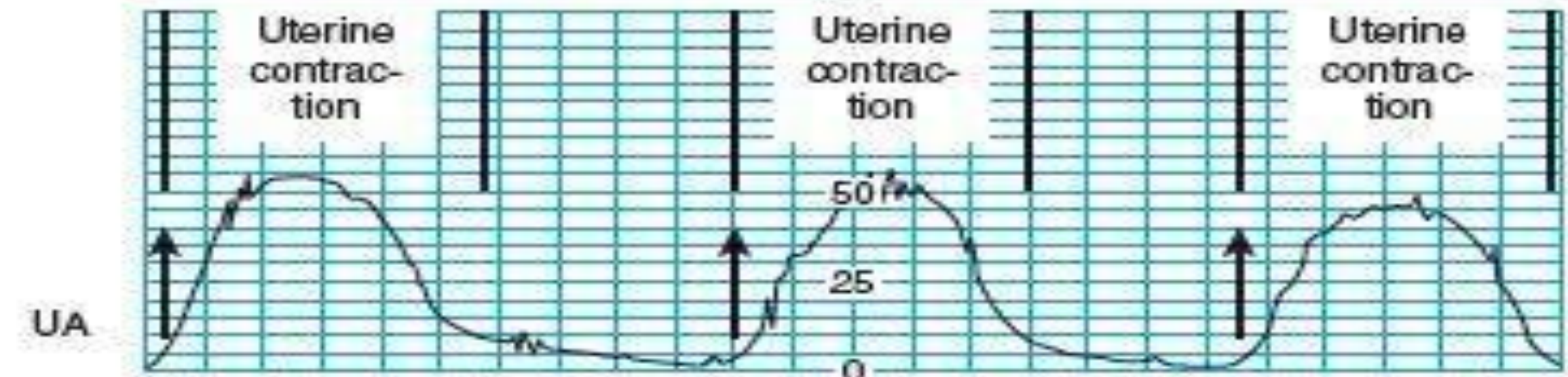
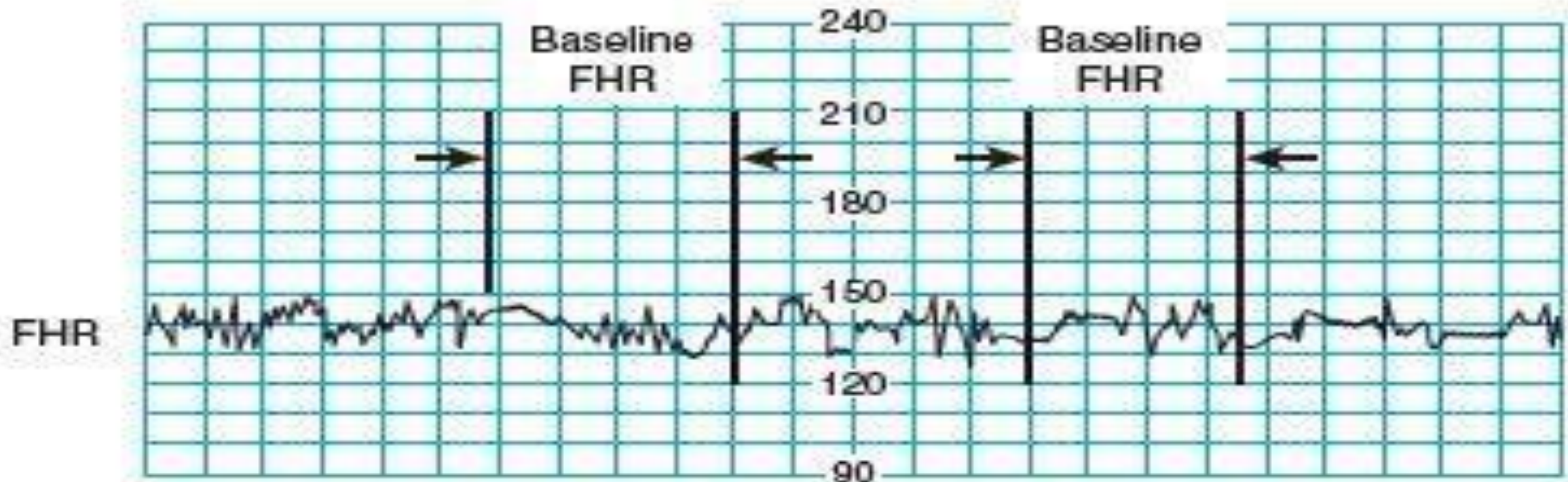
Variabilitas

- Variabilitas menggambarkan sistem persarafan janin
- Penyebab variabilitas rendah selain hipoksia :
 - Janin tidur
 - Kehamilan preterm
 - Janin anensefalus
 - Blokade n.Vagus
 - Kelainan jantung bawaan
 - Obat : narkotik, diazepam, MgSO₄
- Variabilitas :
 - Amplitudo 6-25 dpm : normal
 - Amplitudo 2-5 dpm : berkurang
 - Amplitudo <2 dpm : menghilang
 - Amplitudo >25 dpm : *saltatory*





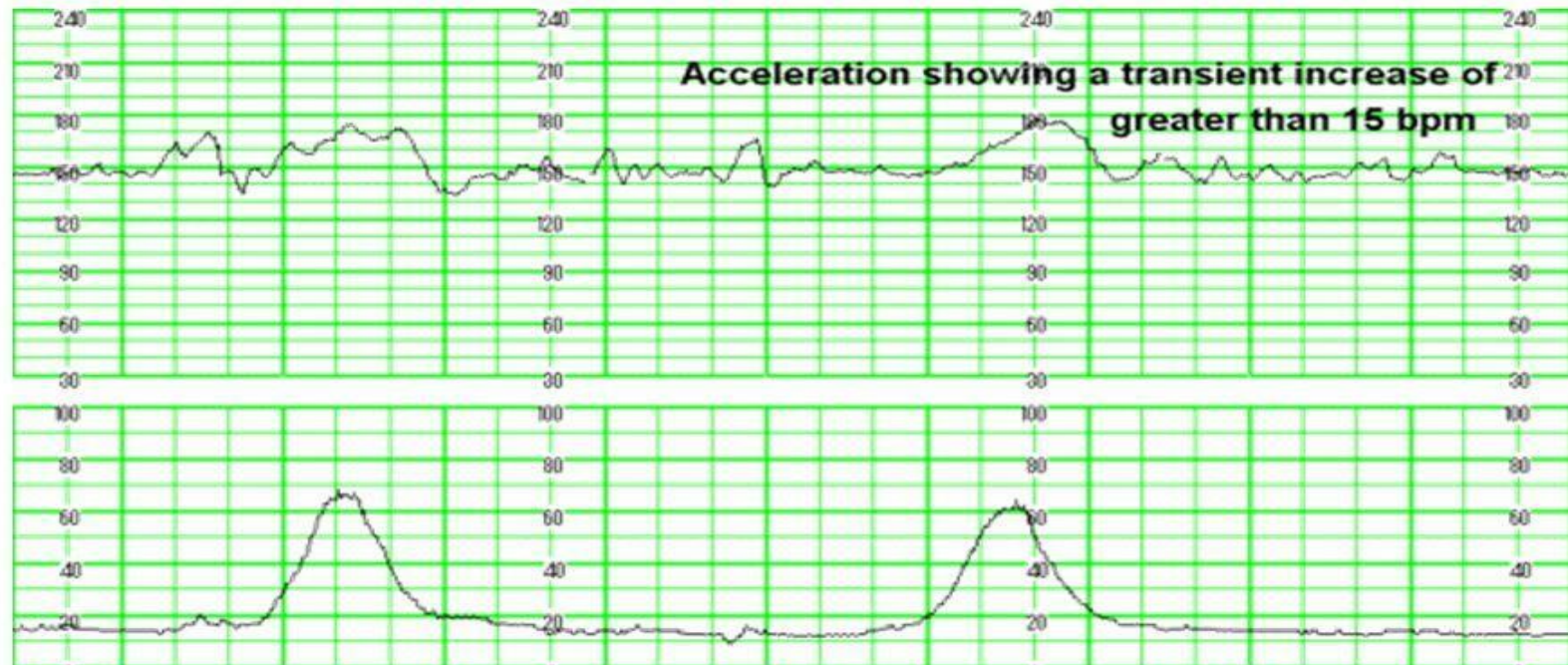




Akselerasi

- Respon simpatik dimana terjadi peningkatan frekuensi DJJ dengan amplitude >15 dpm, selama 15 detik dan terjadi minimal 2x dalam 20 menit

AKSELERASI



Deselerasi

- Respon nervus Vagus (parasimpatis) melalui baroreseptor atau kemoreseptor sehingga terjadi penurunan dij

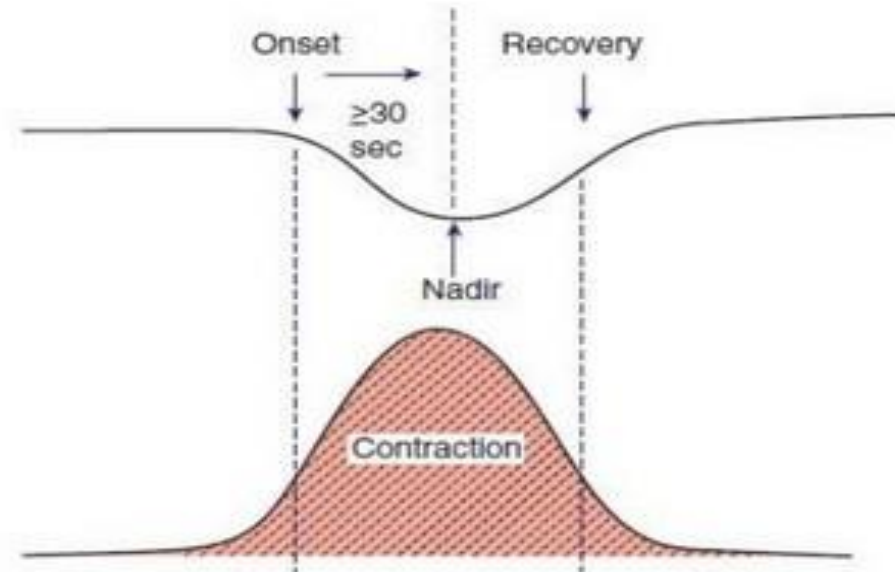
Deselerasi
Dini

Deselerasi
Variabel

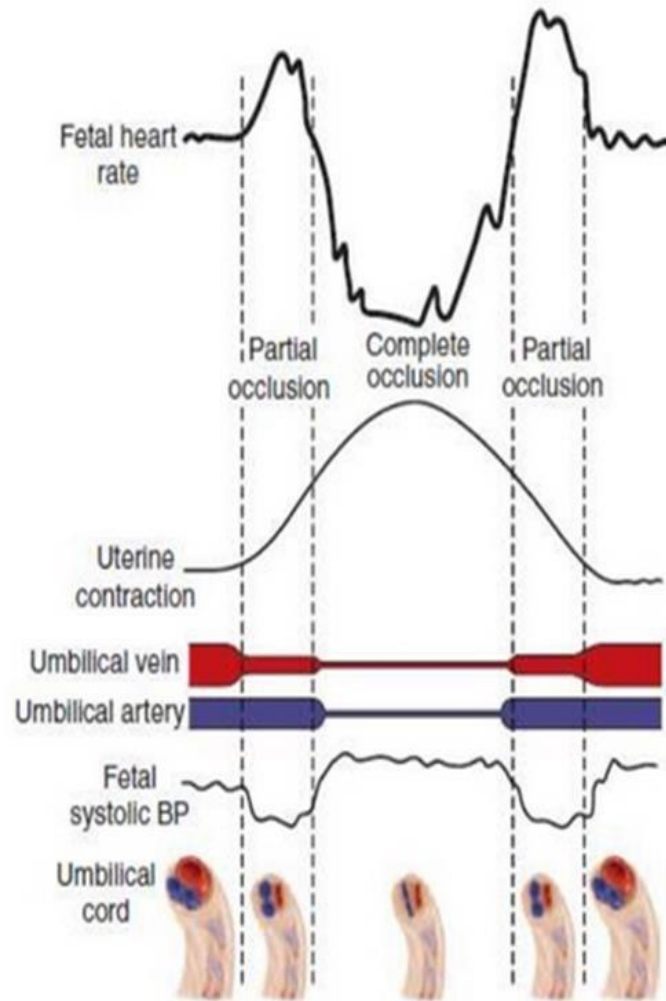
Deselerasi
lambat

Deselerasi dini

- Timbul dan hilang bersama dengan kontraksi uterus
- Amplitudo turun tidak >20 dpm
- Lamanya <90 detik
- baseline dan variabilitas normal



Sering terjadi pada persalinan normal, akibat penekanan kepala janin oleh jalan lahir mengakibatkan hipoksia dan merangsang refleks vagal



Deselerasi variabel

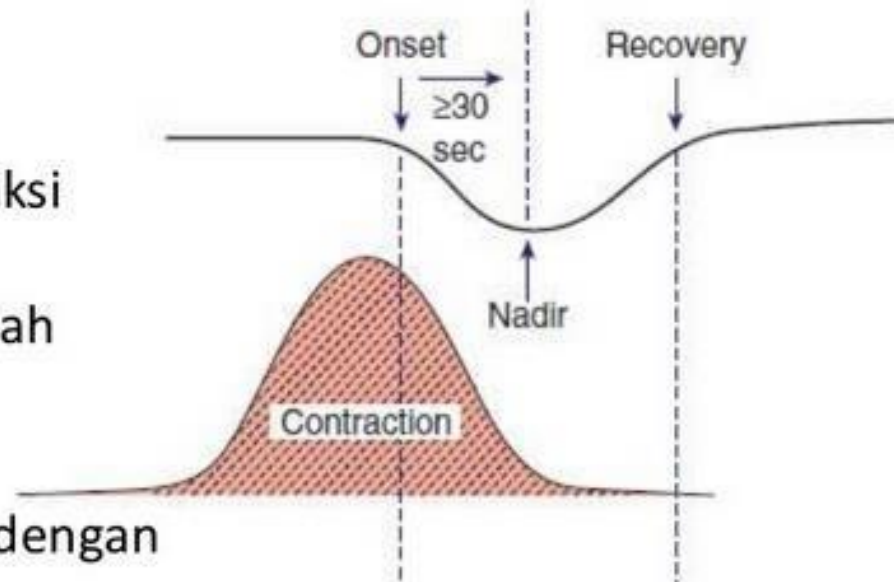
- Gambaran deselerasi yang bervariasi
- Deselerasi terjadi cepat & penurunan frekuensi bisa sampai 60 dpm
- Biasanya terjadi akselerasi sebelum dan sesudah deselerasi
- Deselerasi variabel berat jika mencapai ≥ 60 dpm dgn lama 60 detik
- Bila deselerasi variabel berulang atau memanjang \rightarrow hipoksia janin berlanjut

Penekanan tali pusat selama kehamilan atau kala I, jika variabilitas baik janin tidak mengalami hipoksia yang berarti

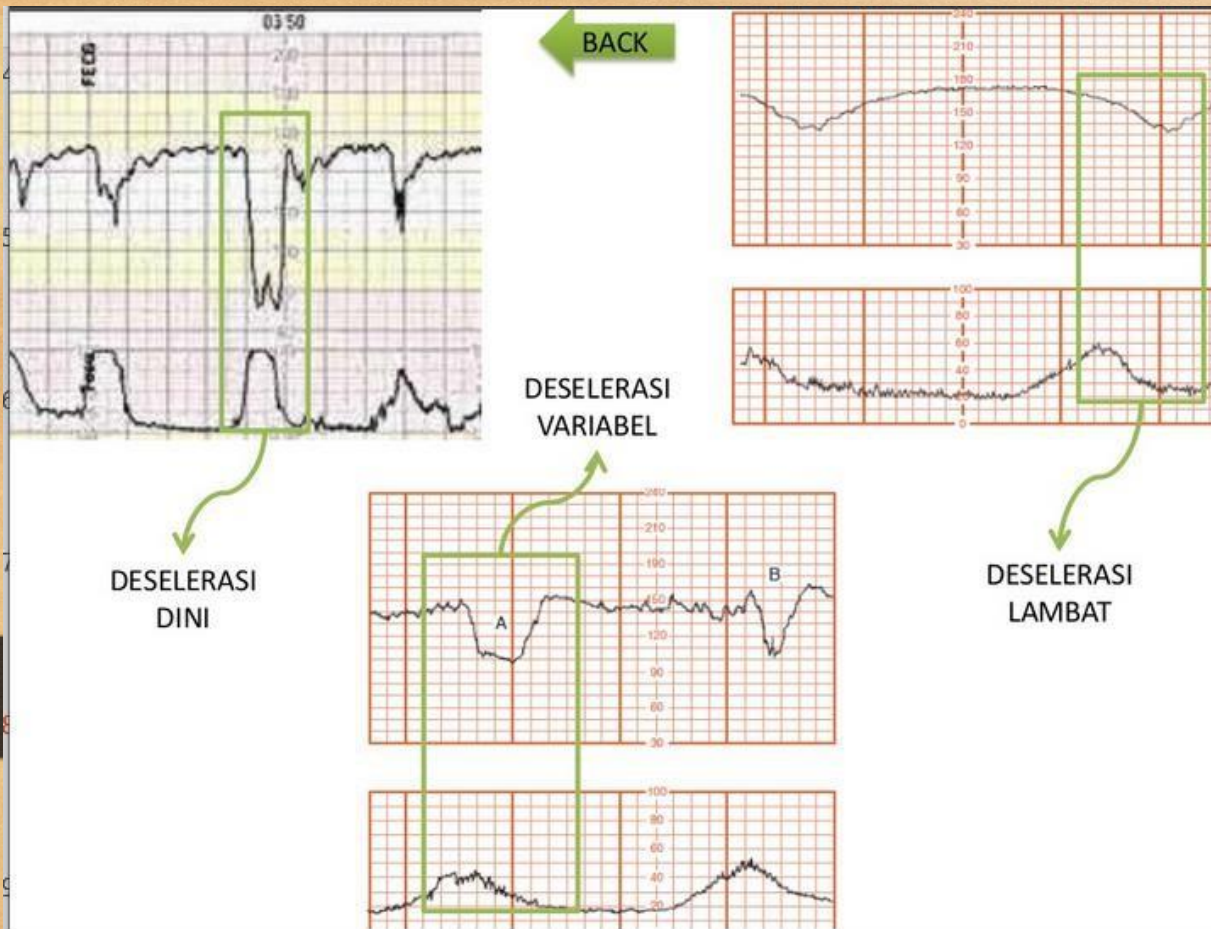
Penurunan aliran darah dari ibu menyebabkan hipoksia janin, jika janin bisa kompensasi tidak ada perubahan CTG, namun kontraksi uterus menyebabkan aliran darah semakin berkurang sehingga merangsang kemoreseptor dan n.Vagus

Deselerasi lambat

- Timbul 20-30 detik setelah kontraksi dimulai
- Berakhir setelah 20-30 detik setelah kontraksi hilang
- Lamanya <90 detik
- Timbul berulang setiap kontraksi dengan intensitas sesuai kontraksi uterus
- DJJ normal atau takikardia ringan, hipoksia berat menjadi bradikardi



Interpretasi penilaian DJJ



Category	Definition
Normal	A CTG where all four features fall into the reassuring category.
Suspicious	A CTG whose features fall into one of the non-reassuring categories and the remainder of the features are reassuring.
Pathological	A CTG whose features fall into two or more non-reassuring categories or one or more abnormal categories.

Feature	Baseline (bpm)	Variability (bpm)	Decelerations	Accelerations
Reassuring	110–160	≥ 5	None	Present
Non-reassuring	100–109 161–180	< 5 for >40 to <90 minutes	Early deceleration Variable deceleration Single prolonged deceleration up to 3 minutes	<i>The absence of accelerations with an otherwise normal CTG are of uncertain significance</i>
Abnormal	<100 >180 Sinusoidal pattern ≥ 10 minutes	<5 for ≥ 90 minutes	Atypical variable decelerations Late decelerations Single prolonged deceleration >3 minutes	

National institute for clinical excellence. The use of electronic fetal monitoring : the use and interpretation of cardiotocography in intrapartum fetal surveillance. London. Mei 2001: 1-10.

Non Stress Test (NST) : Menilai hubungan DJJ dengan aktifitas janin

- **Reassuring** → minimal 2x Gerakan dalam 20 menit, akselerasi 10-15 dpm, baseline 120 – 160, variabilitas 5-25
- **Non reassuring** → tidak ada Gerakan janin selama 20 menit, akselerasi tidak tampak setiap Gerakan janin, variabilitas mungkin masih ada, berkurang atau hilang
- **Meragukan** → Gerakan janin <2x dalam 20 menit, akselerasi <10dpm, baseline 120 -160, variabilitas 6-15
- **Abnormal** → brakikardia, deselerasi 40dpm atau lebih bawah dari baseline atau DJJ sampai 90 dpm lamanya \geq 60 detik

Contraction Stress Test (CST) : Menilai DJJ dalam hubungannya dengan kontraksi Uterus

- Negatif → baseline normal, tidak ada deselerasi lambat, mungkin ada deselerasi dini dan ditemukan akselerasi
- Positif → deselerasi lambat berulang minimal pada 50% dari jumlah kontraksi, deselerasi lambat berulang walaupun kontraksi tidak adekuat, variabilitas berkurang atau menghilang
- Mencurigakan → deselerasi lambat berulang 50% dari jumlah kontraksi, deselerasi variable, baseline abnormal (ulang dalam 24 jam)
- Tidak memuaskan → hasil tidak baik karena ibu terlalu gemuk, gelisah, janin bergerak berlebihan, tidak ada kontraksi uterus yang adekuat (ulang 24 jam)
- Hiperstimulasi → kontraksi uterus >5x dalam 10 menit, lama kontraksi > 90 detik, sering terjadi deselerasi lambat atau brakikardi

Teknik pemeriksaan intrapartum lainnya (pemantauan kesejahteraan janin)

- Pengambilan sampel darah kulit kepala janin
- Stimulasi kulit kepala
- Stimulasi vibroakustik
- Oksimetri nadi janin
- Elektrokardiografi janin
- Velosimetri dopler intrapartum

Distress Janin

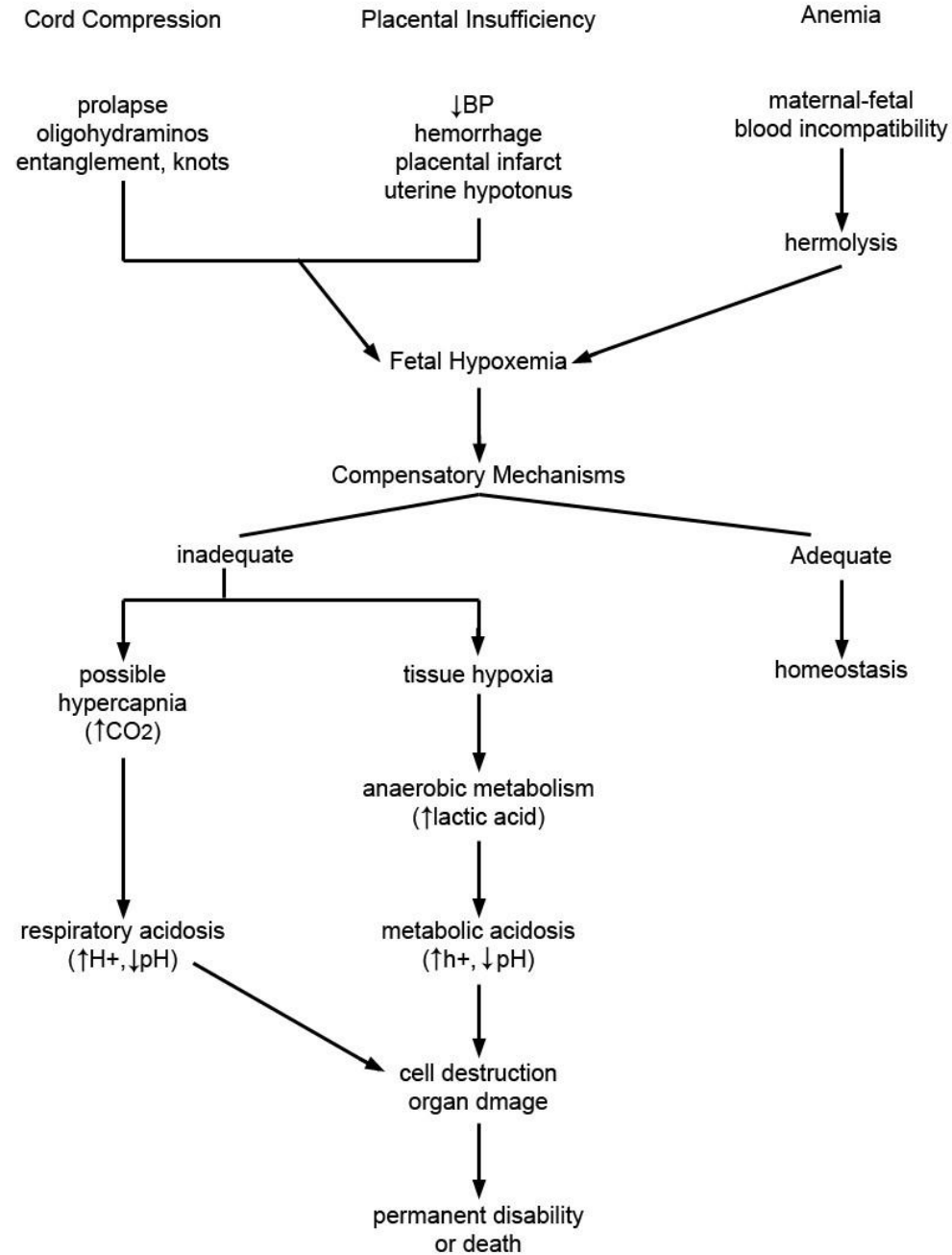
- Kondisi hipoksia pada janin.
- Hipoksia → kekurangan oksigen pada jaringan
- Hipoksemia → kekurangan kadar oksigen dalam darah

- Fetal distress merupakan keadaan ketidakseimbangan antara kebutuhan oksigen dan nutrisi janin sehingga menimbulkan perubahan metabolisme janin menuju metabolisme anaerob yang menyebabkan hasil akhir metabolismenya bukan karbondioksida.

Etiologi fetal distress

1. Insufisiensi uteroplasenta akut
 - a) Aktifitas uterus berlebihan → pemberian uterotonika
 - b) Anasteri epidural
 - c) Kompresi vena kava , posisi terlentang
 - d) Solusio placenta
 - e) Placenta previa dengan persarahan
2. Insufisiensi uteroplasenta kronik
 - a) Hipertensi
 - b) Diabetes melitus
 - c) Postmaturitas
3. Kompresi (penekanan) tali pusat

FETAL DISTRESS



- Pada awal hipoksemia, peningkatan tekanan darah janin akan terjadi karena penyempitan pembuluh darah janin, dan ini mengakibatkan denyut jantung janin melambat dan gangguan pernapasan. Selama hipoksemia sedang, darah yang beredar didistribusikan kembali ke otak, jantung dan adrenal dengan mengorbankan organ perifer (paru-paru, kulit, dll). Selama hipoksemia yang berkepanjangan, aliran darah ke batang otak dipertahankan dan bahkan lebih besar dari itu di daerah otak lainnya. Aktivitas saraf batang otak, pusat otonom, penting untuk kelangsungan hidup janin. Ketika hipoksia berkembang, glukosa dalam metabolisme secara anaerob, konsentrasi laktat meningkat, dan konsentrasi fosfat berenergi tinggi berkurang di otak besar. Ketika metabolisme otak akhirnya runtuh, membran neuron mendepolarisasi, saluran Ca^{+2} yang diberi tegangan terbuka dan fluks Ca^{+2} ke dalam sitoplasma meningkat. Perubahan ini menghasilkan kematian saraf. Diperkirakan bahwa glutamat, radikal oksigen dan zat-zat lain terlibat dalam peningkatan masuknya Ca^{+2} . Stimulasi hipoksia harus dihindari pada janin yang memburuk secara kronis untuk pencegahan kerusakan otak

janin yang tidak dikenali.

Assesment kemajuan persalinan

- Pembukaan jalan lahir
- Penurunan kepala janin
- Selaput ketuban
- Mollase

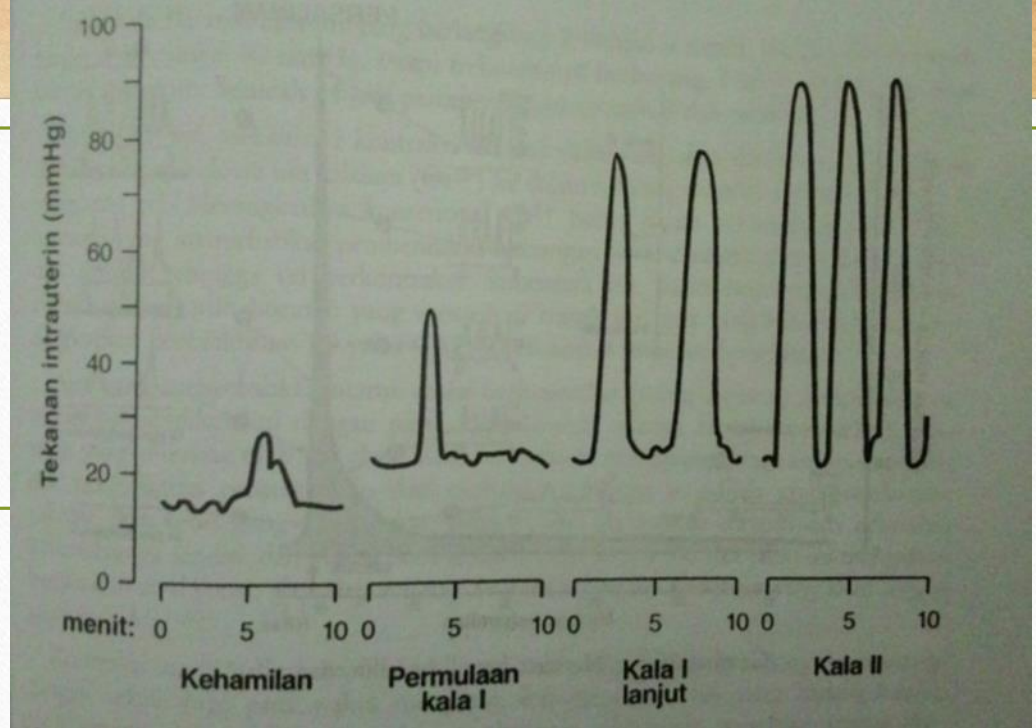
3.2.9 Digital vaginal examination

RECOMMENDATION 16

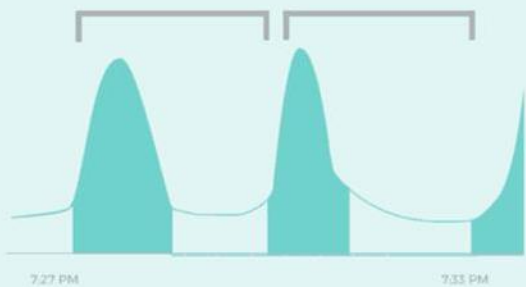
Digital vaginal examination at intervals of four hours is recommended for routine assessment of active first stage of labour in low-risk women. (Recommended)

Pengamatan aktivitas uterus intrapartum

- Frekuensi
- Durasi



Frequency of contractions



Measured as the interval between.
The time between the start of one
contraction and the start of the next.

Duration of a contraction



How long one contraction lasts.
Timed from when the contraction
starts to when it ends.

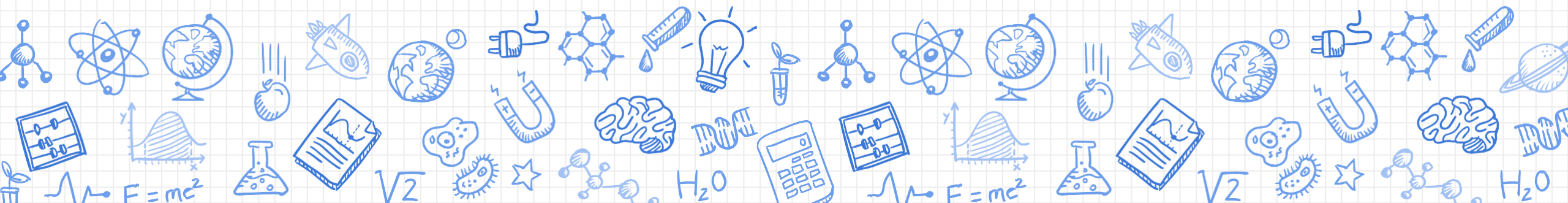
WHO recommendations
**Intrapartum care for
a positive childbirth experience**



BOX 2.1

Positive childbirth experience

Women want a positive childbirth experience that fulfils or exceeds their prior personal and sociocultural beliefs and expectations. This includes giving birth to a healthy baby in a clinically and psychologically safe environment with continuity of practical and emotional support from birth companion(s) and kind, technically competent clinical staff. Most women want a physiological labour and birth, and to have a sense of personal achievement and control through involvement in decision-making, even when medical interventions are needed or wanted.



Summary list of recommendations on intrapartum care for a positive childbirth experience

Care option	Recommendation	Category of recommendation
Care throughout labour and birth		
Respectful maternity care	1. Respectful maternity care – which refers to care organized for and provided to all women in a manner that maintains their dignity, privacy and confidentiality, ensures freedom from harm and mistreatment, and enables informed choice and continuous support during labour and childbirth – is recommended.	Recommended
Effective communication	2. Effective communication between maternity care providers and women in labour, using simple and culturally acceptable methods, is recommended.	Recommended
Companionship during labour and childbirth	3. A companion of choice is recommended for all women throughout labour and childbirth.	Recommended
Continuity of care	4. Midwife-led continuity-of-care models, in which a known midwife or small group of known midwives supports a woman throughout the antenatal, intrapartum and postnatal continuum, are recommended for pregnant women in settings with well functioning midwifery programmes. ^a	Context-specific recommendation

First stage of labour

Definitions of the latent and active first stages of labour

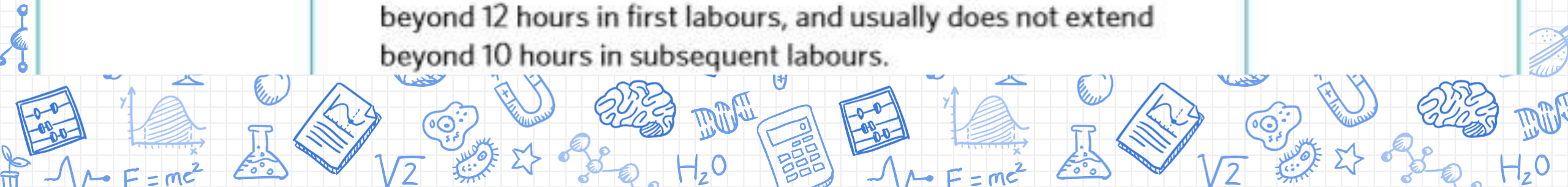
5. The use of the following definitions of the latent and active first stages of labour is recommended for practice.
- The latent first stage is a period of time characterized by painful uterine contractions and variable changes of the cervix, including some degree of effacement and slower progression of dilatation up to 5 cm for first and subsequent labours.
 - The active first stage is a period of time characterized by regular painful uterine contractions, a substantial degree of cervical effacement and more rapid cervical dilatation from 5 cm until full dilatation for first and subsequent labours.

Recommended

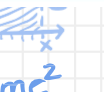
Duration of the first stage of labour

6. Women should be informed that a standard duration of the latent first stage has not been established and can vary widely from one woman to another. However, the duration of active first stage (from 5 cm until full cervical dilatation) usually does not extend beyond 12 hours in first labours, and usually does not extend beyond 10 hours in subsequent labours.

Recommended



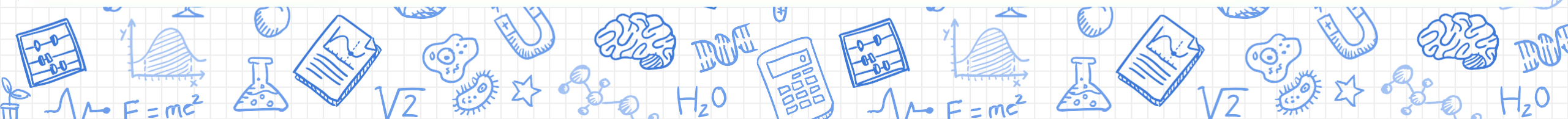
<p>7. For pregnant women with spontaneous labour onset, the cervical dilatation rate threshold of 1 cm/hour during active first stage (as depicted by the partograph alert line) is inaccurate to identify women at risk of adverse birth outcomes and is therefore not recommended for this purpose.</p>	<p>Not recommended</p>
<p>8. A minimum cervical dilatation rate of 1 cm/hour throughout active first stage is unrealistically fast for some women and is therefore not recommended for identification of normal labour progression. A slower than 1-cm/hour cervical dilatation rate alone should not be a routine indication for obstetric intervention.</p>	<p>Not recommended</p>
<p>9. Labour may not naturally accelerate until a cervical dilatation threshold of 5 cm is reached. Therefore the use of medical interventions to accelerate labour and birth (such as oxytocin augmentation or caesarean section) before this threshold is not recommended, provided fetal and maternal conditions are reassuring.</p>	<p>Not recommended</p>



Care option	Recommendation	Category of recommendation
Labour ward admission policy	10. For healthy pregnant women presenting in spontaneous labour, a policy of delaying labour ward admission until active first stage is recommended only in the context of rigorous research.	Research-context recommendation
Clinical pelvimetry on admission	11. Routine clinical pelvimetry on admission in labour is not recommended for healthy pregnant women.	Not recommended
Routine assessment of fetal well-being on labour admission	12. Routine cardiotocography is not recommended for the assessment of fetal well-being on labour admission in healthy pregnant women presenting in spontaneous labour. 13. Auscultation using a Doppler ultrasound device or Pinard fetal stethoscope is recommended for the assessment of fetal well-being on labour admission.	Not recommended Recommended
Perineal/pubic shaving	14. Routine perineal/pubic shaving prior to giving vaginal birth is not recommended. ^a	Not recommended
Enema on admission	15. Administration of enema for reducing the use of labour augmentation is not recommended. ^b	Not recommended

Digital vaginal examination	16. Digital vaginal examination at intervals of four hours is recommended for routine assessment of active first stage of labour in low-risk women. ^a	Recommended
Continuous cardiotocography during labour	17. Continuous cardiotocography is not recommended for assessment of fetal well-being in healthy pregnant women undergoing spontaneous labour.	Not recommended
Intermittent fetal heart rate auscultation during labour	18. Intermittent auscultation of the fetal heart rate with either a Doppler ultrasound device or Pinard fetal stethoscope is recommended for healthy pregnant women in labour.	Recommended
Epidural analgesia for pain relief	19. Epidural analgesia is recommended for healthy pregnant women requesting pain relief during labour, depending on a woman's preferences.	Recommended
Opioid analgesia for pain relief	20. Parenteral opioids, such as fentanyl, diamorphine and pethidine, are recommended options for healthy pregnant women requesting pain relief during labour, depending on a woman's preferences.	Recommended
Relaxation techniques for pain management	21. Relaxation techniques, including progressive muscle relaxation, breathing, music, mindfulness and other techniques, are recommended for healthy pregnant women requesting pain relief during labour, depending on a woman's preferences.	Recommended

Manual techniques for pain management	22. Manual techniques, such as massage or application of warm packs, are recommended for healthy pregnant women requesting pain relief during labour, depending on a woman's preferences.	Recommended
Pain relief for preventing labour delay	23. Pain relief for preventing delay and reducing the use of augmentation in labour is not recommended. ^b	Not recommended
Oral fluid and food	24. For women at low risk, oral fluid and food intake during labour is recommended. ^b	Recommended
Maternal mobility and position	25. Encouraging the adoption of mobility and an upright position during labour in women at low risk is recommended. ^b	Recommended
Vaginal cleansing	26. Routine vaginal cleansing with chlorhexidine during labour for the purpose of preventing infectious morbidities is not recommended. ^a	Not recommended
Active management of labour	27. A package of care for active management of labour for prevention of delay in labour is not recommended. ^b	Not recommended



Care option	Recommendation	Category of recommendation
Routine amniotomy	28. The use of amniotomy alone for prevention of delay in labour is not recommended. ^a	Not recommended
Early amniotomy and oxytocin	29. The use of early amniotomy with early oxytocin augmentation for prevention of delay in labour is not recommended. ^a	Not recommended
Oxytocin for women with epidural analgesia	30. The use of oxytocin for prevention of delay in labour in women receiving epidural analgesia is not recommended. ^a	Not recommended
Antispasmodic agents	31. The use of antispasmodic agents for prevention of delay in labour is not recommended. ^a	Not recommended
Intravenous fluids for preventing labour delay	32. The use of intravenous fluids with the aim of shortening the duration of labour is not recommended. ^a	Not recommended



Second stage of labour

Definition and duration of the second stage of labour

33. The use of the following definition and duration of the second stage of labour is recommended for practice.
- The second stage is the period of time between full cervical dilatation and birth of the baby, during which the woman has an involuntary urge to bear down, as a result of expulsive uterine contractions.
 - Women should be informed that the duration of the second stage varies from one woman to another. In first labours, birth is usually completed within 3 hours whereas in subsequent labours, birth is usually completed within 2 hours.

Recommended

Birth position (for women without epidural analgesia)

34. For women without epidural analgesia, encouraging the adoption of a birth position of the individual woman's choice, including upright positions, is recommended.

Recommended

Birth position (for women with epidural analgesia)

35. For women with epidural analgesia, encouraging the adoption of a birth position of the individual woman's choice, including upright positions, is recommended.

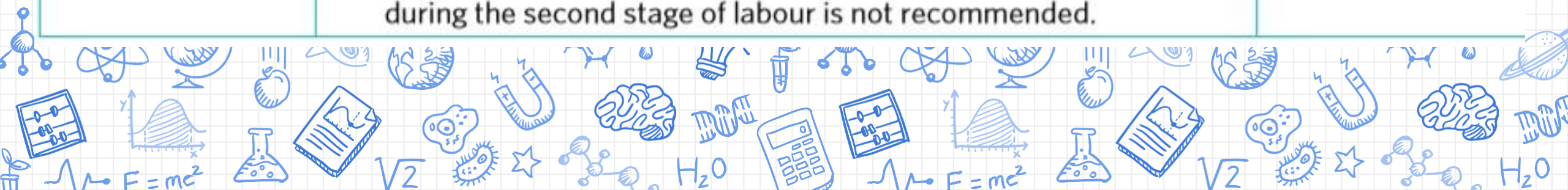
Recommended

Method of pushing

36. Women in the expulsive phase of the second stage of labour should be encouraged and supported to follow their own urge to push.

Recommended

Method of pushing (for women with epidural analgesia)	37. For women with epidural analgesia in the second stage of labour, delaying pushing for one to two hours after full dilatation or until the woman regains the sensory urge to bear down is recommended in the context where resources are available for longer stay in second stage and perinatal hypoxia can be adequately assessed and managed.	Context-specific recommendation
Techniques for preventing perineal trauma	38. For women in the second stage of labour, techniques to reduce perineal trauma and facilitate spontaneous birth (including perineal massage, warm compresses and a "hands on" guarding of the perineum) are recommended, based on a woman's preferences and available options.	Recommended
Episiotomy policy	39. Routine or liberal use of episiotomy is not recommended for women undergoing spontaneous vaginal birth.	Not recommended
Fundal pressure	40. Application of manual fundal pressure to facilitate childbirth during the second stage of labour is not recommended.	Not recommended



Third stage of labour

Prophylactic uterotonics

41. The use of uterotonics for the prevention of postpartum haemorrhage (PPH) during the third stage of labour is recommended for all births.^a
42. Oxytocin (10 IU, IM/IV) is the recommended uterotonic drug for the prevention of postpartum haemorrhage (PPH).^a
43. In settings where oxytocin is unavailable, the use of other injectable uterotonics (if appropriate, ergometrine/methylergometrine, or the fixed drug combination of oxytocin and ergometrine) or oral misoprostol (600 µg) is recommended.^a

Recommended

Recommended

Recommended

Delayed umbilical cord clamping

44. Delayed umbilical cord clamping (not earlier than 1 minute after birth) is recommended for improved maternal and infant health and nutrition outcomes.^b

Recommended

Controlled cord traction (CCT)

45. In settings where skilled birth attendants are available, controlled cord traction (CCT) is recommended for vaginal births if the care provider and the parturient woman regard a small reduction in blood loss and a small reduction in the duration of the third stage of labour as important.^a

Recommended

Uterine massage

46. Sustained uterine massage is not recommended as an intervention to prevent postpartum haemorrhage (PPH) in women who have received prophylactic oxytocin.^a

Not recommended

Care of the newborn

Routine nasal or oral suction	47. In neonates born through clear amniotic fluid who start breathing on their own after birth, suctioning of the mouth and nose should not be performed. ^c	Not recommended
Skin-to-skin contact	48. Newborns without complications should be kept in skin-to-skin contact (SSC) with their mothers during the first hour after birth to prevent hypothermia and promote breastfeeding. ^d	Recommended
Breastfeeding	49. All newborns, including low-birth-weight (LBW) babies who are able to breastfeed, should be put to the breast as soon as possible after birth when they are clinically stable, and the mother and baby are ready. ^e	Recommended
Haemorrhagic disease prophylaxis using vitamin K	50. All newborns should be given 1 mg of vitamin K intramuscularly after birth (i.e. after the first hour by which the infant should be in skin-to-skin contact with the mother and breastfeeding should be initiated). ^d	Recommended
Bathing and other immediate postnatal care of the newborn	51. Bathing should be delayed until 24 hours after birth. If this is not possible due to cultural reasons, bathing should be delayed for at least six hours. Appropriate clothing of the baby for ambient temperature is recommended. This means one to two layers of clothes more than adults, and use of hats/caps. The mother and baby should not be separated and should stay in the same room 24 hours a day. ^f	Recommended

Care of the woman after birth

Uterine tonus assessment	52. Postpartum abdominal uterine tonus assessment for early identification of uterine atony is recommended for all women. ^a	Recommended
Antibiotics for uncomplicated vaginal birth	53. Routine antibiotic prophylaxis is not recommended for women with uncomplicated vaginal birth. ^b	Not recommended
Routine antibiotic prophylaxis for episiotomy	54. Routine antibiotic prophylaxis is not recommended for women with episiotomy. ^b	Not recommended
Routine postpartum maternal assessment	55. All postpartum women should have regular assessment of vaginal bleeding, uterine contraction, fundal height, temperature and heart rate (pulse) routinely during the first 24 hours starting from the first hour after birth. Blood pressure should be measured shortly after birth. If normal, the second blood pressure measurement should be taken within six hours. Urine void should be documented within six hours. ^c	Recommended
Postnatal discharge following uncomplicated vaginal birth	56. After an uncomplicated vaginal birth in a health care facility, healthy mothers and newborns should receive care in the facility for at least 24 hours after birth. ^{c,d}	Recommended



PENUTUP BELAJAR

اللَّهُمَّ أَرِنَا الْحَقَّ حَقًّا وَأَرِزُقْنَا اتِّبَاعَهُ
وَأَرِنَا الْبَاطِلَ بَاطِلًا وَأَرِزُقْنَا اجْتِنَابَهُ

Ya Allah Tunjukkanlah kepada kami kebenaran sehingga kami dapat mengikutinya,

Dan tunjukkanlah kepada kami keburukan sehingga kami dapat menjauhinya.



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