FIGO, RCOG e ACOG a confronto

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Contenuto della presentazione

1. definizioni e categorizzazione dei tracciati
2. cosa le linee guida dovrebbero includere
3. conclusione

ACOG

Table 1. Electronic Fetal Monitoring Definitions

Pattern	Definition
Baseline	• The mean FHR rounded to increments of 5 beats per minute during a 10-minute segment, excluding: —Periodic or episodic changes —Periods of marked FHR variability —Segments of baseline that differ by more than 25 beats per minute • The baseline must be for a minimum of 2 minutes in any 10-minute segment, or the baseline for that time period is indeterminate. In this case, one may refer to the prior 10-minute window for determination of baseline. • Normal FHR baseline: 110–160 beats per minute • Tachycardia: FHR baseline is greater than 160 beats per minute • Bradycardia: FHR baseline is less than 110 beats per minute
Baseline variability	• Fluctuations in the baseline FHR that are irregular in amplitude and frequency • Variability is visually quantitated as the amplitude of peak-to-trough in beats per minute. —Absent—amplitude range undetectable —Minimal—amplitude range detectable but 5 beats per minute or fewer —Moderate (normal)—amplitude range 6–25 beats per minute —Marked—amplitude range greater than 25 beats per minute
Acceleration	• A visually apparent abrupt increase (onset to peak in less than 30 seconds) in the FHR • At 32 weeks of gestation and beyond, an acceleration has a peak of 15 beats per minute or more above baseline, with a duration of 15 seconds or more but less than 2 minutes from onset to return. • Before 32 weeks of gestation, an acceleration has a peak of 10 beats per minute or more above baseline, with a duration of 10 seconds or more but less than 2 minutes from onset to return. • Prolonged acceleration lasts 2 minutes or more but less than 10 minutes in duration. • If an acceleration lasts 10 minutes or longer, it is a baseline change.

ACOG. Obstet Gynecol 2009;114:192-202

ACOG

Early deceleration	• Visually apparent usually symmetrical gradual decrease and return of the FHR associated with a uterine contraction • A gradual FHR decrease is defined as from the onset to the FHR nadir of 30 seconds or more. • The decrease in FHR is calculated from the onset to the nadir of the deceleration. • The nadir of the deceleration occurs at the same time as the peak of the contraction. • In most cases the onset, nadir, and recovery of the deceleration are coincident with the beginning, peak, and ending of the contraction, respectively.
Late deceleration	• Visually apparent usually symmetrical gradual decrease and return of the FHR associated with a uterine contraction • A gradual FHR decrease is defined as from the onset to the FHR nadir of 30 seconds or more. • The decrease in FHR is calculated from the onset to the nadir of the deceleration. • The deceleration is delayed in timing, with the nadir of the deceleration occurring after the peak of the contraction. • In most cases, the onset, nadir, and recovery of the deceleration occur after the beginning, peak, and ending of the contraction, respectively.
Variable deceleration	• Visually apparent abrupt decrease in FHR • An abrupt FHR decrease is defined as from the onset of the deceleration to the beginning of the FHR nadir of less than 30 seconds. • The decrease in FHR is calculated from the onset to the nadir of the deceleration. • The decrease in FHR is 15 beats per minute or greater, lasting 15 seconds or greater, and less than 2 minutes in duration. • When variable decelerations are associated with uterine contractions, their onset, depth, and duration commonly vary with successive uterine contractions.
Prolonged deceleration	• Visually apparent decrease in the FHR below the baseline • Decrease in FHR from the baseline that is 15 beats per minute or more, lasting 2 minutes or more but less than 10 minutes in duration. • If a deceleration lasts 10 minutes or longer, it is a baseline change.
Sinusoidal pattern	• Visually apparent, smooth, sine wave-like undulating pattern in FHR baseline with a cycle frequency of 3–5 per minute which persists for 20 minutes or more.

ACOG. Obstet Gynecol 2009;114:192-202

The 2008 National Institute of Child Health and Human Development Workshop Report on Electronic Fetal Monitoring

Update on Definitions, Interpretation, and Research Guidelines

George A. Macones, MD, Gary D. V. Hankins, MD, Catherine Y. Spong, MD, John Hauth, MD, and Thomas Moore, MD

In April 2008, the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, the American College of Obstetricians and Gynecologists, and the Society for Maternal-Fetal Medicine partnered to sponsor a 2-day workshop to revisit nomenclature, interpretation, and research recommendations for intrapartum electronic fetal heart rate monitoring. Participants included obstetric experts and representatives from relevant stakeholder groups and

See related editorial on page 506.

management of intrapartum fetal compromise.

The definitions agreed upon in that workshop were endorsed for clinical use in the most recent American College of Obstetricians and Gynecologists (ACOG) Practice Bulletin in 2005 and also endorsed by

Macones GA et al. Obstet Gynecol 2008;112:661–6

NICE – RCOG - RCM

NICE National Institute for Health and Care Excellence

Description	Feature		
	Baseline (beats/ minute)	Baseline variability (beats/ minute)	Decelerations
Normal/ reassuring	100–160	5 or more	None or early
Non-reassuring	161–180	less than 5 for 30–90 minutes	Variable decelerations: • dropping from baseline by 60 beats/minute or less **and** taking 60 seconds or less to recover, • present for over 90 minutes • occurring with over 50% of contractions OR Variable decelerations: • dropping from baseline by more than 60 beats/minute **or** taking over 60 seconds to recover • present for up to 30 minutes • occurring with over 50% of contractions OR Late decelerations: • present for up to 30 minutes • occurring with over 50% of contractions
Abnormal	Above 180 or below 100	Less than 5 for over 90 minutes	Non-reassuring variable decelerations (see row above): • still observed 30 minutes after starting conservative measures • occurring with over 50% of contractions OR Late decelerations • present for over 30 minutes • do not improve with conservative measures • occurring with over 50% of contractions OR Bradycardia or a single prolonged deceleration lasting 3 minutes or more
Abbreviation: CTG, cardiotocography.			

NCC-WCH. Intrapartum care, 2014

FIGO consensus guidelines

Fig. 1. Geographic

FIGO consensus guidelines on intrapartum fetal monitoring:

- **Physiology of fetal oxygenation and the main goals of intrapartum fetal monitoring**

  Int J Gynecol Obstet 2015;131:5–8

- **Intermittent auscultation**

  Int J Gynecol Obstet 2015;131:9–12

- **Cardiotocography**

  Int J Gynecol Obstet 2015;131:13–24

- **Adjunctive technologies**

  Int J Gynecol Obstet 2015;131:25-9

Ayres-de-Campos D et al. Int J Gynaecol Obstet 2015;131:3-4

FIGO consensus guidelines

Fig. 1. Geographical representation of the members of the FIGO consensus panel.

Ayres-de-Campos D et al. Int J Gynaecol Obstet 2015;131:3-4

FIGO

Table 1
Cardiotocography classification criteria, interpretation, and recommended management.[a]

	Normal	Suspicious	Pathological
Baseline	110–160 bpm	Lacking at least one characteristic of normality, but with no pathological features	<100 bpm
Variability	5–25 bpm	Lacking at least one characteristic of normality, but with no pathological features	Reduced variability, increased variability, or sinusoidal pattern
Decelerations	No repetitive[b] decelerations	Lacking at least one characteristic of normality, but with no pathological features	Repetitive[b] late or prolonged decelerations during >30 min or 20 min if reduced variability, or one prolonged deceleration with >5 min
Interpretation	Fetus with no hypoxia/acidosis	Fetus with a low probability of having hypoxia/acidosis	Fetus with a high probability of having hypoxia/acidosis
Clinical management	No intervention necessary to improve fetal oxygenation state	Action to correct reversible causes if identified, close monitoring or additional methods to evaluate fetal oxygenation [49]	Immediate action to correct reversible causes, additional methods to evaluate fetal oxygenation [49], or if this is not possible expedite delivery. In acute situations (cord prolapse, uterine rupture, or placental abruption) immediate delivery should be accomplished.

Ayres-de-Campos D et al. Int J Gynaecol Obstet 2015;131:13-24

FCF e variabilità

	normale			*patologico*		
	ACOG	**NICE**	**FIGO**	**ACOG**	**NICE**	**FIGO**
FRH	110-160	100–160	110-160	bradycardia **AND**	<100 o >180	<100
FHR variability	moderate 6–25 bpm	5 bpm or more	5-25 bpm	absent baseline FHR variability **AND** any of the following	<5 per >90’	reduced variability, increased variability, or sinusoidal pattern

Accelerazioni e decelerazioni

normale		
ACOG	NICE	FIGO
• late or variable decelerations: absent • early decelerations: present or absent • accelerations: present or absent	• none or early	• no repetitive decelerations

Accelerazioni e decelerazioni

patologico		
ACOG	**NICE**	**FIGO**
• recurrent late decelerations • recurrent variable decelerations • sinusoidal pattern	non-reassuring variable decelerations (dropping from baseline by 60 bpm or less and taking 60” or less to recover AND present for over 90’) •still observed 30’ after starting conservative measures •occurring with over 50% of contractions **OR** late decelerations •present for over 30’ •do not improve with conservative measures •occurring with over 50% of contractions **OR** bradycardia or a single prolonged deceleration lasting 3’ or more	Repetitive late or prolonged decelerations during >30’ or 20 ‘ if reduced variability, or one prolonged deceleration with >5’

ACOG	NICE	FIGO
Cat. I = FHR normal	if CTG started because of concerns arising from IA, remove CTG after 20' if no non-reassuring or abnormal and no risk factors	no intervention
Cat. II = FHR indeterminate: •evaluation + continued surveillance + reevaluation •either ancillary tests or intrauterine resuscitation	CTG is non reassuring = need for conservative measures CTG is abnormal = need for conservative measures AND further testing	action to correct reversible causes if identified, close monitoring or additional methods to evaluate fetal oxygenation
Cat. III = FHR abnormal •expeditiously resolve the abnormal FHR pattern •not resolve with these measures → delivery	CTG is abnormal = need for urgent intervention	•immediate correction of reversible causes •additional methods to evaluate fetal oxygenation •if not possible → expedite delivery •acute situations →immediate delivery

Contenuto della presentazione

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2. cosa le linee guida dovrebbero includere
3. conclusione

AGREE Reporting Checklist

DOMAIN 3: RIGOUR OF DEVELOPMENT		
7. SEARCH METHODS *Report details of the strategy used to search for evidence.*	☐ Named electronic database(s) or evidence source(s) where the search was performed (e.g., MEDLINE, EMBASE, PsychINFO, CINAHL) ☐ Time periods searched (e.g., January 1, 2004 to March 31, 2008) ☐ Search terms used (e.g., text words, indexing terms, subheadings) ☐ Full search strategy included (e.g., possibly located in appendix)	
8. EVIDENCE SELECTION CRITERIA *Report the criteria used to select (i.e., include and exclude) the evidence. Provide rationale, where appropriate.*	☐ Target population (patient, public, etc.) characteristics ☐ Study design ☐ Comparisons (if relevant) ☐ Outcomes ☐ Language (if relevant) ☐ Context (if relevant)	
9. STRENGTHS & LIMITATIONS OF THE EVIDENCE *Describe the strengths and limitations of the evidence. Consider from the perspective of the individual studies and the body of evidence aggregated across all the studies. Tools exist that can facilitate the reporting of this concept.*	☐ Study design(s) included in body of evidence ☐ Study methodology limitations (sampling, blinding, allocation concealment, analytical methods) ☐ Appropriateness/relevance of primary and secondary outcomes considered ☐ Consistency of results across studies ☐ Direction of results across studies ☐ Magnitude of benefit versus magnitude of harm ☐ Applicability to practice context	
10. FORMULATION OF RECOMMENDATIONS *Describe the methods used to formulate the recommendations and how final decisions were reached. Specify any areas of disagreement and the methods used to resolve them.*	☐ Recommendation development process (e.g., steps used in modified Delphi technique, voting procedures that were considered) ☐ Outcomes of the recommendation development process (e.g., extent to which consensus was reached using modified Delphi technique, outcome of voting procedures) ☐ How the process influenced the recommendations (e.g., results of Delphi technique influence final recommendation, alignment with recommendations and the final vote)	
11. CONSIDERATION OF BENEFITS AND HARMS *Report the health benefits, side effects, and risks that were considered when formulating the recommendations.*	☐ Supporting data and report of benefits ☐ Supporting data and report of harms/side effects/risks ☐ Reporting of the balance/trade-off between benefits and harms/side effects/risks ☐ Recommendations reflect considerations of both benefits and harms/side effects/risks	
12. LINK BETWEEN RECOMMENDATIONS AND EVIDENCE *Describe the explicit link between the recommendations and the evidence on which they are based.*	☐ How the guideline development group linked and used the evidence to inform recommendations ☐ Link between each recommendation and key evidence (text description and/or reference list) ☐ Link between recommendations and evidence summaries and/or evidence tables in the results section of the guideline	

Brouwers MC et al. BMJ 2016;352:i1152

AGREE Reporting Checklist

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- ☐ revisione sistematica
- ☐ multidisciplinarietà
- ☐ criteri inclusione e esclusione prove
- ☐ limiti delle prove
- ☐ rapporto benefici/danni
- ☐ *link* tra prove e raccomandazioni

Brouwers MC et al. BMJ 2016;352:i1152

Limiti delle conoscenze

- eventi avversi rari, soprattutto in popolazioni a basso o medio rischio
- maggior parte degli studi condotti in popolazioni a basso o medio rischio
- decelerazioni tardive e variabili e accelerazioni studiate solo in popolazioni ad alto rischio
- variabilità studiata solo in popolazioni a basso o medio rischio
- *effetto trattamento*
- FCF non è buon surrogato per ipossia e acidosi (può essere influenzata da altri fattori/può non essere influenzato da ipossia)

NCC-WCH. Intrapartum care, 2014

CTG *vs* AI

Number of studies	Design	Number of women or babies		Effect		Quality
		Electronic fetal monitoring	Intermittent auscultation	Relative (95% CI)	Absolute (95% CI) and p value (if reported)	
Mode of birth: caesarean section for fetal distress						
1 meta-analysis of 4 studies (Kelso et al., 1978; Leveno et al., 1986; MacDonald et al., 1985; Vintzileos et al., 1993)	randomised trials	133/14761 (0.9%)	57/14753 (0.39%)	RR 2.28 (1.68 to 3.1)	5 more per 1000 (from 3 more to 8 more)	Low
Intrapartum fetal death						
1 meta-analysis of 3 studies (Leveno et al., 1986; MacDonald et al., 1985; Vintzileos et al., 1993)	randomised trials	3/14564 (0.02%)	4/14566 (0.03%)	RR 0.76 (0.19 to 3.01)	0 fewer per 1000 (from 0 fewer to 1 more)	Moderate
Neonatal death						
1 meta-analysis of 5 studies (Kelso et al., 1978; Leveno et al., 1986; MacDonald et al., 1985; Vintzileos et al., 1993; Wood et al., 1981)	randomised trials	18/15262 (0.12%)	25/15299 (0.16%)	RR 0.72 (0.4 to 1.3)	0 fewer per 1000 (from 1 fewer to 0 more)	Moderate
Neonatal morbidity: cerebral palsy						
1 study (Grant et al., 1989)	randomised trial	12/6527 (0.18%)	10/6552 (0.15%)	RR 1.2 (0.52 to 2.79)	0 more per 1000 (from 1 fewer to 3 more)	Low

NCC-WCH. Intrapartum care, 2014

GRADE di CTG *vs* AI

Quality assessment							Number of women or babies		Effect		
Number of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Electronic fetal monitoring	Intermittent auscultation	Relative (95% CI)	Absolute (95% CI) and p-value (if reported)	Quality
Mode of birth: caesarean section for fetal distress											
1 meta-analysis of 4 studies (Kelso et al., 1978; Leveno et al., 1986; MacDonald et al., 1985; Vintzileos et al., 1993)	randomised trials	serious[7]	no serious inconsistency	serious[6]	no serious imprecision	none	133/14761 (0.9%)	57/14753 (0.39%)	RR 2.28 (1.68 to 3.1)	5 more per 1000 (from 3 more to 8 more)	Low
Intrapartum fetal death											
1 meta-analysis of 3 studies	randomised trials	no serious	no serious	serious[8]	no serious	none	3/14564 (0.02%)	4/14566 (0.03%)	RR 0.76 (0.19 to 3.01)	0 fewer per 1000	Moderate

NCC-WCH. Intrapartum care. Appendix J, 2014

GRADE di accuratezza di CTG

Table 111: Association between categorisation of fetal heart rate traces and adverse neonatal outcomes

Quality assessment						Definition of outcome	Stage of labour	Number of babies with defined FHR patterns	Degree of association or number (percentage) of babies with defined outcome	Quality
Number of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision					
"Pathological" FHR pattern (NICHD classification)										
1 study (Hadar et al., 2001)	Cohort	serious [1]	no serious inconsistency	no serious indirectness	no serious imprecision	umbilical cord artery pH < 7.2 and BD ≥ 12	2nd stage	301	OR 2.86 (95% CI 0.3 to 24.4) P = 0.33	Moderate

NCC-WCH. Intrapartum care, 2014

Rapporti di verosimiglianza

RV+	*RV-*	*utilità*
>10	<0,1	conclusivo
5 - 10	0,1 - 0,2	moderatamente utile
2 - 5	0,2 - 0,5	poco utile
1 - 2	0,5 - 1	molto poco utile
1	1	inutile

Jaeschke R et al. JAMA 1994;271:703-7

Rapporti verosimiglianza +

Figure 237: Reduced variability LR+

NCC-WCH. Intrapartum care. Appendix P, 2014

Rapporti verosimiglianza -

Figure 238: Reduced variability LR-

NCC-WCH. Intrapartum care. Appendix P, 2014

NICE: principi interpretazione CTG

- nella valutazione del tracciato CTG, valutare e documentare tutte le 4 caratteristiche (FCF, variabilità della linea di base, presenza o assenza di decelerazioni, presenza di accelerazioni)

- non è possibile categorizzare o interpretare ogni tracciato CTG

NCC-WCH. Intrapartum care, 2014

NICE raccomandazioni

107. If continuous cardiotocography is needed:

- explain to the woman that it will restrict her mobility, particularly if conventional monitoring is used
- remain with the woman in order to continue providing [one-to-one] support
- ensure that the focus of care remains on the woman rather than the CTG trace
- ensure that the CTG trace is of high quality

NCC-WCH. Intrapartum care, 2014

NICE raccomandazioni

108. Do not make any decision about a woman's care in labour on the basis of CTG findings alone

113-118. Baseline fetal heart rate

119-121. Baseline variability

122-130. Decelerations

131. Accelerations

132-134. Conservative measures

NCC-WCH. Intrapartum care, 2014

Implementazione raccomandazioni

Intrapartum care (QS105)

Quality statement 4: Stopping cardiotocography

Quality statement

Women at low risk of complications who have cardiotocography because of concern arising from intermittent auscultation have the cardiotocograph removed if the trace is normal for 20 minutes.

Rationale

Cardiotocography is offered to women if intermittent auscultation indicates possible fetal heart rate abnormalities. However, cardiotocography that is started for this reason should be stopped if the trace is normal for 20 minutes, because it restricts the woman's movement and can cause labour to slow down. This can lead to a cascade of interventions that may result in adverse birth outcomes.

Quality measures

Structure

Evidence of local arrangements to ensure that women at low risk of complications having cardiotocography because of concern arising from intermittent auscultation have the cardiotocograph removed if the trace is normal for 20 minutes.

Data source: Local data collection.

NICE. Intrapartum care. Quality standard, 2015

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CTG 1937

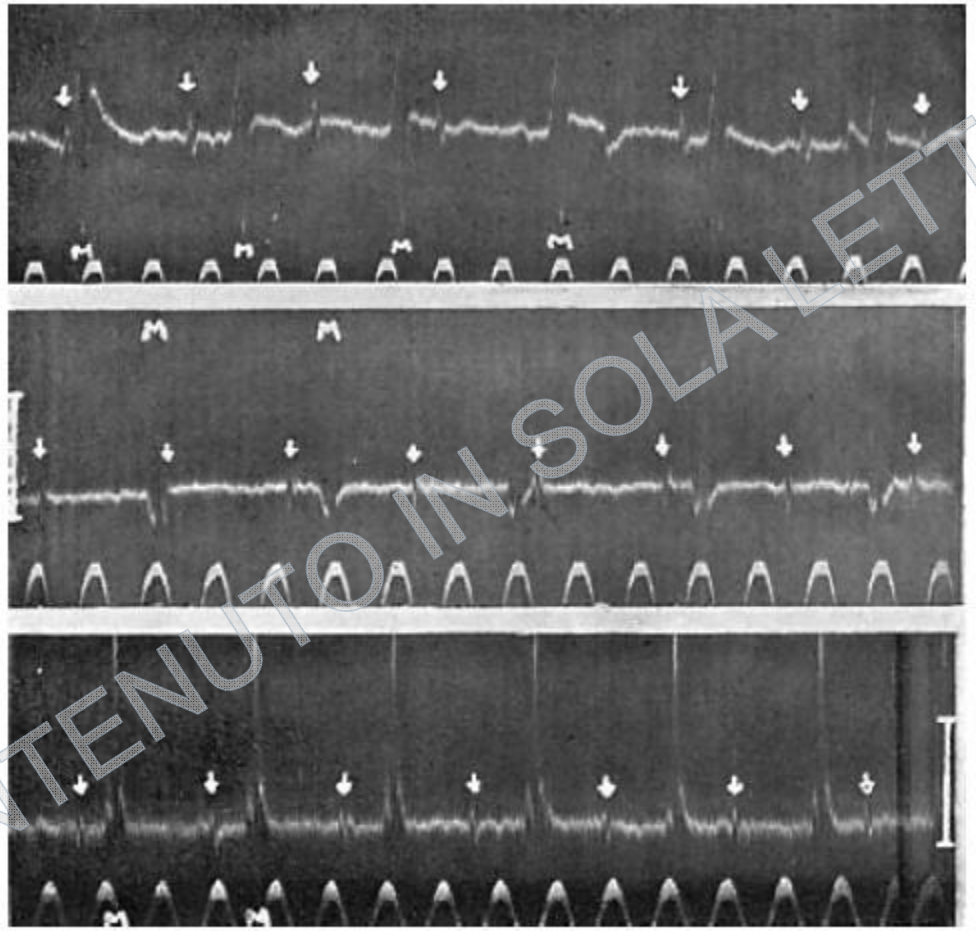
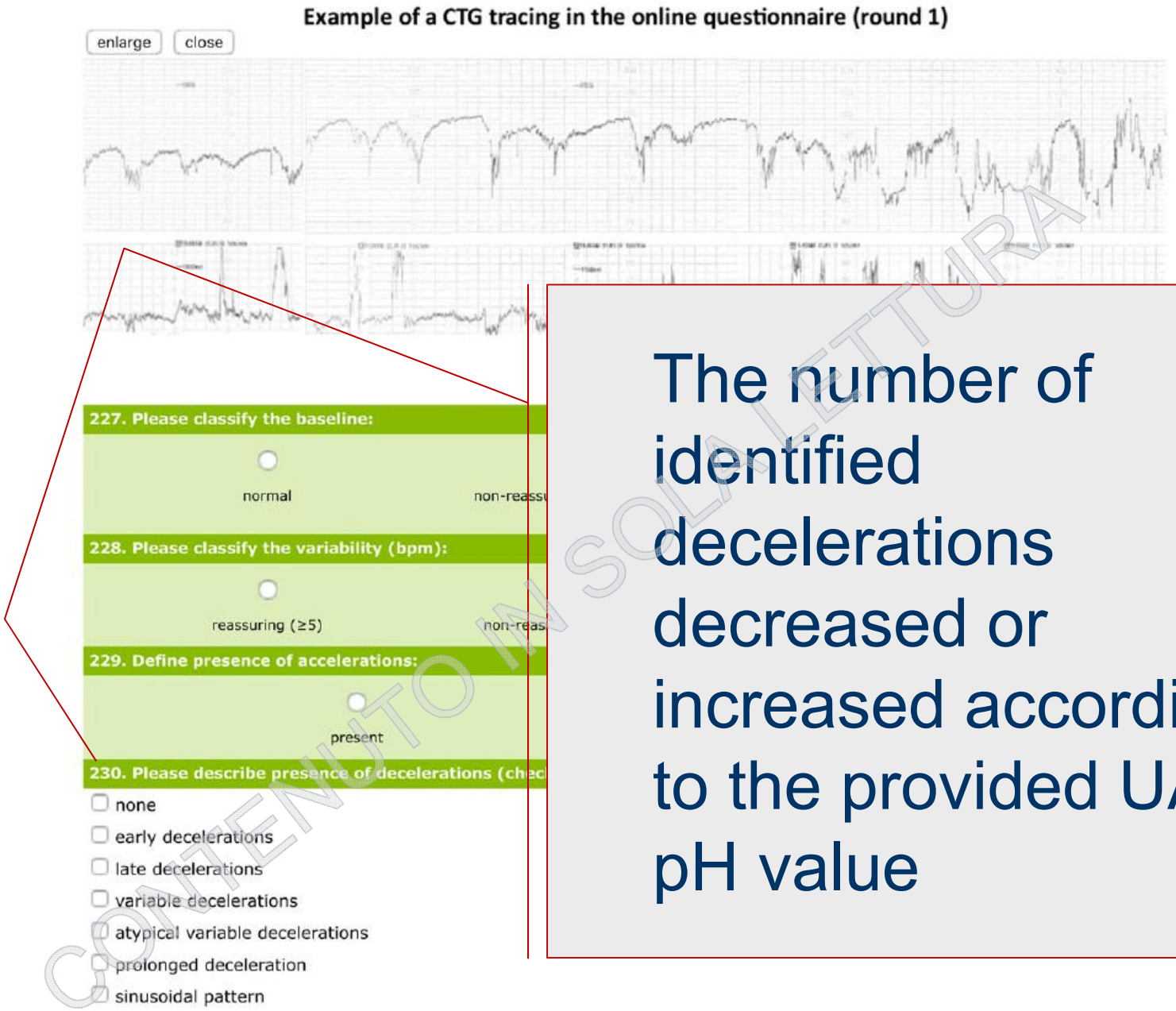


Figure 1. Tracing of three fetuses at term obtained by G. H. Bell in 1937. The arrows indicate the fetal heart activity (deflection) from which he calculated the fetal heart rate. M indicates the maternal heart activity.

Jauniaux E et al. BJOG 2016;123:870

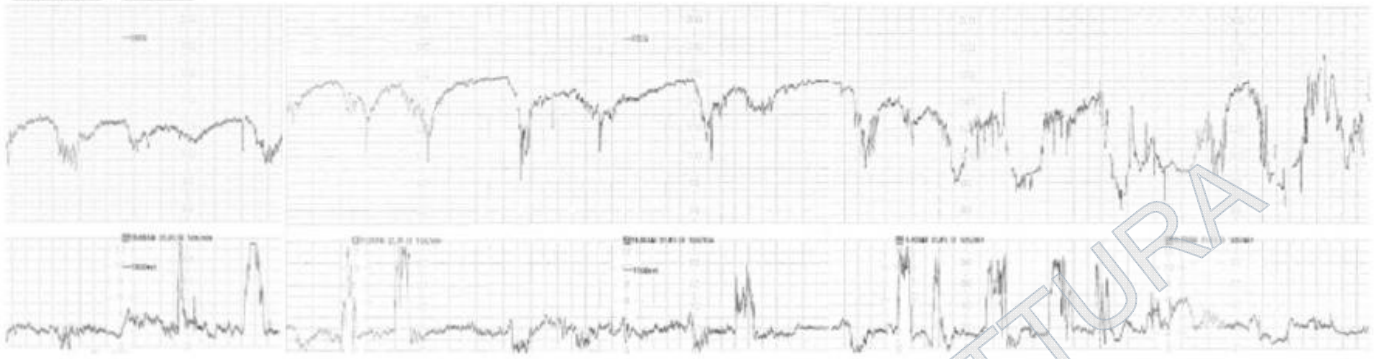


The number of identified decelerations decreased or increased according to the provided UA pH value

Reif P et al. BJOG 16 February 2016 [Epub ahead of print]

Example of a CTG tracing in the online questionnaire (round 1)

enlarge close



227. Please classify the baseline:

- ○ normal
- ○ non-reassuring (100-109 or 161-180 bpm)
- ○ abnormal (<100, >180, Sinusoidal pattern ≥ 10 minutes)

228. Please classify the variability (bpm):

- ○ reassuring (≥5)
- ○ non-reassuring (< 5 for 40–90 minutes)
- ○ abnormal (< 5 for 90 minutes)

229. Define presence of accelerations:

- ○ present
- ○ absent

230. Please describe presence of decelerations (check all that apply):

- ☐ none
- ☐ early decelerations
- ☐ late decelerations
- ☐ variable decelerations
- ☐ atypical variable decelerations
- ☐ prolonged deceleration
- ☐ sinusoidal pattern

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Accordo inter-osservatori

0.230 (0.167–0.293)

0.244 (0.198–0.289)

Tabl… 2, according to profession, years of experience and nationality

			Round 1		Round 2	
			a	95% CI	Kappa	95% CI
Head…				−0.048 to 0.077	0.230	0.167–0.293
Con…				0.034–0.127	0.244	0.198–0.289
Resi…				0.043–0.129	0.192	0.150–0.235
Midw…				0.063–0.141	0.214	0.175–0.253
Obst…				0.042–0.098	0.219	0.191–0.247
Midw…				0.063–0.141	0.214	0.175–0.253
1–5 …				0.045–0.122	0.205	0.166–0.244
5–10…				0.032–0.115	0.190	0.149–0.231
>10 …				0.046–0.123	0.253	0.214–0.291
Austria (Graz)	2148 (27.8)	0.060		0.016–0.103	0.173	0.129–0.217
Austria (Vienna)	499 (6.5)	0.133		0.041–0.225	0.303	0.210–0.397
France (Lille)	832 (10.8)	0.054		−0.015 to 0.122	0.206	0.137–0.275
France (Paris)	412 (5.3)	0.032		−0.066 to 0.131	0.255	0.156–0.353
Germany	663 (8.6)	0.089		0.012–0.167	0.223	0.146–0.300
Belgium	1162 (15.1)	0.075		0.018–0.133	0.249	0.191–0.307
Slovenia	1999 (25.9)	0.114		0.069–0.158	0.221	0.178–0.263
Total	7715 (100)	0.081		0.058–0.104	0.217	0.195–0.240

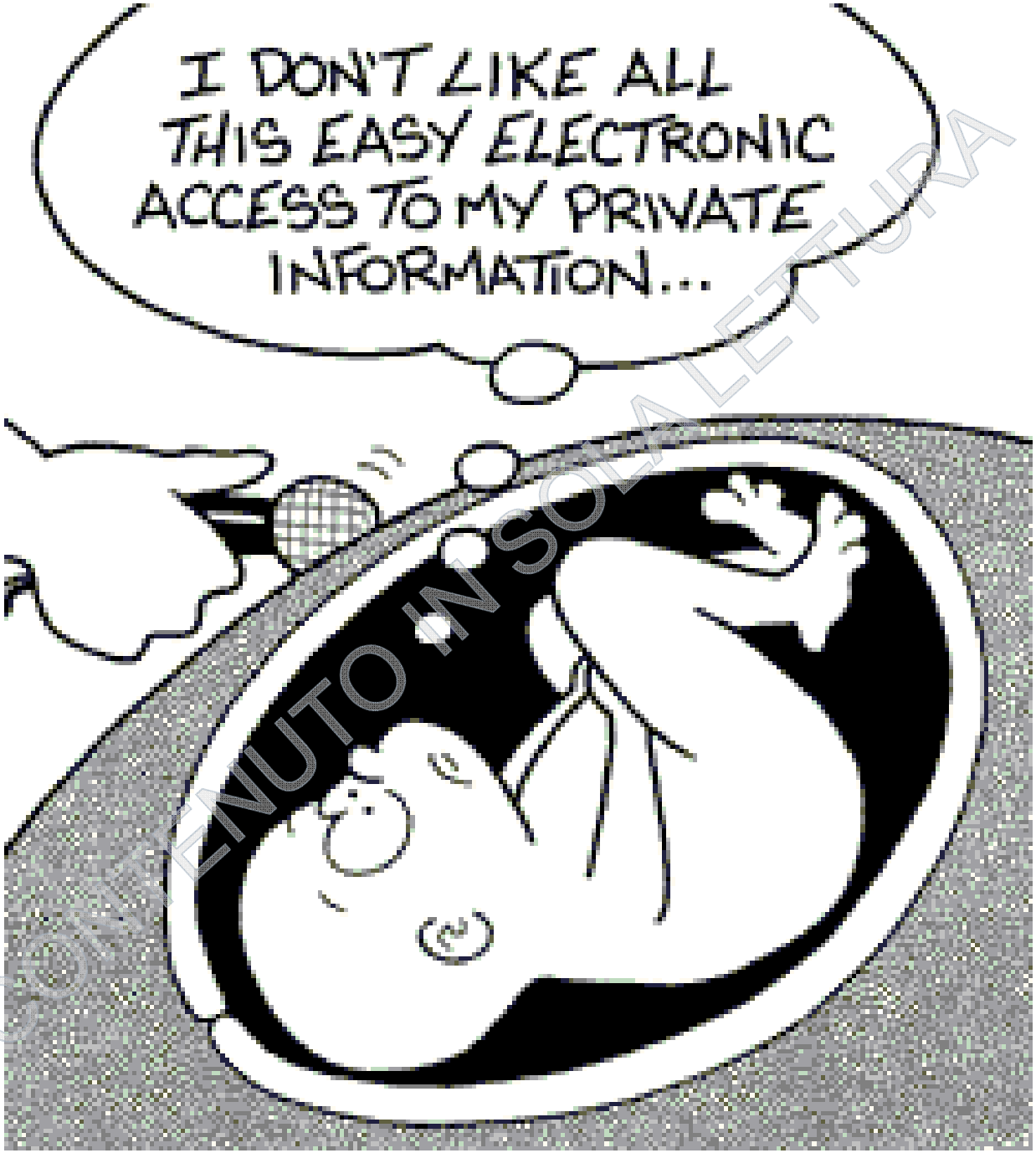
Reif P et al. BJOG 16 February 2016 [Epub ahead of print]

Accordo inter-osservatori

Table 3. Inter-observer agreement kappa in CTG classification for rounds 1 and 2, according to profession, years of experience and nationality

	Number of cases (% of total)	Round 1		Round 2	
		Kappa	95% CI	Kappa	95% CI
Head of obstetric unit	993 (12.9)	0.014	−0.048 to 0.077	0.230	0.167–0.293
Consultant	1909 (24.7)	0.081	0.034–0.127	0.244	0.198–0.289
Resident	2153 (27.9)	0.086	0.043–0.129	0.192	0.150–0.235
Midwife	2660 (34.5)	0.102	0.063–0.141	0.214	0.175–0.253
Obstetricians	5055 (65.5)	0.070	0.042–0.098	0.219	0.191–0.247
Midwives	2660 (34.5)	0.102	0.063–0.141	0.214	0.175–0.253
1–5 years experience	2648 (34.3)	0.084	0.045–0.122	0.205	0.166–0.244
5–10 years experience	2330 (30.2)	0.074	0.032–0.115	0.190	0.149–0.231
>10 years experience	2737 (35.5)	0.085	0.046–0.123	0.253	0.214–0.291
Austria (Graz)	2148 (27.8)	0.060	0.016–0.103	0.173	0.129–0.217
Austria (Vienna)	499 (6.5)	0.133	0.041–0.225	0.303	0.210–0.397
France (Lille)	832 (10.8)	0.054	−0.015 to 0.122	0.206	0.137–0.275
France (Paris)	412 (5.3)	0.032	−0.066 to 0.131	0.255	0.156–0.353
Germany	663 (8.6)	0.089	0.012–0.167	0.223	0.146–0.300
Belgium	1162 (15.1)	0.075	0.018–0.133	0.249	0.191–0.307
Slovenia	1999 (25.9)	0.114	0.069–0.158	0.221	0.178–0.263
Total	7715 (100)	0.081	0.058–0.104	0.217	0.195–0.240

Reif P et al. BJOG 16 February 2016 [Epub ahead of print]



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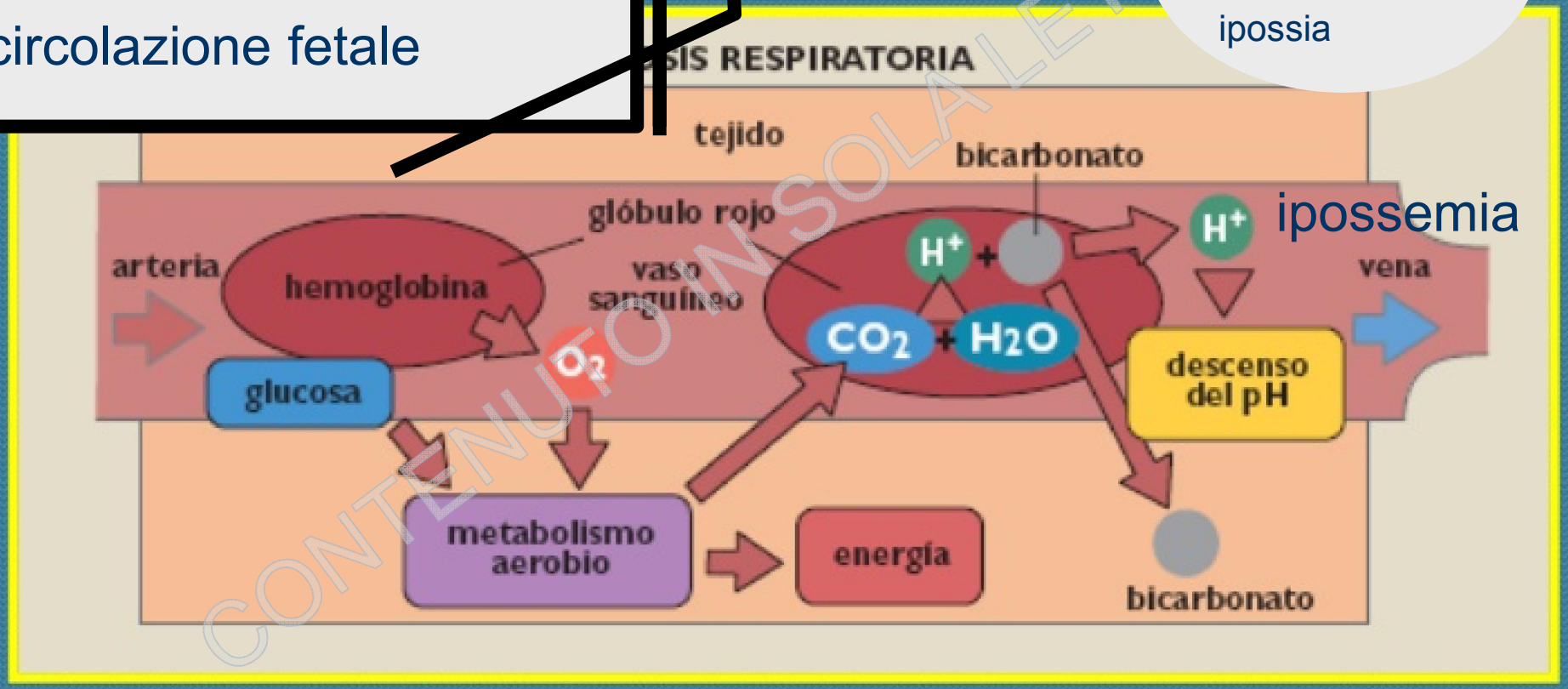

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