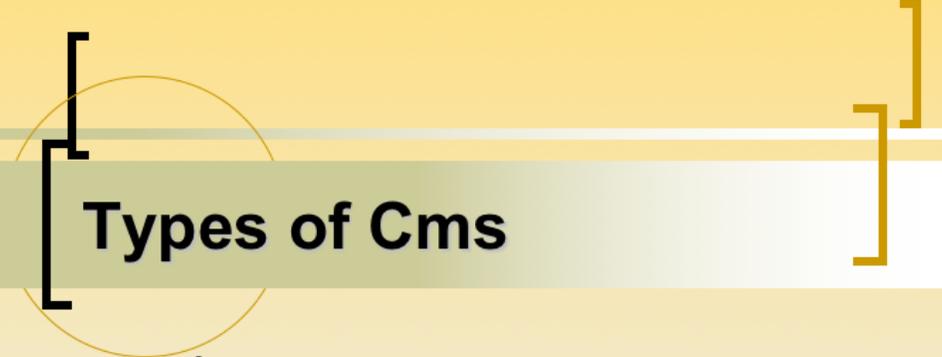


[Agenda]

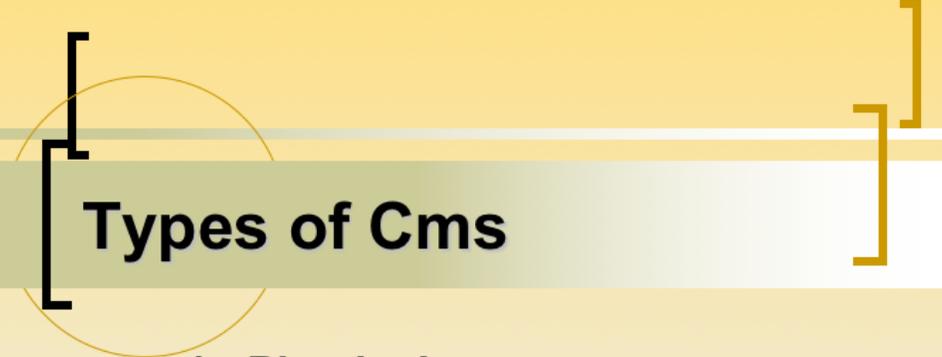
- Sign in Sheet/Registration
- The “signatures”
- New Examiner’s Handbook
- Current Cases
- Demonstrate pREVIEW

A decorative graphic consisting of a large black left square bracket on the left side, a large black right square bracket on the right side, and a thin yellow circle on the left side that overlaps the bottom of the left bracket and the top of the list items below.

Types of Cms

- 1.
- 2.
- 3.
- 4.

For Official Use Only/Law Enforcement Sensitive



Types of Cms

- 1. Physical**
- 2. Mental**
- 3. Pharmacological**
- 4. Behavioral**

For Official Use Only/Law Enforcement Sensitive

Atypical Tracings

- Review of criteria
- All examples are from confirmed cases
- No silver bullets...*yet!*
- Examinee's intent may not have been to produce the actual outcome!

For Official Use Only/Law Enforcement Sensitive

[The Key]

■ What is the key to CM identification?

- A _____ P _____
- F _____
- S _____
- C _____

For Official Use Only/Law Enforcement Sensitive

5

- What is the key to CM features?
 1. Frequency – How often does the activity happen.
 2. Specificity – Where is it happening
 3. Clusters – Do you see multiple features during the examination process.
- Now what? The next phase of this class is to provide real world examples.

[The Key]

- **What is the key to CM identification?**
 - **Atypical Physiology**
 - **Frequency**
 - **Specificity**
 - **Clusters**

For Official Use Only/Law Enforcement Sensitive

6

- What is the key to CM features?
 1. Frequency – How often does the activity happen.
 2. Specificity – Where is it happening
 3. Clusters – Do you see multiple features during the examination process.
- Now what? The next phase of this class is to provide real world examples.

[Pneumograph]

For Official Use Only/Law Enforcement Sensitive

7

Definition:

- An apnea is the ultimate manifestation of respiratory suppression and appears almost exclusively at the bottom of the respiratory cycle.
 - When the apnea occurs at the top or middle of the inhalation they are indicative of deliberate manipulation of respiration.
 - If apnea appears at the bottom of the exhalation tracing on all comparison questions consider CM activity.
 - Apneas sometimes have sudden onsets, but instant recoveries should be viewed with caution.
 - True apneas are frequently observed at the relevant questions, but are elicited far less often for comparison questions.
 - One way to discern true from false apneas is whether the trailing respiratory recovery is gradual or immediate.

[False Apnea]

- **True apnea** (blocking) is rare. Occurs more often at RQs than at CQs.
- High frequency of blocking at CQs may indicate CM activity.
- **False apnea** (holding) occurs at other than the bottom of the tracing.
- May have unnatural recovery.

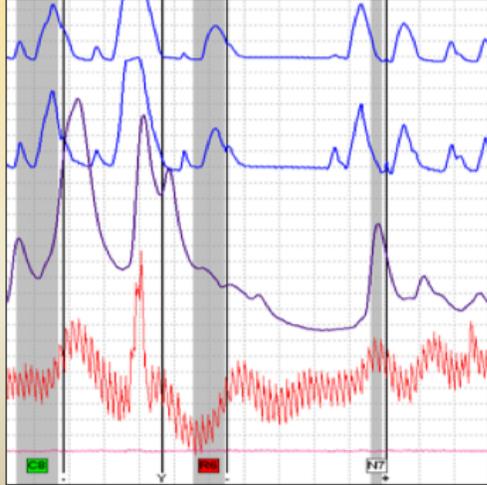
For Official Use Only/Law Enforcement Sensitive

8

Definition:

- An apnea is the ultimate manifestation of respiratory suppression and appears almost exclusively at the bottom of the respiratory cycle.
 - When the apnea occurs at the top or middle of the inhalation, it may be indicative of deliberate manipulation of respiration.
 - If apnea appears at the bottom of the exhalation tracing on several comparison questions, consider CM activity.
 - Apneas sometimes have sudden onsets, but instant recoveries should be viewed with caution.
 - True apneas are frequently observed at the relevant questions, but are elicited far less often for comparison questions.
 - One way to discern true from false apneas is whether the trailing respiratory recovery is gradual or immediate.

[True Apnea]

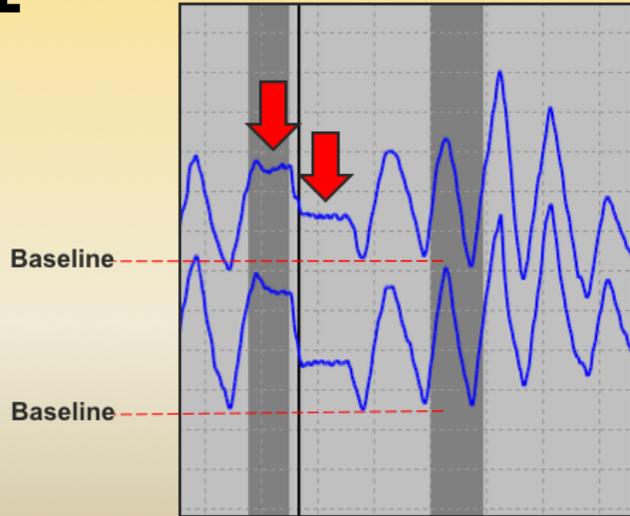


- Rare! Why?
- More often seen at RQs than at CQs.
- High frequency at CQs may indicate Cms.

For Official Use Only/Law Enforcement Sensitive

9

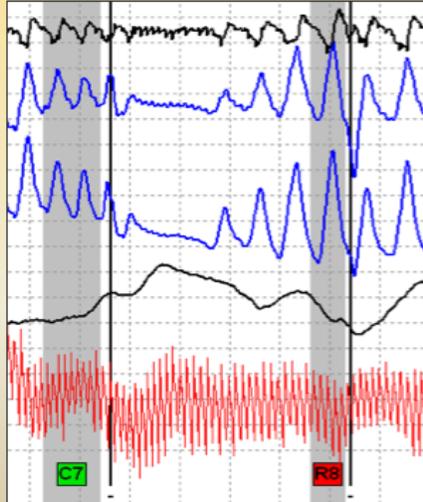
[False Apnea]



For Official Use Only/Law Enforcement Sensitive

10

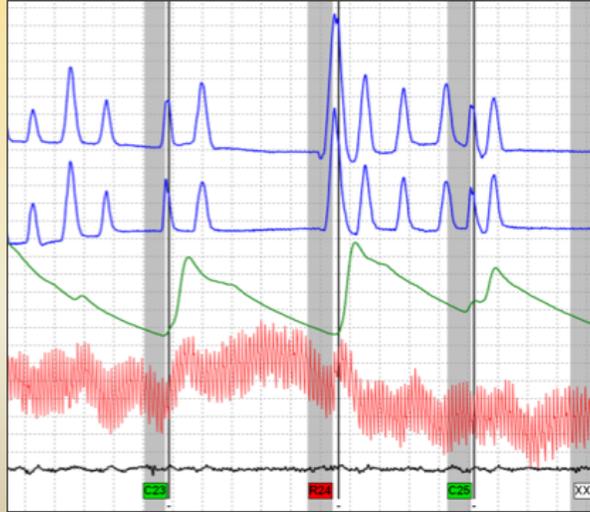
[False Apnea]



For Official Use Only/Law Enforcement Sensitive

11

[False Apnea]



For Official Use Only/Law Enforcement Sensitive

12

Exaggerated Exhalation Cycle

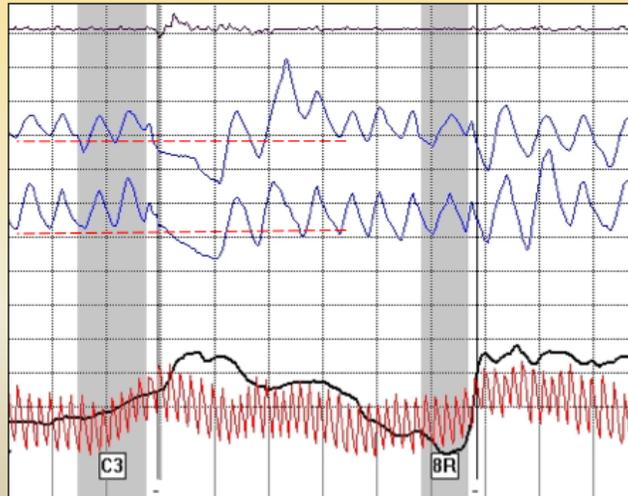
- **Similar to false apnea**
- **One cycle of drawn-out exhalation**
- **Often falling below the baseline**
- **May be followed by a single DB**

For Official Use Only/Law Enforcement Sensitive

13

- Some of the previous slides contained at least one channel of “exaggerated exhalation”.
- We will sometimes see in a true response a rate change where after the answer breathing slows for several cycles.
- Exaggerated exhalation is considered false apnea because after the answer there is a sharp or drawn out exhalation followed by an immediate return to a deep breath and/or normal breathing.

Exaggerated Exhalation Cycle

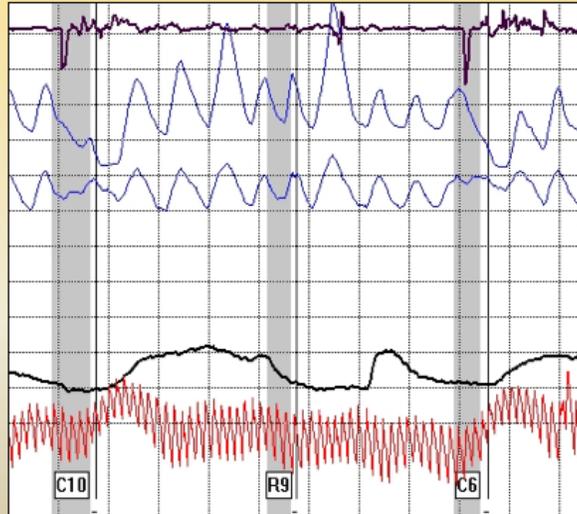


For Official Use Only/Law Enforcement Sensitive

14

Left slide: Exaggerated exhalation cycle falling below the baseline. The upper pneumo moves up with a deep breath. Both channels form a new baseline.
Right Slide: This CM is a toe press. Note the lower pneumo channel falling well below the baseline.

Exaggerated Exhalation Cycle



For Official Use Only/Law Enforcement Sensitive

15

•Left Slide: Note that the exhalation of the pneumograph channel at the comparison question and the relevant question is similar. Additionally, the exhalation cycle does not fall below the baseline.

-If the sensor cushion were not present it would be difficult to make a CM determination based on this specific criterion.

-Note the “answer-like distortions.”

-Right Slide: The exaggerated exhalation falls below the baseline in the upper pneumo channel of both comparison questions with false apnea in the lower pneumo channels. Note the sharp cardio at both comparison questions.

[Hyperventilation—Two Types]

- 90% breathe 10 to 23 cycles/minute.
- Gauge normal breathing rate by...?
- 20% faster is an indication.
- Significant amplitude *increase* also indicative of hyperventilation.

For Official Use Only/Law Enforcement Sensitive

16

- A global analysis is required to determine why hyperventilation is occurring.
- On a DLC exam hyperventilation in the form of increased amplitude may be the result of DLC breathing; however, it could also be the result of CM activity.
- If it occurs only at the comparison questions in a PLC format it is CM activity.
- If it appears throughout an exam it might be CM activity, but it might also be that examinee is hiding a relevant or comparison question issue.

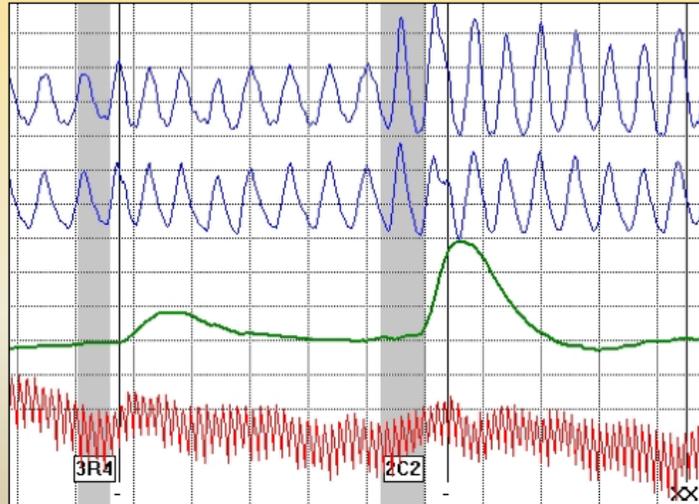
Hyperventilation



For Official Use Only/Law Enforcement Sensitive

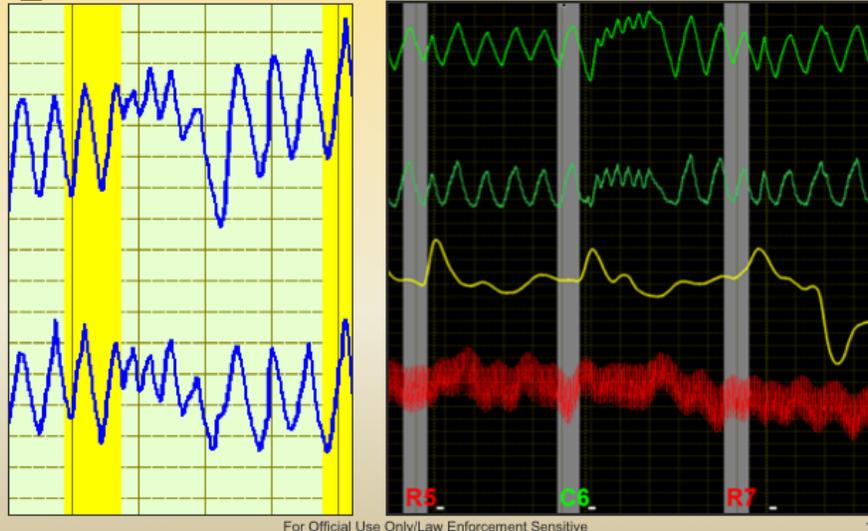
17

[Hyperventilation]



- This is an example of increased amplitude at the comparison question.
- If occurring at all of the comparison questions in a Directed Lie test this could be DLC breathing or CM activity. (Discuss).
- If this activity only occurred at the comparison questions during a PLC exam consider CM activity.

[Hyperventilation]



- Left Slide: Hyperventilation in the pneumos. Change of baseline in the pneumos.
- Right Slide: Hyperventilation in the pneumo with baseline change. Tachycardia, prolonged response, and late secondary cardio.

Misplaced or Multiple Answer-Like Distortions

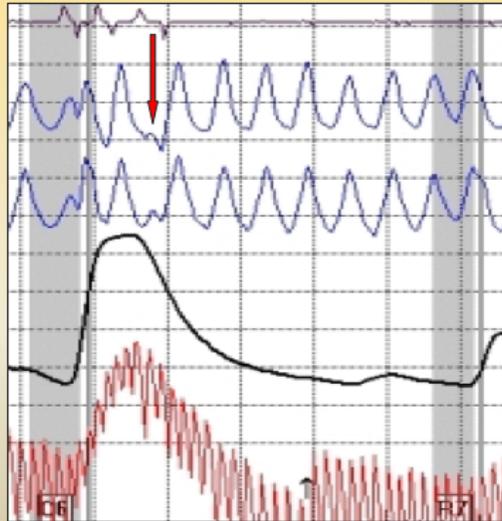
- **Answer distortion normally on exhalation side.**
- **Should be timely and accurately marked!**
- **Look for answer with immediate inhalation depicting a crown or horns.**
- **May also see sharp increase in blood volume.**

For Official Use Only/Law Enforcement Sensitive

20

- The answer distortion is normally located anywhere on the exhalation stroke from the top of the cycle to the bottom of the cycle.
- The answer distortion should line up with the answer mark on the polygraph chart. The answer should be timely with all the other answers throughout the exam.
- The depiction of the crown or horns may be an indicator of CM activity. Once again must look globally. If occurring at all or most of the questions (Irrelevant, relevant & comparison) it may be normal activity. If only occurring at the comparison questions or irrelevant questions if identified as comparisons then suspect. Additionally, if the crown appears more than once across the asking it is suspect.
- If the pneumo activity is accompanied by a sharp increase in cardio activity particularly with a secondary rise in the cardiograph – suspect.

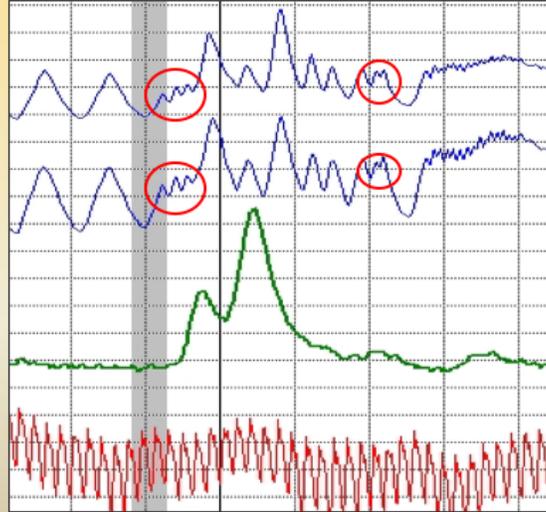
Misplaced or Multiple Answer-Like Distortions



For Official Use Only/Law Enforcement Sensitive

21

Misplaced or Multiple Answer-Like Distortions



For Official Use Only/Law Enforcement Sensitive

22

[Loss of Parallelism]

- Diverging or converging
- Slight or exaggerated
- Usually accompanied by other signatures

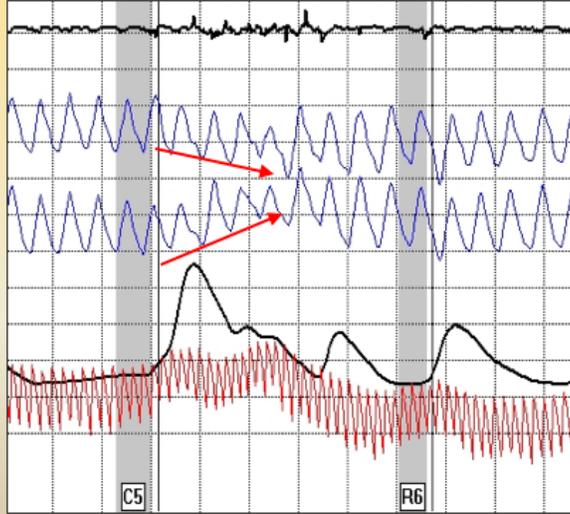
[Loss of Parallelism]



For Official Use Only/Law Enforcement Sensitive

24

[Loss of Parallelism]



For Official Use Only/Law Enforcement Sensitive

25

[**New Permanent Baseline**]

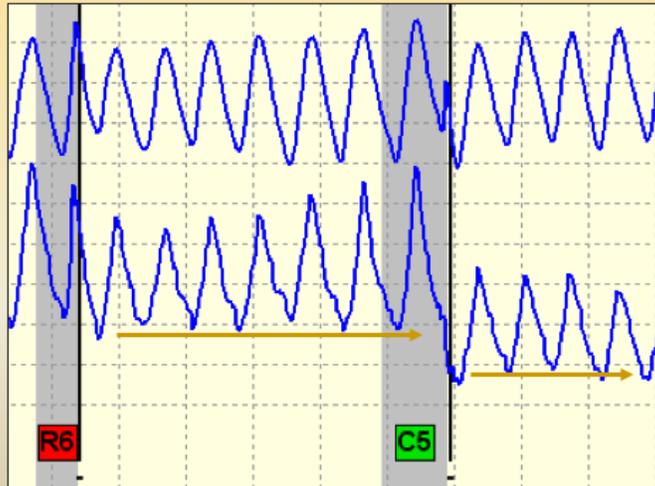
- **Unexplainable shift in baseline up or down**
- **Normally at comparison questions**
- **Can be dramatic or subtle**

For Official Use Only/Law Enforcement Sensitive

26

- It is important that the pneumograph tubes be properly placed on the examinee. A stable tracing is usually necessary.
- In a PLC format will normally occur at the comparison questions. Sometimes the examinee will be confused and it will occur at relevant questions.
- Sometimes will occur at Irrelevant questions if they have been pretested as control questions.
- The permanent change need not be dramatic. A subtle change can be suspect, particularly if it occurs on more than one comparison question.

[New Permanent Baseline]

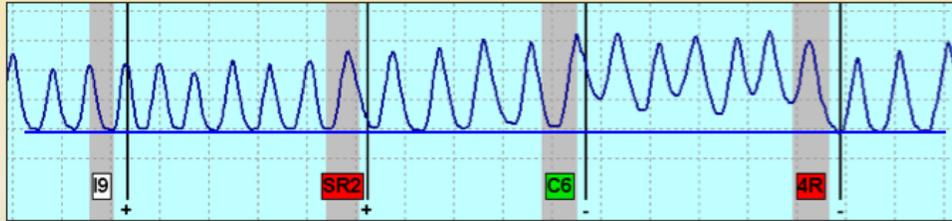


For Official Use Only/Law Enforcement Sensitive

27

- Left Slide: Note the upper pneumo rises forming a new permanent baseline. Note the strong cardio response at the R2 question.
- Right Slide: The reason for this slide is to show that it is difficult to label something a change of baseline if the pneumos at each question are moving off the baseline.
- It is interesting to note that the pneumos at 2C1 suppress and converge. At the same time there is answer-like distortions and some false apnea.
- Connect the changes in the pneumo channels with the sharp cardio that is too good to be true.

[New Permanent Baseline]



For Official Use Only/Law Enforcement Sensitive

28

- Left Slide: The pneumos converge at 2C2, but they also form a new permanent baseline.
- Right Slide: The upper pneumo at C6 forms a new baseline. Note the crown at the answer.

[Bradypnea]

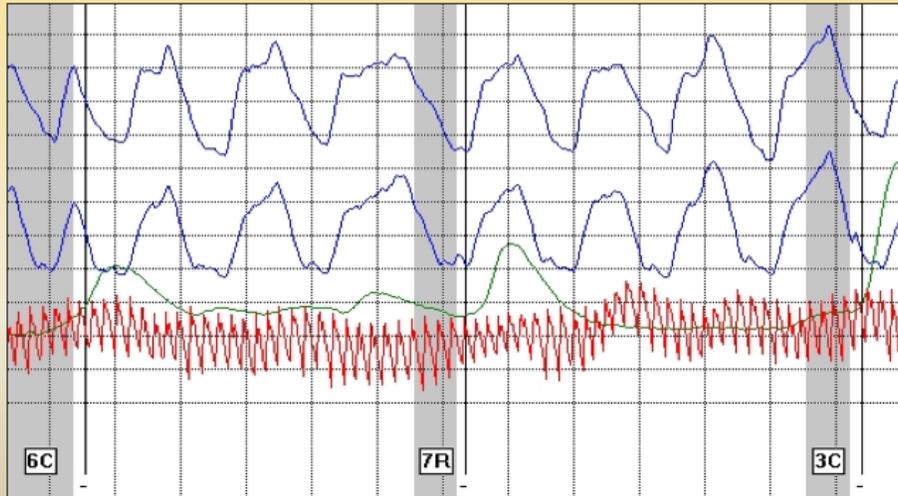
- Resting respiration seldom below 10 breaths per minute
- Rare exceptions
- Observations

For Official Use Only/Law Enforcement Sensitive

29

- Resting respiration rates seldom drop below 10 cycles per minute.
- The rare exceptions are those with medical conditions, and a very small group of athletes.
- Suspect respiration rates should be investigated with surreptitious observation of recording.
- Slow respiration is not, in itself, a strong indication of CM. However, it should be discouraged due to the influence of respiration on the other physiological data channels.

[Bradypnea]



- As can be seen by the slide, the breathing is very slow, but there is still good response in the cardio at the relevant issue.

Review - Pneumos

Can you name the seven criteria?

For Official Use Only/Law Enforcement Sensitive

Link to "TDA April 2007.ppt"

Seven criteria are:

False Apnea, Exaggerated Exhalation, Hyperventilation, Misplaced/Multiple Answer-Like Distortions, Loss of Parallelism, New Permanent Baseline, Bradyapnea.

[Electrodermal]

For Official Use Only/Law Enforcement Sensitive

32

- Latency refers to the period between stimulus onset and response onset.
- The EDR may be observed rising from 0.5 seconds after stimulus onset up to 5 seconds after the examinee's answer.
- High within subject variability of latency is atypical of genuine phasic EDRs.

[Labile EDR]

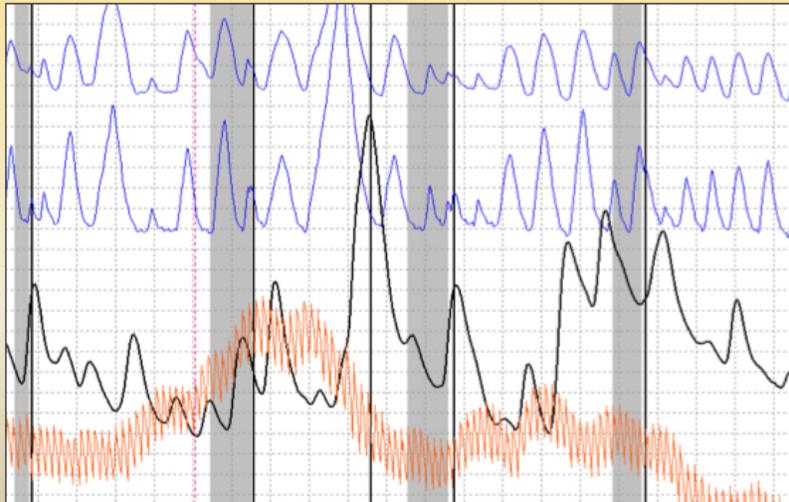
- Excessive electro-dermal activity
- EDR often in constant motion
- Responses frequently seen well after points of answer

For Official Use Only/Law Enforcement Sensitive

33

- Latency refers to the period between stimulus onset and response onset.
- The EDR may be observed rising from 0.5 seconds after stimulus onset up to 5 seconds after the examinee's answer.
- High within subject variability of latency is atypical of genuine phasic EDRs.

[Labile EDR]



For Official Use Only/Law Enforcement Sensitive

34

- Left Slide: Exaggerated cardio with exaggerated secondary and tertiary blood volume response.
- Note the pneumos changing baseline and the false apnea.
- Right Slide: Not only a secondary blood volume response, but the pneumo has the crown effect and lifts off the baseline.

[Inconsistent EDR Latency]

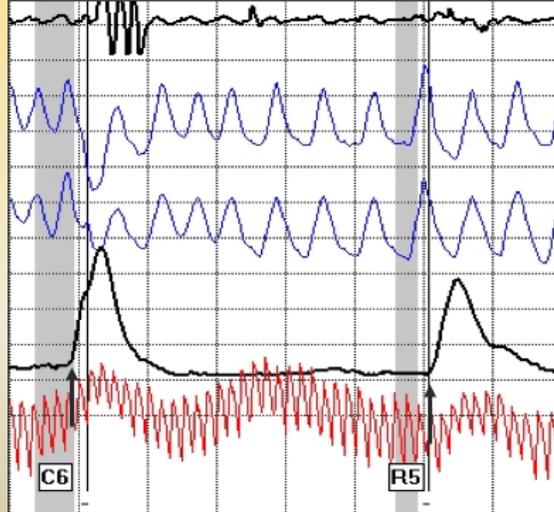
- Stimulus onset to Response onset
- What is atypical?

For Official Use Only/Law Enforcement Sensitive

35

- Latency refers to the period between stimulus onset and response onset.
- The EDR may be observed rising from 0.5 seconds after stimulus onset up to 5 seconds after the examinee's answer.
- High within subject variability of latency is atypical of genuine phasic EDRs.

[Inconsistent EDR Latency]



For Official Use Only/Law Enforcement Sensitive

36

[Exaggerated EDRs]

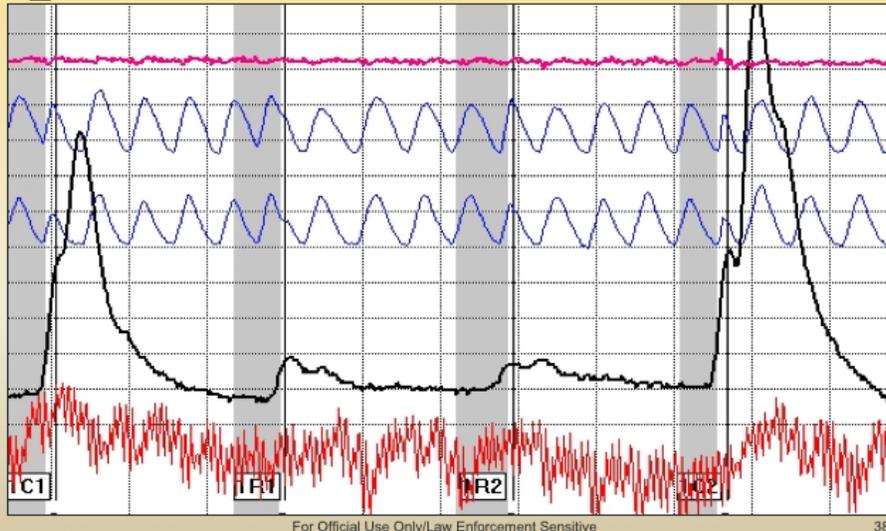
- Globally out of proportion
- Frequency

For Official Use Only/Law Enforcement Sensitive

37

- Exaggerated EDRs are defined as those that globally are well out of proportion with the remaining EDRs, either in terms of amplitude or complexity.
- Among truthful examinees, EDRs for comparison questions that have 5 times the amplitude of those adjoining relevant questions occur only about 4% of the time.
- More than one of these rare EDRs per exam should be considered suspect.
- Similarly, strong EDRs on irrelevant questions are atypical.
- While complex responses in themselves are not uncommon, three or more rises are rare.

[Exaggerated EDRs]

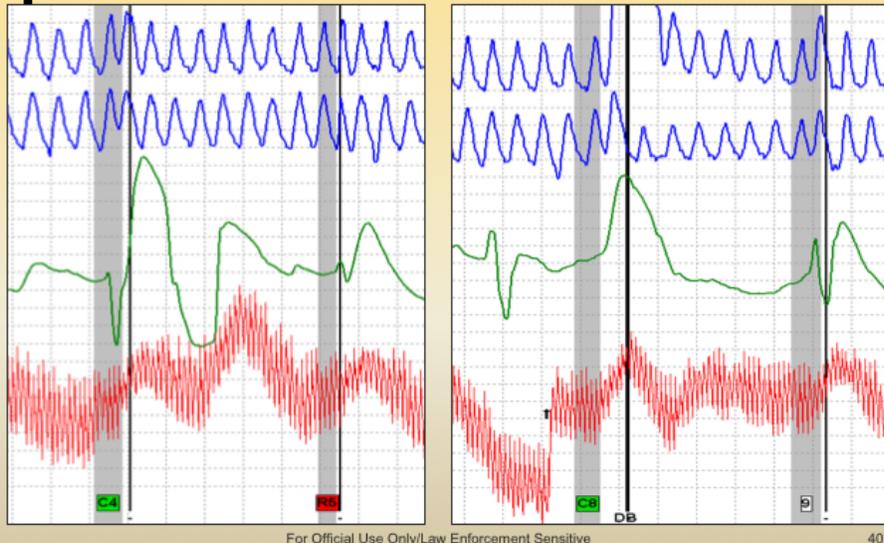


- If the EDRs are cookie-cutter across the chart consider it suspect.
- Note the matching cardio tracings.

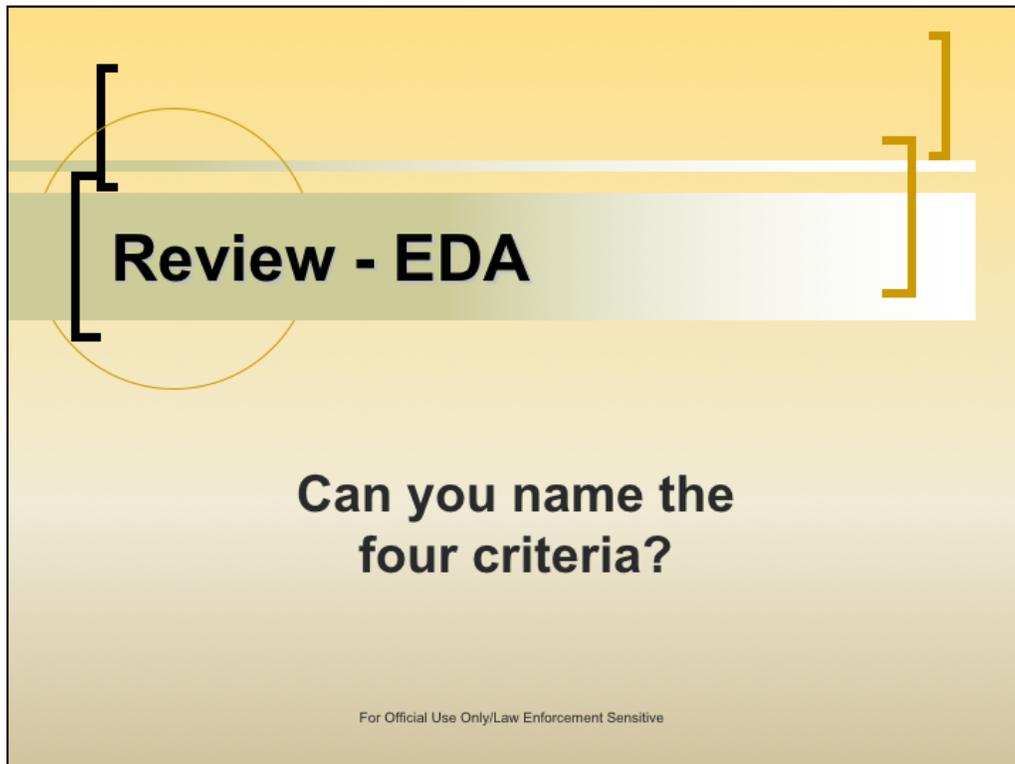
[Downward Spike of the EDR]

- EDR does not have parasympathetic innervations
- Look for patterns

Downward Spike of the EDR



- Note the apnea at both comparison questions with strong cardio responses.
- Question C10 has a downward spike in the EDA.



Review - EDA

**Can you name the
four criteria?**

For Official Use Only/Law Enforcement Sensitive

The slide features a yellow-to-white gradient background. A dark green horizontal bar contains the title 'Review - EDA' in white bold text. A white rectangular box on the right side of the bar contains the question 'Can you name the four criteria?' in black bold text. A thin yellow circle is positioned behind the title. Large black and yellow brackets are placed around the title and question areas. At the bottom center, there is a small disclaimer in grey text.

Labiality, Inconsistent Latency, Exaggerated Responses, Downward Spikes

[Cardiovascular]

For Official Use Only/Law Enforcement Sensitive

42

- Rapid rises and prolonged duration of phasic blood volume (slow wave) responses are commonplace on relevant questions for deceptive examinees.
- They are far less frequent on comparison questions regardless of examinee veracity.
- They virtually never appear on other types of questions.
- Dramatic blood volume reactions, except to relevant questions should be considered suspicious, and more so when they co-occur with respiratory and electrodermal manipulations.
- They are often triggered by covert muscular contractions.
- However, they have been observed during the use of mental CM activity.

Exaggerated Blood Volume Increase

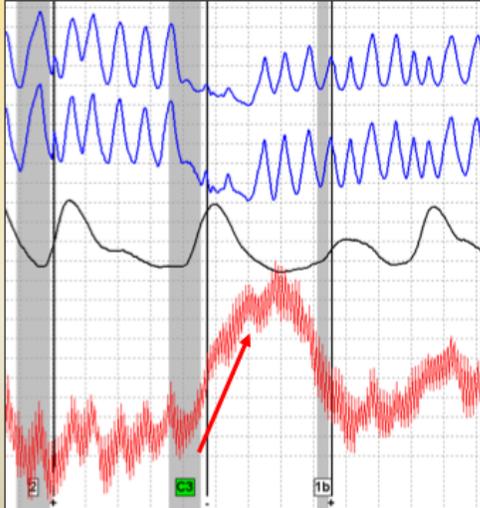
- **Rapid rise and/or prolonged response duration**
- **Common at RQs for DI examinees**
- **Not common at comparison questions**
- **Virtually non-existent at irrelevant questions**

For Official Use Only/Law Enforcement Sensitive

43

- Rapid rises and prolonged duration of phasic blood volume (slow wave) responses are commonplace on relevant questions for deceptive examinees.
- They are far less frequent on comparison questions regardless of examinee veracity.
- They virtually never appear on other types of questions.
- Dramatic blood volume reactions, except to relevant questions should be considered suspicious, and more so when they co-occur with respiratory and electrodermal manipulations.
- They are often triggered by covert muscular contractions.
- However, they have been observed during the use of mental CM activity.

Exaggerated Blood Volume Increase



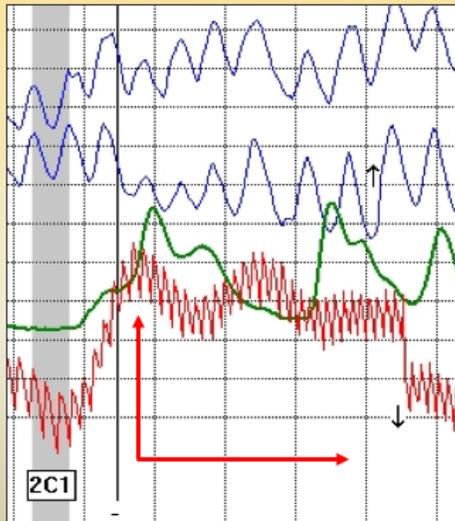
1. Slope/Angle

For Official Use Only/Law Enforcement Sensitive

44

- Left Slide: Diverging pneumos, multiple EDRs, exaggerated blood volume increase.
- Right Slide: Change of baseline in the lower pneumo, exaggerated blood volume increase that continues until the next question is asked.

Exaggerated Blood Volume Increase



1. Slope
2. Amplitude
3. Duration

For Official Use Only/Law Enforcement Sensitive

45

Secondary Blood Volume Response

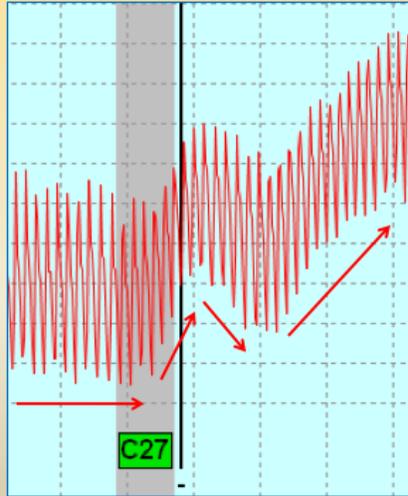
- **Sharp rise in cardio followed by a secondary rise**
- **“Compound Cardio”**

For Official Use Only/Law Enforcement Sensitive

46

- When CM activity is being performed (toe press) the covert muscular contractions can cause a sharp rise in amplitude in the slow wave component of the cardiovascular tracing followed by a secondary rise.
- This is suspect at comparison questions, but particularly so when it occurs at more than one comparison question during the same series.

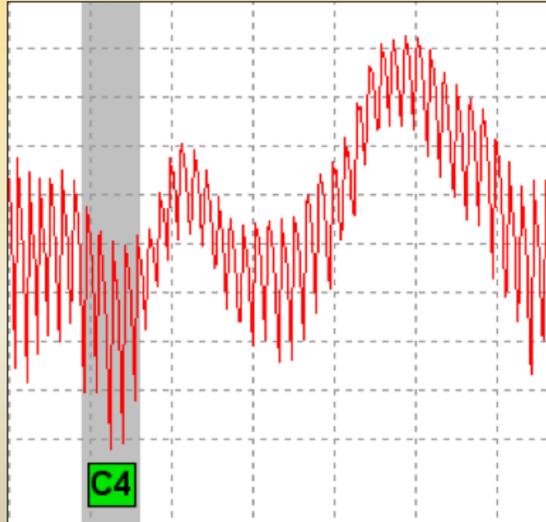
Secondary Blood Volume Response



For Official Use Only/Law Enforcement Sensitive

47

Secondary Blood Volume Response



C4

For Official Use Only/Law Enforcement Sensitive

48

[Tachycardia or Bradycardia]

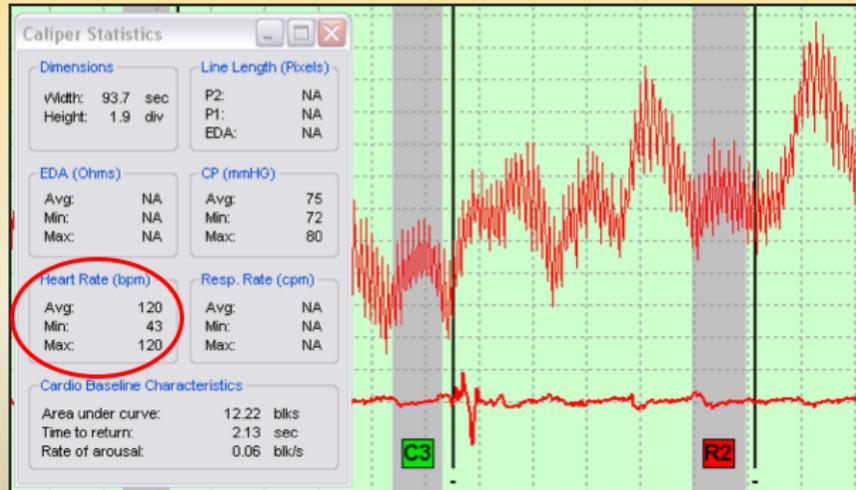
- Tonic pulse rates in excess of 100 BPM, or less than 60 BPM

For Official Use Only/Law Enforcement Sensitive

49

- On many occasions, CM activity is accompanied by tachycardia.
- Must review the entire exam. Also, any medications or illnesses.
- Bradycardia (less than 60 BPM) often seen in long distance runners.
- Must also consider medications, illnesses, drugs.
- The key is to look for other CM signatures.

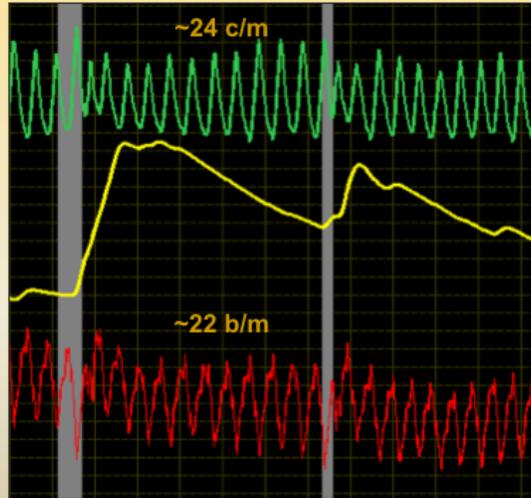
Tachycardia



For Official Use Only/Law Enforcement Sensitive

50

Bradycardia



For Official Use Only/Law Enforcement Sensitive

51

Inconsistent Cardiovascular Response Latency

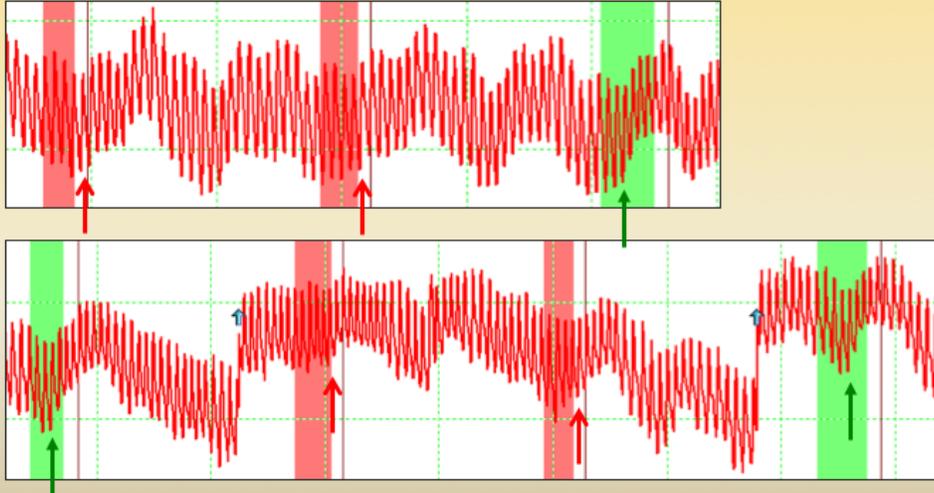
- **Consistent with EDR latency**
- **Contrast points of response onset of all CQs with all other question types**
- **Look for inconsistency unique to the CQs**

For Official Use Only/Law Enforcement Sensitive

52

- As with EDR, latency refers to the period between stimulus onset and response onset.
- Globally, an examinee's response time is fairly consistent at each question asking.
- If the rise time changes, particularly from one comparison question to another this is suspect.

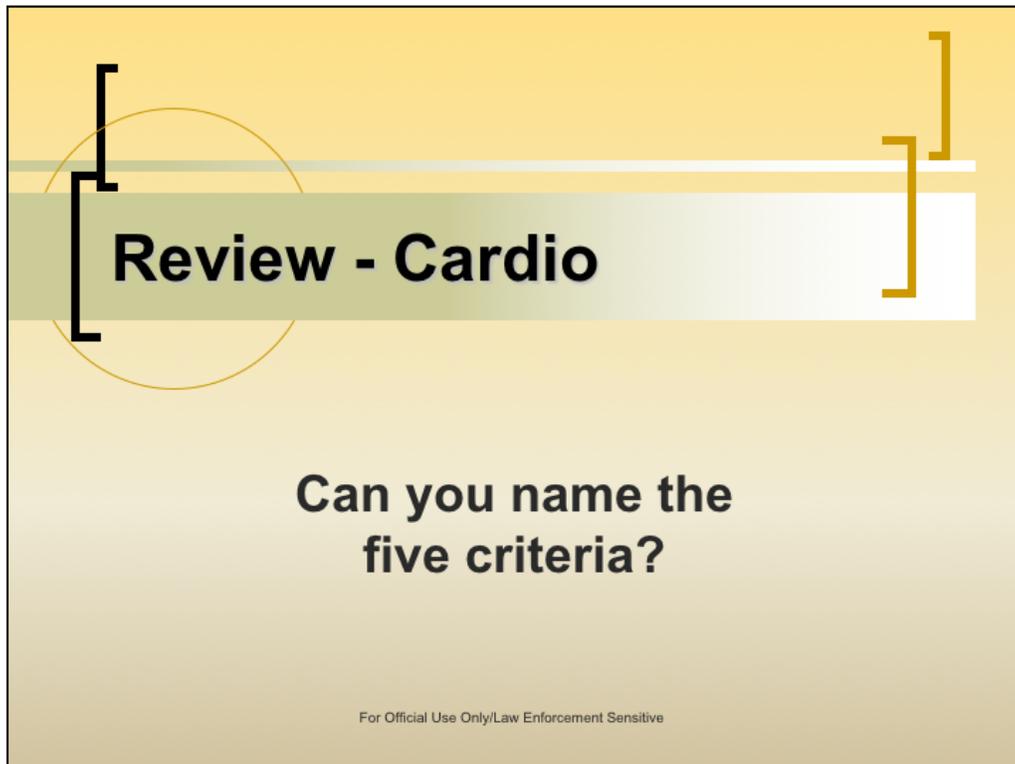
Inconsistent Cardiovascular Response Latency



For Official Use Only/Law Enforcement Sensitive

53

- Note the rise time difference between C6 and C4.
- Possibly the result of mental activity being generated at different times to produce CM.



Review - Cardio

Can you name the five criteria?

For Official Use Only/Law Enforcement Sensitive

The slide features a yellow-to-white gradient background. A horizontal white bar with a green shadow contains the title 'Review - Cardio'. A large, faint yellow circle is partially visible behind the title. The question 'Can you name the five criteria?' is centered below the title. At the bottom, a small disclaimer reads 'For Official Use Only/Law Enforcement Sensitive'.

Exaggerated Responses, Compound Cardios (secondary responses), Tachycardia, Bradycardia, Inconsistent Respiratory Responses.

Other CM Signature Considerations

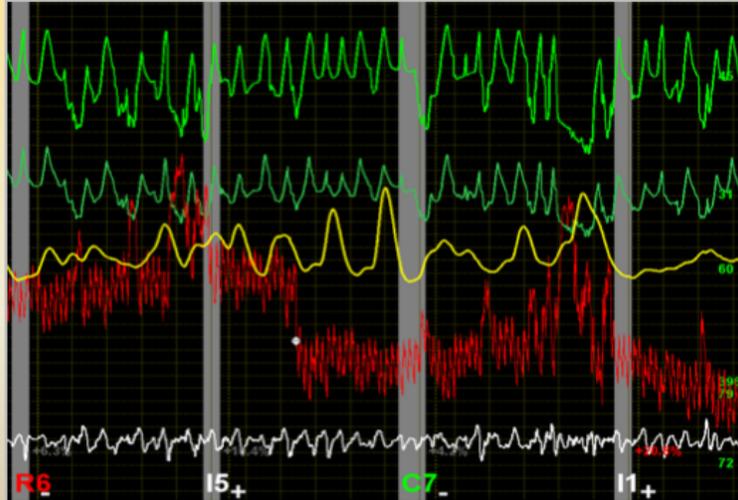
- **“Messy” test data containing erratic breathing, erratic EDA tracings, erratic “jumping” cardiograph tracings with a pulse rate over 100 BPM**

For Official Use Only/Law Enforcement Sensitive

55

- Obviously there are many reasons for messy tracings.
- They can be the result of a poor pretest interview.
- Messy tracings can be caused by an examinee that is guilty of the issue under investigation.
- Messy tracings can be caused by someone who is ill and on certain cold medications.
- Messy tracings can also be caused by examinee's attempting CM activity.
- If you have eliminated the possibility of a Poor pretest interview & whether examinee is ill that leaves two issues. Either examinee is guilty **or** performing CM activity or guilty **and** performing CM activity.
- There is no reason to continue with collecting test data when such activity is taking place. A good post test interview is required.

Other CM Signature Considerations

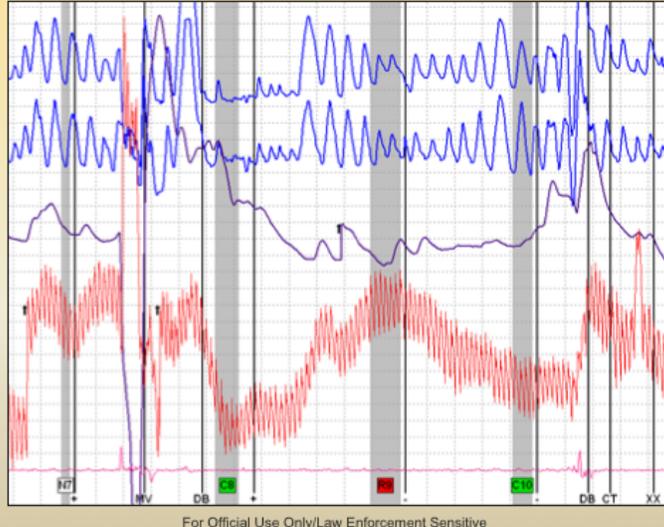


For Official Use Only/Law Enforcement Sensitive

56

- Left Slide: The false apnea at 8C is a consideration. Additionally, the response to the number 9 symptomatic questions may indicate a CM issue.
- Note how the cardio jumps at 9SY. This is the result of a physical movement or the cardio cuff may be misplaced on the examinee's arm.
- Right Slide: If the pneumos are riding all over the paper at every question and the EDR is large and bouncing stop the test.

Other CM Signature Considerations



57

- Left Slide: The false apnea at 8C is a consideration. Additionally, the response to the number 9 symptomatic questions may indicate a CM issue.
- Note how the cardio jumps at 9SY. This is the result of a physical movement or the cardio cuff may be misplaced on the examinee's arm.
- Right Slide: If the pneumos are riding all over the paper at every question and the EDR is large and bouncing stop the test.

[**Cookie-Cutter Responses**]

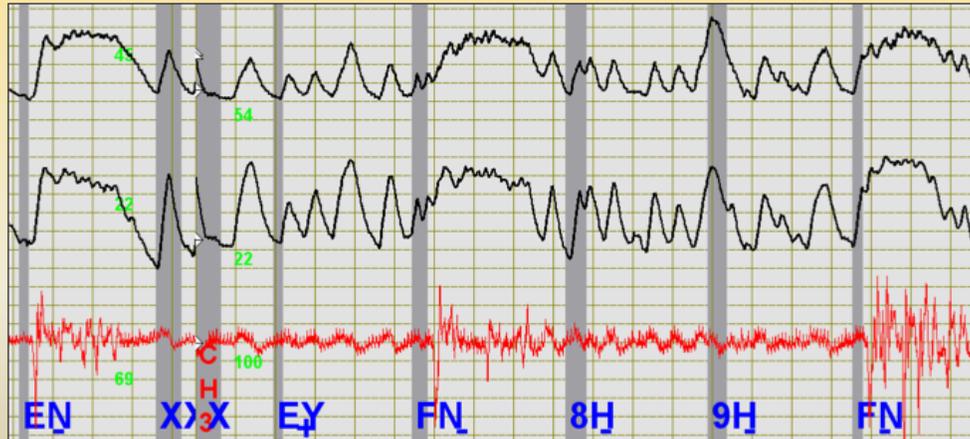
- **Lack of variability**
- **Can occur in any channel, or combinations of channels**

For Official Use Only/Law Enforcement Sensitive

58

- These are responses that show little of the variability that normally occurs among genuine phasic responses.
- These signatures often occur in the pneumograph channels, but can occur in any or all comparison question channel.

[Cookie-Cutter Responses]

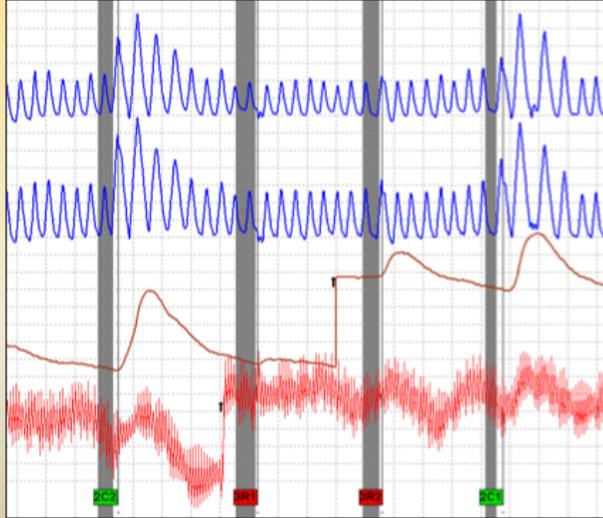


For Official Use Only/Law Enforcement Sensitive

59

- Once again, the key is the same type of response at all of the comparison questions. Note the false apnea.
- Note the latency of the cardio responses.

[Cookie-Cutter Responses]



For Official Use Only/Law Enforcement Sensitive

60

- Would you consider the cardios too good to be true?

Dramatic Tonic Change in Rate or Morphology

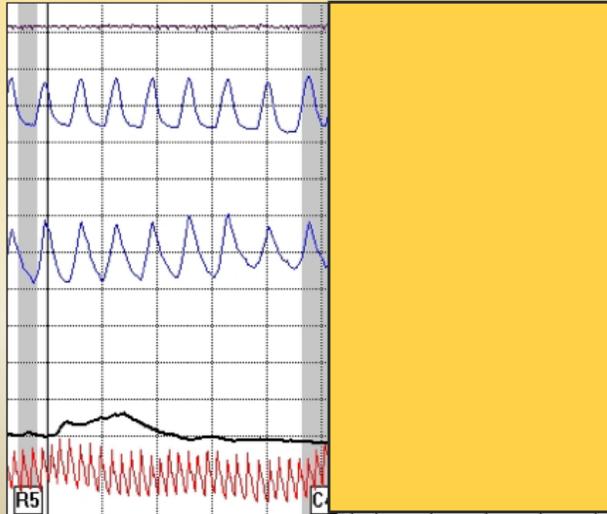
- **Significant changes in waveforms**
- **Within or between charts**

For Official Use Only/Law Enforcement Sensitive

61

•Significant changes in tonic respiration rate, or the shape of the respiration waveforms that occurs within or between charts should be considered suspect.

Dramatic Tonic Change in Rate or Morphology



62

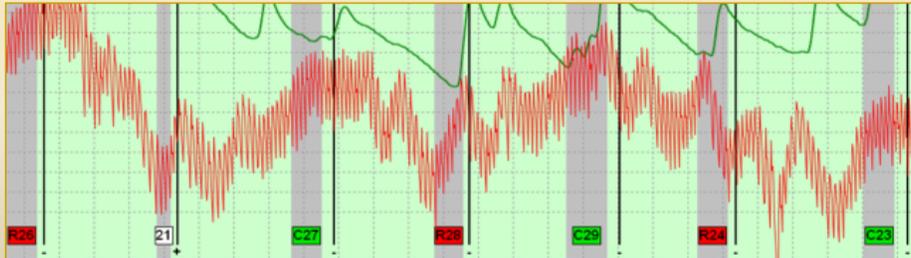
- Left Slide: The exaggerated exhalation lasting about 7 seconds in some situations may not be unusual.
- Right Slide: However, the mess on the right slide is way out of the norm.

[Answer Delays]

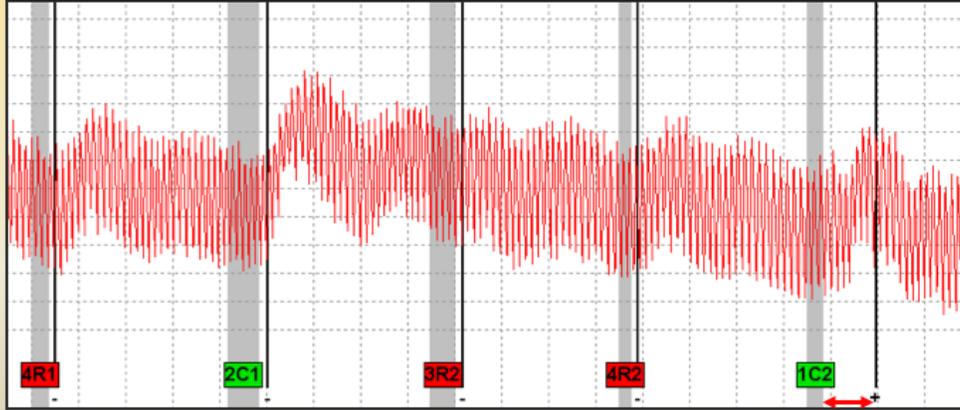
- Late answers to CQs.
- Delays may be a fraction of a second or several seconds.

[Answer Delays]

CQs=1.8 seconds. Non-CQs=1.0 second.



[Answer Delays]



For Official Use Only/Law Enforcement Sensitive

65

[Conclusion]

- **What is the key to CM identification?**
 - **Atypical Physiology**
 - **Frequency**
 - **Specificity**
 - **Clusters**

For Official Use Only/Law Enforcement Sensitive

66

- What is the key to CM features?
 1. Frequency – How often does the activity happen.
 2. Specificity – Where is it happening (at what question type?), and, what is the signature?
 3. Clusters – Do you see multiple features during the examination process.
- Now what? The next phase of this class is to provide real world examples.