



Title The Breathing Verification Diagnostic	Date 05/28/2020
CDE Number M-2005003	CDE Credit Hours 1.5 HRS

I verify that I read and am familiar with the contents of this document.

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X _____

Signature

DATE

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Agency



Ever have one of those calls where a question is asked, and the caller can't seem to give a straight answer? This seems to be a common occurrence when we ask if the patient is breathing.

Some of the unclear answers we get could be:

- "Maybe"
- "Sort of"
- "A little"
- "Off and on"
- "I can't tell"
- "Kind of"

It is important to listen and identify any of the key phrases listed in Case Entry additional information for Ineffective/Agonal breathing.

INEFFECTIVE BREATHING

The following, or reasonable equivalents, when **volunteered** at any point during Case Entry (code as **ECHO** on 2, 6, 9, 11, 15, 31):

- "Barely breathing"
- "Can't breathe at all"
- "Fighting for air"
- "Gasping for air" (**AGONAL BREATHING**)
- "Just a little" (**AGONAL BREATHING**)
- "Making funny noises" (**AGONAL BREATHING**)
- "Not breathing"
- "Turning blue" or "Turning purple"

If we are given any of these phrases or a reasonable equivalent, we must select **INEFFECTIVE/AGONAL** as the answer for the breathing question. Use of the Breathing Verification Diagnostic (BrVDx) is not necessary in case entry.

Is he breathing?	Yes
	No
Chief Complaint is:	Unknown (3rd/4th party)
	UNCERTAIN (2nd party)
	INEFFECTIVE/AGONAL



Don't forget!

With patient...

Is he awake? Yes

Is he breathing? Yes
No
Unknown (3rd/4th party)
UNCERTAIN (2nd party)
INEFFECTIVE/AGONAL

Chief Complaint is:

(Only if safe & hasn't checked)
"You go check and tell me what you find." **UNCERTAIN**: a 2nd party caller who is unsure.
Unknown: a 3rd or 4th party caller who doesn't know. Select **INEFFECTIVE** when unconscious and breathing is **irregular** or **very slow**, or **AGONAL** when the time **between** breaths is 8 seconds or more.

Additional information also has definitions, rules, and axioms that help to understand what answer is appropriate and when the patient's breathing should be assessed using the Breathing Verification Diagnostic:

Rules:

3. Use of the **Breathing Verification Diagnostic** is **not necessary** when **UNCERTAIN BREATHING** or **INEFFECTIVE BREATHING** is associated with unconsciousness.
4. **1st party callers** using phrases like "I can't breathe" or "I can barely breathe" **may be further assessed** by their ability to speak normally or in complete sentences, their level of apparent distress or agitation, and the presence of airway noises (i.e., **stridor, wheezing, gasping, etc.**). **Breathing effectiveness ranges from** normal breathing to mild shortness of breath to **DIFFICULTY SPEAKING BETWEEN BREATHS** to fighting for air (**INEFFECTIVE BREATHING**). When in doubt, the EMD should **err on the side of patient safety**.



Axioms:

1. **UNCERTAIN BREATHING** status indicates a **2nd party** caller who has seen the patient and is still unsure. **This is considered NOT BREATHING until proven otherwise.**
2. **Unknown breathing** status indicates a **3rd or 4th party** caller who cannot personally verify the patient's status.
3. After an **ECHO** response, **completing all Case Entry and Chief Complaint** Key Questions ensures that the proper knowledge regarding **safety** issues and the appropriate warnings and/or advice are immediately and always **passed on** to the responders and potential scene helpers.
4. **Prompt recognition of AGONAL BREATHING** is critical to the treatment of cardiac arrest because it **reduces time to compressions and defibrillation.** **MEDICAL** Arrest PAIs should be **instituted immediately** after **ECHO** coding and associated PDIs when an unconscious patient's **breathing status is INEFFECTIVE or UNCERTAIN** (Breathing Verification Diagnostic use is **not necessary**).

Understanding what answer to select and what phrases to listen for will help to determine when the use of the Breathing Verification Diagnostic is suggested or required. The Breathing Verification Diagnostic is considered a Level 1 Diagnostic and must be read verbatim. This ensures the diagnostic is utilized correctly and we obtain an accurate assessment of the patient's breathing.

There are **scoring standards** that address when the Breathing Verification Diagnostic has to be used:

Diagnostic and Instruction Tools Standard 1 (Use of Level 1 Diagnostics)

The calltaker must complete Level 1 Diagnostic and Instruction Tools when directed by the protocol.

Diagnostic and Instruction Tools Standard 3 (Diagnostic Interpretation)

The calltaker must interpret and implement Level 1 Diagnostic and Instruction Tool results and/or instructions correctly.



The Breathing Verification Diagnostic is set up to assess four breaths to get a good reading.

ProQA Diagnostic Tools Version: 5.1.0.44

Abbreviations Additional Info Limitations Warning

Breathing Verification Diagnostic Elevated Breathing Rate Analyzer

Okay, I want you to say "now" every single time s/he takes a breath in, starting **immediately***.

:00 *** Start Now** Clear/Recheck

Urgent Stop Unable to Complete/Abort

Tool Setting: BrVDx

Breathing Rate

Pattern Analysis

Intervals :00

1 2 3

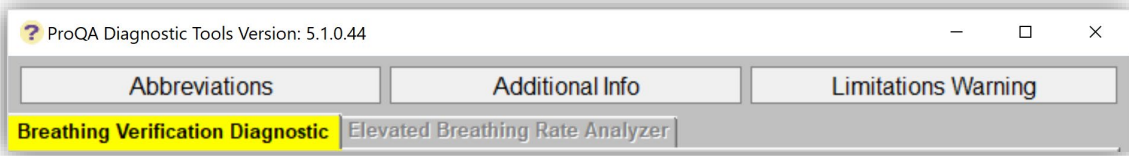
Clinical Assessment

ProQA Answer Recommendation

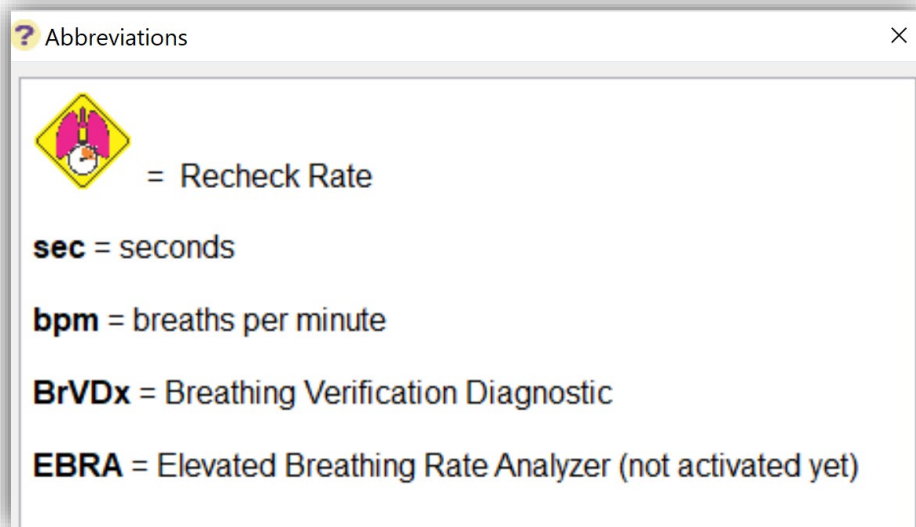
Close



There are tabs at the top with abbreviations, additional information, and limitations warning.



The abbreviations tab has definitions for abbreviations being used within protocol.





Additional Information

Breathing Verification Diagnostic rate timing per minute (time between breaths):

- **Normal** rate: 12 – 20 (5 sec – 3 sec)
- **Slow** rate: > 7.5 – < 12 (< 8 sec – 4 sec)
- **Agonal** rate: 7.5 (any breaths followed by an interval of 8 sec)
- **Not** breathing: 0 (initially 8 sec without a breath)

Clinical Assessment – Slow Rate (abnormal breathing)

When the Breathing Verification Diagnostic Tool results in a **Slow Rate** (6–7 second interval) for an unconscious patient, the EMD should **repeat the diagnostic within 60 seconds to confirm effective breathing.**

AGONAL BREATHING

An **ineffective, deteriorating** breathing pattern that lingers after the heart has essentially **stopped pumping blood to the brain.**

Breathing Verification Diagnostic

(Read verbatim) Okay, I want you to say "now" every single time s/he **takes a breath in**, starting **immediately.**

- **≥ 8 sec. interval = AGONAL**

Use when the patient is **unconscious** and **some** breathing reported by the caller is **questionable to you** (the EMD), or when **mandated by the protocol.** A **time between** breaths of **8 seconds or more** is considered **INEFFECTIVE BREATHING.** Check a maximum of **four breaths** (three intervals tested).

Note: If the caller doesn't continue reporting each breath, the EMD may prompt her/him by saying, "And the next one..." or "And again..."

The additional information tab has information about how it calculates the breathing rate, some definitions, and suggestions on what to do to get the caller to cooperate.

Become familiar with the information in here as it explains what to do with the different breathing rates (slow rate, ineffective)



Limitations Warning:

Several limitations exist in using this device. **Other than the determination of AGONAL BREATHING (more than 8 seconds between breaths), the breathing rate and pattern formulas do not specifically apply to non-adults.**

An elevated respiratory rate alone **does not prove effectiveness** of breathing. However, **very high resting rates** (> 24 bpm) indicate air hunger and should be considered **abnormal breathing** at minimum. Other clinical findings, such as changing color or being not alert, should be considered evidence of **INEFFECTIVE BREATHING** when breathing rates are very high.

Note: Further work on the rates and patterns in infants, children, and teenagers is under review to determine the extended use of this Tool.

Special Note: There is a **grayed-out** upper left tab labeled **"Elevated Breathing Rate Analyzer"** that is currently disabled as it is **not part of the v13 release** at this time. When completed, it will handle various breathing rate groups, ranging from Normal to Elevated to Extreme.

The limitations warning reviews some of the limitations of the diagnostic and some other information to consider while working through assessing the patient's breathing.

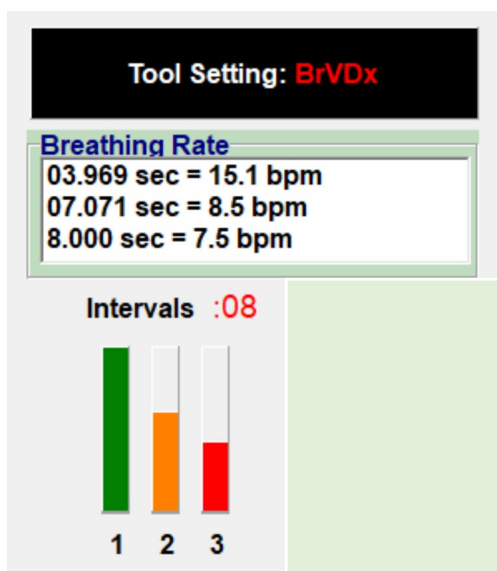
Start with reading the script as written. Select "Start Now" when ready. This will start the clock.

A screenshot of a software interface for a breathing diagnostic tool. At the top, there are two tabs: 'Breathing Verification Diagnostic' (highlighted in yellow) and 'Elevated Breathing Rate Analyzer'. Below the tabs, the main instruction reads: 'Okay, I want you to say "now" every single time s/he takes a breath in, starting immediately*.' To the left of the instruction is a digital clock showing ':00'. Below the instruction and clock are four buttons: a blue button with a green play icon and the text '* Start Now', a white button with the text 'Clear/Recheck', a white button with the text 'Urgent Stop', and a white button with the text 'Unable to Complete/Abort'.

From here the diagnostic can be restarted or aborted if the caller can't perform what we are asking them to do.



In the Breathing Verification Diagnostic, there are different places to look to understand how the breathing rate is calculated.



The Breathing Rate shows what rate each breath was and the approximate breaths per minute (bpm).

The Intervals area below is color coded:

- Green = Good
- Orange = Caution
- Red = Ineffective/Agonal

The Clinical Assessment is different for every rate. It gives tips and lets us know when to recheck the patient's breathing status.

Ineffective Breathing:

This is considered AGONAL breathing. We want to move right into PAIs to start chest compressions and open airway.

A screenshot of a "Clinical Assessment" dialog box. The title bar says "Clinical Assessment". The main text reads: "After at least 1 or more initial breaths, a subsequent interval has reached or exceeded 8 seconds and therefore is considered AGONAL BREATHING." Below this, there is a section titled "ProQA Answer Recommendation" with a red background and white text that says "AGONAL Rate (INEFFECTIVE BREATHING)". At the bottom, there is a "Close" button.



Slow Rate:

This suggests reevaluating the patient's breathing after 60 seconds.

Clinical Assessment

When the Breathing Verification Diagnostic Tool results in a **Slow Rate** (6–7 second interval) for an unconscious patient, the EMD should **repeat the diagnostic within 60 seconds to confirm effective breathing.**

ProQA Answer Recommendation

Slow Rate (abnormal breathing)

Close

Clinical Assessment

While the **rate** of breathing is within **normal limits** (12–20 bpm), it is very likely (and clinically assumed) that the patient's breathing **quality** is **abnormal** (ex., the BrVDx is only launched for unconscious patients on P-31 and P-13 when breathing is reported as abnormal). That is why the Recommendation box **color is orange.**

ProQA Answer Recommendation

Normal Rate (abnormal breathing)

Close

Normal Rate:

Explains why it shows as orange and when it suggests this diagnostic should be used.

Elevated Rate:

This is still considered effective. This does let us know that they are working on some changes when it comes to elevated breathing rates.

Clinical Assessment

Elevated rate: This rate is very likely effective although not normal.

Note: When using the BrVDx function, all rates **above 20 bpm** will be listed as "**Elevated Rate (consider as effective)**" for this assessment. In the future, an added function of this tool (Elevated Breathing Rate Analyzer) will incorporate specific elevated rate distinctions when it is used in certain circumstances.

ProQA Answer Recommendation

Elevated Rate (consider as effective)

Close



- If there is every any doubt if a patient is breathing, we can use the Breathing Verification Diagnostic at any time.
- When the caller is with the patient and can not verify that they are breathing, then we want to assume they are not and move right into protocol to get quickly to PAIs

When callers are not clear on the questions, we want to clarify and try to get a direct answer from them. If they are unable to give us a definitive answer, we want to move forward and assess the patient's breathing. This will help to determine what type of patient care instructions we will be giving to our callers. Always verify or clarify when needed.