Use of Vet BLUE® for Small Animal Pneumonia and COVID-19 Pneumonia

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Textbook Point-of-care Ultrasound Techniques for the Small Animal Practitioner, 2nd Edition, Wiley

Learning Objectives

- Understand the fundamental lung ultrasound orientation of the gator sign and its components
- Understand Vet BLUE® and its regional, pattern-based approach, B-line scoring system, and its visual lung language for wet vs. dry lung, shred sign, tissue sign, nodule sign, and wedge sign
- Understand the advantages of the Vet BLUE® approach for the respiratory canine over lung auscultation, breathing patterns and radiography
- Understand the use of Vet BLUE® as a monitoring tool

Use of Lung Ultrasound in Small Animals - The Vet BLUE®

The reluctance to proactively apply lung ultrasound (LUS) to small animals with respiratory distress is irrational in many respects. The overriding belief that air-filled lung creates insurmountable obstacles, and the continued belief in small animal medicine that imaging lung is difficult to perform leading to mistakes, perpetuate its delayed use in small animal veterinary medicine.

TFAST® (2008), referring to our thoracic FAST protocol, was the first standardized abbreviated veterinary ultrasound exam of the thorax that included the Chest Tube Site (CTS) for the detection of PTX and lung contusions, the Pericardial Sites for the detection of pleural and pericardial effusion as well as basic cardiac views, and the Diaphragmatico-Hepatic View for pleural and pericardial effusion, cardiac imaging, lung imaging along the pulmonary-diaphragmatic interface, and volume status via caudal vena cava and hepatic venous characterization.

With the finding of lung pathology during TFAST®, the author extended the lung examination from the TFAST® CTS view with an additional 6 more regional lung views plus the Diaphragmatico-Hepatic View. This novel regional pattern-based proactive LUS exam was named Vet BLUE® - "Vet" for "veterinary" and "BLUE" for "brief lung ultrasound exam" and "BLUE" also implying cyanosis and all respiratory small animals. The Vet BLUE protocol was developed in 2010, and is not only the first published proactive LUS protocol, but also the most studied in our veterinary literature with over 6 peer-reviewed publications and the experience of a thousand~~1000~~ plus exams.

The Fundamentals of Vet BLUE®

Patient Preparation. Vet BLUE® sites are *not* shaved! All images shown by the author are from unshaved sites. To optimize the image, the hair is wetted with minimal amounts of 70% isopropyl alcohol, the hair parted to expose the skin, followed by the application of gel and the probe head directly to skin. A common mistake is placing the probe head on a wetted mat of hair, which leads to the phenomenon of "air trapping" within the wetted mat, and thus deflection of the echoes, because ultrasound does not transit through air. "Air trapping" minimizes the numbers of echoes making it to the region of interest

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whereas parting the fur for probe to skin contact maximizes the numbers of echoes making it to the region of interest and thus a much better image.

Patient Positioning. Vet BLUE® is preferably performed ~~in~~ standing (or sternal recumbency) which is safer for dogs and cats in respiratory distress or those that are hemodynamically fragile or unstable. A roll of towels or paper towels under the forelegs of a cat is an easy tolerated maneuver to gain access to the ventral Vet BLUE® views and TFAST® PeriCardial Site views. Vet BLUE® may also be performed in dogs and cats in lateral recumbency when they are laterally recumbent. The concept that air rises to least gravity-dependent regions and fluid conversely falls to most gravity-dependent regions should be kept in mind relative to patient positioning, especially when drawing conclusions regarding pneumothorax, free air in the pleural cavity (rises), and pleural and pericardial effusion, free fluid in the pleural cavity (falls), with pericardial effusion also falling, but contained within the pericardial sac.

Probe Type. The convex or curvilinear probe is the preferred probe (transducer) in human medicine by the non-radiologist. In veterinary medicine, the microconvex probe is preferred because it is flexible enough to be used to image all aspects of the Global FAST® Approach, which includes AFAST®, our abdominal FAST protocol, TFAST®, our thoracic FAST protocol, and Vet BLUE®, our lung ultrasound protocol. The linear probe may be ~~used~~used, and it does in fact provide exceptional detail of the lung surface;~~,~~ however, it is unnecessary, and how much is gained over a microconvex probe is unknown. The linear probe has the *disadvantage* of not being able to extend beyond Vet BLUE® to AFAST® and TFAST®. The phased-array (sector) cardiac probe should not be used because in some recent clinical research we have found that this probe type cannot identify the Gator Sign orientation or accurately count numbers of B-lines in small animals.

Preset. Vet BLUE® and the entire Global FAST® is performed with the abdominal preset by the author. Presets may be changed but are often unnecessary and generally provide no real advantage and disadvantageously add more time to the examination.

Probe Frequency. Generally higher frequencies (~~,~~10-7MHz)~~,~~ better image the lung for most machines. Other considerations that affect the image include the focus position (~~,~~should be across from the lung line), the time gain compensation and overall gain (~~,~~generally turned down for more contrast~~, however~~, but with enough gain to image through the far field), and the preset. The author uses the abdominal preset for the entire Global FAST® Approach, including lung and heart. This saves time and works well once the sonographer becomes experienced with their machine. Other factors discussed below include proper orientation, depth, and manipulating the echoes to your advantage, the one-eyed G~~g~~ator S~~s~~ign, and angle of insonation~~,~~ when imaging the lung line.

Lung Imaging Orientation. All LUS orientation is founded on the visualization of the "Gator Sign" for its importance in properly identifying the intercostal space (Lisciandro et al. VRUS 2014). By identifying the intercostal space, the "lung line" may be identified, which has also been referred to as the pulmonary-pleural interface, where visceral and parietal pleura are directly opposed. We prefer to use "lung line" because when pathology exists within the pleural space, the lung is displaced away from the parietal pleura.

The probe is held perpendicular to the ~~long-axis~~long axis of the ribs with the probe marker and screen orientation marker toward the head and to the left of the screen respectively. By doing so, the head will be to the left of the screen (cranial) and the tail to the right of the screen (caudal). Depth is generally set

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between 4-8 cm with a good way to remember is the l-u-n-g has 4 letters, so start with 4cm for small dogs and cats and increase to 8cm (sometimes greater) for large dogs. If the "Gator Sign" is not identified then other bright white or hyperechoic lines can easily be mistaken for the "lung line" including the spine of the scapula, an air-filled stomach, A-lines, and even fascial planes within muscle.

The "Gator Sign" – Lung Ultrasound Orientation

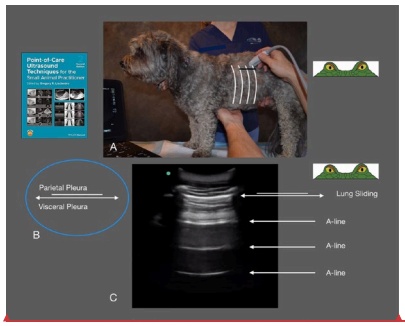

Figure. Gator Sign Orientation. The rounded ribs are likened to the eyes, and the bright white hyperechoic "lung line" or "pulmonary-pleural interface" to the bridge of its nose as a partially submerged alligator (gator) peers at the sonographer. The proximal bright white, hyperechoic line~~,~~ is the focus of ALL lung ultrasound to ensure one accurately identifies where lung is expected to be in normalcy, and is referred to as the "Lung Line." The "Lung Sliding" may be described as sliding parietal~~leural~~ and visceral pleura (micro level) versus the author's preference of lung sliding along the thoracic wall (macro level). *This material is reproduced with permission of John Wiley & Sons, Inc., Point-of-Care Ultrasound Techniques for the Small Animal Practitioner, 2nd Edition, Wiley ©2021 and FASTVet.com © 2014, 2020 and the "Gator Sign" in the veterinary literature (Lisciandro et al. Vet Radiol and Ultrasound 2014).*

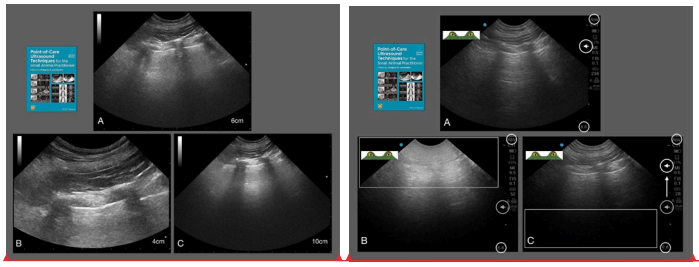

Figure LEFT. Proper Depth and Proportionality. Note in A) the proper depth and proportionality for Vet BLUE. In B) the depth is too small and magnified. In C) the depth is too great and the intercostal space too small for proper evaluation. **Figure RIGHT. Gain Settings.** Note in A) the proper gain setting in which there is gain with contrast along the "Lung Line" and through the far field. In B) there is too much depth with loss of contrast to see the "Lung Line" and detail is lost. In C) there is good gain along the "Lung Line" but not enough depth through the far field to be able to see if artifacts and abnormalities extend to and through the far field. The lack of gain in the far fi~~e~~ell~~e~~d can lead to missing or

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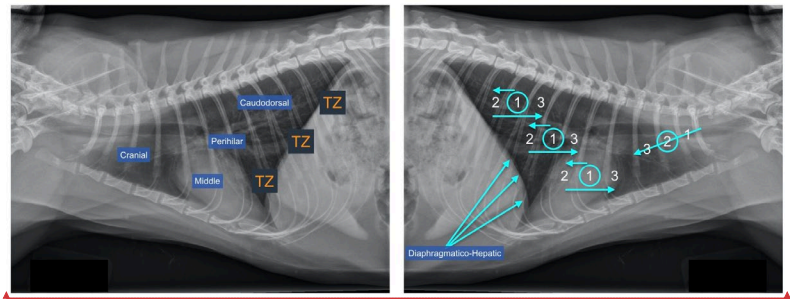
misidentifying artifacts and abnormalities. *This material is reproduced with permission of John Wiley & Sons, Inc., Point-of-Care Ultrasound Techniques for the Small Animal Practitioner, 2nd Edition, Wiley ©2021 and FASTVet.com © 2014, 2021.*

The Vet BLUE® - Its 9 Acoustic Windows



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How to Perform. There is no shaving of hair. Generally small amounts of alcohol are used to wet and part the hair for direct visualization of the skin, followed by alcohol-based hand sanitizer. The Vet BLUE® begins at the CTS view of TFAST® and establishing the "Gator Sign" orientation. The probe is then moved through regional locations that are bilaterally applied as follows: caudodorsal (Cd) lung region, perihilar (Ph) lung region, middle (Md) lung region and lastly the cranial (Cr) lung region is imaged. The methodology has changed from our original protocol by better defining each regional view by locating the caudodorsal transition zone (CdTZ). The ~~CdTZ is~~CdTZ is located by starting directly above the xiphoid in the upper third of the thorax and locating the "curtain sign" effect that distinguishes between pleural and abdominal cavities. If it is not immediately located, the probe is generally slid caudally searching for obvious abdominal structures and then sliding cranially finding the "Curtain Sign" (see Figure). The principle is very important because abdominal structures, especially the stomach followed by liver, are easily mistaken for lung pathology without this training.

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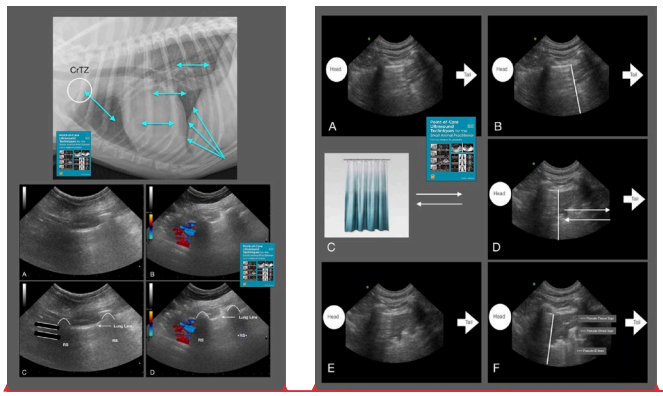

Figure L~~eft~~~~EFT~~ and Right. Caudal and Cranial Vet BLUE® Transition Zones. The composite to the *left* is the cranial transition zone found by sliding along the "Lung Line" unit; it ends in the soft tissue of the thoracic inlet with its jugular and carotid vessels. The composite to the *right* caudal transition zone is identified by the "Curtain Sign" and the linear border of air that identifies the pleural cavity to the left and the abdominal cavity to the right. *This material is reproduced with permission of John Wiley & Sons, Inc., Point-of-Care Ultrasound Techniques for the Small Animal Practitioner, 2nd Edition, Wiley ©2020 and FASTVet.com © 2014, 2021.*

Once the CdTZ is located, the probe is slid 2-3 intercostal spaces cranially and away from the CdTZ. While sliding away from the CdTZ, lung tissue can be evaluated for pathology since the sonographer knows they are in fact over the pleural cavity. The location 3 intercostal spaces away from the CdTZ is considered the starting point. Its intercostal space (ICS) is surveyed, and then the sonographers slides one space caudally over its intercostal space, returns to the primary ICS and then moves one more ICS cranially so that a minimum of 3 ICSs are interrogated at the caudodorsal lung region. A line referred to as the "Vet BLUE® Line" is then drawn from the caudodorsal starting point to the patient's elbow and approximately halfway to the elbow is the perihilar region. The methodology is repeated as done previously, i~~.~~ ~~I~~nterrogating the primary ICS, sliding caudally and interrogating its ICS, before returning to the primary and sliding one ICS cranially, again imaging a minimum of 3 ICSs. The middle lung region is generally at the level of the elbow in a standing dog or cat. The heart is a good landmark and when found ventrally, the probe is moved dorsally until the "Gator Sign" is located immediately dorsal to the heart. The methodology performed at the two previous views is repeated sliding caudally first, then back to the primary and another ICS cranially for a minimum of 3 ICSs. The cranial lung region is imaged a little differently by finding the cranial cervical transition zone (CrTZ) by following the "Lung Line" until it drops off into soft tissue. The path followed for the Vet BLUE® is like a check mark, meaning as the sonographer slides cranially into the thoracic inlet, they must also slide dorsally. Assurance of being in the thoracic inlet is the presence of pulsating arteries with a rib shadow immediately caudal followed by the "Gator Sign" and a "Lung Line." The 3 ICSs at the cranial lung region are performed by sliding from the thoracic inlet and first rib, and then counting "first rib, first ICS, second rib, second ICS, third rib, third space." This completes the Vet BLUE® and we have found this protocol to be more repeatable compared to our original methodology. Another key is always slide caudally first anytime when imaging the thorax to always ask the question – "Where is the abdominal cavity?" to prevent mistaking its

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structures for lung and intrathoracic abnormalities. Another rule to scan by is – "If you do not have a "Gator Sign" orientation, then you cannot ever confidently assess lung."

Always perform Vet BLUE® in this order as findings are better remembered. Our most efficient Global FAST® protocol is beginning with the left Vet BLUE® and then moving to the left TFAST® Pericardial Site view followed by a standing AFAST® and Focused Spleen before moving to the right Vet BLUE®, right Pericardial Site and its TFAST® echocardiography views and ending at the AFAST® Hepato-Renal 5th Bonus View (see FASTVet.com and its Free Resources).

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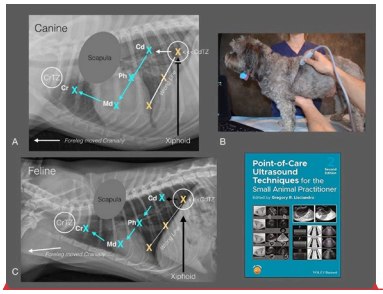

Figure. Selecting the Vet BLUE® Line. Find the Caudodorsal Transition Zone (CdTZ) by finding the "Curtain Sign" – see text for greater detail. The probe is slid 3 intercostal spaces cranial to the CdTZ for your starting Vet BLUE® view, the caudodorsal lung region view. From there survey 3 intercostal spaces, one caudal and one cranial from your starting point. Drawing a line to the elbow is performed next, this is your Vet BLUE Line. Approximately halfway is the perihilar lung region, and at the approximately the level of the elbow is the middle lung region. Then, the probe is slid cranio-dorsal into the thoracic inlet to find the Cranial Transition Zone (CrTZ). From the CrTZ the probe is lid caudally over the first rib, first intercostal space, the second rib, second intercostal space, third rib, third intercostal space. This Vet BLUE® methodology is newer and more reproducible than previously published (Lisciandro et al. ongoing research 2020). *This material is reproduced with permission of John Wiley & Sons, Inc., Point-of-Care Ultrasound Techniques for the Small Animal Practitioner, 2nd Edition, Wiley ©2021 and Greg Lisciandro, Hill Country Veterinary Specialists, FASTVet.com © 2014, 2021.*

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Vet BLUE® - Wet Lung versus Dry Lung Concept

Dry Lung. Dry aerated lung at its surface is defined as a bright white, hyperechoic "Lung Line" accompanied by "Lung Sliding" and A-lines repeating through the far field. Remember A-lines as "air reverberation artifact" because "air" begins with the letter "A." "Lung sliding" is the to and fro motion of the "Lung Sliding" along the intercostal space much like an Etch-a-Sketch® cursor moving to and fro. The micro description for "Lung Sliding" is the sliding of parietal and visceral pleura or the macro description preferred by the author of lung sliding along the thoracic wall. The distinguishing feature between normal aerated lung and pneumothorax is the presence and absence of "Lung Sliding", respectively, because each condition has a strong air interface at the intercostal space. From our Vet BLUE® research, expect *absent* B-lines at all views in adult dogs and cats and puppies and kittens over 6-weeks of age. A single B-line at a single regional view is uncommon but can be also support a "dry Vet BLUE® profile." The bottom line is to place any and all B-lines during Vet BLUE® in clinical context, apply the B-line scoring system, and record your findings for future patient comparison.

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Wet Lung. Alveolar-interstitial edema creates a unique artifact referred to as B-lines or ultrasound lung rockets that may be used interchangeably (Lisciandro et al. Vet Radiol Ultrasound 2014). The use of "B" in B-lines is only because "B" follows "A" in the alphabet. The vertical laser-like bright white, hyperechoic streaks originate off the "Lung Line" while extending through the far field *without* fading, while swinging like a pendulum in synchrony with phases of respiration. If the artifact does not fit this definition, then it is not a B-line. Their presence is referred to as alveolar-interstitial syndrome because a pattern-based approach is needed for developing a working diagnosis as to cause. For the vast majority of our small animal patients, these unique artifacts in lung are created by the strong difference in acoustic impedance between fluid and air next to one another; however, pleural surface fibrosis also can create the artifact. Another manner to think about their cause is a cuffing of aerated lung around fluid. However, "pseudo B-lines" are also created by air and soft tissue and air and ingesta– see "pseudo B-lines" and those caused by nodules (Nodule Sign) and ingesta (pseudo gastric-B-lines) (Soldati personal communication).

Quick Facts - B-lines (ultrasound lung rockets) dDo the fFollowing:

- Immediately rule out pneumothorax at that location on the thoracic wall
- Are lung contusion in trauma until proven otherwise
- Guide diuretic use in left-sided congestive heart failure patients
- Dry Lung all views rules out left-sided congestive heart failure, pneumonia, all forms of non-cardiogenic lung edema, lung hemorrhage and lung contusions (in other words all Wet Lung conditions)

Vet BLUE®- Wet versus Dry Lung Approach in Respiratory Patients

From our Vet BLUE® research, expect Dry Lung at all Vet BLUE® views in adult dogs and cats and puppies and kittens over 6-weeks of age. A single B-line at a single regional view is uncommon but can be also support a "dry Vet BLUE® profile." The bottom line is to place any and all B-lines during Vet BLUE® in clinical context and record your findings for future comparison.

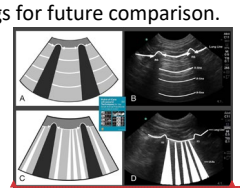

Figure. Wet versus Dry Lung. Dry Lung is defined as A-lines with "Lung Sliding." Wet Lung is defined as B-lines with hyperechoic laser-like vertical streaks that obliterate A-lines and swing like a pendulum in respirophasic synchrony. If they don't follow this rule, then they are not B-lines (also called Lung Rockets). *This material is reproduced with permission of John Wiley & Sons, Inc., Point-of-Care Ultrasound Techniques for the Small Animal Practitioner, 2nd Edition, Wiley ©2021 and Greg Lisciandro, Hill Country Veterinary Specialists, FASTVet.com © 2014, 2021*

It is important to work through the following cases and what would be expected in each barring complications: left-sided congestive heart failure in dogs other than Doberman Pinschers, left-sided congestive heart failure in cats; non-cardiogenic pulmonary edema (electrocution, strangulation, neurogenic); tracheal collapse, laryngeal paralysis, infectious tracheobronchitis (now called CIRD, canine infectious respiratory disease), aspiration pneumonia, bacterial bronchopneumonia, pericardial effusion in dogs, pericardial effusion in cats, pyrexia/fever/heat stroke, feline asthma, canine bronchial disease, canine anaphylaxis, and feline anaphylaxis as common examples.

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The most rapid and sensitive manner in which to rule out left-sided congestive heart failure, types of cardiogenic pulmonary edema, pneumonia, lung hemorrhage, and lung contusions (in fact all Wet Lung conditions) is the finding of absent B-lines all Vet BLUE® views.

Differentials for Dry Lung All Views on Vet BLUE®
Respiratory
Pneumothorax
Dynamic Upper Airway Conditions (e.g., Collapsing Trachea, Laryngeal Paralysis)
Intrathoracic Airway Collapse (e.g., Tracheal Collapse, Mainstem Bronchial Collapse, Lobar Bronchial Collapse, Bronchomalacia)
Upper Airway Obstruction (e.g., Mass, Foreign Body, Oropharyngeal Swelling, Inflammation, Nasopharyngeal Polyp [cats], Granulomatous Laryngitis [cats])
Tracheobronchitis (e.g., Infectious, Inflammatory, Irritant)
Inflammatory Lower Airway Disease (e.g., Chronic Bronchitis, Asthma [cats], Eosinophilic Bronchitis [dogs], Bronchiectasis)
Lung Pathology not Located at the Lung Surface at any Vet BLUE® view
Cardiac
Pericardial Effusion / Cardiac Tamponade
Cardiac Arrhythmia
Dilated Cardiomyopathy (DCM)
Right-sided Congestive Heart Failure
Pulmonary Vascular Disease
Pulmonary Thromboembolism (PTE)
Pulmonary Hypertension (PHT)
Undifferentiated Hypotension
Canine Anaphylaxis
Cavitary or Spatial Bleeding (e.g., Hemoabdomen, Hemothorax, Hemoretroperitoneum, Hemopericardium, Fracture Site)
Gastric Dilatation-Volvulus /Bloat
Sepsis
Other Non-respiratory
Pyrexia / Heat Stroke / High Fever
Severe Metabolic Acidosis
Severe Anemia
Neurological Disease
Pain
Gregory R. Lisciandro, DVM, Dipl. ABVP, Dipl. ACVECC and FASTVet.com ©2015, 2016, 2019, 2021

Pseudo B-lines

Ingesta in the stomach, "gastric pseudo B-lines", and nodules, also cause B-lines that are similar to B-lines observed in cases with alveolar-interstitial edema. We call these subsets in which B-lines are not due to alveolar-interstitial edema as "pseudo B-lines" for differentiation. Gastric pseudo B-lines are a reason for always finding the transition zones caudally by recognizing the "Curtain Sign", and pseudo B-lines from nodules by recognizing the nodule at the "Lung Line." *More updated information can be found in Point-of-Care Ultrasound Techniques for the Small Animal Practitioner, 2nd Edition, Wiley ©2021.*

Vet BLUE® Scoring System

In 2006, Volpicelli and colleagues showed that numbers of B-lines correlated with degree of alveolar interstitial edema on computed tomography (CT) in human lung. This is truly a remarkable finding because lung ultrasound may be performed point-of-care, is rapid and radiation sparing, and time sensitive, whereas CT is expensive, of limited availability, is risky and is comparable to 100 chest x-rays for each study, limiting its use for repeat exams. Thus, we developed a Vet BLUE® B-line Scoring System taking the maximum number of B-lines over a single intercostal space at each respective Vet BLUE lung region as 1, 2, 3, >3, and infinite. We consider 1,2, and 3 as weak positives and >3 and infinite as strong positives.

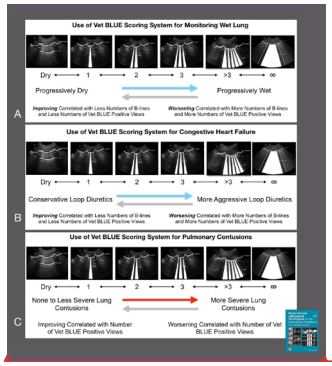

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Figure. The Vet BLUE® B-line Scoring System. The Vet BLUE® B-line Scoring System for Use in Wet versus Dry Lung, Guiding Diuretic Use in Left-sided Congestive Herat Failure, and Assessing and Severity and Monitoring Lung Contusions (and Pulmonary Hemorrhage), and in fact all Wet Lung conditions. *This material is reproduced with permission of John Wiley & Sons, Inc., Point-of-Care Ultrasound Techniques for the Small Animal Practitioner, 2nd Edition, Wiley ©2021 and Greg Lisciandro, Hill Country Veterinary Specialists, FASTVet.com © 2014, 2021.*

The Vet BLUE® Visual Lung Language

Shred Sign, Tissue Sign, Nodule Sign, and Wedge Sign (PTE). The 4 more severe Vet BLUE® signs we have described in progressive order of increasing consolidation/infiltration are the Shred Sign (air bronchogram, consolidation *with* aeration of the lung); the Tissue Sign (hepatization of lung, consolidation *withOUT* aeration); the Nodule Sign (consolidation/infiltration into discreet nodules/masses); and the Wedge Sign (a subset of the Shred-Tissue Sign, triangular, and supports pulmonary thromboembolism (PTE), lung infarction when found in the *upper Cd and Ph* Vet BLUE® views).

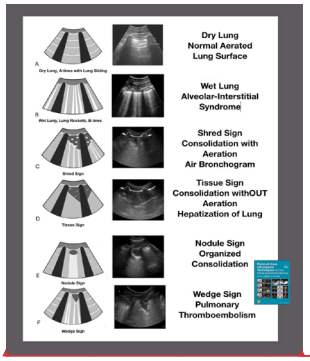

Figure. The Vet BLUE® Visual Lung Language – Dry Lung, Wet Lung, Shred Sign, Tissue Sign, Nodule Sign and Wedge Sign. *This material is reproduced with permission of John Wiley & Sons, Inc., Point-of-care Ultrasound Techniques for the Small Animal Practitioner, Wiley ©2014, 2021 and Dr. Gregory Lisciandro, FASTVet.com and Hill Country Veterinary Specialists.*

Vet BLUE® for Pneumonia

Vet BLUE® rules out small animal pneumonia and COVID-19 pneumonia in people by finding Dry Lung in all views, a test that is performed in real-time, cageside, bedside, during physical exam, that takes <2-3 minutes. Vet BLUE® profiles that support include Wet Lung primarily distributed in gravity-dependent Vet BLUE® views and asymmetrically when bilaterally found. Classic aspiration pneumonia in a dog would be Wet Lung (B-lines) or Shred Sign (air bronchogram) in the right middle Vet BLUE® lung region. More severe consolidation would be the Tissue Sign (hepatization of lung).

Vet BLUE® for Tracking Pneumonia

Through the use of the B-line Scoring System and the Vet BLUE signs of consolidation, pneumonia may be tracked to better direct therapy (escalation and de-escalation of antibiotics) and interventions (airway sampling, additional imaging).

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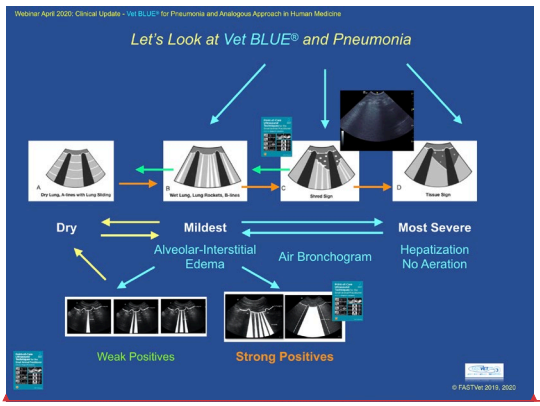

Figure. Tracking Pneumonia using Vet BLUE and Lung Ultrasound. This sShows how Vet BLUE® is used for tracking small animal pneumonia as being static, worsening, orand resolving. This same visual is being applied to COVID-19 pneumonia human patients as a point-of-care bedside and even remote transmission using lung ultrasound.

Comparison of Vet BLUE® to Thoracic Radiography and Computed Tomography

Vet BLUE® is proving itself as a more sensitive test than radiography for lung surface pathology (alveolar-interstitial edema, lung consolidation, nodules, and lung contusions) and pneumothorax (Ward et al. 2018; Dicker et al. 2020; Hwang et al 2018; Kulhavy and Lisciandro 2015). Vet BLUE® compares much more closely to computed tomography (CT) in the largest comparative study to date (Dicker et al. JVECC 2020). We have additional ongoing clinical studies in the process of submission for peer review that further support this statement.

Always Strive for The GLOBAL FAST® Approach

Selective POCUS imaging leads to image interpretation errors, most ~~commonly "confirmation~~commonly ""–confirmation bias error" from selective imaging and "satisfaction of search error" (stopping imaging at the first abnormality) and both are major problems with the POCUS movement because they lead to incorrect patient assessment.

Goal-Directed Templates for Vet BLUE®

Current Goal-directed Template AFAST®, TFAST®, Vet BLUE® and Global FAST® versions may be found at FASTVet.com under the Premium Membership, then Resource Library, and then Free Resources.

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