University | School of
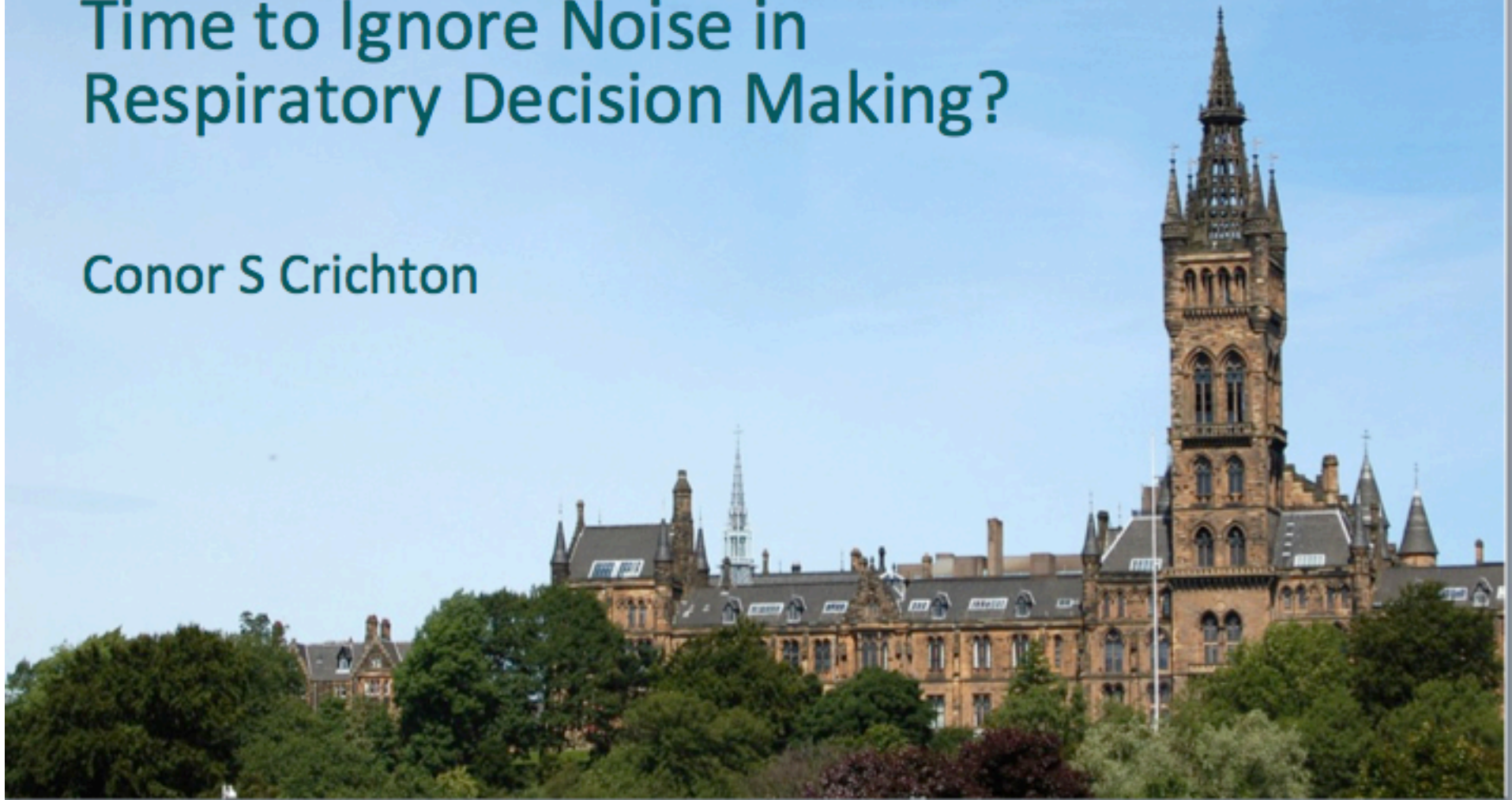of Glasgow | Veterinary Medicine

Weipers Centre
EQUINE HOSPITAL

Time to Ignore Noise in Respiratory Decision Making?
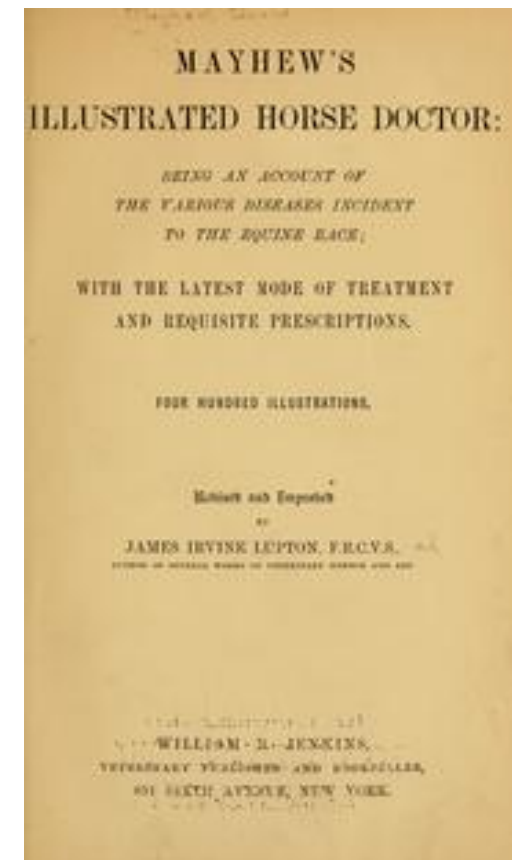
Conor S Crichton

A Look Back...

Abnormal respiratory noises were first identified 'donkeys' years ago!

James Irvine Lupton noted that such noises are...

..."produced owing to the existence of some obstruction in the air passages, either nostril, wind pipe or larynx"

What Did We Use Them For?

Such noises aided the 'veterinary surgeon' in their search of a diagnosis…

…and when choosing an 'appropriate' route of therapy!

Some still use 'em today!

Fact or Fallacy?

Diagnosis with Overground Scope	Performance Affected/Not Affected	Noise Type
Palate displacement (13)	Reduced Speed (10) Unaffected (3)	Gargle (7) None (6)
Laryngeal Hemiplegia (6)	Reduced Performance (5) Performed Well (1)	Whistle (3) None (3)
Medial Deviation of the Aryepiglottic fold (3)	All developed IDDSP and slowed (3)	None (3)
No abnormalities (43)	N/A	Noise (7) None (36)

Pollock, P.J., Reardon, R.J.M, Parkin, T.D.H, Johnston, M.S., Tate, J., Love, S., 2009. Dynamic Respiratory Endoscopy in 67 Thoroughbred Racehorses Training Under Normal Ridden Exercise Conditions. *Equine Veterinary Journal*, 41(4), pp.354-360.
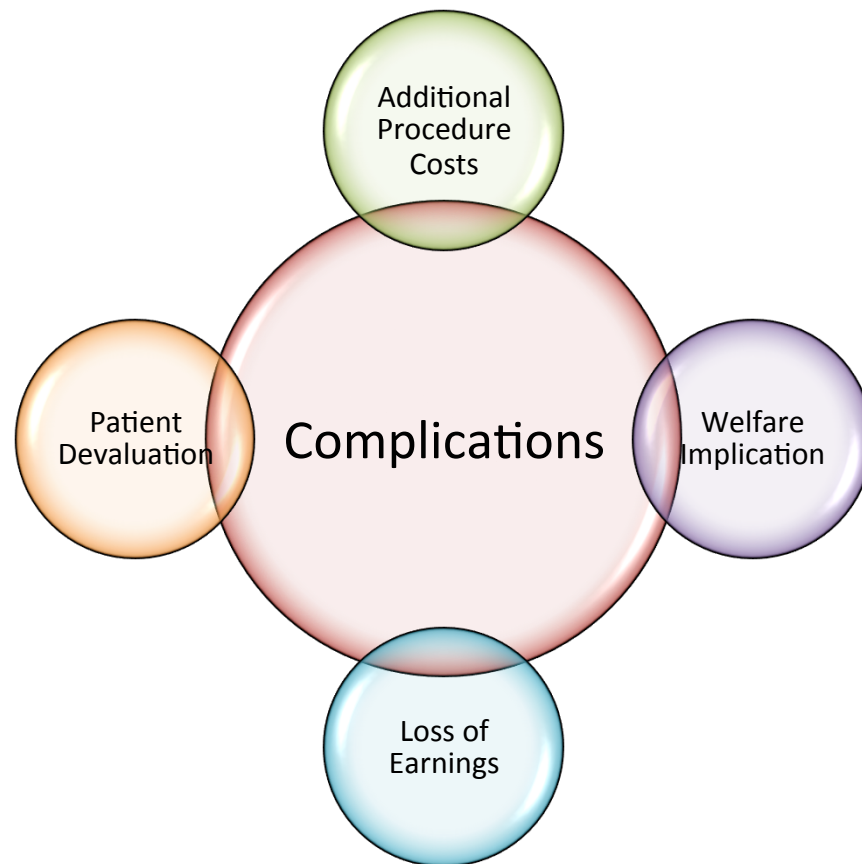
Nevertheless…

Despite advanced diagnostic techniques, some horses still undergo respiratory tract surgery based solely on the owner's, trainer's or practitioner's characterisation of abnormal respiratory noise.

This may be due to:

1. Lack of equipment availability

2. Financial constraints

3. Tradition

Witte, S.H.P., Witte, T.H., Harriss, F., Kelly, G., Pollock, P., 2011. Association of Owner-Reported Noise with Findings during Dynamic Respiratory Endoscopy in Thoroughbred Racehorses. *Equine Veterinary Journal*, 43(1), pp.9-17.

Consequences of Misdiagnosis:

Aims:

To deduce which conditions associated with dynamic obstruction of the respiratory tract were most common in the sample and compare this to published data

To determine whether a relationship exists between specific abnormal respiratory noises and particular conditions which cause dynamic obstruction of the upper respiratory tract

To survey the opinions of veterinary professionals regarding their thoughts concerning the type and character of the respiratory noises produced

Current Evidence Base

Palatal Dysfunction	Recurrent Laryngeal Neuropathy
In horses under the age of 4, or horses that have recently entered training (of any age), approximately 70% affected by palatal dysfunction will become normal within 3 months	Potentially devastating effect on performance
Many surgical procedures are described, none have better success rate than conservative management alone	Currently no consistently reliable treatment
Many are associated with dynamic abnormalities which are transient	Progression common

Therefore do you only need to be able to differentiate laryngeal issues from everything else?

Materials and Methods:

Examinations largely conducted at the same flat training yard.

High level of veterinary consultation and intervention

Materials and Methods:

16 horses with a history of poor performance

Horses were examined and recorded at 'under normal training conditions' via:

1. Overground Endoscopy
2. Trackside Video Footage
3. Bridle Mounted Microphone

Distance covered (4F, 6F, 8F) was noted and recorded

Materials and Methods:

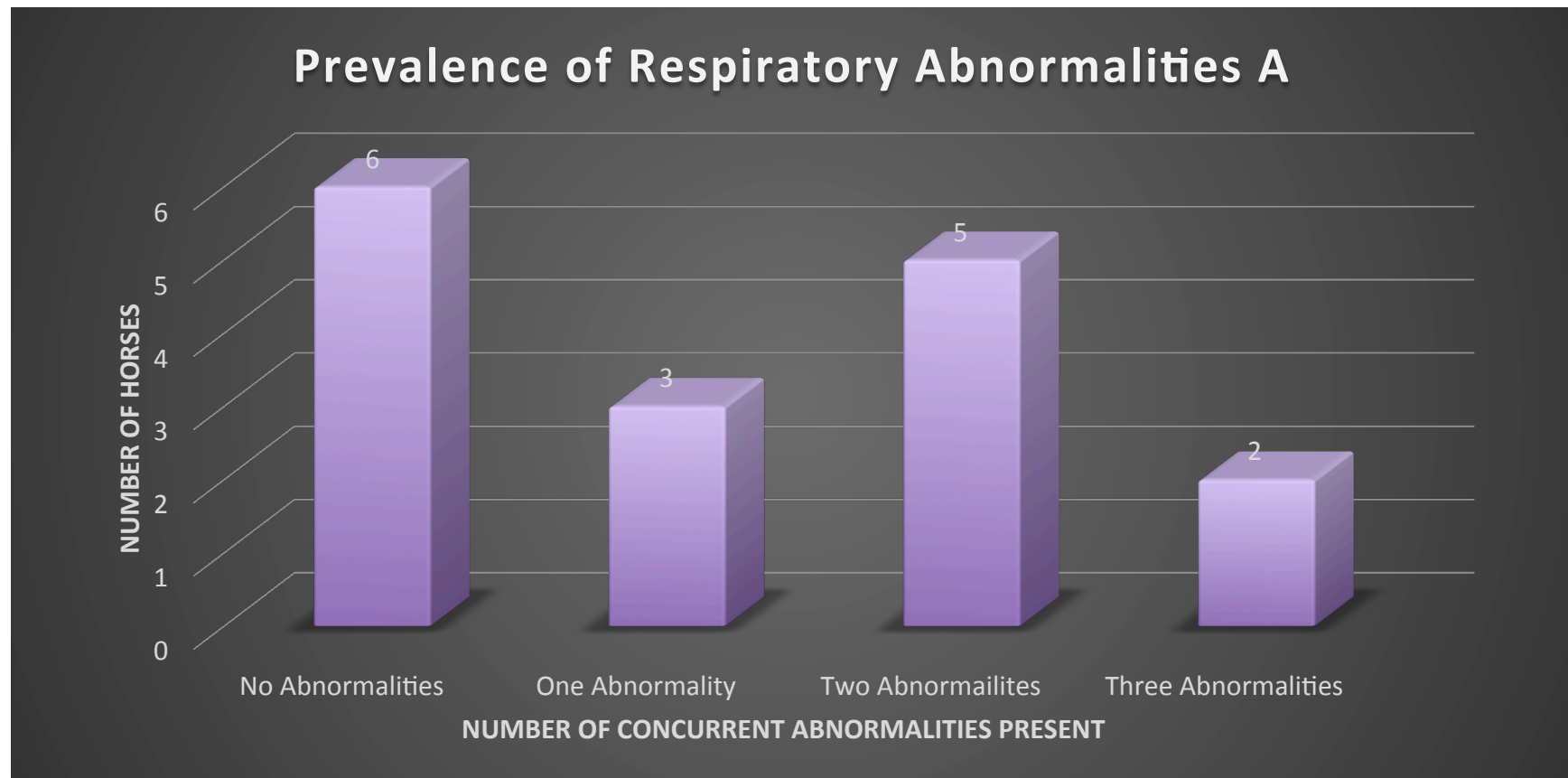Trackside video footage was later shown to a selection of veterinary practitioners...

They were asked state whether they thought the respiratory noises were:

1. The noise was normal or abnormal
2. What type of noise the horse was making
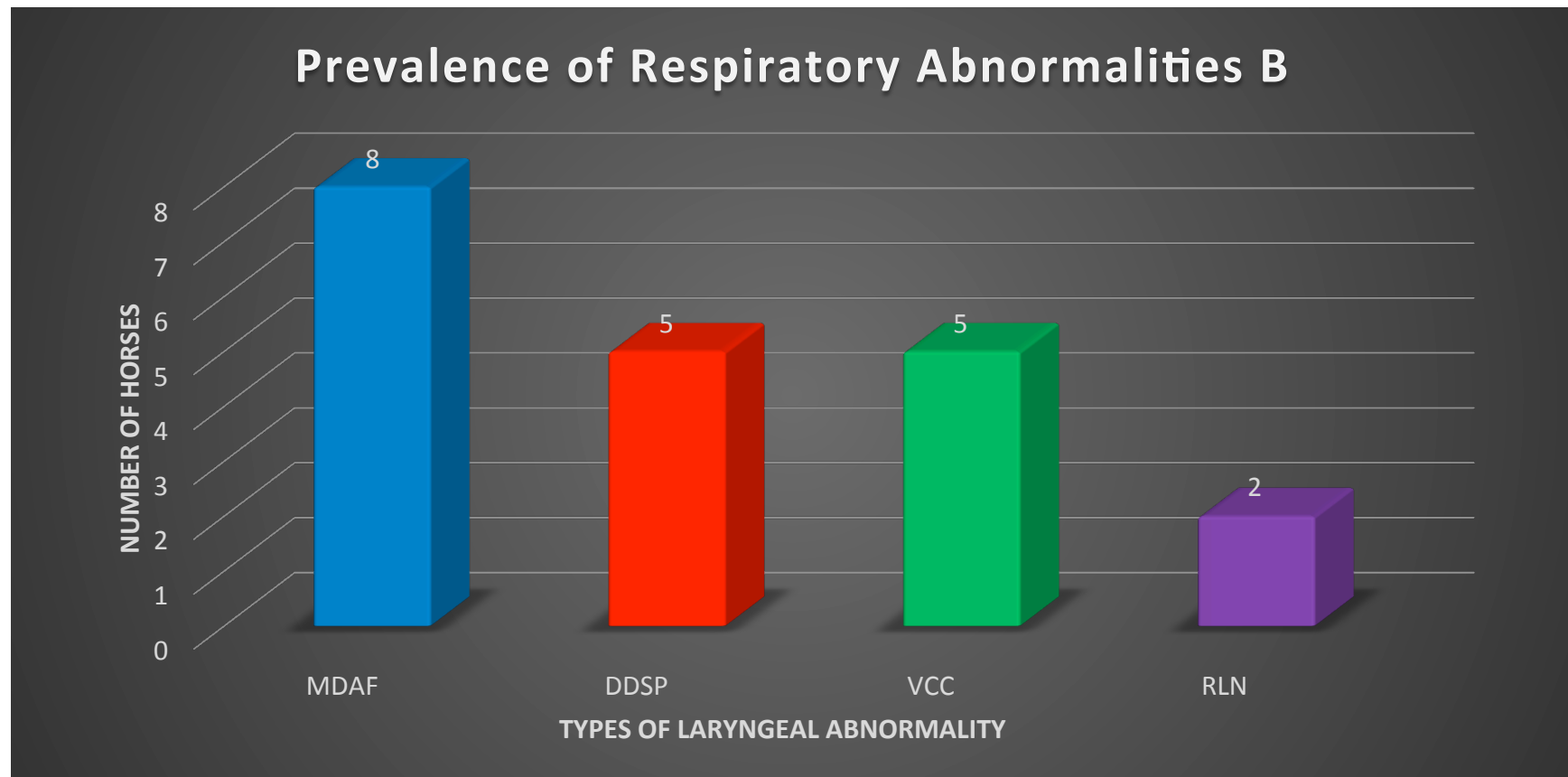3. Whether the noise was inspiratory, expiratory or pan-respiratory

Results and Discussion:

Horse	Resting Pathology	Dynamic Pathology
1	NAD	NAD
2	Laryngeal Asymmetry (3.3/4)	PMVDLA (Grade C) MDAF Bilateral VCC
3	Laryngeal Asymmetry (2.1/4)	MDAF DDSP
4	NAD	NAD
5	NAD	DDSP
6	Laryngeal Asymmetry (2.1/4)	MDAF VCC
7	NAD	MDAF
8	NAD	NAD
9	Laryngeal Asymmetry (2.2/4)	MDAF VCC
10	NAD	MDAF DDSP
11	Laryngeal Asymmetry (2.2/4)	NAD
12	NAD	NAD
13	NAD	NAD
14	NAD	MDAF Bilateral VCC DDSP
15	Laryngeal Asymmetry (3.2/4)	PMVDLA (Grade B)
16	NAD	MDAF DDSP

Results and Discussion:

Prevalence of Respiratory Abnormalities A

Results and Discussion:

Prevalence of Respiratory Abnormalities B

Results and Discussion:

Horse	Noise	Direction	Dynamic Dx.	NAD	PMDLA	MDAF	VCC	DDSP
1	Normal	N/A	NAD	1	0	0	0	0
2	Roar	Inspiratory	PMDLA MDAF VCC	0	1	1	1	0
3	Rough	Inspiratory	MDAF DDSP	0	0	1	0	1
4	Gurgle	Expiratory	DDSP	0	0	0	0	1
5	Whistle	Pan-Respiratory	MDAF VCC	0	0	1	1	0
8	Whistle	Inspiratory	MDAF VCC	0	0	1	1	0

Results and Discussion:

Horse	First Opinion Practitioner – Noise Type							EVS
	1	2	3	4	5	6	7	
1	Rough	Rough	Normal	Normal	Normal	Whistle	Normal	Normal
2	Roar	Rough	Roar	Rough	Roar	Roar	Roar	Roar
3	Normal	Normal	Whistle	Whistle	Rough	Rough	Rough	Rough
4	Gargle	Rough	Whistle	Rough	Gargle	Roar/Whistle	Gargle	Gargle
5	Whistle	Rough	Whistle	Whistle	Whistle	Whistle	Whistle	Whistle
8	Whistle	Rough	Whistle	Whistle	Roar	Roar	Normal	Whistle

Results and Discussion:

Horse	First Opinion Practitioner – Noise Type							
	1	2	3	4	5	6	7	EVS
1	Expiratory	Expiratory	Expiratory	Normal	Normal	Inspiratory	Normal	Normal
2	Expiratory	Expiratory	Inspiratory	Inspiratory	Inspiratory	Pan-Respiratory	Pan-Respiratory	Inspiratory
3	Normal	Normal	Inspiratory	Inspiratory	Expiratory	Expiratory	Expiratory	Inspiratory
4	Pan-Respiratory	Expiratory	Inspiratory	Pan-Respiratory	Pan-Respiratory	Expiratory	Inspiratory	Expiratory
5	Pan-Respiratory	Expiratory	Expiratory	Inspiratory	Pan-Respiratory	Inspiratory	Pan-Respiratory	Pan-Respiratory
8	Inspiratory	Inspiratory	Inspiratory	Inspiratory	Inspiratory	Inspiratory	Normal	Inspiratory

What Does This Mean?
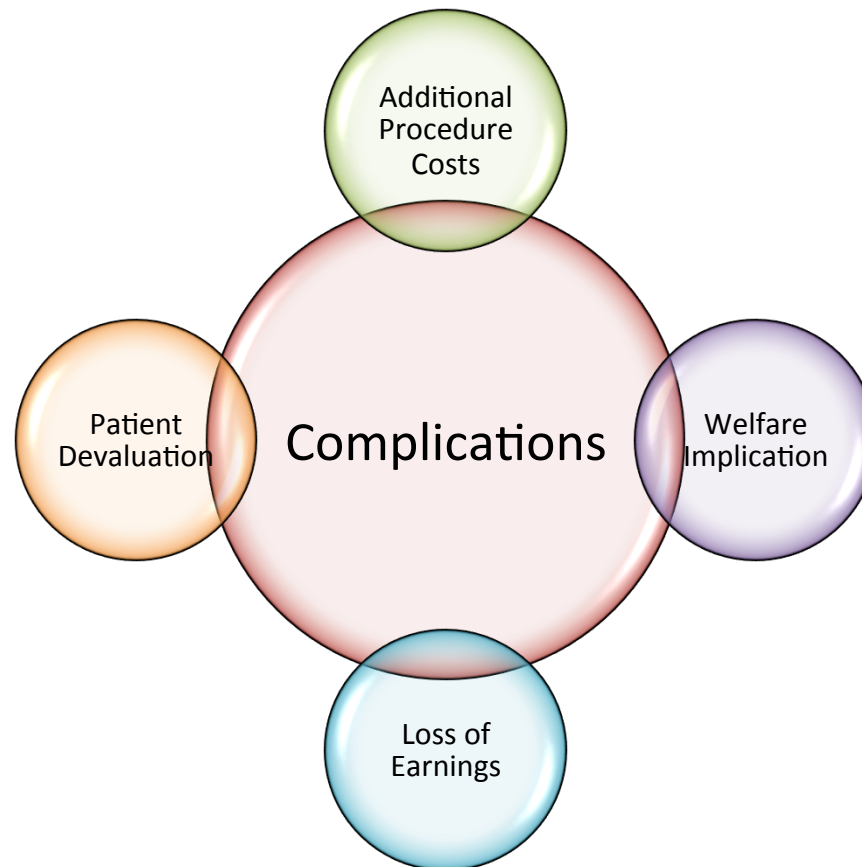
Conclusion:

<u>RESPIRATORY NOISE IS HIGHLY SUBJECTIVE</u>

What's Next?