



### VOHC Scoring Project Update

April 7, 2017

The VOHC Scoring Project session on Saturday morning, May 20, 2017 at the Malaga Veterinary Dental Congress is fast approaching.

Elbert Waller will be attending on behalf of Inspektor Research Systems. He will be bringing a QLF camera and the latest iteration of the QLF software to provide a demonstration of the system. I am planning to have a couple of dog and cat jaws available for the demonstration.

Here is the information provided by Inspektor in preparation for the Malaga meeting:

We will bring a demonstration system and can give a presentation that will cover the technology, the available systems and current state of the software.

At the moment we can provide hard- and software to assess plaque, or more precisely, the occurrence of red fluorescence indicating bacterial activity, in oral cavities of mammals. Apart from humans, most of the work has been done on dogs (at Waltham) but in principle the system can be used on any mammal.

The systems consist of a QLF™ Capturing Device connected to a computer that has our research software installed.

QLF™ Capturing Devices are devices that can capture image-sets of the fluorescent response of subjects illuminated with blue light of 405nm (the QLF™ image) and the white light image,

Waltham has worked with the C3/QA2 Research Suite. This has been succeeded by the C4 Research Suite that we will demonstrate in May.

The QLF™ Capturing Devices available are the QLF-D Biluminator™, the Qraycam™ and the Qraypen™.

The QLF-D Biluminator™ provides the highest quality imagesets, especially in combination with a mechanical arm.

The Qraycam™ is a lightweight, handheld version that is suited for setups that have to be moved around.

The Qraypen™ is an intraoral camera and especially practical for imaging (occlusal) surfaces of individual teeth inside the oral cavity but it can be used to make images of a full row of teeth.

C4 supports the structured acquisition, analysis and storage of data on a project/group/specimen/serie basis.

Operators should define these to organize their data. E.g.

project=Test experiment

groups=All dogs, control group and Intervention group

specimens=Layla, Pedro, Tex...Dog<sub>n</sub>

serie (for each dog)= Lateral left, Lateral right (will contain one or more image-sets of left and right sides).

Imagesets in series are ordered in time.

C4 supports by default a plaque score analysis (automatic analysis of total image) and a white spot analysis (manual).

For the analysis of red fluorescence on individual teeth a special analysis wizard has been developed (the Rapid Plaque Wizard) that has proven to be very effective in quickly assessing and archiving the amount of red fluorescence on individual teeth in a QLF™ image. Due to the huge variety of dental configurations, manual indication of the teeth of interest in each image is still much more reliable and faster than automated recognition. The wizard was built to facilitate this process as smoothly as possible and we believe that it is the most optimal solution to date.

The acquired data can be exported at any time for further statistical analysis.

The cost of the system depends on the hardware and the desired software functionality.

Lease and buy constructions are available.

Further development that would improve, automate or extend the measurement process is perfectly possible. We suggest that we first sit together. After we have a clear idea of what needs to be done we can propose a budget that would be needed for getting the work done.

I have asked my contacts at representative companies that have conducted VOHC trials in the past to review data from past VOHC submissions using correlation coefficient analysis to determine whether the full bilateral set of 'VOHC teeth' is necessary to provide credible data – it may be that a smaller sub-set of teeth that would be easier and simpler to use with the QLF system would be sufficiently well correlated with the full VOHC tooth data set. I hope to have these data in time for presentation at the Malaga meeting.

My hope is that the Malaga session will result in a clear route-map, including projected costs, for development of an off-the-shelf system that could be made available for routine use in VOHC trials.

The Malaga meeting ends with the last presentation on Saturday afternoon. **If you will be attending the Malaga meeting, would you be interested in a 'VOHC group' dinner arrangement on Saturday evening?**

At present, this would be with each person paying for their own meal and drinks (though I am open to hearing offers of offers for sponsorship of the dinner!). **Please let me know promptly** (by email to [VOHC@AVDC.org](mailto:VOHC@AVDC.org) in the next two weeks) if you will be staying over Saturday night and would like to attend the Saturday evening dinner. I will then ask my Malaga contacts for possible restaurant suggestions, based on the size of the group.

As always, comments on these updates and on the whole VOHC Scoring Project are welcome. Please send them to [VOHC@AVDC.org](mailto:VOHC@AVDC.org).

This note and all previous notes and files relating to this project are available online:

[http://www.vohc.org/digital\\_scoring.html](http://www.vohc.org/digital_scoring.html) You can access this webpage at any time from the VOHC Home page ([www.VOHC.org](http://www.VOHC.org)), then clicking Protocols & Submissions, then Detailed Protocol Requirements, then VOHC Digital Scoring Project (the item at the bottom of the link-list).

Colin Harvey