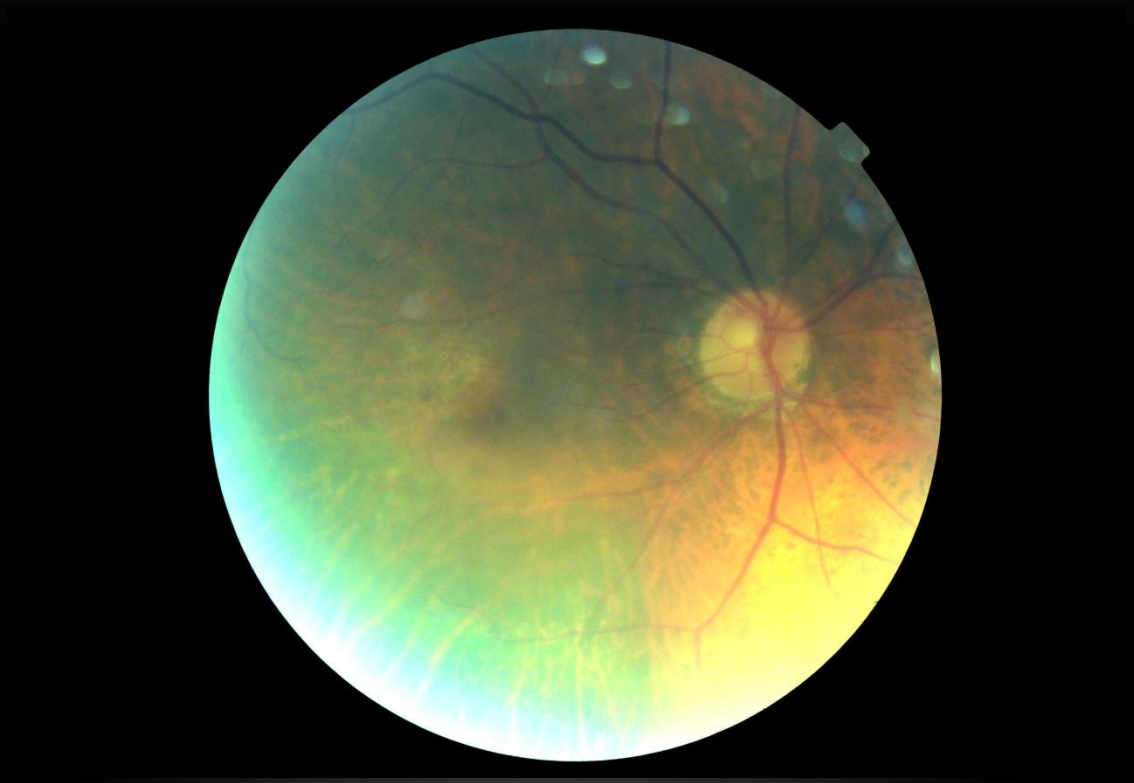
UNASSESSABLE IMAGES - A RECOMMENDATION TO DO LESS?

QUESTION

HOW CAN YOU DO LESS WHEN AN IMAGE PRESENTS ITSELF?

- Take an image



OPTIONS

Option 1

Grade it.

OPTIONS

What if the image is questionable? Possible U grade.

Grade it.

Resulting in Possible Unnecessary referral causing:

- Patient anxiety
- Patient bouncing (HES – DESP)
- Slots taken unnecessary if recalled
- Possible HES Capacity issues

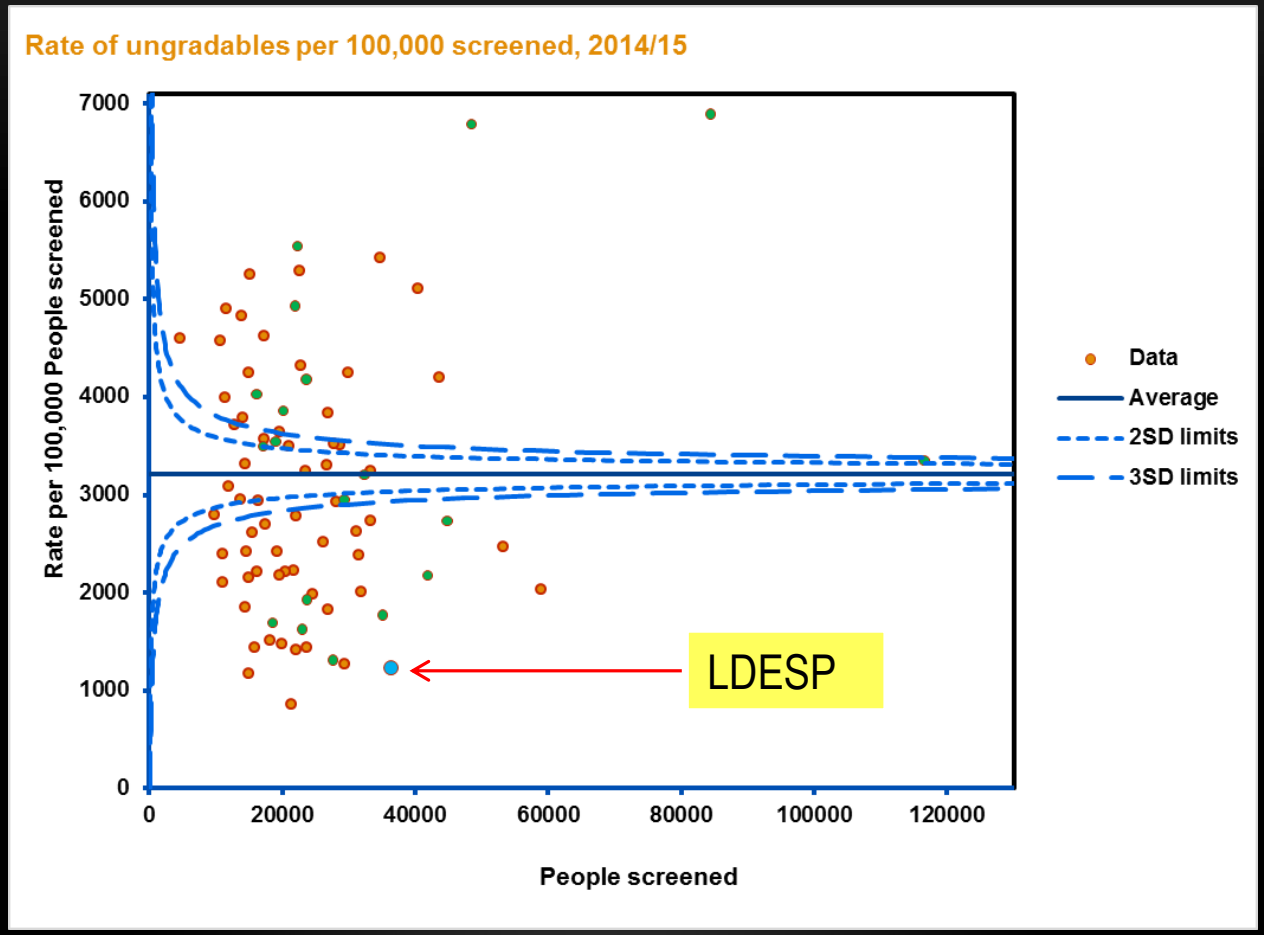
OPTIONS

Option 2

Educate

- Introduce good consistent safe practice
- Clinically trained staff
- Experienced grading team
- *Take 'offsets' (shadow shift)*
- *Communicate with HES to lessen patient bouncing*
- *Introduce a HES new staff information pack*
- *Write to HES when they discharge untreatable pathology which prevents image taking (Asteroid Hyalosis/cataract etc.)*
- *Exclusion groups (mental or physical) refer and keep in HES*
- *Constant failsafe monitoring*

HOW LOW DO YOU GO?



WHY IS THE LDESP UNASSESSABLE PERCENTAGE RATE LOW

REVIEW

- Dilation Time
- Offsets for Cataracts
- Multiple Shots
- Screener Feedback from Senior Graders
- Increase Flash
- Phenylephrine
- Notification of Poor Patient Dilation Problems (Comments)
- Image Enhancement
- Unsuitable for Screening (Cataracts/Asteroid Hyalosis/Exclusions etc.)

ROUTINE AND EXTRA IMAGES - BENEFITS

- Elimination of artefacts

  Whilst it is possible to establish artefacts from two field photography, it is easier if there are more images – particularly if there are partial shadows or cataracts.

- Sharper definition of the macula

  Improved clarity of the macular area makes it far easier to establish if a dark spot close to the fovea . m/a or not.

  This makes M0/M1 decisions a lot easier.

- Improved clarity reduces grading time

  Speeding up the grading process through better images improves overall throughput.

- Help in detection of early cataracts

  Degrees of haziness can often be determined when there is a benchmark image to compare against.

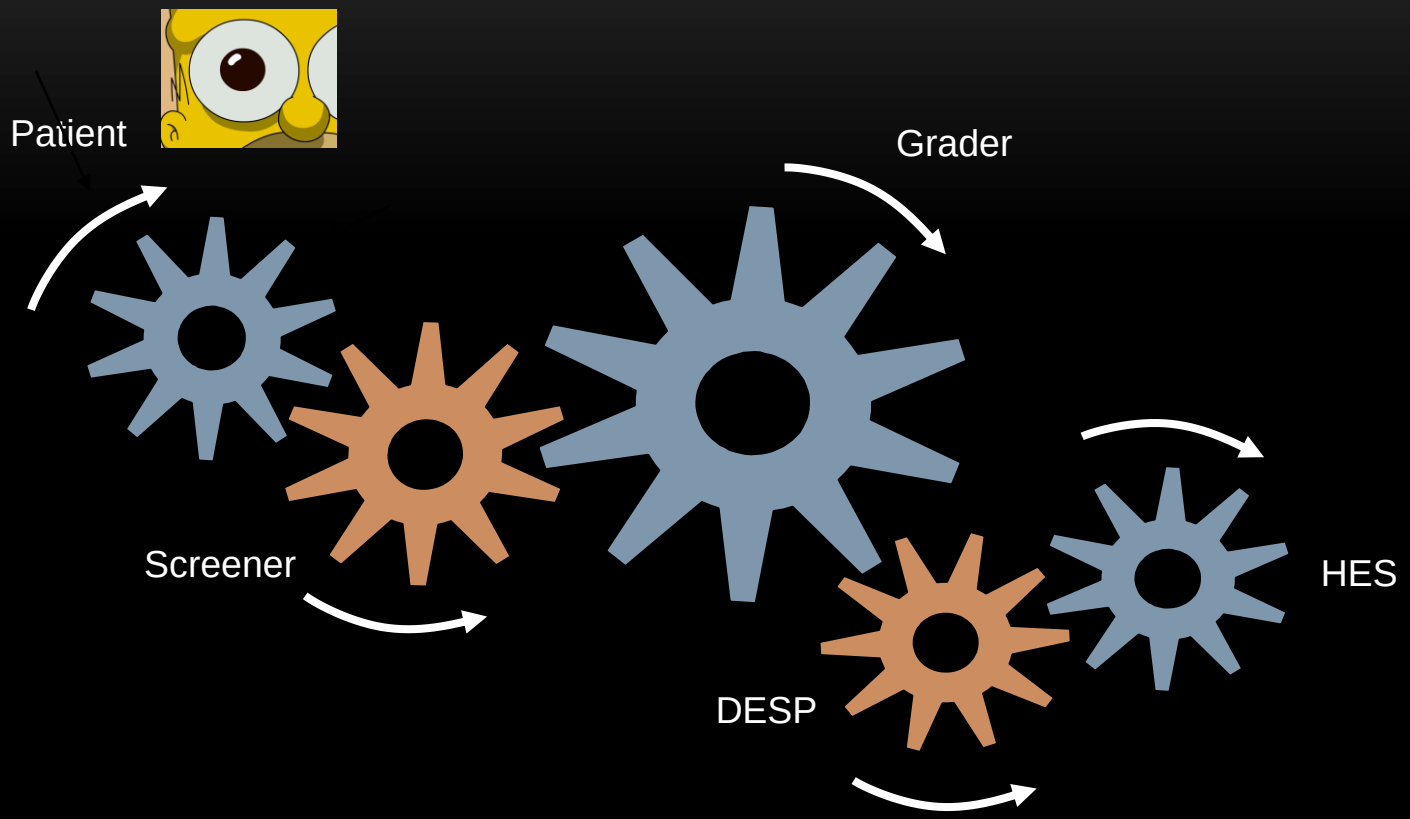
- Reduction in overexposed images

  Some images can appear very bright which often results in a lack of detail on the optic disc. Offsets create a natural reduction in light - this can result in improved clarity.

RECOMMENDATION TO DO MORE?

- LDESP built a system
- Each mechanism understands the system to achieve a goal…..

A realigned objective, functioning in harmony



Cogs must be aligned to achieve the holistic operation

2015/16 Unassessable Images Audit

155 Images where there was disagreement highlighted by the Intergrader Agreement Report

2015/16 Unassessable Audit

	Total Grades	Primary %	Unassessable Grades Total	Agreed	Under	Over	Secondary %	Unassessable Grades Total	Agreed	Under	Over	TAT % Average
Grader 1	6725	91.7	15	11	0	4	88.5	5	2	2	1	95
Grader 2	7136	92.2	69	58	4	7	86.5	15	12	2	1	95
Grader 3	4144	83.8	31	25	2	4	79.1	16	9	2	5	95
Grader 4	7831	85.5	116	93	2	21	93.1	3	3	0	0	92
Grader 5	4989	90.5	81	48	22	11	N/A	0	0	0	0	92
Grader 6	4763	86.2	80	66	2	12	N/A	0	0	0	0	92
Grader 7	7950	87	113	96	6	11	80.8	4	4	0	0	92
Grader 8	13012	88.1	240	203	12	25	68.3	14	11	1	2	95

			✔	‖	✘		✔	‖	✘
Total		Under	50	18	19	13	Over	105	17	76	12

Under	U	Totals are taken from the ROG Grade column as determined by HJC	Images graded 'Correctly' / 'Incorrectly' as adjudicated by HJC
R0M0	18	ROG 'Correct' to declare images as 'Inadequate'	ROG ultimately 'Correctly' graded these as 'U', so they would not affect the 'U' rate
	19	Borderline Cases	
R0M0	13	ROG 'Incorrect' to declare images as 'Inadequate'	ROG ultimately 'Incorrectly' graded these as 'U', which would have raised the 'U' rate incorrectly

Over	R0M0	Totals are taken from the ROG Grade column as determined by HJC	Images graded 'Correctly' / 'Incorrectly' as adjudicated by HJC
U	17	ROG 'Correct' to declare these images as 'Adequate'	ROG ultimately 'Correctly' grade these, so they would not affect the 'U' rate
	76	Borderline Cases	
U	12	ROG 'Incorrect' to declare these images as 'Adequate'	ROG ultimately 'Incorrectly' graded these, which would have lowered the 'U' rate incorrectly

I reviewed all 155 images & placed them into the following three categories …

Adequate	Borderline	Inadequate
If we're not grading these we're not grading anything	Cuspy enough to prompt reasonable debate	Are you using The Force ?

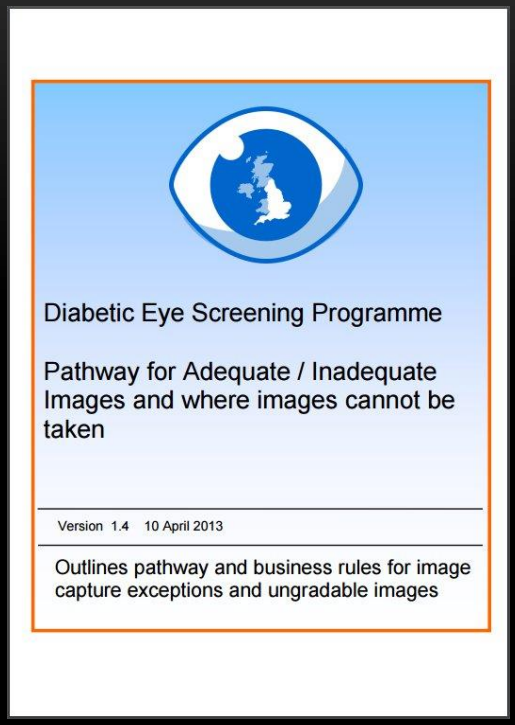
Pathway for Adequate/Inadequate Images

ADEQUATE :

Macular image centre of fovea >2DD from edge of image & vessels visible within 1DD of centre of fovea and Disc image complete optic disc >2DD from edge of image & fine vessels visible on surface of disc

INADEQUATE :

Decision process for allocating images of an eye inadequate image quality is the failure to meet definition of adequate above.



It is worth noting that this is minimal guidance.
For example, it doesn't state that any vessels or detail needs be seen in the 2DD around the optic disc on the nasal shot – just on the disc itself.

Conclusions

- **Where I agreed with ROG the overall 'U' rate would not be affected**

  There were 35 cases where I disagreed with Primary/Secondary grade - These were ultimately 'correctly' graded by the ROG

- **The overall 'U' rate would be virtually identical to the one which was submitted**

  The differential between 'Under' & 'Over' cases where I disagreed with the ROG effectively cancelled each other out

To clarify, LDESP would be in the same position on the funnel chart even if any retrospective changes were to be made.

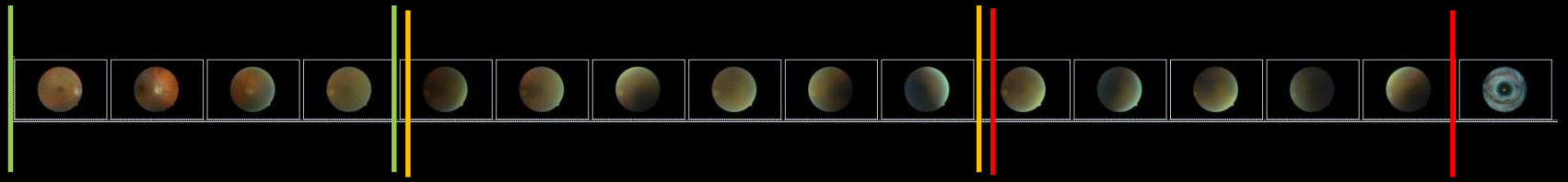
- **ROG Graders were 4 times more likely to grade a 'Borderline' case as 'Adequate' than Primary/Secondary Graders**

  I believe this is as it should be given their greater experience

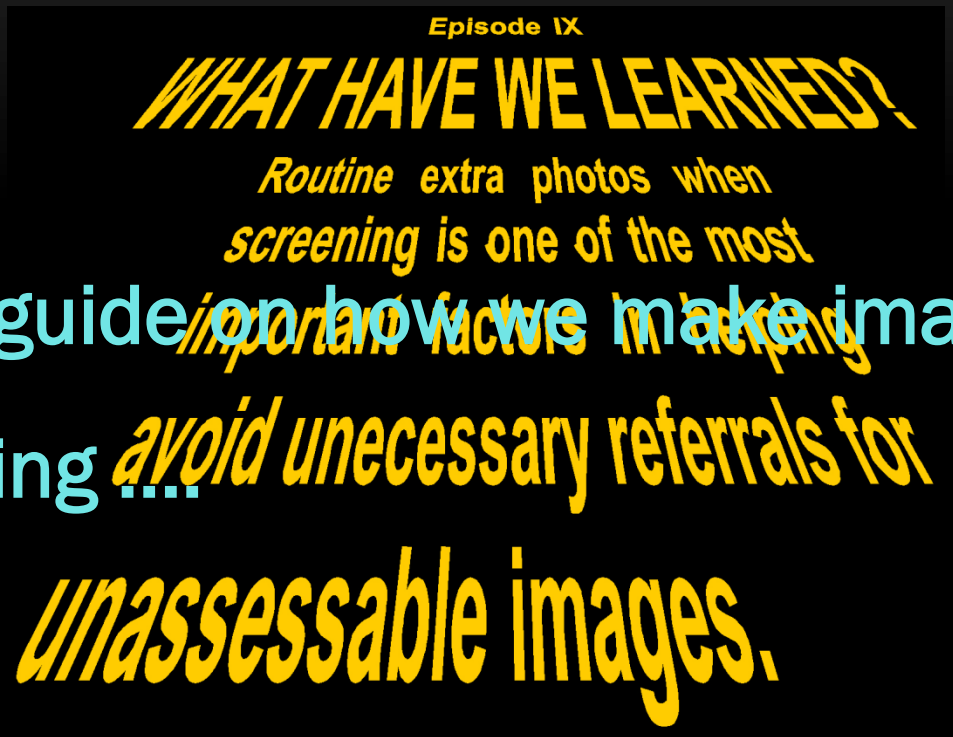
What Have We Learned ?

The most notable finding when reviewing these cases was the number of image sets where the grading process benefitted from additional images, particularly offsets to evade cataracts, shadows & asteroid hyalosis.

Lincs DESP have always advocated & encouraged the practice of freely capturing additional shots (within reason).

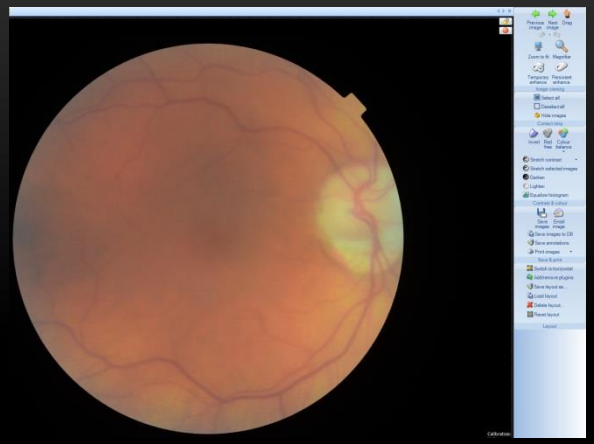


I still found 26 cases where I considered additional images would have helped.

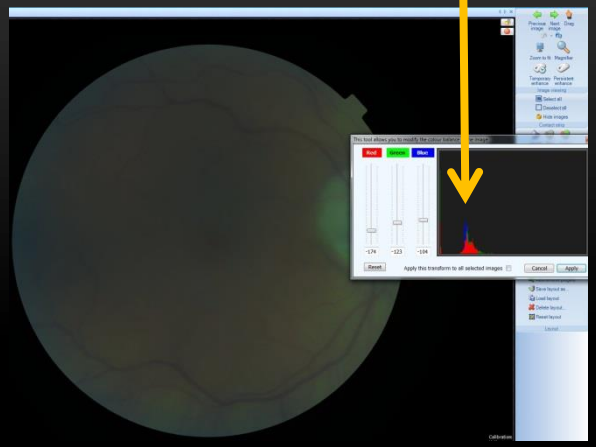


A quick guide on how we make images better for grading ....

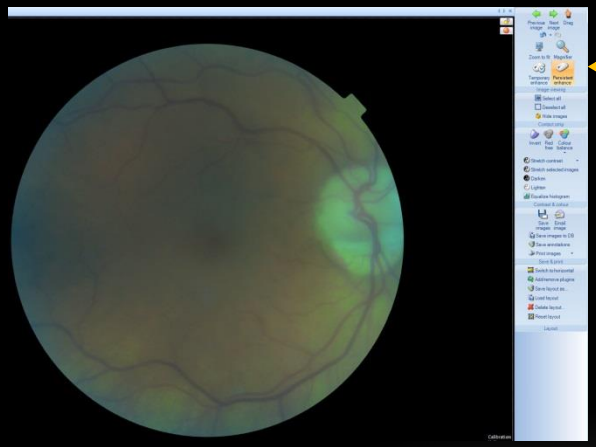
Raw Image



RGB Equalised

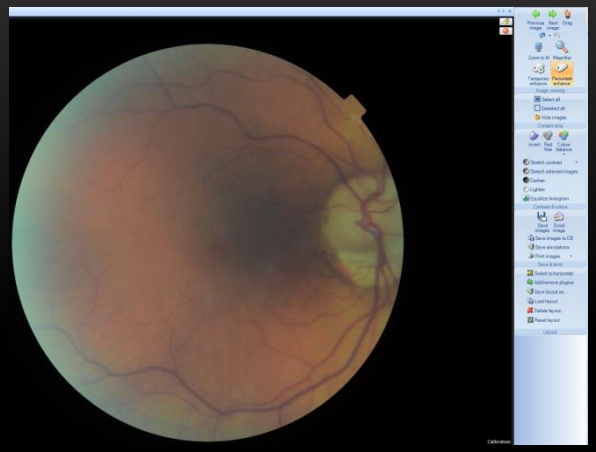


Persistent Enhance

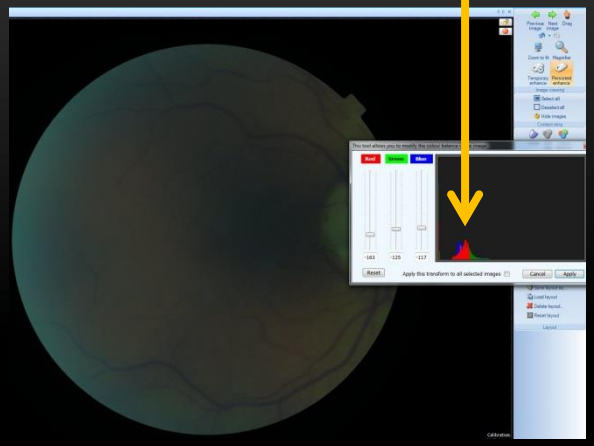


Offset Focus Spots

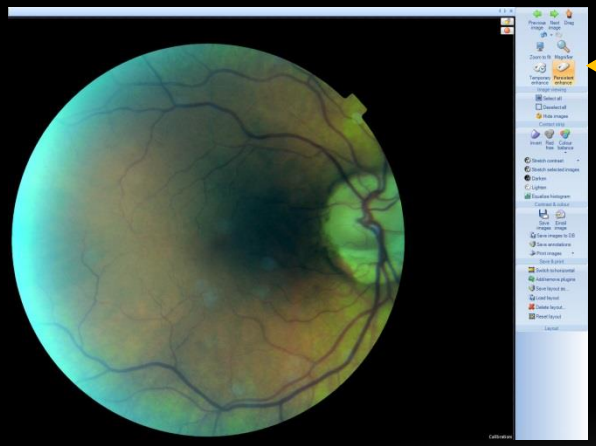
Raw Offset Image



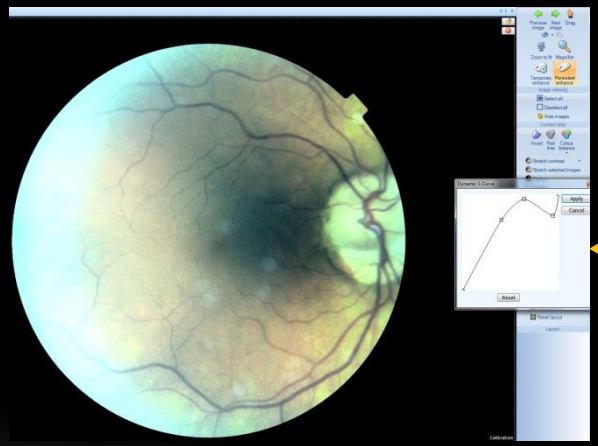
RGB Equalised



Persistent Enhance



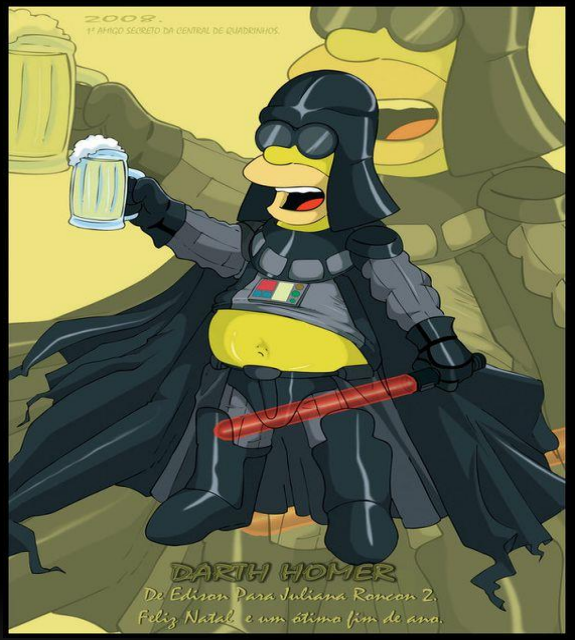
S-Curve



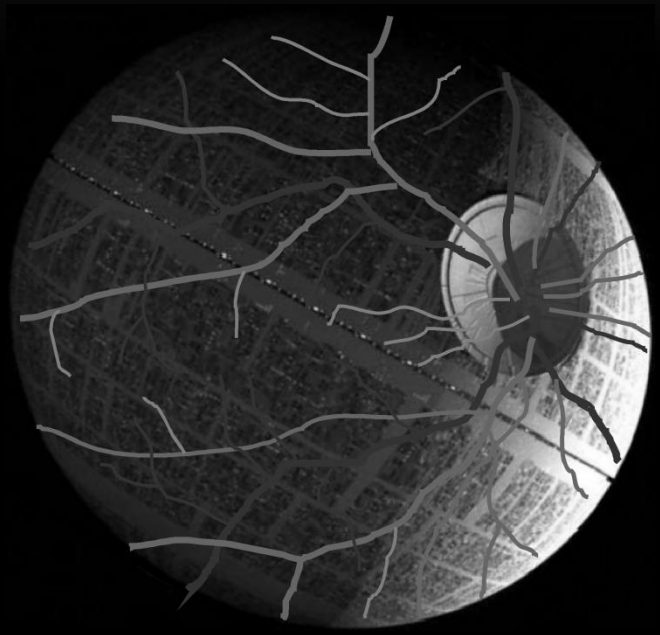
TO CONCLUDE

DO MORE = LESS…

- Unnecessary referrals
- Patient anxiety
- Harm
- Capacity issues
- Grading backlog
- Grading errors
- Rescreening
- Etc.…



That’s no moon …



Thank You