On behalf of Vision Expo, we sincerely thank you for being with us this year.

Vision Expo Has Gone Green!

We have eliminated all paper session evaluation forms. Please be sure to complete your electronic session evaluations online when you login to request your CE Letter for each course you attended! Your feedback is important to us as our Education Planning Committee considers content and speakers for future meetings to provide you with the best education possible.

vision expo

1

Making Life Easier (by reducing redos)

Pete Hanlin, ABOM
Vice President Professional Services
EssilorLuxottica

VISION EXPO

2

Redo statistics in the US

Nationwide, as of 2024 redo percentages across a rather large sample of accounts (n = >14,000) was **10.7%**.

However, there is a large variance in redo rates on a location-by-location basis.

Over **10%** of practitioners are redoing **>20%** of their orders.

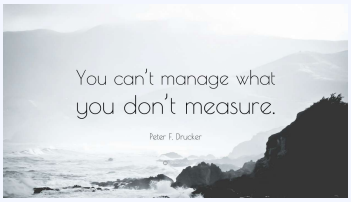
		YTD	
	ECP > 20 L /mth	#ECP	%ECP
	ECP >= 20%	1,614	11.3%
	ECP [12%-20%]	3,784	26.4%
	ECP [6%-12%]	4,231	29.5%
	ECP [0%-6%]	4,697	32.8%
	TOTAL	14,326	100.0%

4

What is Your Redo %?

Most practice/optical managers believe ***"Redos are not a problem for us."***

Most practice/optical managers also say ***"I've never checked our redo stats."***



5

Reducing Redos

Redos happen because… well, we're all human.

However, there are some broad categories into which most redos fall:

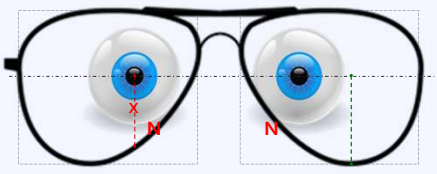
- ✓ **Fitting errors** (requiring repositioning of the lenses)
- ✓ **Failure to consider the lens / frame relationship**
- ✓ **Rx errors** (requiring change in lens power)
- ✓ **Verification errors** (standards incorrectly applied)
- ✓ **Lab errors** (lenses not made to order within power/aesthetic standards)
- ✓ **Warranties** (scratches, etc.)
- ✓ **Finishing issues** (edging, scratching, crazing, etc.)

Reducing redos often depends on the reason they are occurring…

8

Reducing Redos – Fitting Errors (PALs)

The most common fitting error with progressive lenses is fitting too low.



- intentionally fit too low
- measured to frame edge directly below eye
- failure to account for bevel

Even when measured correctly, sometimes the frame shape eliminates the near zone…

10

Reducing Redos – Fitting Errors (PALs)

Don't forget to provide enough area for distance vision as well…

10mm sufficient depth for Far Vision

~~14mm~~ minimum for short progression

17mm minimum for regular progression

g + 2r = 24"
(thank you,
Francois Blondel)

LEONARDO 11

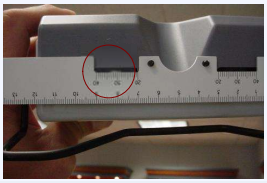
11

Reducing Redos – Fitting Errors (PALs)

Pupilometers can (and do) become innaccurate.

Pupilometers should be checked every 3 months:

- ✔ set distance to infinity
- ✔ set each slider to 30mm
- ✔ distance between wires should be within 0.5mm of 60mm



LEONARDO 12

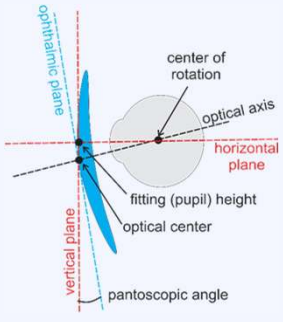
12

Reducing Redos – Fitting Errors (SV)

SV lenses need to be fit properly as well.

Unless there is no pantoscopic tilt (0^0), the optical center of a SV lens should NOT be placed over the pupil.

Martin's Formula for Tilt calls for the OC to be placed 1mm below the pupil for every 2^o of panto.



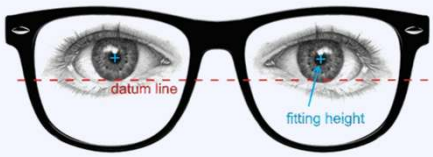
LEONARDO 15

15

Reducing Redos – Fitting Errors (SV)

SV lenses need to be fit properly as well.

This usually positions the OC on or near the datum line- which is why the laboratory will (by default) position the OC at the datum line when no OC height is specified.



LEONARDO 16

16

Reducing Redos – Fitting Errors SUMMARY

For progressive lenses:
- Position the fitting reference point (cross) at center pupil (ideally over corneal reflex)
  - ✓ Do NOT fit progressive lenses low
  - ✓ ALWAYS take monocular PDs
  - ✓ Check your pupilometer every 3 months to ensure it is still accurate
  - ✓ Try to fit frames at 8° tilt, 7° wrap, 12mm vertex
    - If you cannot- provide the actual position of wear

For SV lenses:
- Properly position the optical center of SV lenses
  - ✓ Usually this means putting the OC on the datum line

For ALL lenses:
- When fitting a wrap frame, consider the effect of the wrap on the Rx

LEONARDO 18

18

Reducing Redos – Lens / Frame Geometry

Who cares?

Tscherning's Ellipse determines the basic shape a spherical corrective lens will have.

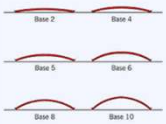
(>85% of SV lenses sold in the US are spherical.)

When the lens is edged, this is the general curvature of the bevel for various base curves.

LEONARDO 20

20

Reducing Redos – Lens / Frame Geometry



The eyewire of a frame (and even in drill mounts) is designed to accept a specific lens curvature.

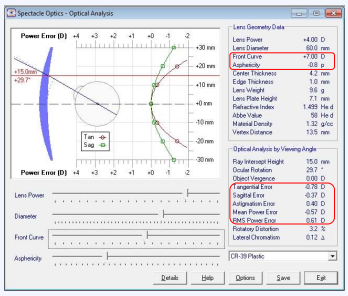
This means if you fit a 2 base lens into a 6 base frame, the temples will point away from each other…

21

Reducing Redos – Lens / Frame Geometry

Several "freeform" PAL designs allow you to change the base curve of the lens to match the frame.

Doing so *will* make the finished eyewear look better… but will negatively impact the patient's vision.



 P 1.0 = SPHERE, P 0.0 = PARABOLOID, P -0.5 = HYPERBOLOID, P 0.5 = PROLATE ELLIPSOID

23

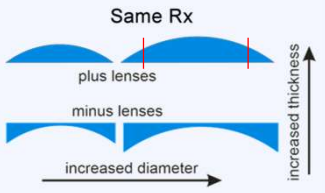
Reducing Redos – Lens / Frame Geometry

Don't forget about lens thickness!

Thickness is impacted by:

- Refractive Power
- Diameter
- Surface Geometry
- Index of Refraction

A high powered, large lens will ALWAYS have considerable thickness (even in high index).

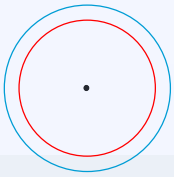


24

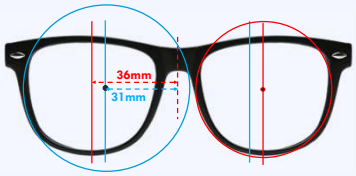
Reducing Redos – Lens / Frame Geometry

Lens shape and **decentration** affect lens diameter- because they affect effective diameter.

Decentration increases as the difference between the frame PD and patient PD increases…



Frame PD
A (54) + DBL (18) = 72mm



Patient PD
OD (31) + OS (31) = 62mm

36 – **31** = **5mm decentration**

26

Reducing Redos – Lens / Frame Geometry SUMMARY

There is a "best form" for all corrective lenses:

- For spherical lenses, plano will have a base curve of approximately 6 diopters
  - ✓ Most minus lenses will have a base curve of 4 or 2 diopters
  - ✓ Most plus lenses will have a base curve of 6 or 8 diopters
- Frames also have a "base curve"
  - ✓ The average dress frame (even rimless) assumes a base curve of around 5 diopters
  - ✓ Wrap frames generally assume a base curve of around 8 diopters
  - ✓ Fitting a lens with a flatter base curve than the frame shape will cause splayed temples
- Base curvature *can* be changed with some orders to create better looking eyewear
  - ✓ It is best NOT to change the base curve of a progressive lens
- Refractive power and diameter impact thickness more than index of refraction.
- A base curve chart will tell you what to expect for different powered lenses

29

Reducing Redos – Rx Errors

In a multifocal (or progressive) lens, the distance portion of the lens is the carrier. Changes to distance power will change the total near power…

If the distance power is increased at the same time the ADD is increased, total near power increases by the sum of both!

Old Rx: +1.00 sph +1.25 ADD
(Total near power = +2.25)

New Rx: +1.50 sph +1.75 ADD
(Total near power = +3.25)

31

Reducing Redos – Rx Errors

If the trouble is at near, ask the patient to hold reading material closer and further away…

If moving further away clears vision, ADD *may* be too weak.
If pulling closer clears vision, ADD *may* be too strong.

If the patient needs a recheck, be sure to note if near vision is clear at a specific distance.

32

Reducing Redos – Rx Errors SUMMARY

It is relatively rare to have redos due to an incorrectly prescribed Rx.
Assuming the lenses have already been verified as accurate to the order (fit and Rx)…

- When a patient complains they "cannot see"
  - ✓ Quickly determine WHAT distance the issue is at
  - ✓ If ***distance*** is the issue, check the accuracy of the distance Rx.
  - ✓ If ***near*** is the issue, check to see if a different reading distance clears vision.
- Pay attention to any changes in Rx from previous pair
  - ✓ Changing both distance and near can have a large impact on near vision
- If vision is clear at center of lens, but blurred in the periphery, dot lenses and recheck
  - ✓ (There is a very small % of individuals who do not tolerate asphericity- but that should be the diagnosis of exclusion.)

33

Reducing Redos – Verification & Lab Errors

5.1 General

Both uncut and edged finished lenses shall meet the following requirements. For lenses produced with compensations to account for as worn correction, the tolerances in the tables in clause 5 apply to those values specified by the manufacturer and not to the prescribed RX.

5.1.1 Distance Refractive Power (Back Vertex Power)

5.1.1.1 Single Vision and Multifocal Lenses

Table 1 – Tolerance on Distance Refractive Power (Single-Vision and Multifocal Lenses)

Sphere Meridian Power	Tolerance on Sphere Meridian Power	Cylinder ≥ 0.00 D ≤ - 2.00 D	Cylinder > - 2.00 D ≤ - 4.50 D	Cylinder > - 4.50 D
From - 6.50 D to + 6.50 D	± 0.13 D	± 0.13 D	± 0.15 D	± 4%
Stronger than ± 6.50 D	± 2%	± 0.13 D	± 0.15 D	± 4%

5.1.1.2 Progressive Addition Lenses

Table 2 – Tolerance on Distance Refractive Power (Progressive Addition Lenses)

Sphere Meridian Power	Tolerance on Sphere Meridian Power	Cylinder ≥ 0.00 D ≤ - 2.00 D	Cylinder > - 2.00 D ≤ - 3.50 D	Cylinder > - 3.50 D
From -8.00 D to + 8.00 D	± 0.16 D	± 0.16 D	± 0.18 D	± 5%
Stronger than ± 8.00 D	± 2%	± 0.16 D	± 0.18 D	± 5%

ANSI tolerances should always be applied to the provided compensated power- NOT to the ordered power.

(1,000s of orders have been returned to laboratories because tolerances were applied to the ordered power.)

Also keep in mind ANSI tolerances are not regulatory in nature- they exist to arbitrate between laboratories and eye care practitioners.

35

Reducing Redos – Verification & Lab Errors

Tolerances vs. Vision

Lenses should *always* be within ANSI tolerances*, but understand ANSI tolerances:

- Are not regulatory (it is not illegal to dispense an out-of-tolerance lens)
  - ✓ The only regulatory aspects in ANSI are
    - Impact resistance (FDA)
    - Lenses used for driving must transmit at least 8% of visible light (NHTSA)
- Do not represent what the visual system can tolerate / adapt to
  - ✓ Nearly every patient can tolerate more than 0.33Δ of horizontal prismatic error
  - ✓ Base in prism is generally much easier to tolerate than base out prism
  - ✓ Base down prism is generally much easier to tolerate than base up prism
  - ✓ Over-minus a myope and they'll probably hug you (under-minus them and they'll cry)!
    - The eye can accommodate for too much minus- it can do nothing for too much plus

*The ANSI Z80 2010 version indicated 25% of lenses do not meet all the standards.

37

Reducing Redos – Warranties

Warranties are designed to assure the consumer a product will be free from manufacturing defects (i.e., it will function as intended).

Warranties are NOT intended to provide a "*get out of jail free*" card to the consumer if the product is damaged due to normal wear and tear.

38

Reducing Redos – Warranties

A considerable percentage of redos are due to "warranty." Many of these redos are replacing non-defective lenses.

Market research indicates using warranties as a "free replacement" program leads to *decreased* sales for the ECP.

- A segment of patients use the replacement to avoid replacing eyewear.

Keys to Effective Warranties

- Warranties should be put in writing.
  - ✓ Reduces a LOT of misunderstandings
- Indicate the warranty covers defects.
  - ✓ Yes, the hard coat is warranted
  - ✓ No, your dog chewing on your lenses is not a product defect
- Specify all terms.
  - ✓ Length of warranty
  - ✓ What it covers
  - ✓ What it does not cover
  - ✓ Your responsibilities
  - ✓ Patient's responsibilities

41

Reducing Redos – Warranties SUMMARY

Warranties are a part of doing business. However, they are often used incorrectly.

- Do not use warranties as a "free-replacement" program
  - This actually reduces repurchase rates
- Put your warranties in writing
  - Specify they cover defects- not wear and tear
- Do not try to warranty against scratches
  - **Crown Glass** lenses will scratch when left in a purse!
- Peeling and crazing are legitimate defects
  - Peeling very rarely / never occurs on a thermally-cured coating
  - Crazing has two causes
    - ✓ Mechanical is usually not the fault of the patient.
    - ✓ Thermal often is.

44

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47