

Falls in Glaucoma Study (FIGS)



Pradeep Ramulu MD MHS PhD

Glaucoma Center of Excellence

Wilmer Eye Institute



JOHNS HOPKINS
M E D I C I N E



Thank You

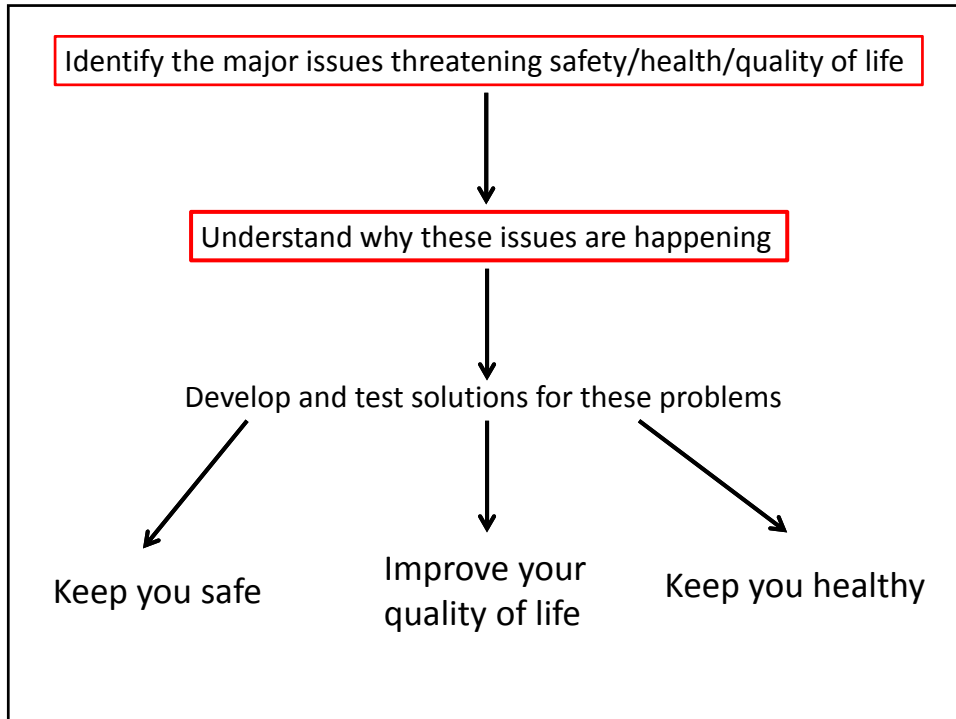


Research
to Prevent
Blindness

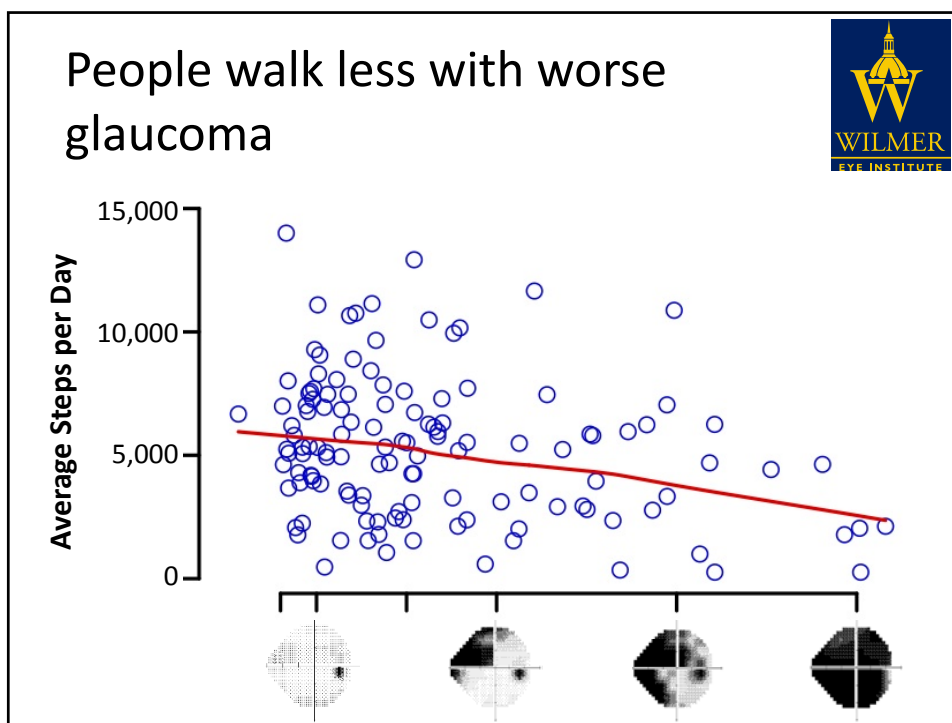
Grateful
Patients

Preserving vision and restoring sight through research.

LONG-TERM VISION



**MAJOR ISSUES THREATENING
SAFETY/HEALTH & WELL BEING
(IN GLAUCOMA)**



Glaucoma associated with less travel outside the home



Variable	Interval	Δ Weekly excursions	No excursions on given day (OR)
Glaucoma	vs. controls	-1.4	1.82
Severe glaucoma	vs. controls	-2.1	2.14
African-American	vs. non-AA	+1.0	0.53
Female	vs. male	-1.4	1.39
MMSE score	5 points \downarrow	-1.7	1.49

Other covariates: age, education, grip strength, day of week ($p > 0.2$)

Employment, living alone, other driver in home & comorbid illness not included as NS in age/gender adjusted analyses ($p > 0.3$)

Significant problems result from less walking/physical activity

Less activity associated with mortality

Less activity → more heart dz, diabetes, osteoporosis

Less activity associated with lower QoL

Leaving the home less has serious health consequences

↓ life space associated with higher mortality.

↓ life space associated with increased incident risk of Alzheimers and cognitive decline.

↓ life space → greater incident frailty.

Falls may underlie these activity restrictions

VF loss one of **strongest risk factors** for falls

2-4 fold ↑ fall risk with glaucoma

1/3 glaucoma subjects injure themselves from a fall each year

Glaucoma related falls → more than **\$1 billion/year**

Glaucoma has a large impact on fear of falling



Variable	Interval	Δ Fear of falling score (logits)	p value
Glaucoma	Present	-1.20	0.001
VF Loss, better eye	5 dB worse	-0.52	<0.001
Gender	female	-0.55	0.03
Comorbidities	1 illness	-0.53	<0.001
Lives alone	Yes	+1.16	0.006

Not important: BMI, grip strength, age

WHY CONDUCT FIGS?

Falls - significant public health issue

#1 cause of accidental death in older Americans

Frequent → hospitalizations in older Americans

2020 → \$55 billion

To prevent falls we need to know:

Who is at risk?

What preventable features can be addressed?

Are falls the cause of other mobility deficits?

Question 1:

Which of you is at significant risk for falls?

Importance:

Need to understand who is at risk, as those at risk need (the most) help.

Question 2:

What reversible factors are important to address to prevent falls?

Importance:

Need to understand what, specifically, needs to be addressed as part of fall prevention efforts.

Question 3:

What are the downstream effects of falls?

Importance:

Is fall prevention likely to address other mobility problems (low physical activity, home isolation)?

Do fall prevention efforts need to focus on the home, walking outside the home, or both?

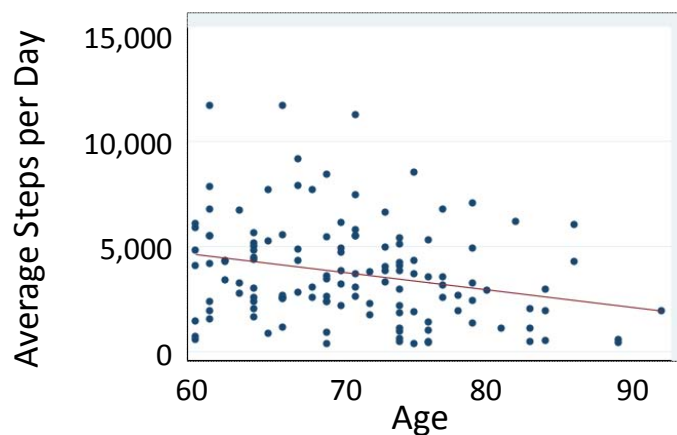
SOME INFORMATION WE HAVE LEARNED SO FAR

Basic Demographics

	Value
Age	71 (60 - 92)
Gender	
Female	82
Male	91
Race	
African American	54
White	99
American Indian	1
Asian, Pac-Island	15
Other	6

Physical activity summary

	Average Steps/day	Min	Max
Physical Activity	3,714	322	11,671



Fear of falling summary

Activity	Very/Moderately worried	Not worried at all
Walking outside when icy	134	28
Walking outside at night when icy	142	20
Walking on uneven terrain	103	59
Carrying bundles up poorly lit stairs	109	53
Climbing up poorly lit stairs	88	74

Glaucoma quality of life summary

Activity	None	A little/some	Quite a lot/severe
Seeing at night	51	93	17
Adjusting to bright lights	51	92	17
Going from light to dark room & vice versa	64	86	12

Where should we be in one year?

Description of how balance/gait is different which different degrees of vision loss

Preliminary assessment of predictors of fall risk (visual & non-visual)

Early plan on how we will try to prevent falls.

Thank You!