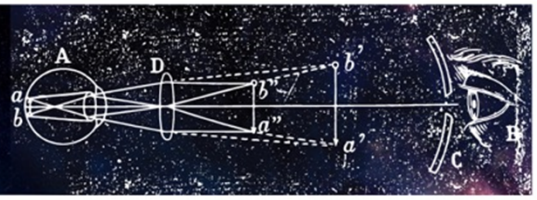
Focus on Eye Health National Summit:

What's in Sight?



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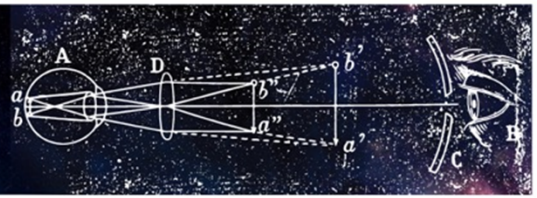
Vision and Eye Health Surveillance

Focus on Eye Health National Summit:

What's in Sight?



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Panel moderator: Jeff Todd, Prevent Blindness

500 Cities: Local Data for Better Health

Measures Tracked

UNHEALTHY BEHAVIORS

Binge Drinking

Current Smoking

No Leisure-Time Physical Activity

Obesity

Sleeping Less Than 7 Hours

HEALTH OUTCOMES

Arthritis

Current Asthma

High Blood Pressure

Cancer (Excluding Skin C

High C

Mental Health Not Good for ≥14 Days

Physical Health Not Good for ≥14 Days

All Teeth Lost

Stroke

PREVENTION

Current Lack of Health Insurance

Visits to Doctor For Routine Checkup Within

ear

linic

od

Pap Smear

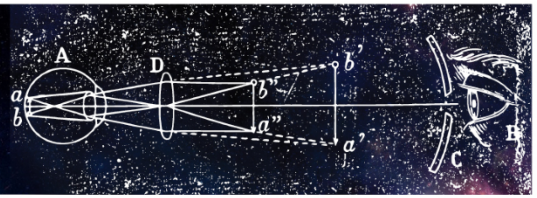
Fecal Occult Blood Test, Sigmoidoscopy, or Colonoscopy

Up to Date on a Core Set of Clinical Preventive Services

If it isn't measured – it isn't done; and this has been the case for vision for far too long!

Focus on Eye Health National Summit:

What's in Sight?



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John Wittenborn,
NORC at the
University of Chicago

Phoebe Lamuda,
NORC at the
University of Chicago

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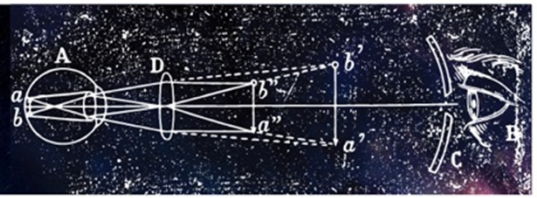

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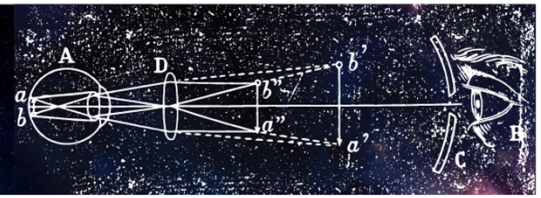
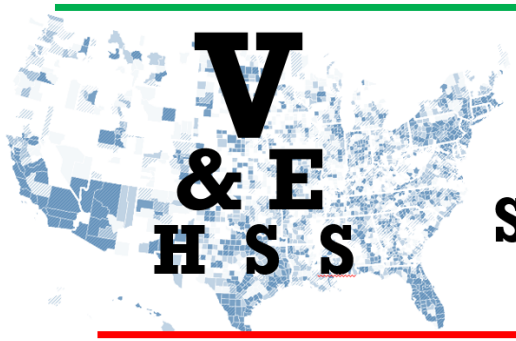
John Wittenborn

VEHSS Project Director





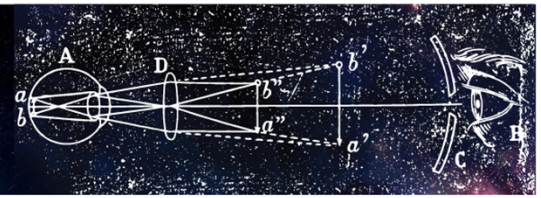
VISION & EYE HEALTH SURVEILLANCE SYSTEM

VEHSS

- CDC Cooperative agreement awarded to NORC in 2015
- 4-year project currently in year 2 of development

Focus on Eye Health National Summit:

What's in Sight?



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- Centers for Disease Control and Prevention
- NORC at the University of Chicago
- The University of Wisconsin-Madison School of Medicine and Public Health
- Prevent Blindness
- American Academy of Ophthalmology
- VSP Inc.

- Additional partners:
  - KPMG
  - HIV Counts
- Potential future partners:
  - The University of Washington's Institute for Health Metrics and Evaluation (IHME)
  - Uniformed Services University of the Health Sciences
  - American Optometric Association
  - Northrop Grumman

VEHSS Specific Aims

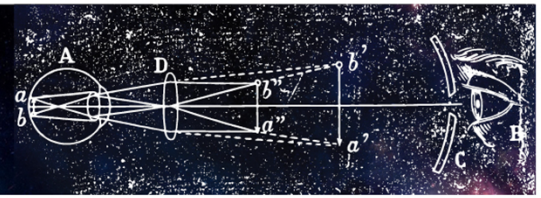
- Create new prevalence and service utilization estimates
- Identify current disparities
- Design the capacity to update, identify trends and measure impacts
- Disseminate information

System Development: 5 Simple Steps

1. Identify and select available data
2. Define data indicators and case definitions
3. Generate single-source estimates
4. Integrate data sources into comprehensive estimates
5. Transparency and dissemination

Review of Step 1: Data Selection

- National surveys
- Administrative claims databases
  - Medicare, Medicaid, VSP, MarketScan
- EHR databases and Registries
  - IRIS Registry
- Population-based studies and meta-analyses



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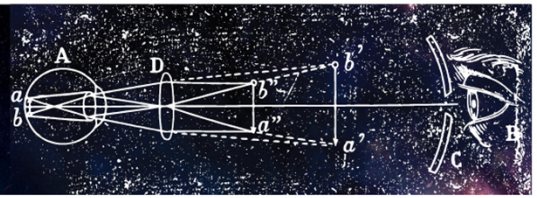
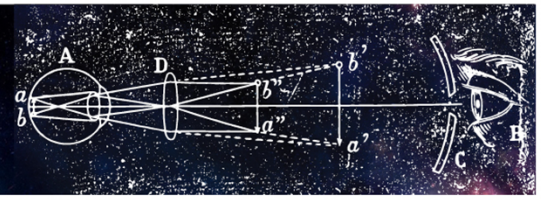


Define data indicators

- Indicators are the measures that we will capture in each data source
  1. Diagnosis categories
  2. Service utilization
  3. Visual function categories
  4. Surveys instrument categories

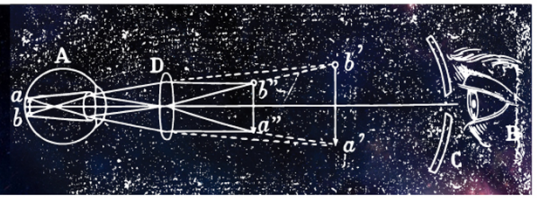


1. Data Indicator: Diagnosis Categories

1. Identified ~5,000 diagnosis codes
   a) ICD-9 and ICD-10 codes
2. Organized into 2-level organization system
   a) 17 categories
   b) 79 subcategories
3. All diagnosis codes are assigned to a single subcategory

Focus on Eye Health National Summit:

What's in Sight?



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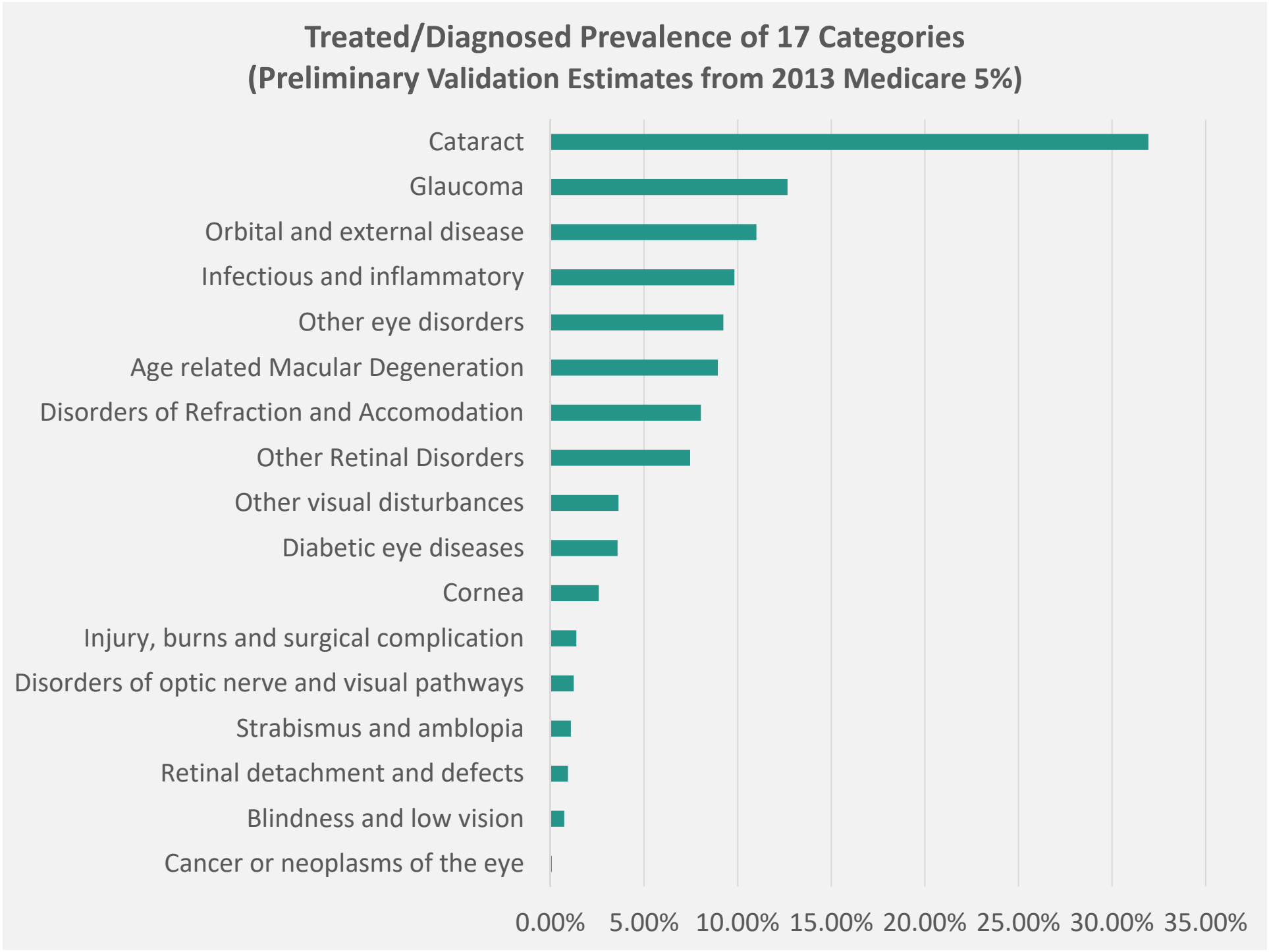
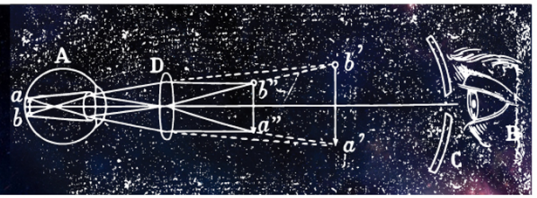
Diagnosis Categories
Category 1. Retinal Detachment and Defects
Category 2. Diabetic Eye Diseases
Category 3. Age related macular degeneration
Category 4. Other Retinal Disorders
Category 5. Glaucoma
Category 6. Cataracts
Category 7. Disorders of Refraction and accommodation
Category 8. Blindness and low vision
Category 9. Strabismus and amblyopia
Category 10. Injury, burns and surgical complications of the eye
Category 11. Disorders of optic nerve and visual pathways
Category 12. Other visual disturbances
Category 13. Infectious and Inflammatory diseases
Category 14. Orbital and external disease
Category 15. Cancer and neoplasms of the eye
Category 16. Cornea disorders
Category 17. Other eye disorders


Treated/Diagnosed Prevalence of 17 Categories
(Preliminary Validation Estimates from 2013 Medicare 5%)
Cataract
Glaucoma
Orbital and external disease
Infectious and inflammatory
Other eye disorders
Age related Macular Degeneration
Disorders of Refraction and Accomodation
Other Retinal Disorders
Other visual disturbances
Diabetic eye diseases
Cornea
Injury, burns and surgical complication
Disorders of optic nerve and visual pathways
Strabismus and amblopia
Retinal detachment and defects
Blindness and low vision
Cancer or neoplasms of the eye
0.00%
5.00%
10.00%
15.00%
20.00%
25.00%
30.00%
35.00%

Focus on Eye Health National Summit:

What's in Sight?



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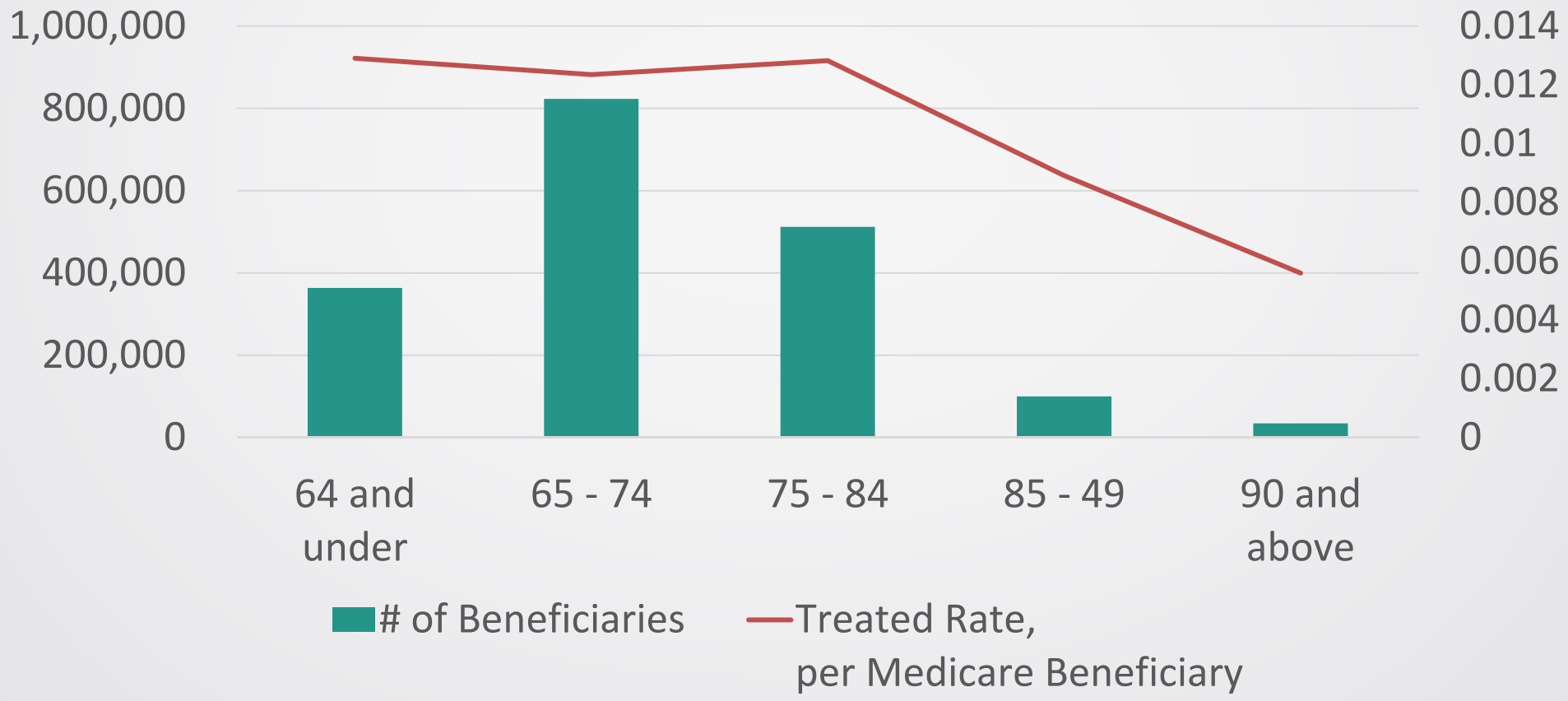
Diabetic Eye Diseases by Age Group

(Preliminary Validation Estimates from 2013 Medicare 5%)



Focus on Eye Health National Summit:

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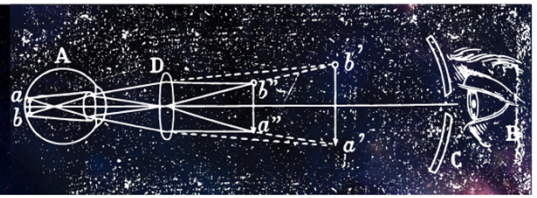

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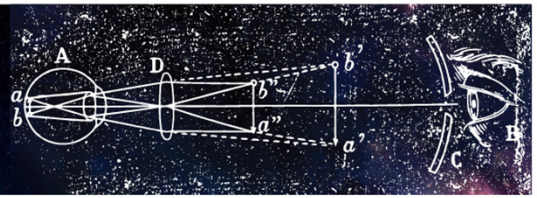
Category 16. Cornea disorders
Category 17. Other eye disorders

Subgroups	
Category 2	**Diabetic Eye Diseases**
Subcategory 2.1	Early/Mild Diabetic Retinopathy
Subcategory 2.2	Moderate /Severe Non-proliferative Diabetic Retinopathy
Subcategory 2.3	Proliferative Diabetic Retinopathy
Subcategory 2.4	Diabetic Macular Edema (DME, CSDME)
Subcategory 2.5	Other/unspecified diabetes related eye conditions

Focus on Eye Health National Summit:

What's in Sight?



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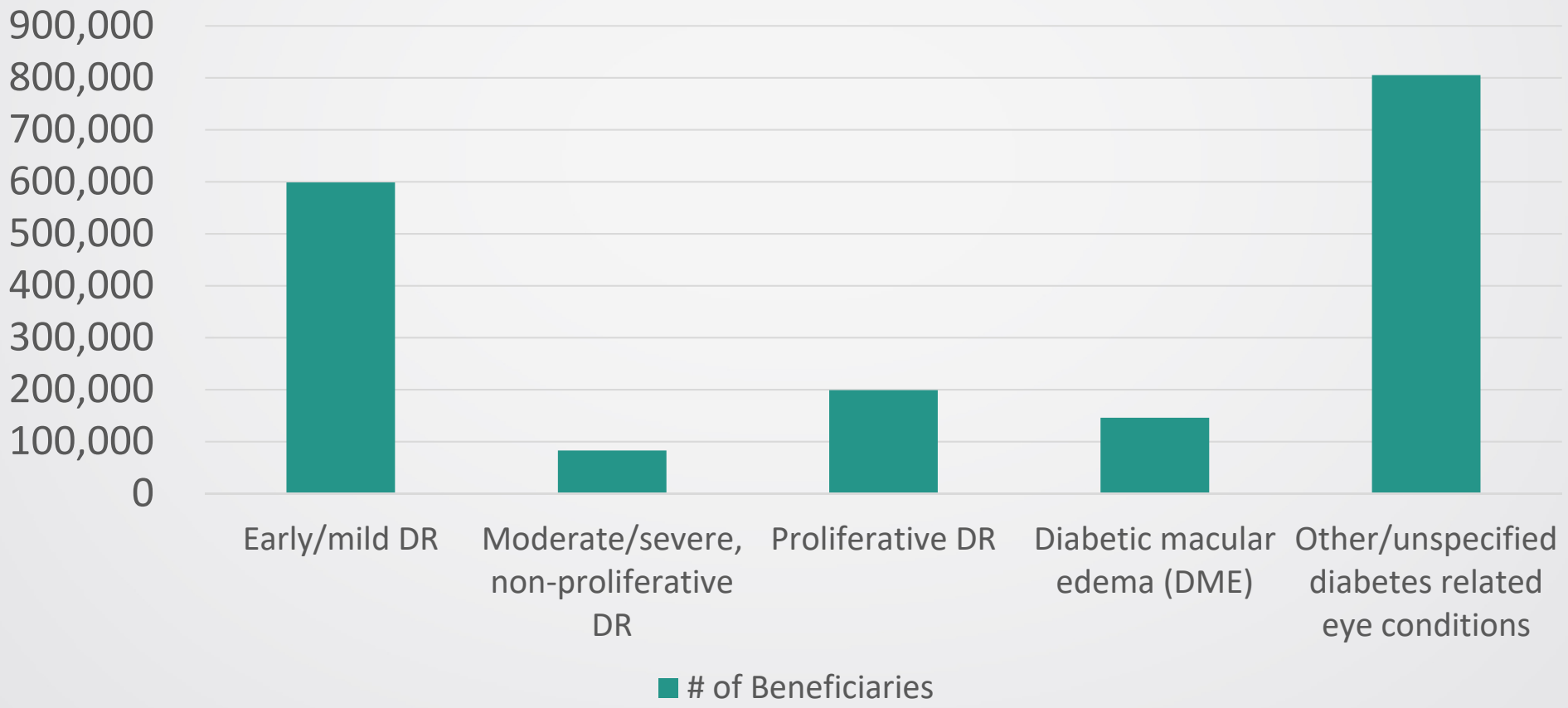
Diabetic Eye Diseases, by Subcategory

(Preliminary Validation Estimates from 2013 Medicare 5%)



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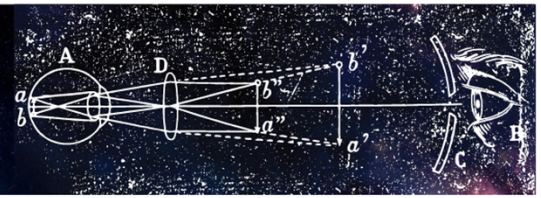

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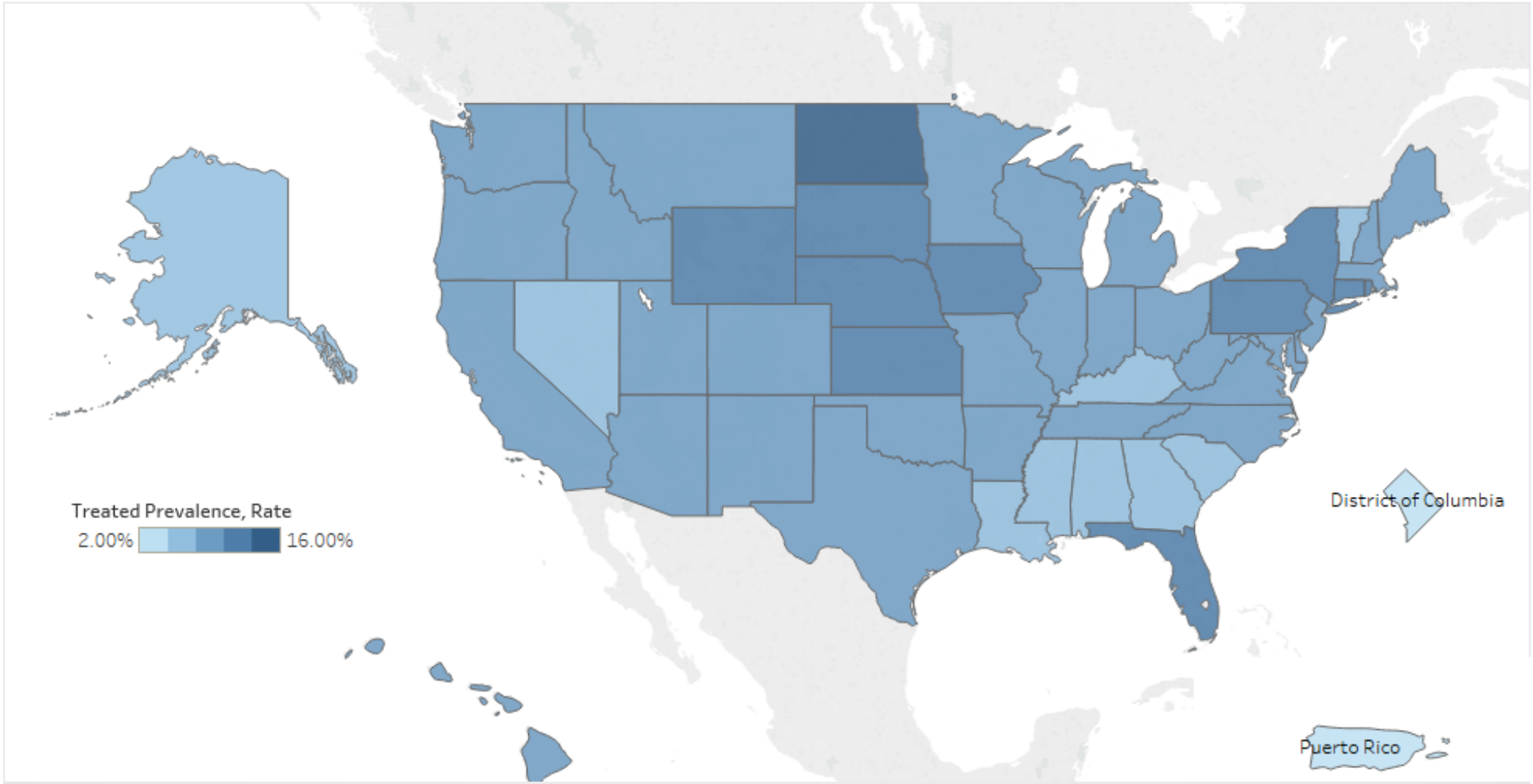
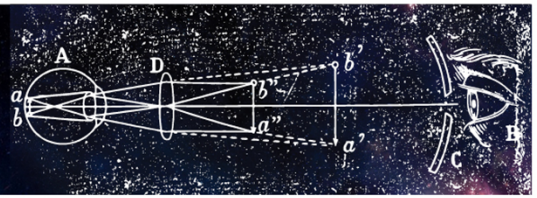
Age related macular degeneration, Treated Prevalence Rate, 2013 Medicare LDS



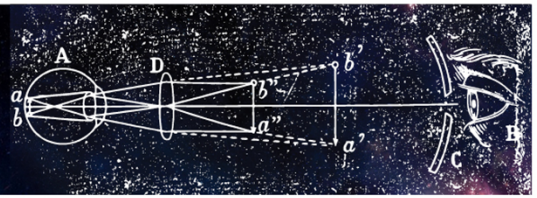


2. Data Indicator: Service Utilization

- Eye examinations
  - Eye exam procedure codes
  - Exams provided by eye care providers

Focus on Eye Health National Summit:

What's in Sight?



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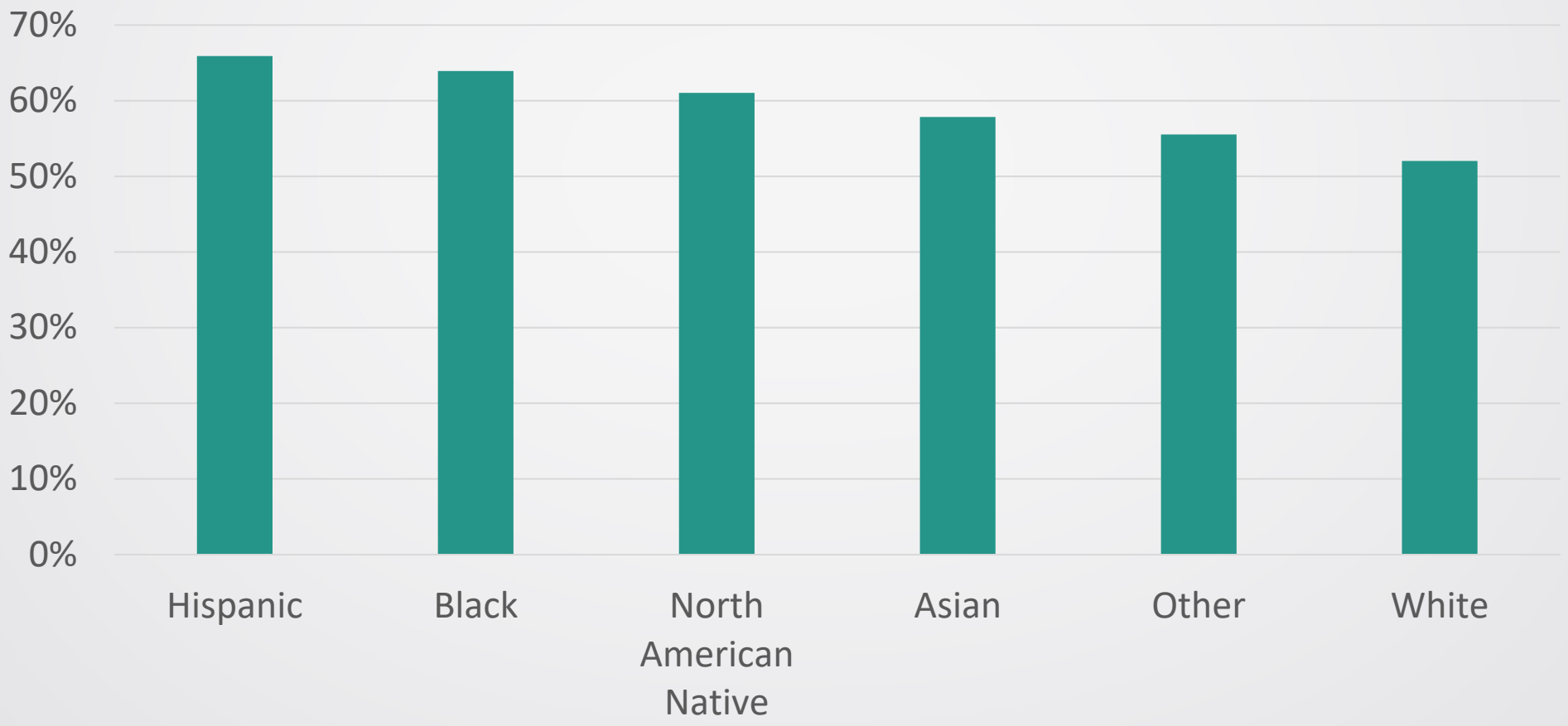
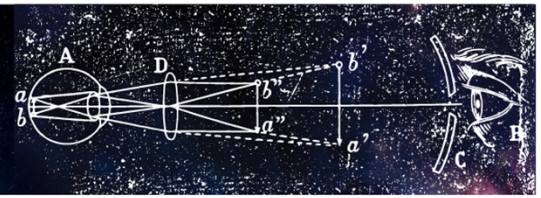
Proportion of Beneficiaries Receiving Exam

(Preliminary Validation Estimates from 2013 Medicare 5%)



Focus on Eye Health National Summit:

What's in Sight?



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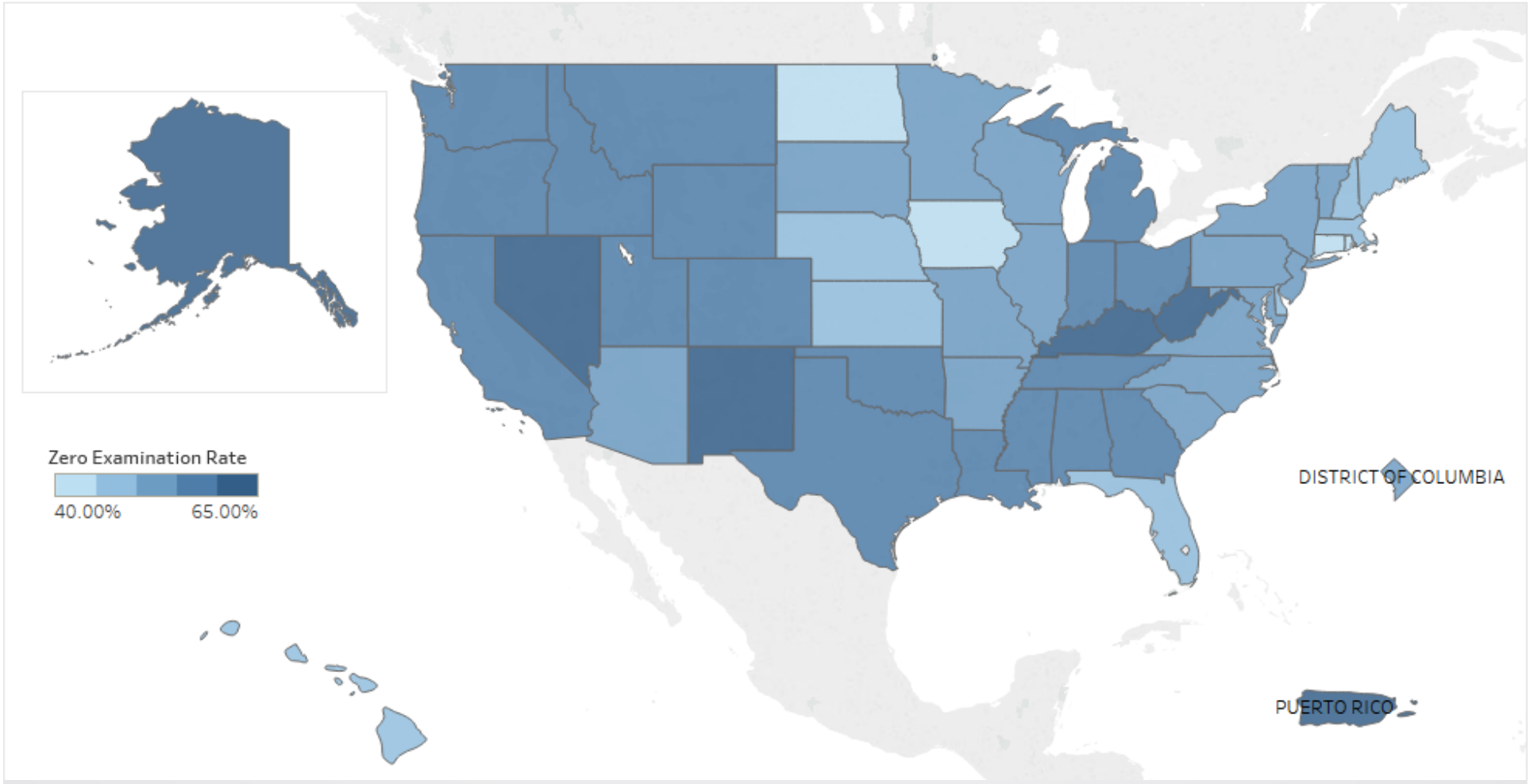
Proportion of Medicare Beneficiaries Receiving No Eye Exam, 2013 Medicare LDS



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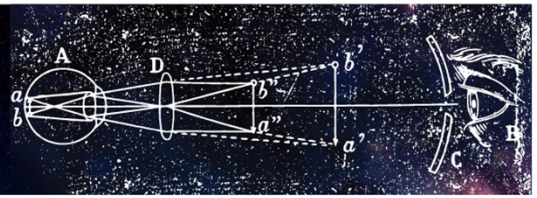

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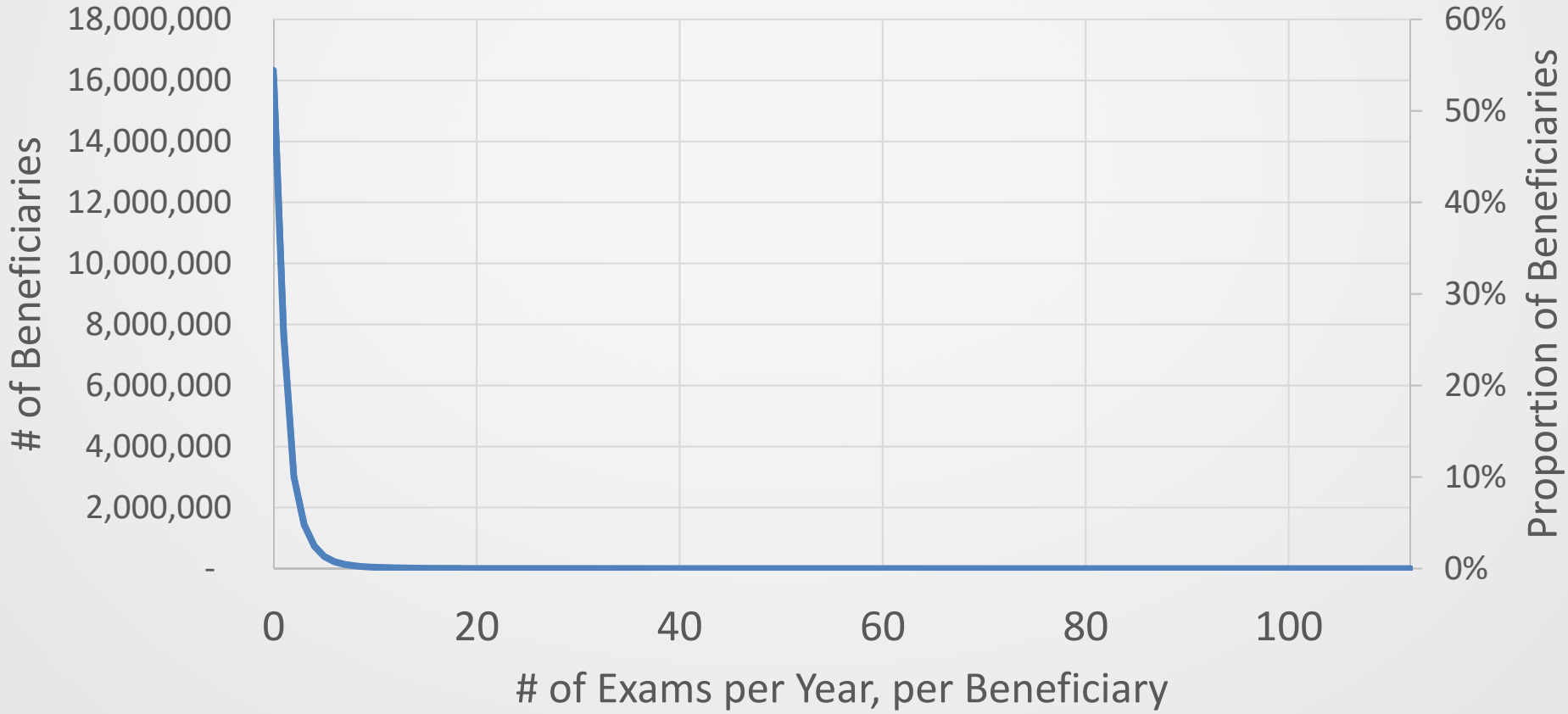
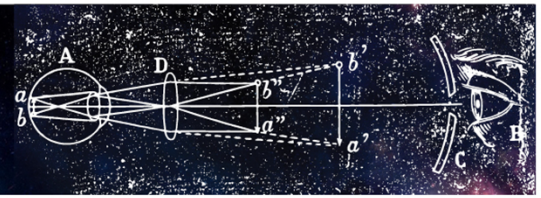
Eye Examinations – Frequency

(Preliminary Validation Estimates from 2013 Medicare 5%)





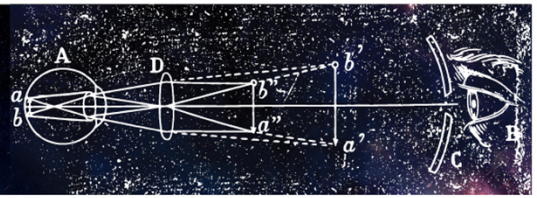
3. Data Indicator: Visual Function Categories

Visual Function Category	Visual Acuity*
Normal Vision	20/12 – 20/25
Mild Impairment	20/32 – 20/63
Moderate Impairment	20/70 – 20/160
Severe Impairment	20/200 – 20/400
Profound Impairment	20/500 – 20/1000
Near Blindness	<20/1000
Blindness/NLP	No Light Perception
Unqualified visual loss	Unknown or missing
US legal blindness	≤20/200
Monocular Impairment	≤20/70 in worse eye

*Best-corrected acuity, based on better-seeing eye

Focus on Eye Health National Summit:

What's in Sight?



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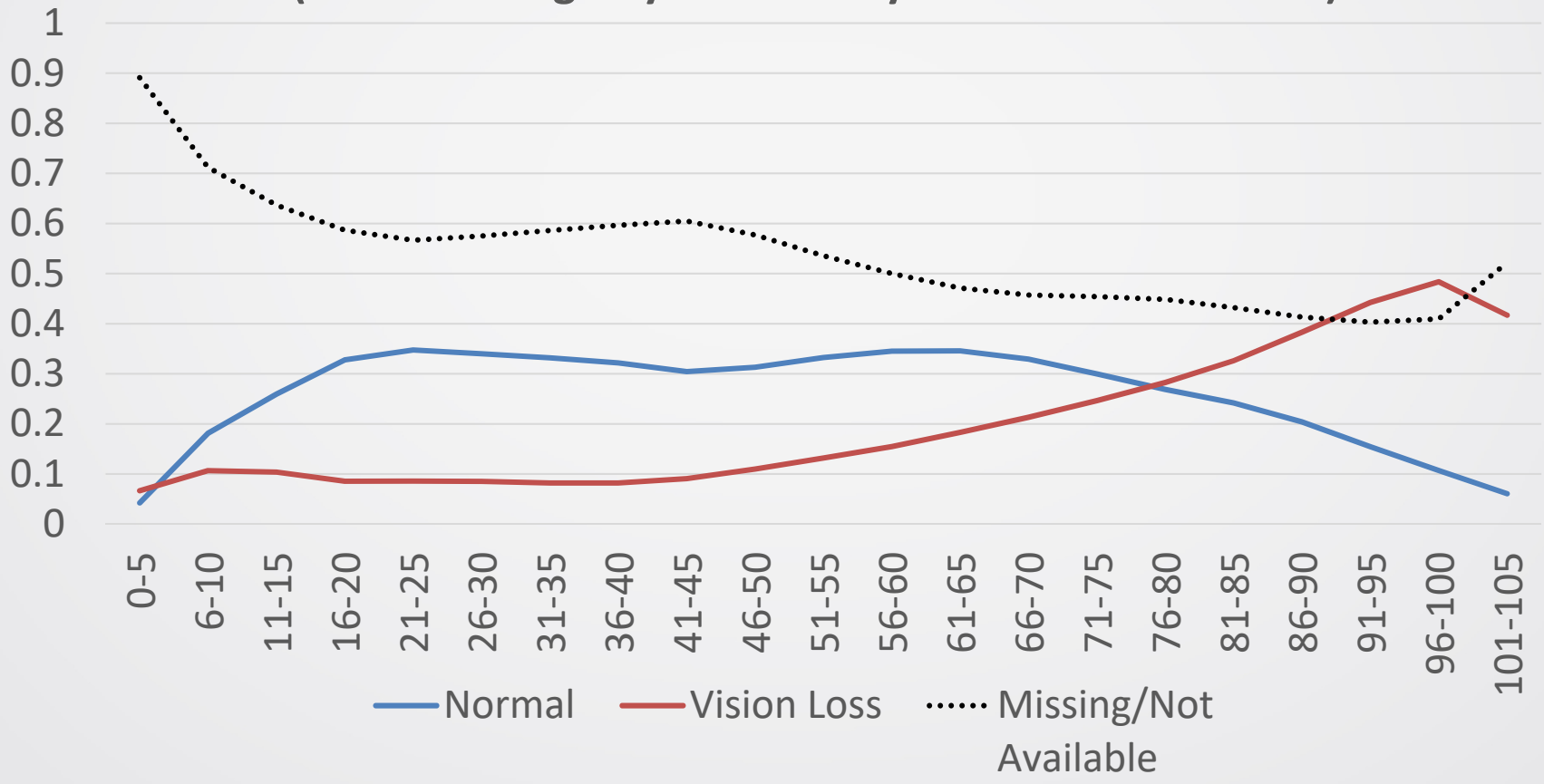
Prevalence of Normal, Vision Loss and Missing Acuity Values

(2016 IRIS Registry Preliminary Validation Estimates)



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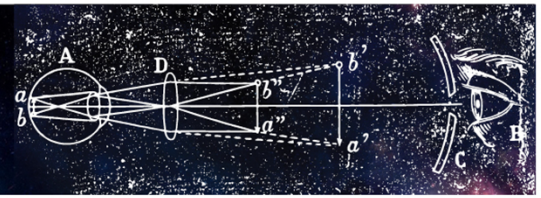

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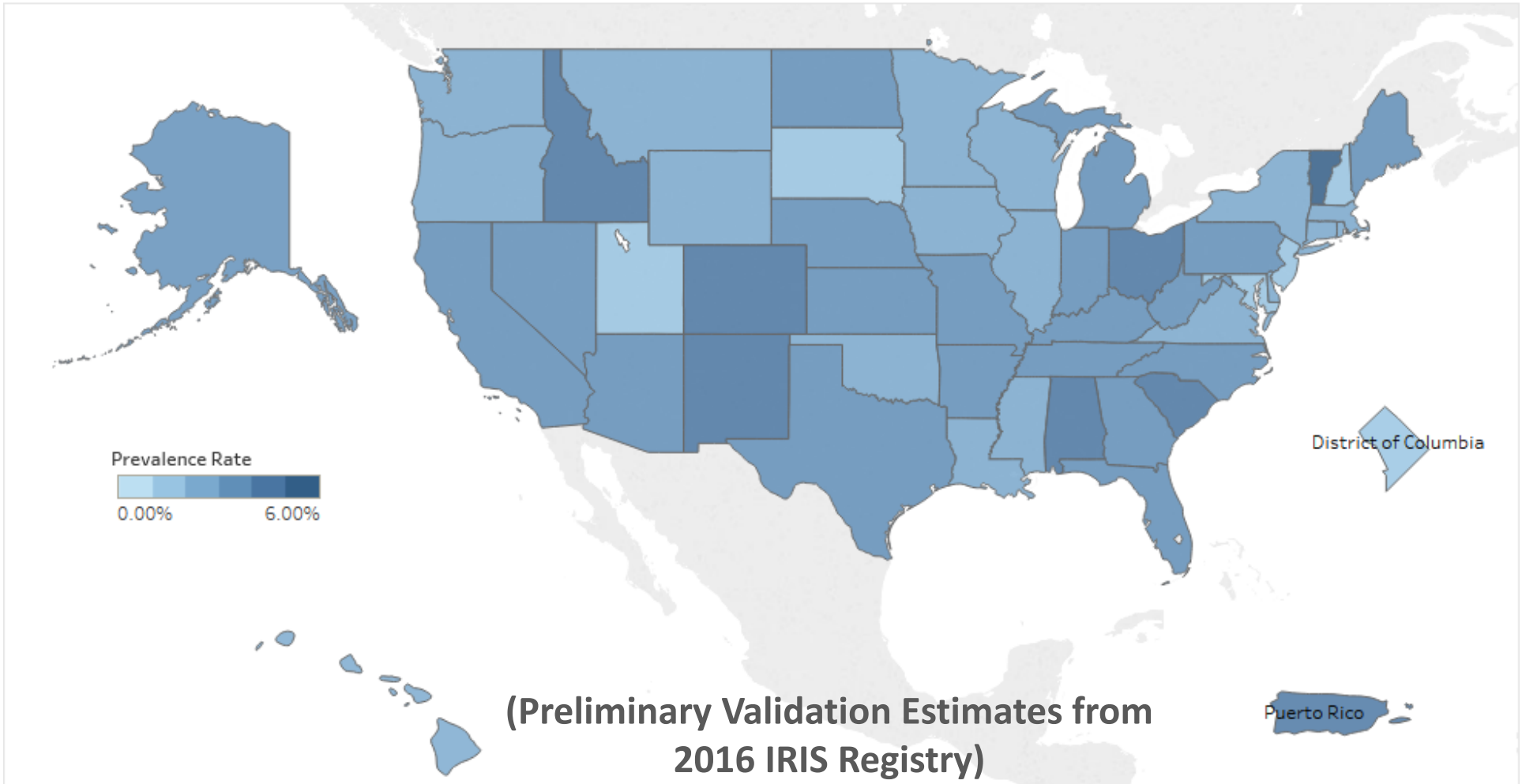
Prevalence of Blindness (≤20/200 in better-seeing eye), 2016 IRIS Registry



(Preliminary Validation Estimates from 2016 IRIS Registry)

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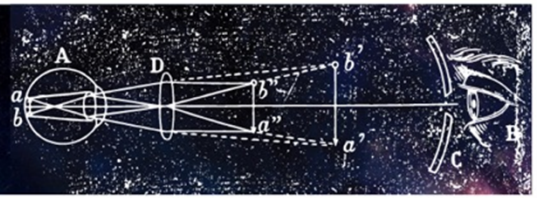

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Phoebe Lamuda, MS

Research Scientist

Generating single-source estimates from National Surveys

Define data indicators

- Indicators are the measures that we will capture in each data source
  1. Diagnosis categories
  2. Service utilization
  3. Visual function categories
  4. Surveys instrument categories

Topics

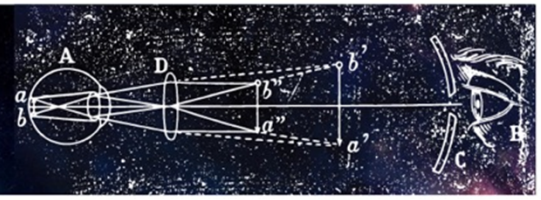
- Visual Function
- Eye Diseases
- Service Utilization
- Insurance Coverage and Costs
- Examination Measures

Specific Measures for Each Topic

- Visual Function
  - Adaptive devices
  - Blind of difficulty seeing
  - Difficulty seeing with glasses
  - Hyperopia
  - Length of vision problem
  - Miscellaneous life impacts
  - Myopia
  - Peripheral vision
  - Night vision
  - Vision correction
  - Vision impairment

Specific Measures for Each Topic

- Eye Diseases
  - Cataract
  - Diabetic Retinopathy
  - Glaucoma
  - Age Related Macular Degeneration

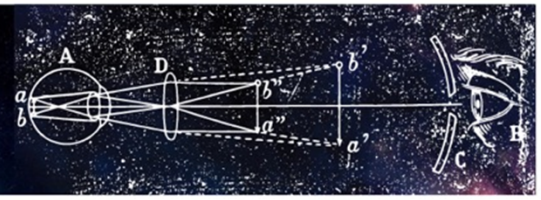


Review of Approach to Identify Surveys

- Identify national surveys with vision- and eye-health-related data
- Review surveys on multiple criteria
- Recommend surveys for inclusion

Recommended Surveys for Inclusion

- American Community Survey (ACS)
- Behavioral Risk Factors Surveillance System (BRFSS)
- Medicare Current Beneficiary Survey (MCBS)
- National Health Interview Survey (NHIS)
- National Health and Nutrition Examination Survey (NHANES)
- National Survey of Children's Health (NSCH)

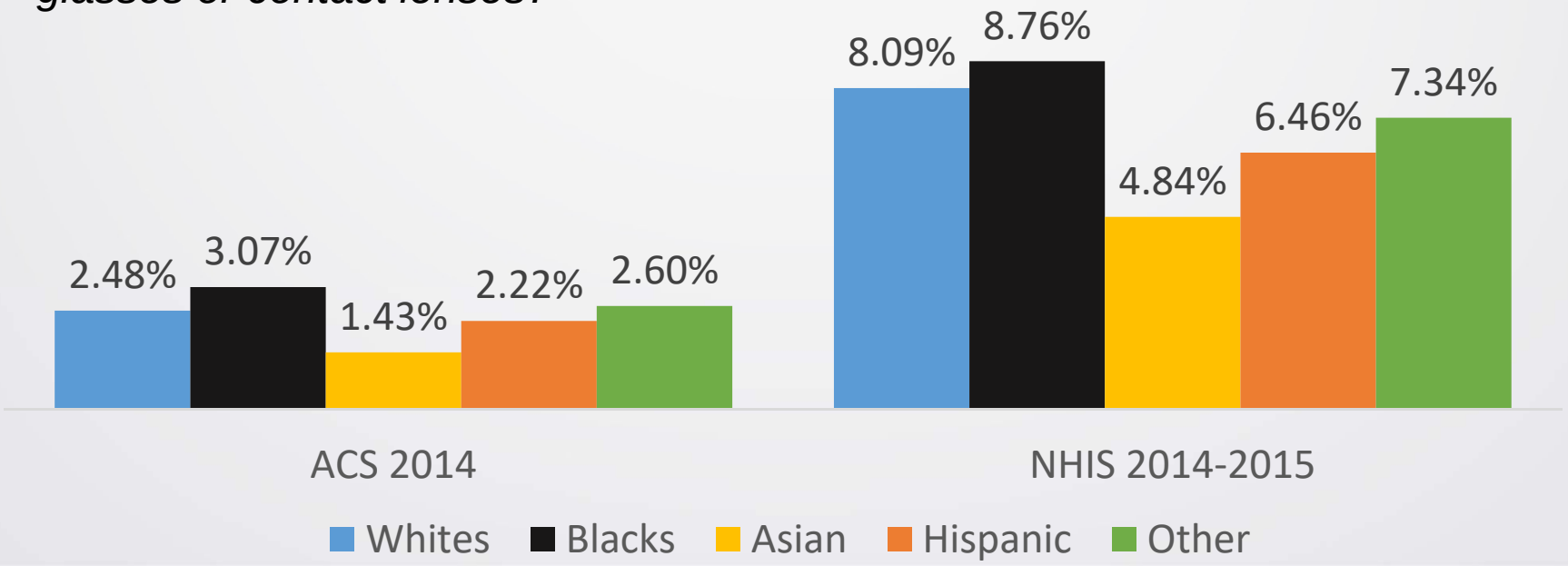


Topic: Visual Function

Measure: Difficulty seeing with glasses

ACS (2014) - Is this person blind or does he/she have serious difficulty seeing even when wearing glasses?

NHIS (2014 & 2015) - Do you have any trouble seeing, even when wearing glasses or contact lenses?



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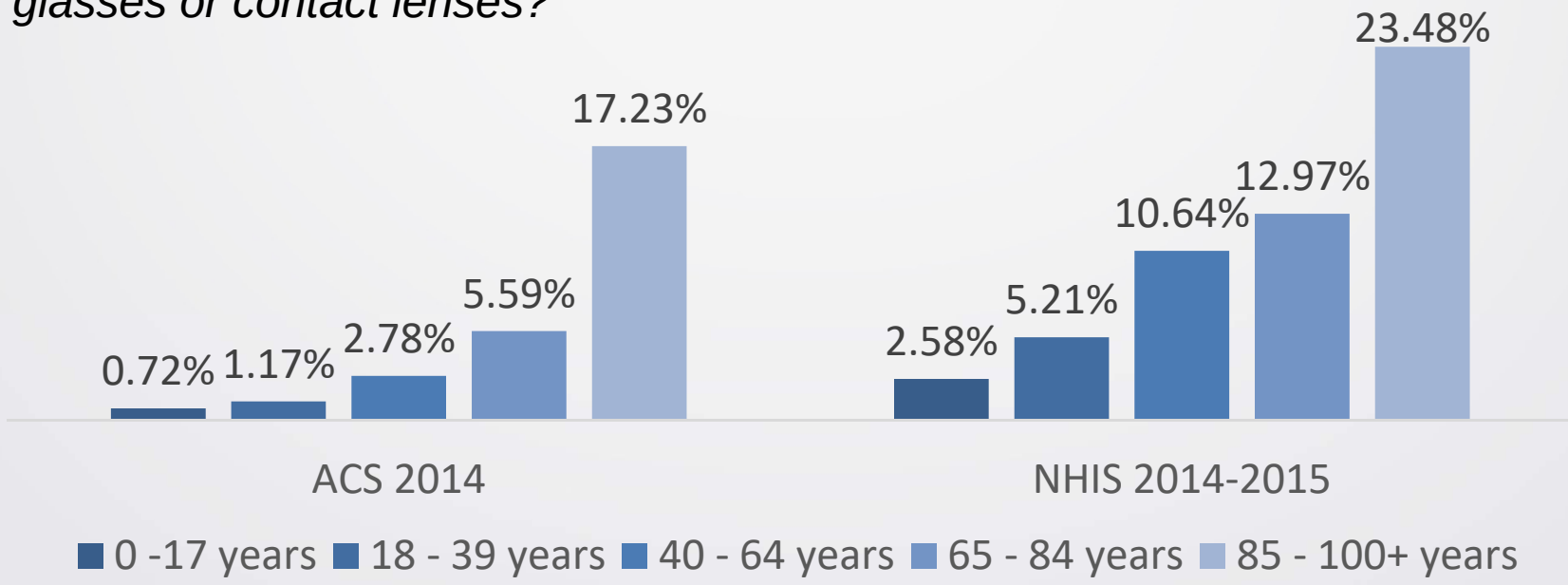
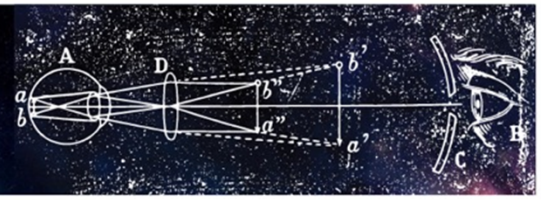
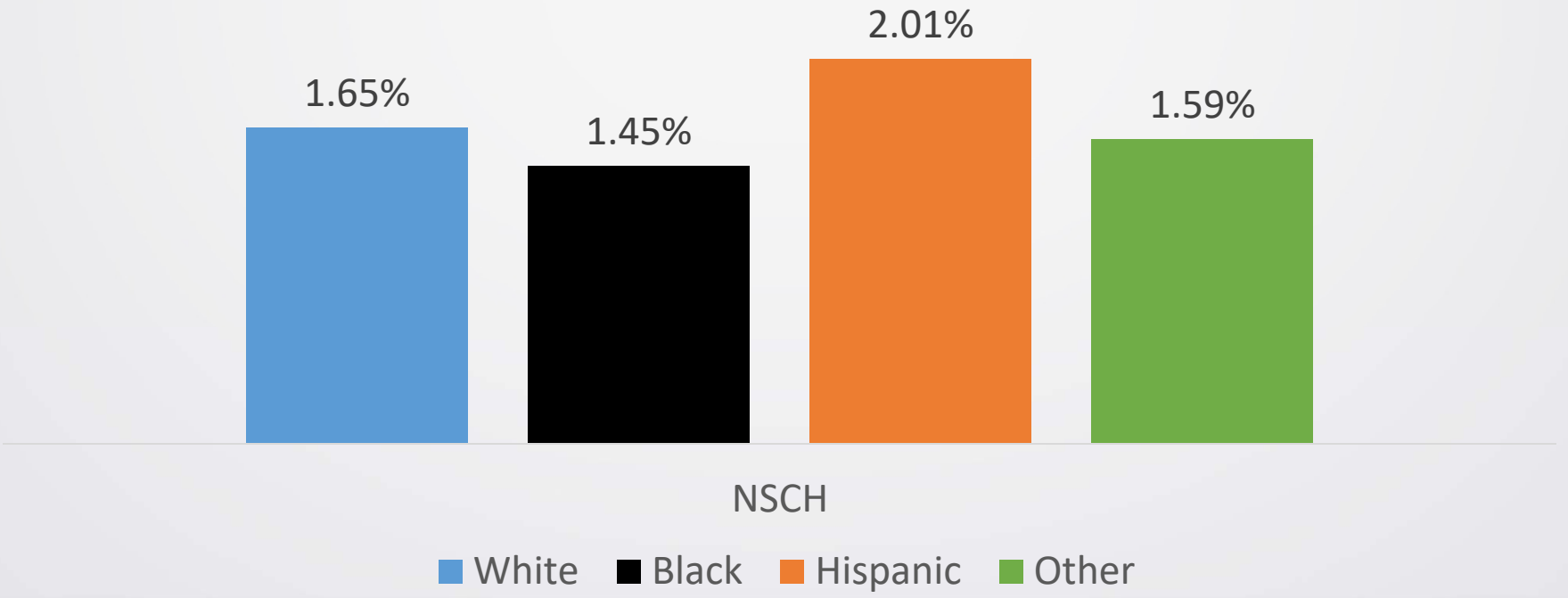


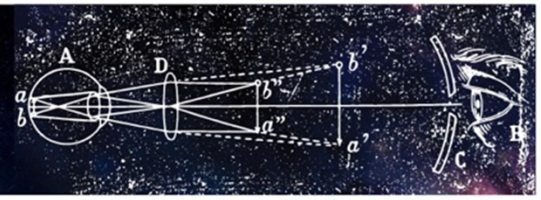


Topic: Visual Function

Measure: Difficulty seeing with glasses

NSCH (2007, 2011/2012) - Has a doctor or health professional ever told you that child has vision problems that cannot be corrected with glasses or contact lenses?

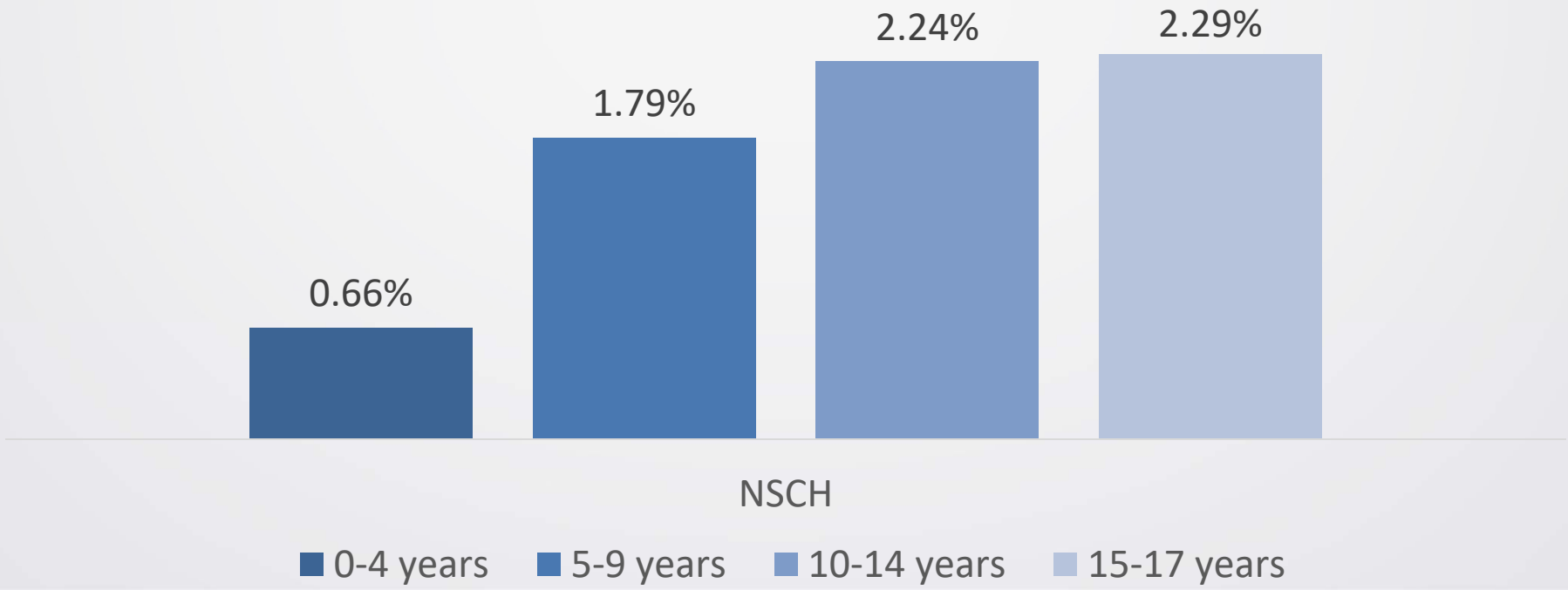




Topic: Visual Function

Measure: Difficulty seeing with glasses

NSCH (2007, 2011/2012) - Has a doctor or health professional ever told you that child has vision problems that cannot be corrected with glasses or contact lenses?



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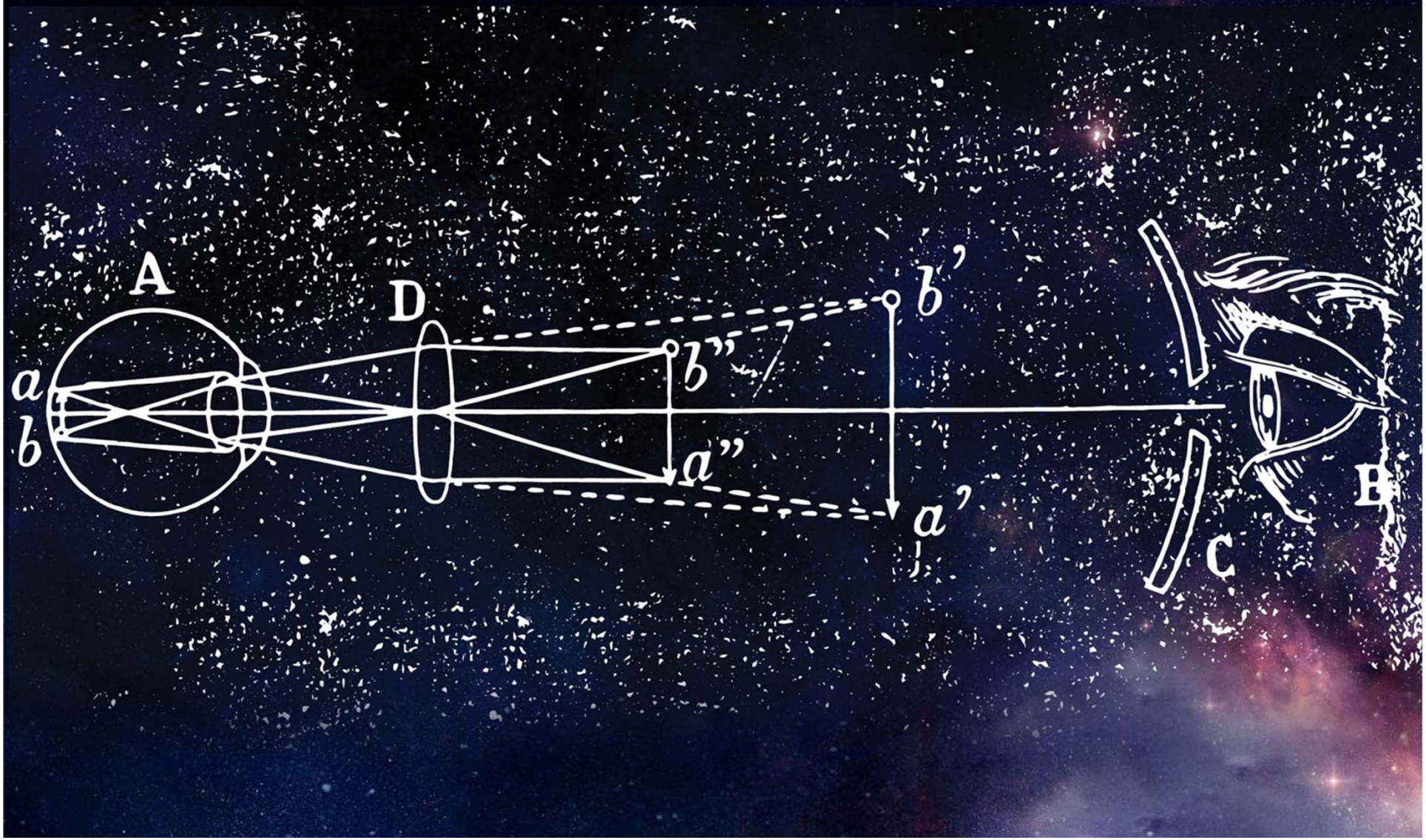
Bringing Americans to Eye Care