Prevent Blindness®
Bringing Americans to Eye Care

2018 Focus on Eye Health National Summit:
Research to Impact

Vision and Eye Health Surveillance System

--- introduced by ---

Kira Baldonado

Prevent Blindness

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2018 Focus on Eye Health National Summit: *Research to Impact*

Data to Support Vision and Eye Health in the U.S.

AMERICAN ACADEMY OF OPHTHALMOLOGY®

Editorial

Establishing a Vision and Eye Health Surveillance System for the Nation: A Status Update on the Vision and Eye Health Surveillance System

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Vision loss and eye disorders cost the US health care system $65.1 billion in 2013, the fifth leading cause of medical expenditures.[1] Americans fear losing vision as much as or more than memory, hearing, or speech, and consider blindness among the top 4 worst things that could happen to them.[2] It is estimated that as much as 98% of visual impairment and blindness, much of it consisting of uncorrected refractive error and untreated cataracts, in the United States can be prevented through timely diagnosis and early treatment.[3]

Currently, no national visual health surveillance system provides information on prevalence, health disparities, or changes over time. Visual health (inclusively defined as vision status, loss, disease, disorders, and injuries) prevalence estimates are usually drawn from meta-analyses of population-based study data, which are not contemporary and lack national representativeness. Estimates are also taken from self-reported responses to visual health questions contained in national surveys, which are generally broad, vary in measure definition, and may suffer from unreliability. In both cases, existing estimates are limited to a small number of common eye conditions, and the resulting visual health estimates may vary widely and inconsistently between various data sources. For example, reported estimates of the number of blind Americans vary from 1.3 to 7.0 million persons.[4,5]

In 2016, the National Academies of Science, Engineering, and Medicine issued a call to "develop a coordinated surveillance system for eye and vision health in the United States."[6] Previously, several national institutions have recommended additional surveillance activities or concluded that additional evidence is needed to inform visual health decisions at the population level. A 2012 Centers for Disease Control and Prevention (CDC) panel of visual health experts recommended the establishment of a US visual health surveillance system. In 2016, the US Preventive Services Task Force concluded that visual health information was insufficient to support screening to detect impaired visual acuity in older adults.[6]

Establishing a Vision and Eye Health Surveillance System for the Nation

In 2015, the CDC awarded a cooperative agreement to the non-partisan and objective research organization (NORC) at the University of Chicago to begin to develop a Vision and Eye Health Surveillance System (VEHSS), a comprehensive data and dissemination system intended to collect and centralize prevalence and use estimates from traditional and novel visual health data sources, and conduct analyses to summarize these different data sources into a set of national prevalence and service use estimates. Under this agreement, NORC has partnered with members of leading visual and public health organizations, including the American Academy of Ophthalmology, KPMG, Prevent Blindness, Uniformed Services University of the Health Sciences, the University of Wisconsin-Madison School of Medicine and Public Health, VSP Vision Care, The University of Washington's Institute for Health Metrics and Evaluation, and others to lead this effort. The project's design and development are reviewed on an ongoing basis by an advisory committee composed of leading scientific experts in ophthalmology, optometry, surveillance, data science, epidemiology, and public health research to provide critical review and guidance.

The VEHSS has several related aims: (1) estimate the national and local-level prevalence of vision loss and eye disorders; (2) identify disparities in visual health and access to care; (3) provide periodic updates to monitor trends in prevalence, use, and practice patterns, and evaluate the impact of interventions; and (4) broadly disseminate information to the public, researchers, and decision makers at the federal, state, and local levels. To achieve these aims, the VEHSS staff are conducting a number of activities, including to identify, describe, and prioritize secondary data sources to be analyzed and included in VEHSS; develop initial case definitions that can be applied in a uniform fashion across data sets; estimate diagnosed or self-reported prevalence from each data source using consistent case definitions, age, and race categories; perform meta-regression analyses of all data sources to create national prevalence estimates; and effectively communicate both the process and the outcomes of VEHSS-related activities. Details of these activities are discussed next.

Identifying and Selecting Data Sources

During the design phase, and under the guidance of the expert advisory committee, the VEHSS team identified, evaluated, and selected data sources from among 4 categories of data: previously published population-based studies, national surveys, administrative claims databases, and electronic health record (EHR) registry systems. As an initial step, the team conducted a systematic review of

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John Wittenborn

NORC at the University of Chicago

The Vision And Eye Health Surveillance System

A national data system for vision and eye health

- VEHSS year 3 update
  - Who?
  - Why?
  - What?
  - When?
  - Where?
- VEHSS website
  - What is available now?
- Next steps
  - What is still to come?

Who is VEHSS?

- CDC's Vision Health Initiative
- NORC at the University of Chicago
- Our research partners
- Vision research community, stakeholders and users

Why VEHSS?

- Much of our best epidemiological data is older
- New and different sources of data are now available
- Repeated calls for public health surveillance
  - CDC expert panel
  - National Academies of Science, Engineering, and Medicine

What is VEHSS?

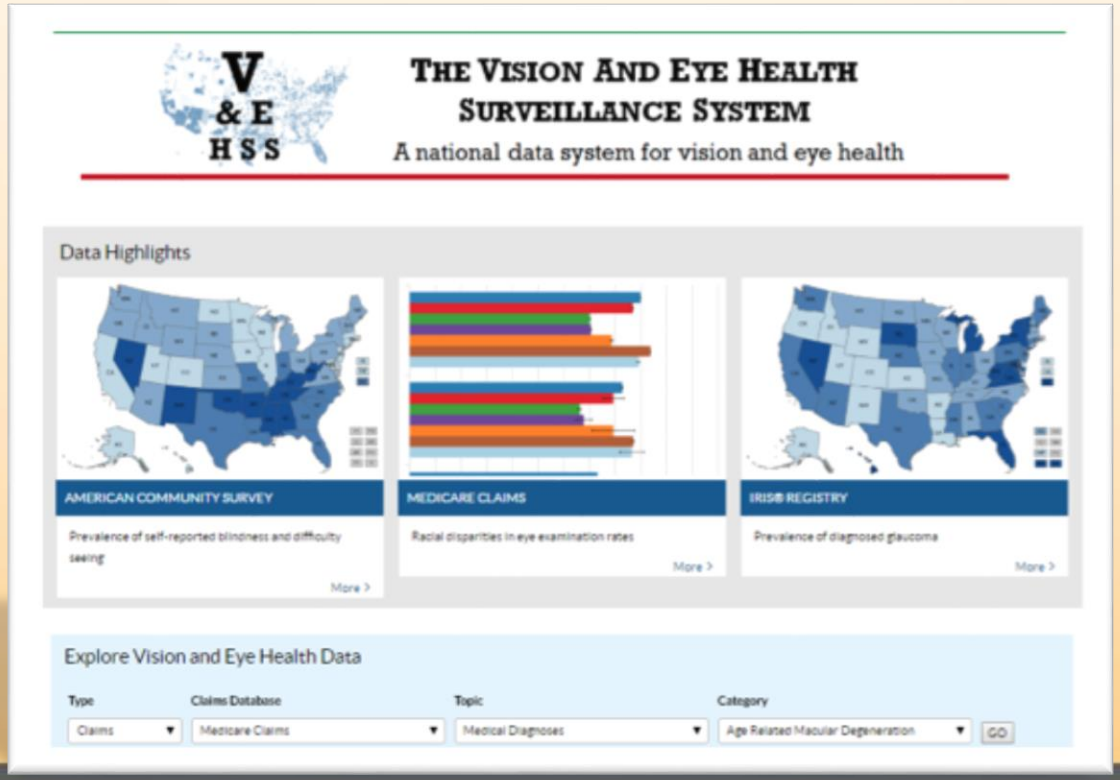
- Foundation for a national surveillance system
  - A system to consolidate existing sources of prevalence information
  - A platform to develop case definitions
  - A system to generate new prevalence estimates

When is VEHSS?

- 2016 – Literature and data source reviews
- 2017 – Selecting data and defining data indicators
- 2018 – Analyzing data sources and creating system website
- 2019 – Generating integrated prevalence estimates and improving website

Where is VEHSS?

www.cdc.gov/visionhealth/vehss



What is available now on the website?

- Literature review
- 8 Data sets
  - VEHSS Data Explorer
  - Data Portal
- Documentation
  - Info pages on website
  - Documentation report for download

Data sources – 4 Types of data

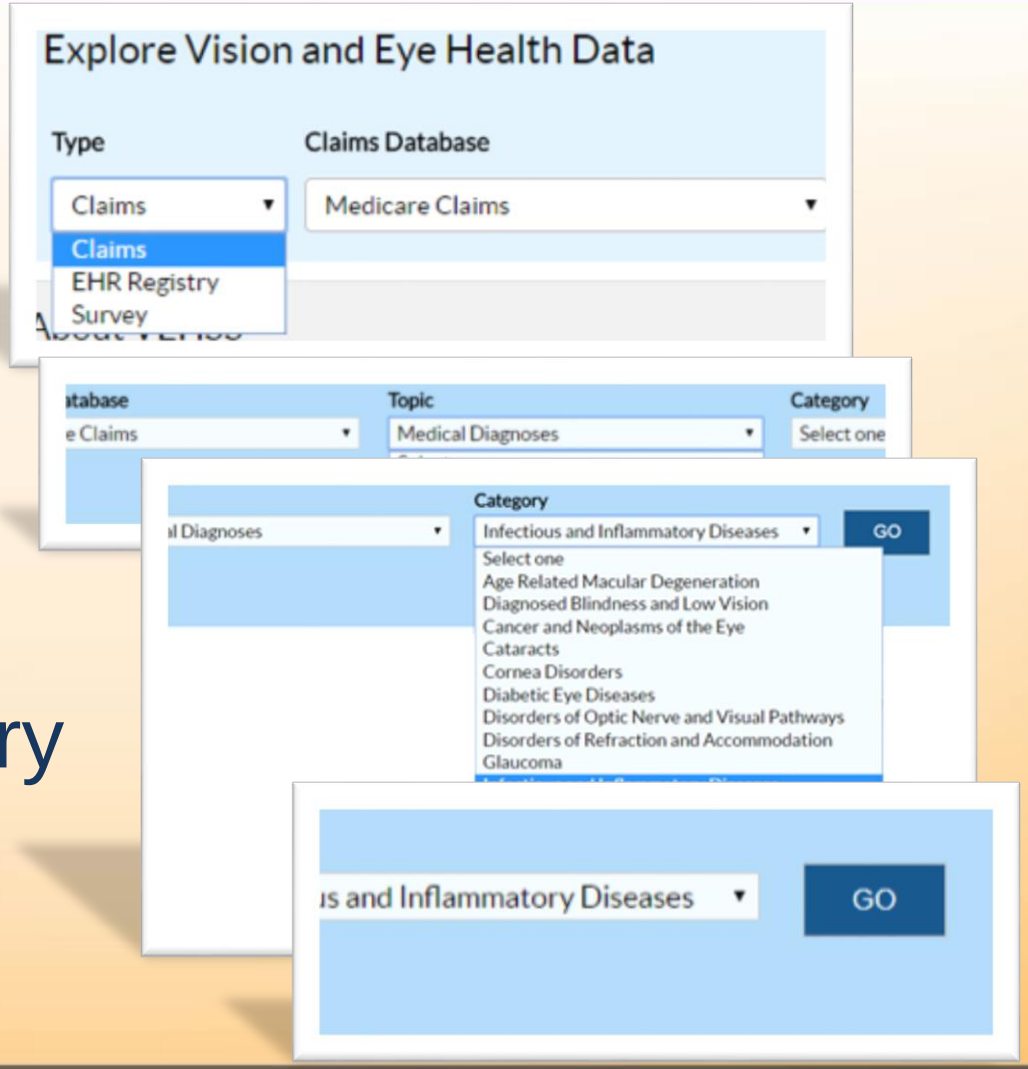
- Published Examination-based Studies
  - Literature review of prevalence estimates
- National Surveys
  - ACS, BRFSS, NHANES, NHIS, NSCH
- Electronic Health Records Registry
  - IRIS Registry
- Administrative Claims Databases
  - Medicare Fee for Service, VSP

Data indicators – 4 Topics

- Medical Diagnoses
  - 17 diagnosis code categories, 79 subgroups
- Service utilization
  - Eye exams, by provider type
- Vision Exam Measures
  - Visual Acuity
- Survey instruments
  - Categorizes vision/eye health variables from16 surveys

Data explorer

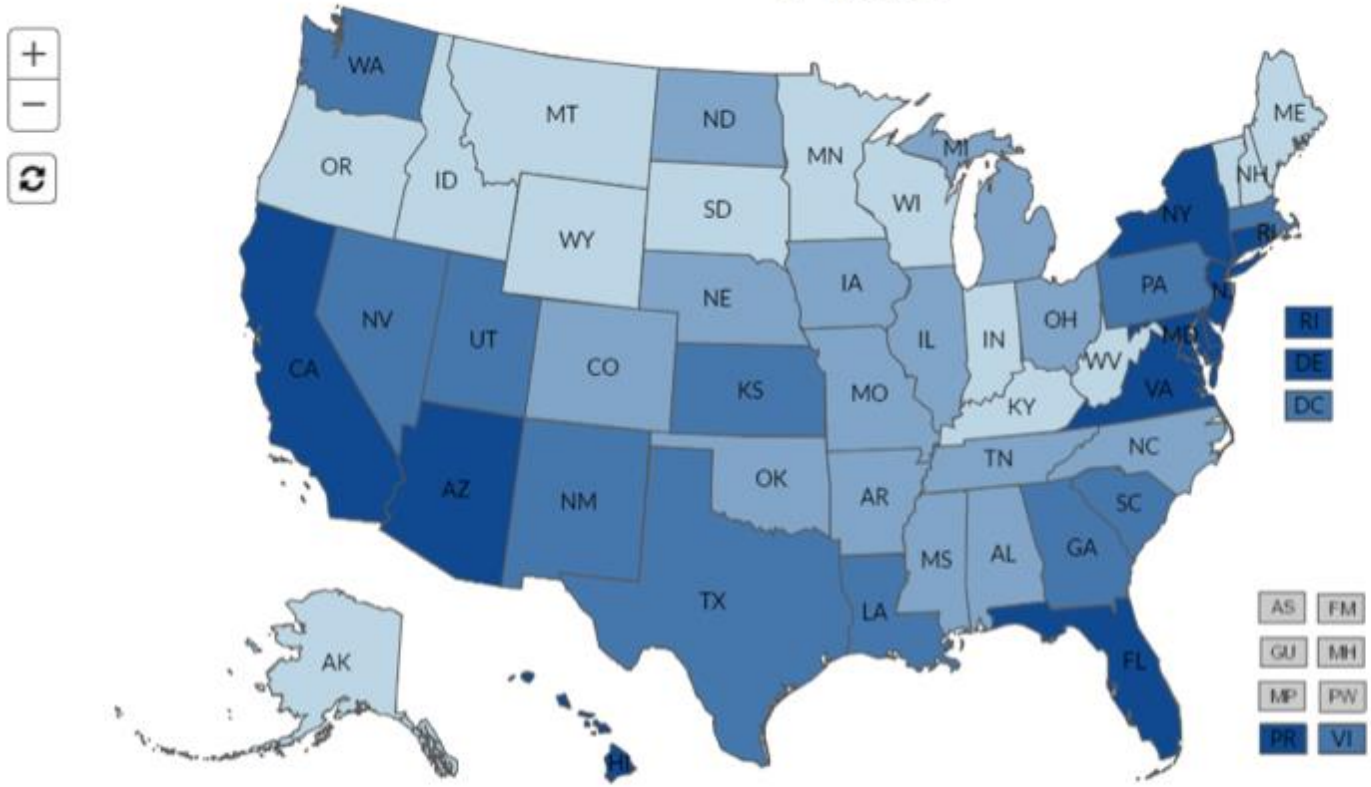
1. Select your data
2. Select a topic
3. Choose a category
4. Click Go!



2015 Medicare Claims
Annual prevalence of treated infectious and inflammatory diseases: All Infectious and inflammatory diseases

Age Group: All Ages; Gender: Total; Race/Ethnicity: All races
Risk Factor: All patients; Risk Factor Response: Total
Data Type: Crude Prevalence

National : 8.46%
95% CI (8.45 - 8.47)
N = 30,027,200



Percent (%)

- 5.52 - 7.25
- 7.26 - 7.78
- 7.79 - 8.56
- 8.57 - 11.58
- Data suppressed
- Data unavailable

Quantile

Legend settings

Data Source: Medicare Claims

Save as PDF | Export CSV

Drill down to specific population groups

- Subgroup
- Age Group
- Gender
- Race/Ethnicity
- Risk Factor
- Year

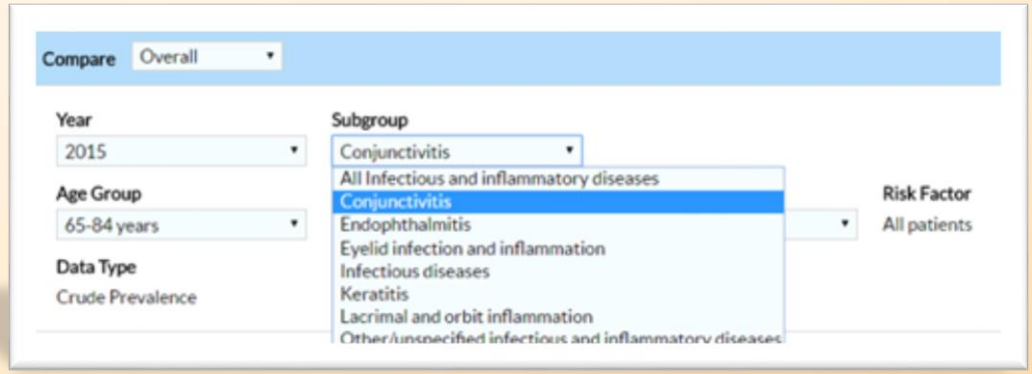


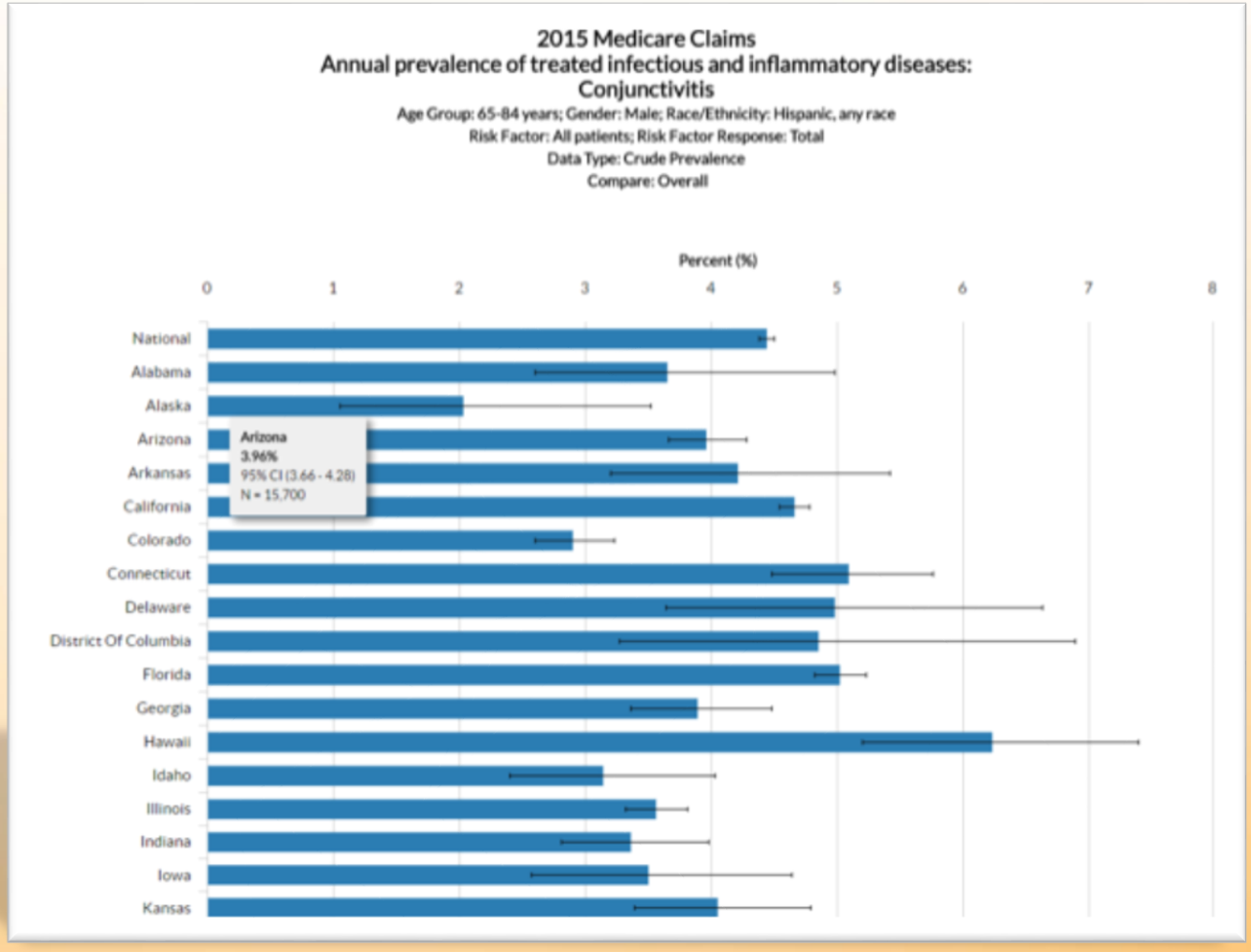
Table view

2015 Medicare Claims
Annual prevalence of treated infectious and inflammatory diseases: Conjunctivitis
Age Group: 65-84 years; Gender: Male; Race/Ethnicity: Hispanic, any race
Risk Factor: All patients; Risk Factor Response: Total
Data Type: Crude Prevalence
Compare: Overall

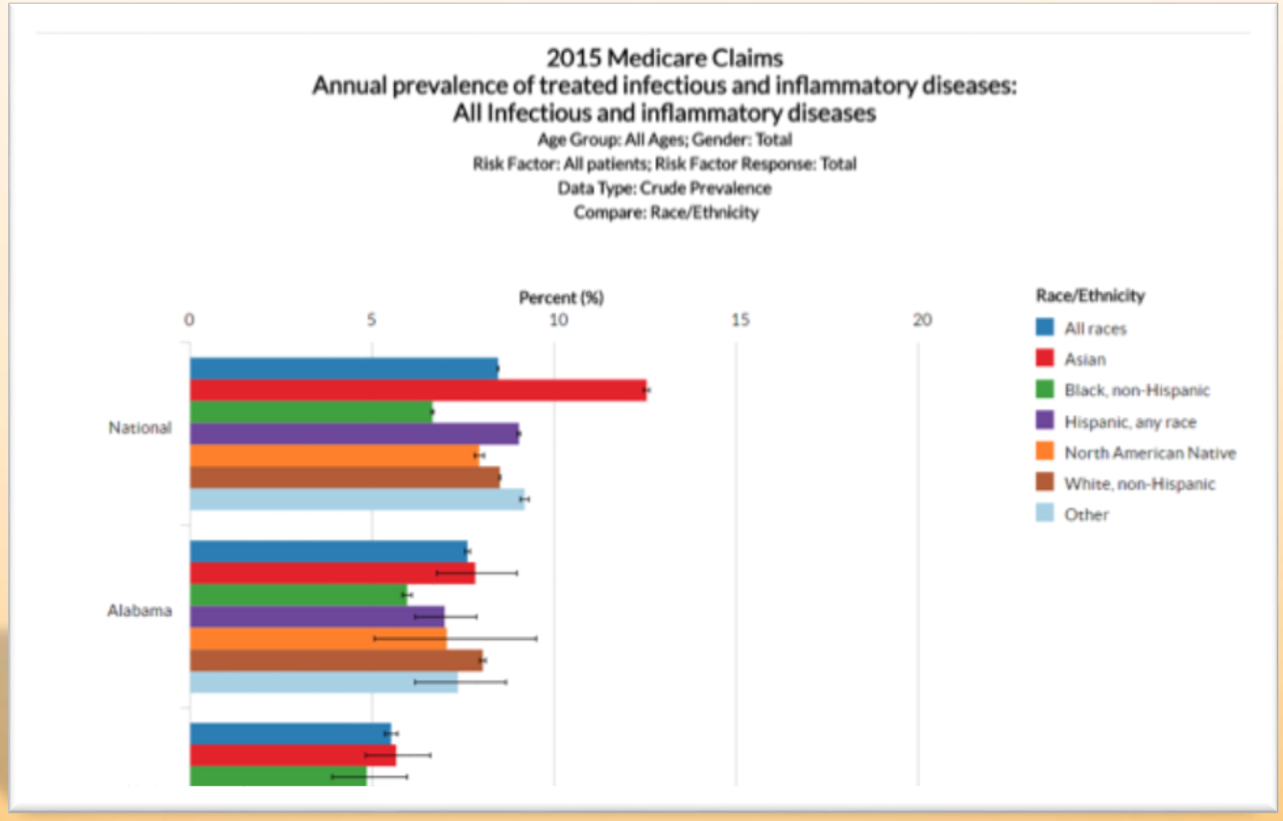
	Overall
National	
Percent (%)	4.44
95% CI	4.38 - 4.50
N	510,900
Alabama	
Percent (%)	3.65
95% CI	2.60 - 4.98
N	1,000
Alaska	
Percent (%)	2.03
95% CI	1.05 - 3.52
N	600
Arizona	
Percent (%)	3.96
95% CI	3.66 - 4.28
N	15,700
Arkansas	
Percent (%)	4.21
95% CI	3.20 - 5.42
N	1,400
California	
Percent (%)	4.66
95% CI	4.54 - 4.78


IMPACT
research
Idea

Chart view

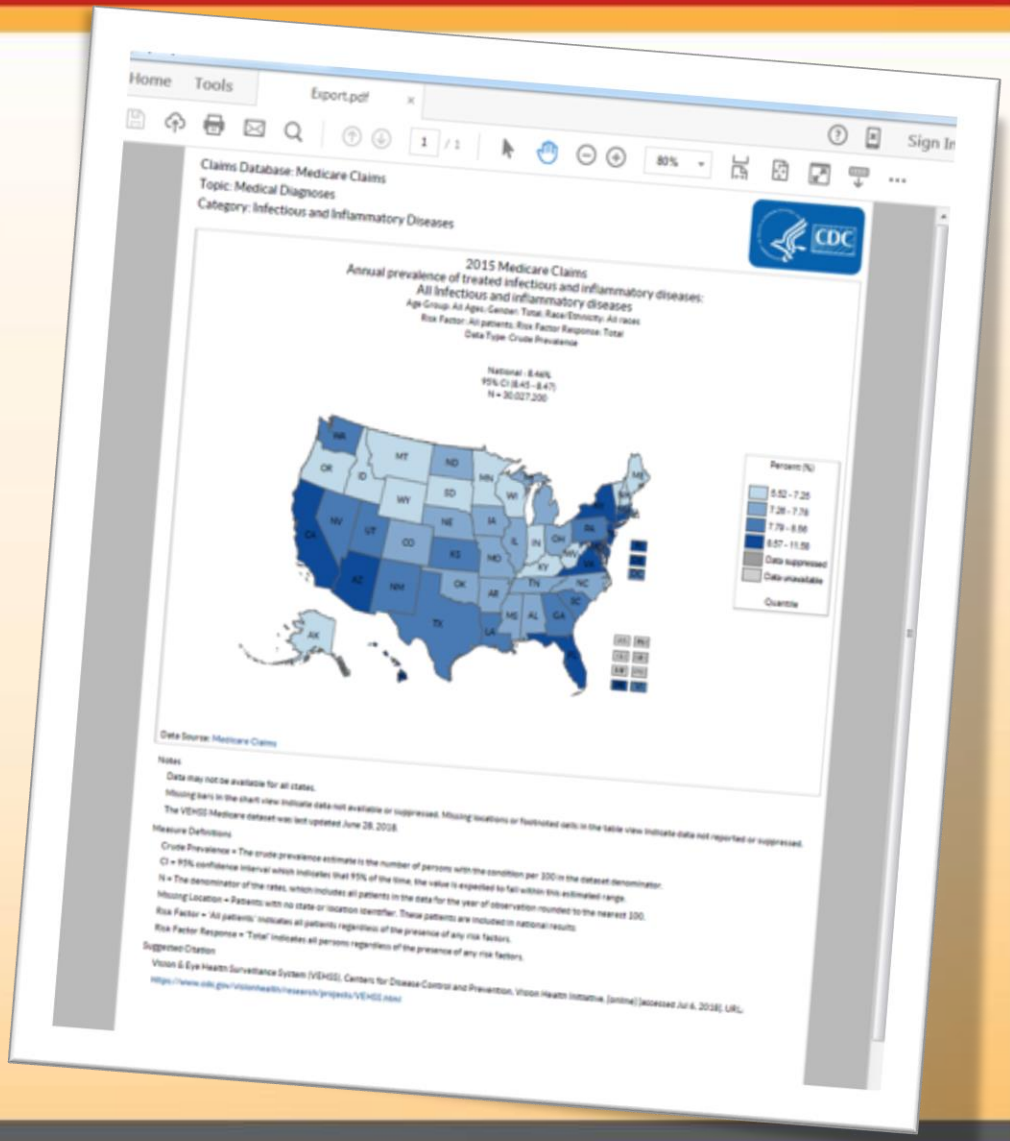

2015 Medicare Claims
Annual prevalence of treated infectious and inflammatory diseases: Conjunctivitis
Age Group: 65-84 years; Gender: Male; Race/Ethnicity: Hispanic, any race
Risk Factor: All patients; Risk Factor Response: Total
Data Type: Crude Prevalence
Compare: Overall
Percent (%)
0
1
2
3
4
5
6
7
8
National
Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District Of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Arizona
3.96%
95% CI (3.66 - 4.28)
N = 15,700

Compare by population group



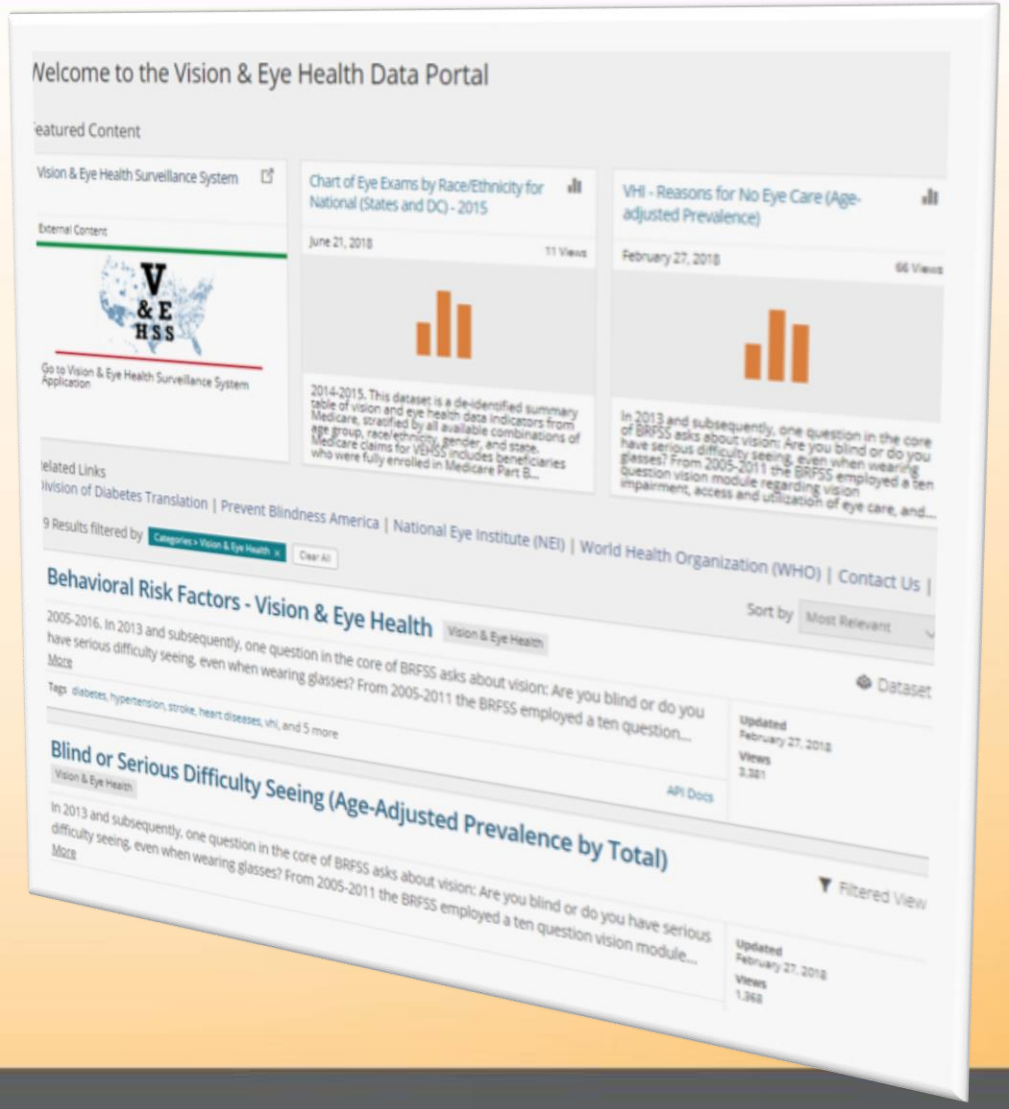
More things to do

- Generate a PDF report
- Download CSV files
- Go to the data source information page
- Go to the data indicators page
- Download documentation reports



Data Portal

- Custom queries
- More advanced visualizations
- Direct download summary data tables
- Online data feeds



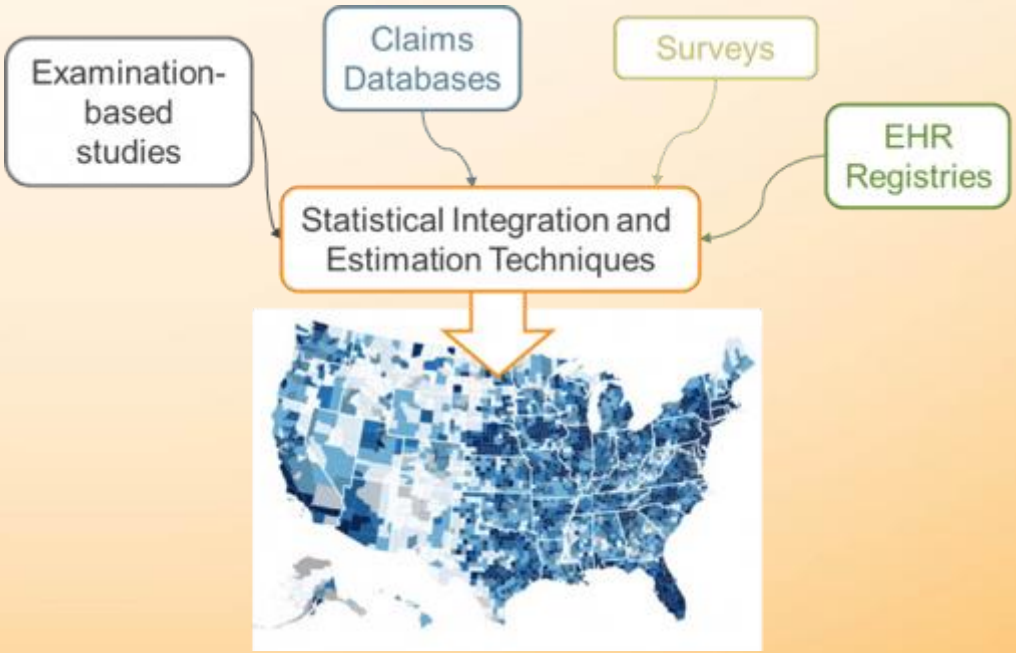
Next steps- 2019

- Data and website updates
  - Potential changes to indicators or methods
  - More data
    - Medicaid MAX
    - MarketScan commercial insurance claims
    - Military Health Data System Repository
  - More website functionality
    - Explore by location (state-level reporting)
    - Data comparisons
    - Trend lines

Next steps- 2019

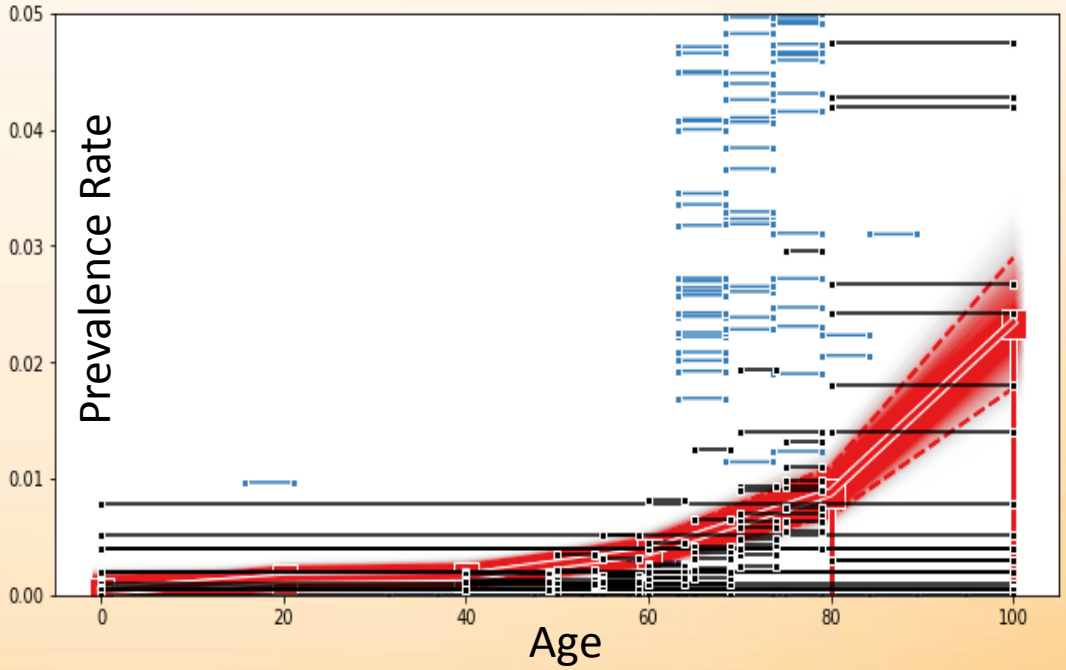
– VEHSS Integrated Prevalence estimates

- Blindness
- Visual impairment
- AMD
- Cataract
- Glaucoma
- Diabetic retinopathy



(sneak peek: blindness prevalence in progress)

- Blue bars
  - NHANES exams
  - ACS (≥65)
- Black bars
  - Published exam-based studies
- Red
  - Modeled prevalence rate predictions



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V & E HSS
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