The Scope of Vision and Eye Health – Guidance from Surveillance

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Vision and Eye Health Surveillance System (VEHSS)

• 4-year cooperative agreement awarded in 2015 with 6 primary tasks
  • Stakeholder and Expert Involvement
  • Data Identification and Collection
  • Data Management
  • Data Analysis
  • Engagement and Dissemination
• Currently in year 3.75
Engagement and Dissemination

• Convened an expert panel and partnered with 9 leading vision and eye health organizations to provide review and guidance on major project decisions
  • Creation of indicators
  • Selection of data sources
  • Analysis plans
• Conference presentations, special sessions and professional outreach
• VEHSS website
  • https://www.cdc.gov/visionhealth/vehss
Data Identification

• Abstracted information from potential data sources
  • 16 National Surveys
  • 5 Administrative claims databases
  • 2 Electronic health records registries
  • 100 Published population based studies

• Prepared summary reports for review by expert panelists, CDC, and VEHSS partner group
  • Prioritized data for inclusion in VEHSS
Data Management

- Current Data in VEHSS

<table>
<thead>
<tr>
<th>Survey Data</th>
<th>Claims and EHR Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Community Survey (ACS)</td>
<td>IRIS Registry</td>
</tr>
<tr>
<td>Behavioral Risk Factors Surveillance System (BRFSS)</td>
<td>Medicare 100% Fee-For-Service RIF</td>
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<tr>
<td>National Health Interview Survey (NHIS)</td>
<td>VSP Global managed vision plan insurance</td>
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<tr>
<td>National Health and Nutrition Examination Survey (NHANES)</td>
<td>Medicaid MAX</td>
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<tr>
<td>National Survey of Children’s Health (NSCH)</td>
<td>MarketScan private commercial insurance</td>
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</table>
Data Management

• Additional Data

<table>
<thead>
<tr>
<th>Other Data Used by VEHSS</th>
<th>Pending Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstracted data from published examination studies</td>
<td>Military Health System</td>
</tr>
<tr>
<td>AmeriSpeak Pilot Survey</td>
<td>AOA MORE Optometry Registry</td>
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<tr>
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<td>MarketScan Medicare Supplemental</td>
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Developing Data Indicators

• Worked with CDC, expert panel and partners to identify surveillance outcomes (case definitions)

• Developed case definition categories and data indicators
  • Standardized definitions and methods to measure and organize outcomes across data sources by the underlying concept of measure

• VEHSS tracks over 200 indicators across
  • Eye health conditions
  • Visual function
  • Service utilization
  • Payments
Developing Data Indicators

VEHSS tracks over 200 specific indicators across 4 topic areas:

- Eye health conditions
  - Diagnosis code categories, self-reported diagnoses
- Visual function
  - Measured visual acuity, self-assessed vision and functional limitations
- Service utilization
  - Eye exams, medical treatments, low vision services, vision correction
- Insurance and costs
  - Medical payments, insurance coverage
Data Analysis

• Single Source Prevalence Estimates
  • Consistently measured (same age*sex*race/ethnicity*risk factor categories) raw prevalence estimates across all data sets at the national and state level
  • Potentially 4,346,496 different estimates per indicator per data source
  • Implementation of NCHS suppression rules to protect patient privacy
  • Downloadable public use files

• Multi-source prevalence estimates
  • Meta-regression combination of population-based study data, NHANES, and ACS estimates to create state-level updates of the prevalence of VI and B in 2017.
Data Analysis Example: Survey Indicators of Visual Impairment

VEHSS - THE VISION & EYE HEALTH SURVEILLANCE SYSTEM
Integrated Prevalence Estimates

• Creating composite estimates of the prevalence of vision loss and major eye disorders at the state level

• Integrative metaregression model
  • Leverages different strengths from different data sources to produce new composite estimates of national and state prevalence
  • Published examination studies and NHANES exam data
  • Variation in indicators from other data sources
    • Demographic variation
    • Geographic variation
    • Missing populations (oldest age groups, group quarters including nursing homes)
    • Time variation
Data Analysis Example: State Prevalence of Low Vision and Blindness
Engagement and Dissemination

- Speaking engagements (Focus on Eye Health Summit)
- Publications in process
  - Harmonization and prevalence of visual health indicators across multiple surveys
  - Identification and selection of data sources and indicators in VEHSS
  - A review of the published literature on the prevalence of vision loss and major eye disorders
  - Innovative indicators and technologies to collect visual health data for surveillance
  - Analysis of the IRIS® Registry for VEHSS
  - Estimating national and state level prevalence of visual impairment and blindness using multiple VEHSS datasets
  - Estimating national and state level prevalence of major eye diseases using multiple VEHSS datasets
Next Steps in Advancing Vision Surveillance

• Enhancing VEHSS—FOA under consideration at CDC
  • Indicator validation and vision assessment pilot study
  • County level estimates for at least some indicators
  • Assessing mobile technologies for measuring low vision and blindness

• Primary data collection
  • Next generation NHANES to provide updated primary information for use in vision surveillance
Focus on Eye Health
National Summit
A Lifetime of Vision
July 17, 2019 | National Press Club | Washington D.C.

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Bringing Americans to Eye Care