



Using National Data to Improve Children's Vision Programs

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I have no financial relationships to disclose.

Agenda

- Background & context: Vision screening and testing in preschoolers
 - Why is it important to monitor?
 - Selected data sources for monitoring
 - “Current” rates
 - Selected methodological issues
- Gamechanger
- Referral to selected expert recommendations
- Conclusions

Why is it important to monitor?

- Affordable Care Act essential benefit (children)
- Healthy People 2020 vision objectives
- US Preventive Services Task Force recommendation for 3-5 year olds
- National Quality Forum specific measure (NQF #1412): Percentage of pre-school aged children who receive vision screening in the medical home
- Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) benefit and screenings for children enrolled in Medicaid
- Bright Futures Initiative
- Patient Centered Medical Home initiatives
- Children with special health care needs quality initiatives

Data & data sources

Selected data sources (household surveys)

- Few household studies have described child vision testing rates using parent/guardian-reported population-based data
 - National Health Interview Survey (NHIS): 2002, 2008, 2016
 - Medical Expenditures Panel Survey (MEPS):
 - 64.9% of 3-6 YO ever had their vision checked by a doctor or other health professional in 2006-2007 (Kemper AR et al, 2011)
 - 77.9% of children aged 5 years had ever had their vision checked by a doctor or other health-care provider in 2009-2010 (Kemper AR et al, 2014)
 - National Survey of Children's Health (NSCH): 2011-2012
 - 68.5% of US 3-6 YO had their vision tested with pictures, shapes, or letters
 - NSCH data can be used to generate the most recent estimates to date to address gaps in the literature at the national and state levels
 - www.childhealthdata.org

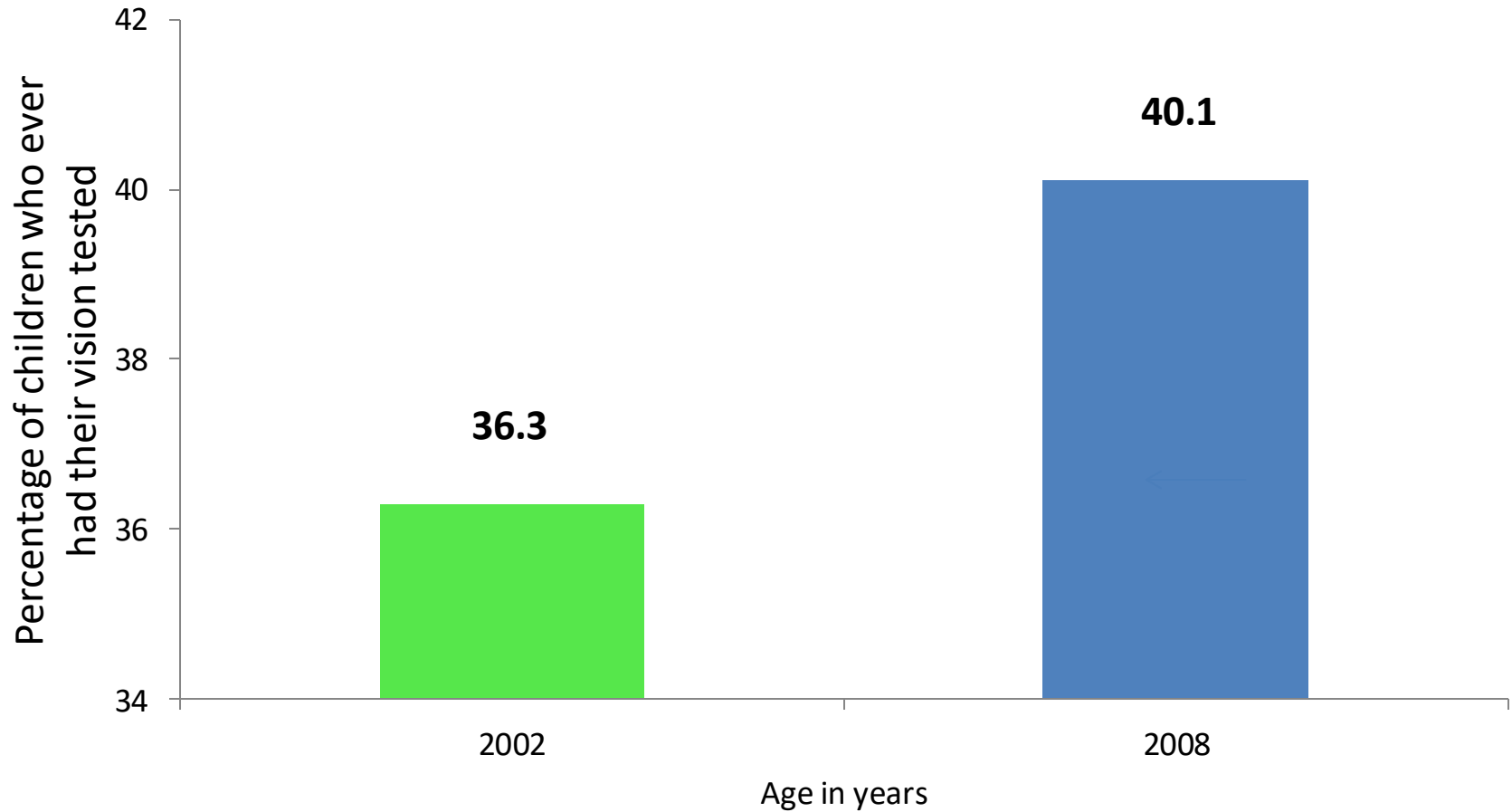
Selected data sources (establishment surveys)

- National Ambulatory Medical Care Survey (NAMCS) – includes community health centers, ophthalmologists (no optometrists)
- National Hospital Ambulatory Medical Care Survey (NHAMCS) – includes outpatient departments, ERs, ambulatory surgery centers, ophthalmologists (no optometrists)

Other data sources that could or do collect vision data

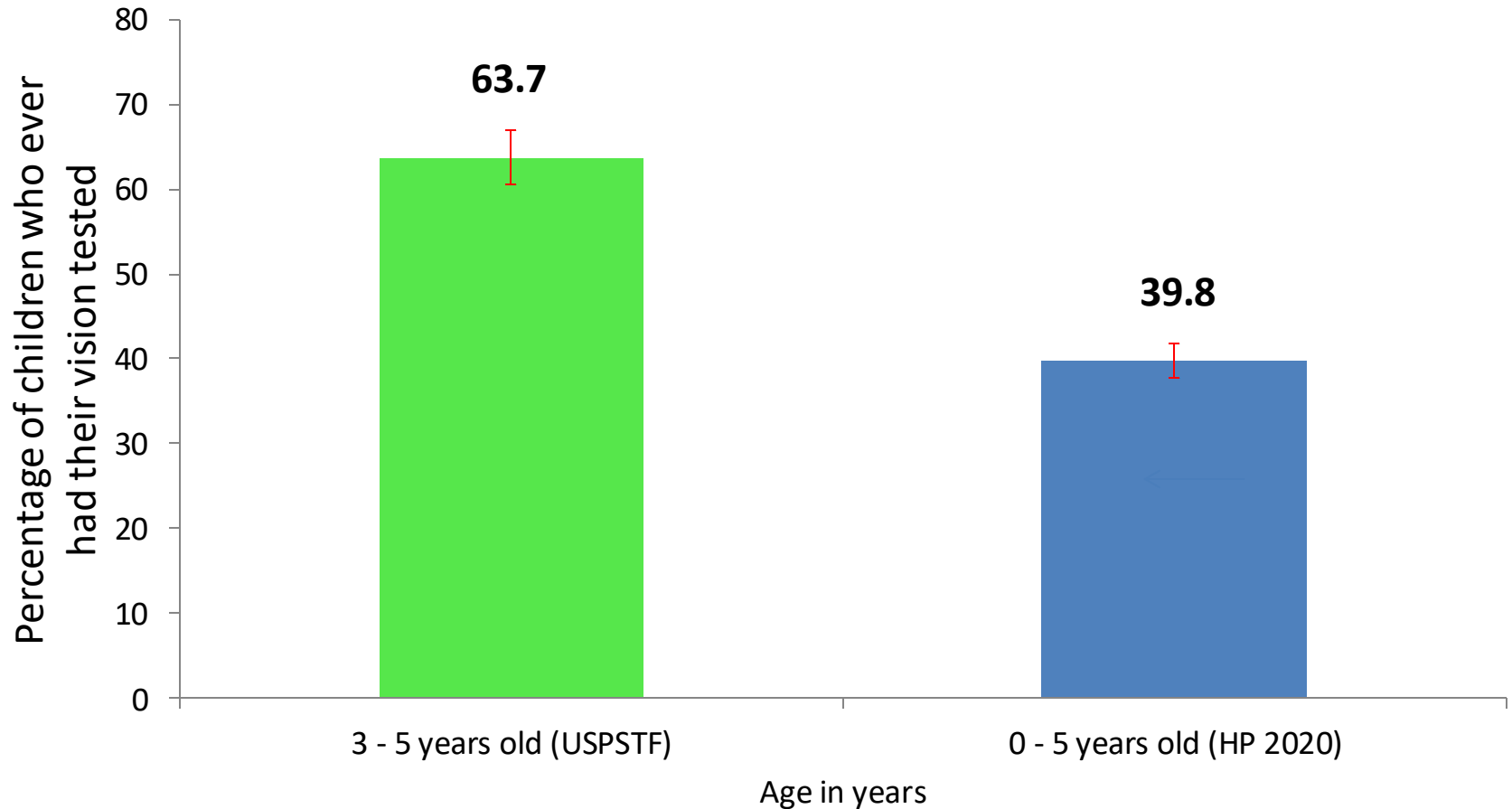
- Behavioral Risk Factor and Surveillance System (BRFSS) does not collect vision information on children (vision module)
- National Health and Nutrition Examination Survey (NHANES) periodically collects visual acuity data on children aged 12 – 17 years old
- Center for Medicare & Medicaid Services
 - Office of the Inspector General review of EPSDT data
 - Will hear about this report in this session
- Health Resources and Services Administration (HRSA), Uniform Data Systems – just lists “vision services” for community health centers, not crossed with patient age

Vision testing rates for 0 – 5 year olds: National Health Interview Survey, 2002, 2008



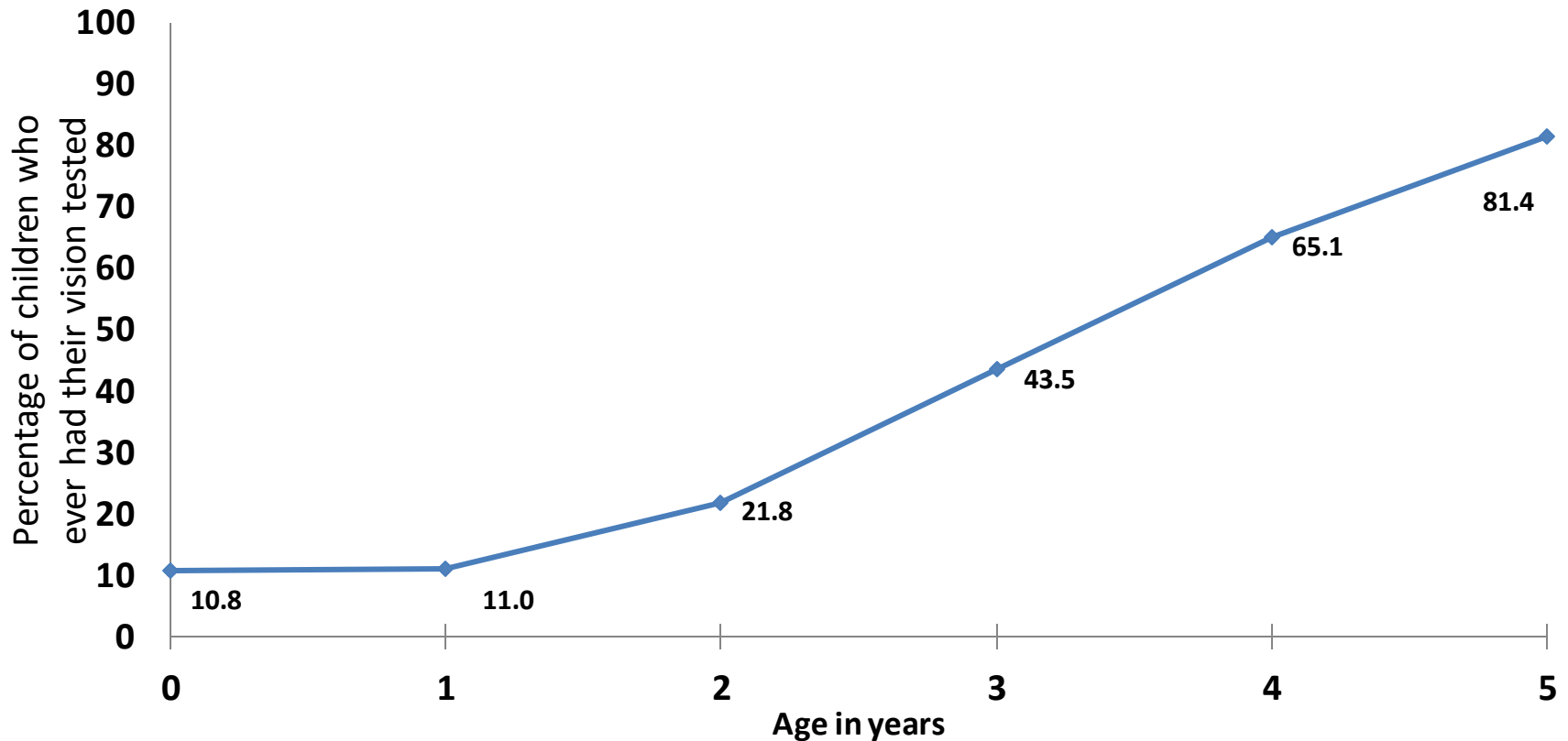
Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2002, 2008

Vision testing rates varied significantly by the child's age: National Survey of Children's Health, 2011-2012



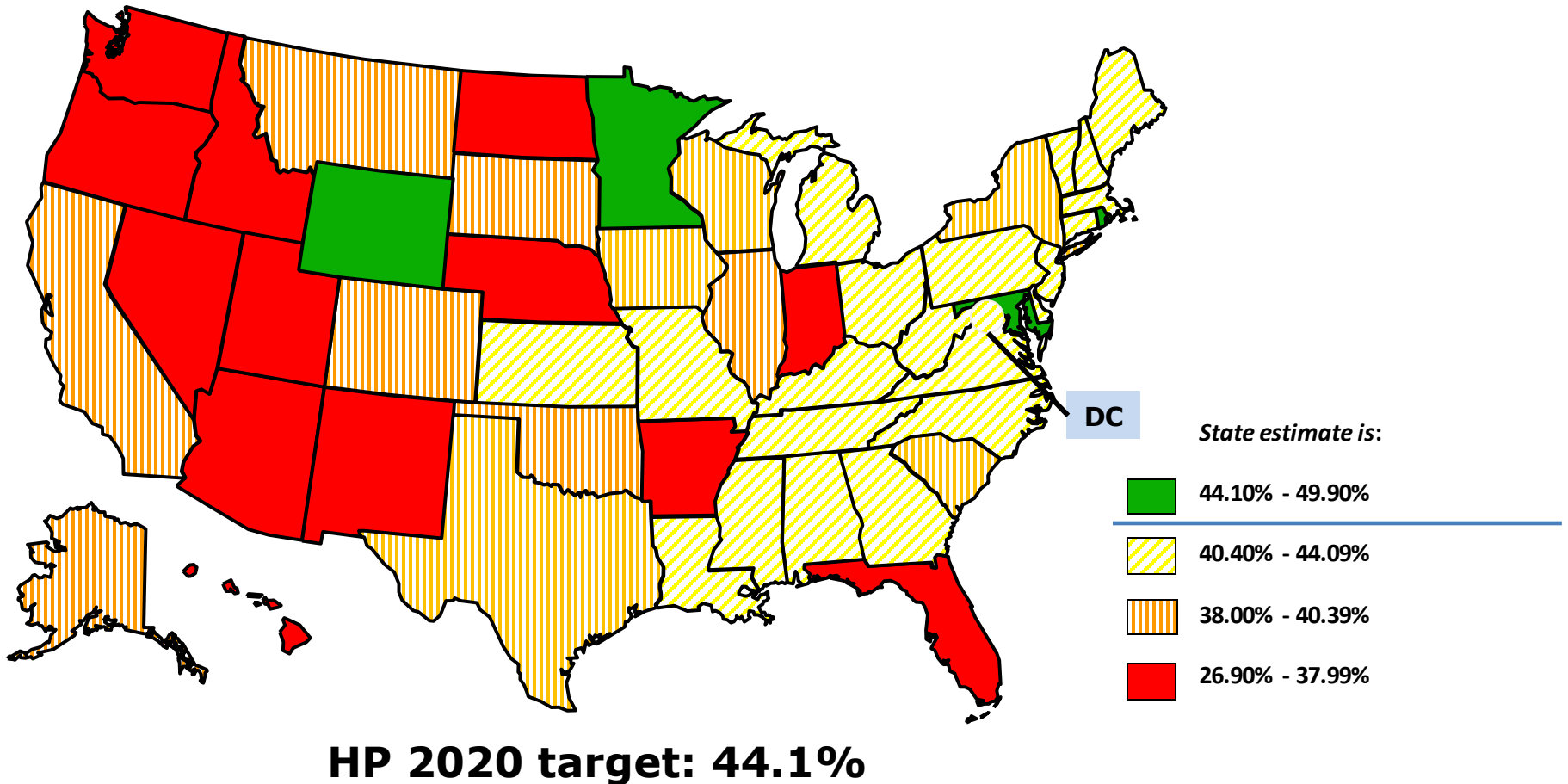
Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Survey of Children's Health (NSCH), 2011-2012

Percentage of children who ever had their vision tested with pictures, shapes, or letters by single year of age, US: 2011-2012



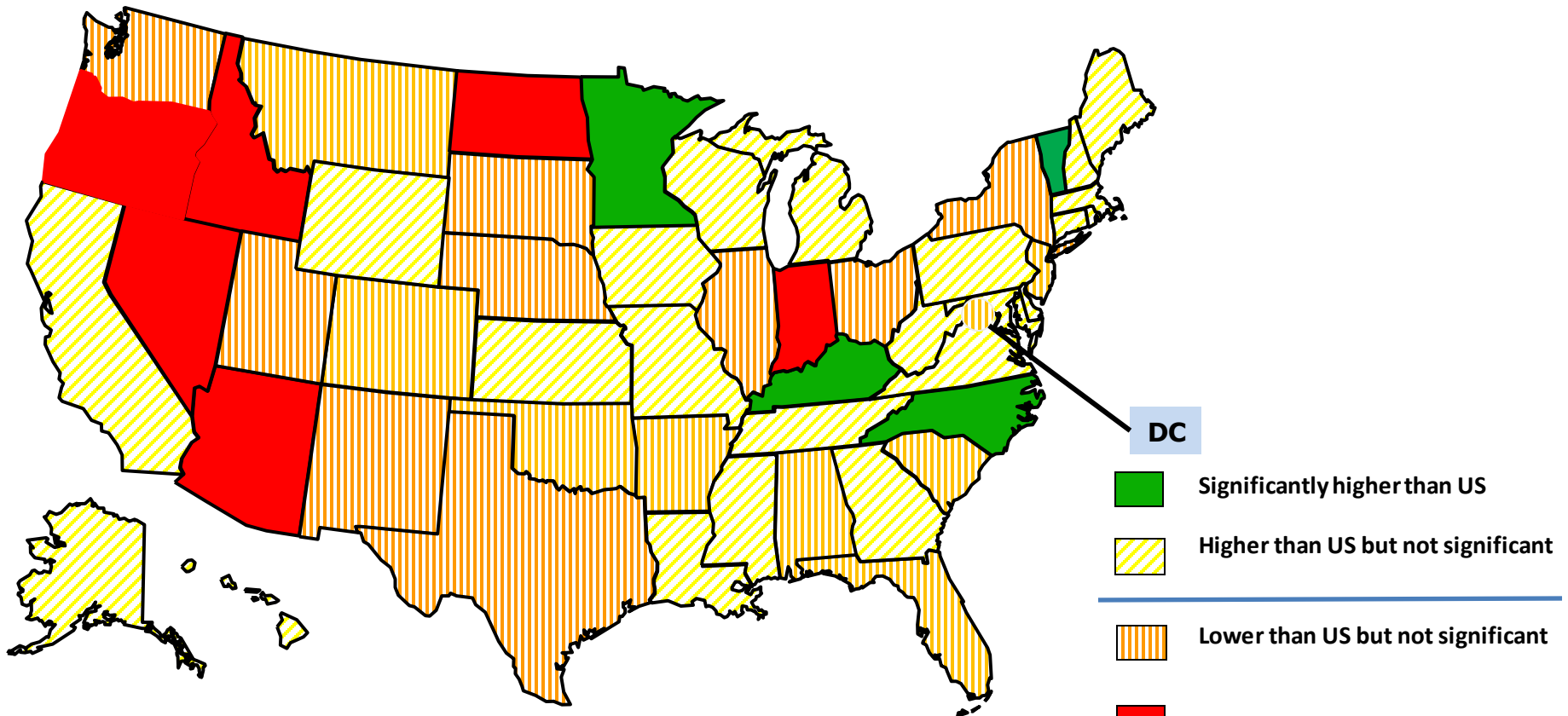
Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Survey of Children's Health (NSCH), 2011-2012

**Vision testing rates for 0 – 5 year olds in five states
differ significantly between that state estimate & the national HP 2020
target: Arizona, Idaho, Nebraska (lower)
Maryland, Minnesota (higher)**



Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Survey of Children's Health (NSCH), 2011-2012

Comparison of percentage point differences between state & US estimates for children aged 3 - 5 years who ever had their vision tested with pictures, shapes, or letters as of 2011-2012 (USPSTF)



US estimate: 63.7%

Statistical significance: $p < .05$
Higher percentage = Better

Selected issues

Quantitative & qualitative

Selected issues: Quantitative (1)

- Usually very limited, expensive real estate on surveys:
 - What can you ask in a few questions? One question?
 - Usually includes other health (non-vision) topics too
 - Rare groups with small cell sizes = problem
- Survey design and sample source
- Unit of analysis
- Mode of data collection
- Who collects the data (telephone interviewer vs researcher abstracting from a medical record)

Selected issues: Quantitative (2)

- Question wording and response options
- Placement of child vision questions in the instrument
- Definitions or help screen text provided?
- Periodicity of survey (vs. annual or continuous)
- May have multiple survey sponsors or funders that could influence content
- Open or closed-ended questions?
- Respondent for child health survey:
 - Most knowledgeable adult vs knowledgeable adult

Issues: Qualitative

- What do parents know about vision screening and testing? Do parents understand the difference? How do children describe vision problems?
- Do parents know children with vision problems might not have symptoms?
- Cultural issues & preferences
- How can we address the poor follow-up screening rates?
- Knowledge of community resources, to whom and where to go for testing
- Biases in reporting perceived vision loss

One example:

Question wording

- NHIS (for children < 6 YO only): “Has (child name) **ever** had (his/her) vision **tested** by a doctor or **other health professional**?”
- MEPS: “Has a doctor or **other health provider** **ever checked** (person)’s vision?”
- 2011-2012 NSCH: No mention of who provided the vision testing/checking

IF AGE < 5 YEARS, READ:

Has (child) **ever** had (his/her) vision **tested with pictures, shapes, or letters**?

IF AGE 5+ YEARS, READ:

During the **past 2 years**, that is, since (fill interview date minus 48 months), has (child) had (his/her) vision tested with pictures, shapes, or letters?

(Response options: Yes, no, don’t know, refused)

Gamechanger

Research on data & survey methods using both qualitative and quantitative methods to yield higher quality data and knowledge

Summary of selected expert panel recommendations

- Capture vision screening data as part of an integrated health information system (National Health Information Infrastructure)
- Implement uniform definitions as standard measures at national, state, and local levels

Hartmann EE, Block SS, Wallace DK, for the National Expert Panel to the National Center for Children's Vision and Eye Health. Vision and eye health in children 36 to < 72 months: Proposed data system. *Optom Vis Sci* 2015;92:24-30.

Marsh-Tootle WL, Russ SA, Repka MX, for the National Expert Panel to the National Center for Children's Vision and Eye Health. Vision and eye health in children 36 to < 72 months: Proposed data definitions. *Optom Vis Sci* 2015;92:17-23.

Conclusions

- Great challenges lie ahead but so do wonderful opportunities
- We all need to work together: Clinicians + survey methodologists + statisticians + analysts + researchers
 - Survey planning branches

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